Duchesne County General Plan

County Policies, Objectives, Action Steps
& Resource Management Plan

Spring 1997
(Amended Winter 1998, Winter 2005,
June 25, 2007, April 16, 2012, August 19, 2013
July 17, 2017 and October 22, 2018)

DUCHESNE COUNTY GENERAL PLAN

The 1997 Duchesne County General Plan was a partnership effort among Duchesne County, the Governor's Office of Planning and Budget and the Utah Association of Counties.

Special appreciation is given to the citizens of Duchesne County and the federal and state agency officials who served as members of the 1997 Citizen's General Plan Advisory Committee:

B. Curtis Dastrup, Commissioner
Larry S. Ross, Commissioner
John Swasey, Commissioner
Jack Wood, County Planning Staff
Gene Ostler, Project Contact
Georg Adams
Lloyd Austin
Joe Bistryski
Laurie Brummond
Judy Chambley
Bill Cobabe
Troy D. Cooper
Walt Donaldson
Marian Eason
Roger Eschler
Gail M. Fauci
William Fausett
Leon Fillingin
Dorrant Fisco
Richard Fisco
Zola Freston
Greg Garff
Herbert Gillespie
Scott Hagman
Irene Hansen
Jon Hardman
Phil Hicken
Keith Hooper
Ron Johnson
Richard Jones
Paul Keil
Joe Kemp
Edythe P. Larson
Rick Larson
Nick Lundstrom
Barbara Mathis
Mark Monsen
Keith Mortensen
Colene Nelson
Dale Nelson
Dona Rae Nelson
Jean Nitschke-Sinclear
Billie O'Dell
Rick Redmon
Rick Reynolds
Greg Richens
Alma Richins
Allan Smith
Art Taylor
Johny Thayne
Taylor Thayne
Laura Jo West
Anna Whitmore
Gerald Wilkerson
David Wilson
Bobbi Winterton
Don Winterton
Blaine Young
Metta Young

Contributors:
Duchesne County Planning Department
The Governor's Office of Planning & Budget
Utah Association of Counties
Duchesne County Conservation District
Bear West Company (1997)
Lunaria Consulting (1997)
John D. Barton
Uintah Basin Association of Governments
SWCA Environmental Consultants (2016)
Utah Public Lands Policy Coordination Office
Ashley National Forest
Vernal BLM Field Office

Planning Commission (2017 Update)
Bobby Drake
Kathy Giles
Allen Lindsay
Ken Moon
Ken Richens
Eddy Roberts
Brad Wells

Public Lands Committee (2017 Update)
John Barton
Jeff Crozier
Larry Defa
Irene Hansen
Jeff Henderson
Meagher McConkie
Ken Moon
Nate Robinson
Dex Winterton

TABLE OF CONTENTS

Introduction……..Page 6

Historical Background……..Page 7

Scope……....Page 9

General Plan Purpose & Process……Page 10

Using and Amending the Duchesne County General Plan……..Page 11

Value/Goal Statements: A Framework for Action……..Page 12

Maintaining the County's Rural Lifestyle and Character……..Page 12

Public Lands/Federal and State Agencies……Page 12

Tribal Relations……Page 13

Human and Community Services……....Page 13

Emergency Services/Law Enforcement……Page 14

Medical Facilities/Health Care……Page 14

Senior Citizen Services……Page 14

Education……Page 14

Economic Development……..Page 17

Housing……Page 18

Transportation……Page 21

Resource Management Plan……..Page 22

Section 1. Land Use……Page 23

Section 2. Energy, Mining & Mineral Resources……..Page 52

Section 3. Agriculture……Page 81

TABLE OF CONTENTS

Section 4. Livestock & Grazing……Page 89

Section 5. Wildlife……Page 101

Section 6. Forest Management…….Page 120

Section 7. Noxious Weeds……Page 153

Section 8. Predator Control……..Page 168

Section 9. Water Quality and Hydrology……..Page 172

Section 10. Water Rights…….Page 199

Section 11. Irrigation…….Page 202

Section 12. Ditches & Canals……..Page 206

Section 13. Flood Plains & River Terraces……...Page 207

Section 14. Wetlands…….Page 210

Section 15. Riparian Areas…….Page 214

Section 16. Fisheries……..Page 220

Section 17. Wild & Scenic Rivers…...……Page 229

Section 18. Recreation & Tourism…….Page 236

Section 19. Fire Management…….Page 249

Section 20. Land Access……Page 260

Section 21. Cultural, Historical, Geological and Paleontological Resources…….Page 265

Section 22. Threatened, endangered & sensitive species……Page 286

Section 23. Wilderness……..Page 306

Section 24. Law Enforcement……Page 320

TABLE OF CONTENTS

Section 25. Economic Considerations……..Page 323

Section 26. Air……Page 339

Section 27. Vegetation Management……Page 352

Section 28. Resource Management Plan for the Twin Knolls/Wrinkles Road Region of Duchesne County…….Page 359

Appendices

A. List of References/Literature Cited

B. List of Maps

C. List of Tables

D. Roadless Area Management

DUCHESNE COUNTY GENERAL PLAN

Introduction

The Duchesne County General Plan is an effort by the County and its citizens to address the present and future needs of Duchesne County. This Plan addresses specific issues identified by County residents as County priorities and outlines a series of strategies designed to accomplish County goals and objectives.

Utah State Statute provides for the development of county-level plans under Title 17-27a-401. Components which are required to be addressed within these plans include: land use, transportation, environmental issues, public services and facilities, rehabilitation and redevelopment, economic concerns, recommendations for plan implementation, and "any other elements that the county considers appropriate".

In 2015, the Utah Legislature amended Title 17-27a-401 to also require that county general plans include a “resource management plan” to provide a basis for communicating and coordinating with the federal government on land and resource management issues. The 2016 Utah Legislature amended the resource management planning requirements and extended the time for the county legislative body to approve the plan until August 1, 2017.

In its general plan, Duchesne County has focused not only on the statutory requirements, but on issues identified by County residents during public work sessions. These issues are addressed in the Plan through County "value/goal" statements. Issues identified as "County priorities" are further developed through "County Policy Statements" and "Action and Implementation Steps".

The purpose of the Duchesne County General Plan is two-fold. First, the County now possesses a single document that establishes the "guidelines" for other planning efforts within the County. It is anticipated that County planning efforts in the future will expand on the "values and objectives" identified in the County's General Plan. With respect to this purpose, County priorities and the issues facing the County will most likely change over time. For the document to function as a valuable decision-making tool, it should be reviewed and amended as necessary to address County issues and interests as they develop.

Second, the original planning process itself was a valuable learning experience for the citizens of Duchesne County. A diverse group of County residents and interests actively participated in all stages of the 1997 plan development including: issue identification, issue prioritization, objective identification and implementation strategy development. Additional citizen participation took place in the 2017 resource management planning process mentioned above. Through this process, County citizens have, as the intro line states, truly "planned for Duchesne County's future" including plans for private lands and public lands. The County's General Plan is the result of their combined expertise and experience. This experience will be invaluable as the County adopts and begins to implement this Plan.

Historical Background

In 1860 Brigham Young sent an exploratory party to the Uintah Basin to determine that region's potential for Mormon settlement. Upon their return they reported that the country was "entirely unsuitable for farming purposes…was one vast contiguity of waste, and measurably valueless, except for nomadic purposes . . . hunting ground for Indians, and to hold the rest of the world together." The area that they viewed and reported upon is presently located in Duchesne County. The region is vastly more valuable than this early report led settlers to believe. Today the County is home to approximately 20,000 people and is multi-varied in culture and economics. It boasts five incorporated communities and several unincorporated regions of habitation.

Duchesne County forms the western portion of the Uintah Basin. This is a unique region with a variety of notable geographic features including the Uinta Mountains that run west to east as opposed to the usual north to south pattern for mountains in the United States. Located in the central part of the Uinta Mountains is Kings Peak, the highest point in the state of Utah (13,528 feet).

Humans have occupied the Uintah Basin for many centuries. The first known and identified group in the region was the Fremont Indians. Rock paintings and archeological evidence of early Native American cultures are common. The rock art in Nine Mile Canyon represents some of the finest in the world. Every year, dozens of scholars and thousands of tourists travel to the area to study, photograph, and marvel.

The first historical record of the region comes from the Dominguez/Escalante Expedition who traversed the area in 1776. Records indicate that Escalante's party traveled up the Duchesne and Strawberry rivers, camping near the present-day locations of Myton and Duchesne City. Escalante recorded of the land seen that day; "There is good land along these three rivers that we crossed today, and plenty of it for farming with the aid of irrigation -- beautiful popular groves, fine pastures, timber and firewood not too far away, for three good settlements."

The next recorded entries of the Uintah Basin were from the mountain men and fur traders. As early as 1824, three different trapping expeditions led by William Huddard, Antoine Robidoux, and Etienne Provost, left Santa Fe to trap along the Green River. Another well-known trapper who entered the region at this time was William H. Ashley.

Although there is some uncertainty, it is most likely the name Duchesne was used by these mountain men to identify the major river of the area. Mother Rose Philippine Duchesne, a Catholic nun, came to St. Louis from France to work with the Indians of that region. Over the years she became highly respected for her work. Well known to several trappers and traders, including William Ashley and Antoine Robidoux, it is supposed that these individuals named the river in her honor. The name Duchesne was later used for Fort Duchesne, the town of Duchesne, and Duchesne County.

The next known fur traders to the region were Kentuckians William Reed, James Reed, and Denis Julien. In 1828, they established the Reed Trading Post on the junction of the Whiterocks and Uinta rivers. The Reed's enterprise was the first year-round non-Native American habitation and business in the Uintah Basin and Utah. Later purchased from the Reeds by Robidoux, the post and business was expanded. Employing an average of twenty trappers for the next twenty-two years, Robidoux dominated the Basin's fur trade from 1832 until 1844 when the fort was attacked and burned.

Prior to 1847, most of the non-Indians who came to the region did so to trap and trade with the Indians and then traveled on. The region's natives did not realize that what started as a pitiful few Mormon settlers and Colorado miners would eventually result in them being removed from the land they had lived on for generations.

In 1861 President Abraham Lincoln issued an executive order establishing the Uintah Indian Reservation. This order set aside the drainage of the then-named Uinta River, presently referred to as the Duchesne River, as the Uintah Reservation.

After a few years, the United States Government determined that a fort was needed to establish a military presence in the region. Fort Duchesne was completed in 1886. A supply route through Nine Mile Canyon to the railroad in Price was built in 1886 by the Buffalo Soldiers of the 9th Cavalry Regiment. This route was so heavily used that for twenty years it was aptly named the "Lifeline of the Uintah Basin." Millions of pounds of freight and thousands of travelers and settlers used the road between 1886 and the early 1900's.

At the turn of the century, Congress, acting in harmony with the then-popular Indian policy aimed at breaking up Indian reservations to give each individual Indian an allotment of land on which to sustain a livelihood; decided that the Ute reservation would be broken up and surplus lands opened to homesteading. Wanting to avoid the confusion that came with the earlier land-rushes of Oklahoma, a lottery system was adopted for the Uintah Basin's available acres.

With the opening of the Uintah Basin in 1905 to homesteading, thousands of hopeful settlers looked to former reservation lands for a new start in life. Over the next several years, hundreds of homesteaders claimed and settled on land located mostly in Duchesne County. Soon, several communities were established. In 1915, Duchesne County was formed from the eastern side of Wasatch County. Duchesne City was voted in as the County seat.

As the initial homesteading era drew to a close, the hard times associated with pioneering did not necessarily end. Close examination of the living conditions of early Duchesne County residents from 1915 to the end of the Depression show little improvement or significant change. In the summer of 1933, several government-based work assistance projects were started in the County. These programs included several CCC (Civilian Conservation Corps), PWA (Public Works Administration), and WPA (Works Projects Administration) projects. The most notable project was the construction of Moon Lake Dam. In general, the post-war era, known nationally as a period of economic growth, saw little improvement for County residents in the 1950's and 60's.

Not since the opening of the reservation to homesteading was there such a radical change in Duchesne County demographics as that which was triggered by the 1970's oil boom. Hundreds of workers flocked into a county that was not sufficiently prepared to handle them. Housing, schools, services, law enforcement, and every other entity in the County scrambled to meet the bulging new population. Seemingly overnight, hundreds of rigs were drilling around the clock, each with a several man crew, support crews and services. For the first time in the County's history, jobs were plentiful and wages were good. The number of new family-supporting jobs not only bolstered the local economy, but also enabled area youth to find local employment rather than leaving as they had done in earlier generations. Many people who had grown up in the area also moved back and took jobs. As the boom years evolved from drilling to oil field maintenance and trucking, more and more of these jobs were filled by Basin residents.

Throughout the West, "boom" cycles in extractive industries are often followed by "busts". Duchesne County's experience was no different. Their period of unprecedented growth and prosperity was followed by a bust in the oil-related job market. In a matter of years, County population fell from a high of 14,000 to under 12,000. Another boom lasted until the national recession of 2008. After that bust, another boom commenced in about 2011 and brought the county population over 20,000. This boom lasted until a dramatic drop in oil prices in early 2015. Climbing oil prices in early 2017 offer a glimmer of hope for the future of the energy industry in Duchesne County.

Today, extractive-use industries: livestock, timber, mining, and oil; remain the backbone of the region's economy. The County continues to encourage and support these industries, acknowledging that industry patterns, fluctuating markets, and changing political winds predict periodic good times followed by lean.

In an effort to stabilize drastic swings in the economy, the County has explored and promoted economic development and growth strategies that would diversify the County's economic base while maintaining the County's current lifestyle and character.

At present Duchesne County is growing and, with an eye to the future, trying to meet the challenges of a new century with planning and preparation. Although the County's population is small, it is hoped that residents' voices will be heard on issues such as control of the land and use of the resources within the region that they live. Vital concerns over water, public land and resource use, County/Tribal relations, economic growth and many other issues yet unresolved, will shape the history of the County in the next decades.

Scope

The area encompassed by this plan is the entire area of Duchesne County, approximately 2.1 million acres. Approximately seventy-two percent of this area is public land administered by federal and state agencies or is tribal land. The Bureau of Land Management's Vernal Field Office and the United States Department of Agriculture's Ashley National Forest are located at least partially within Duchesne County. State-owned public lands within the County are

managed by the State School and Institutional Trust Lands Administration, the State Office of Sovereign Lands and Forestry, the Utah Division of Wildlife Resources, and the Utah Division of State Parks. Due to the County's dependence on public land and the accompanying resources, it is extremely important that County input be considered by federal and state agencies and reflected in the resource management plans that are developed for these lands and resources. It is the intent of Duchesne County that this Plan clearly and concisely states County policies, issues and objectives and that this document will be used by the County and federal and state public land management agencies during public land planning efforts and decision-making processes.

General Plan Purpose and Process

The Governor's Office of Planning and Budget and the Utah Association of Counties recognize the need for adequate county-level land use planning. Under Utah state law, a general plan must address certain social, economic, and environmental issues. House Bill 323 passed in the 2015 Utah Legislative Session and House Bill 219 (2016 Utah Legislative Session), require that County general plans contain a resource management plan for public lands. The law also requires a minimum level of public participation as plans are prepared and considered for adoption.

The original Duchesne County General Plan process went beyond the required level of public participation to provide the citizens of the County with the opportunity to participate through a number of public meetings and as members of the citizen Plan Advisory Committee. Bear West, a consulting firm with expertise in county-leveling planning and public land use issues, assisted the County throughout initial plan development in the mid 1990’s. As the plan has been amended over the years, public hearings or public meetings have been held by the County Planning Commission, County Public Lands Committee and Board of Commissioners to allow public participation in the process.

An important aspect of the Duchesne County General Plan has been the involvement of local officials and various state and federal land management agencies. At the beginning of the original planning project, a citizen Plan Advisory Committee was formed. This committee represented a cross-section of Duchesne County interests and included local elected officials and representatives from federal and state land and resource management agencies. This committee's main responsibility was to work with the consultants throughout the plan development process.

The Duchesne County general plan project formally began in May of 1994 with a public workshop attended by over seventy people. This workshop served as the "scoping" meeting for the project and gave County residents their first opportunity to identify the issues, concerns, values, and opportunities that they felt should be addressed as part of the County's general plan.

Once the issues were recorded, workshop participants had the opportunity to indicate which issues they felt were County priorities. Priorities identified during the meeting included: maintaining the County's rural character and lifestyle, improving County participation in public land management issues, natural resource development, economic development, private land use

issues, human services (particularly education) and improving Tribal relations. A summary of these issues was prepared and reviewed by the Plan Advisory Committee. These topics became the focus of the plan development process.

During this time, the Ute Tribe General Planning Committee also conducted a survey of Tribal members to determine which issues they felt should be considered as part of Duchesne County's planning efforts.

Beginning in July 1994, the Plan Advisory Committee and consultants met monthly. During these work sessions, the Committee discussed each County "priority issue" in detail. The Committee worked to articulate County sentiments through "value/goal" statements, to refine County objectives, and to development policy "implementation strategies". Depending on the topic of discussion, members of the Committee or "topic experts" were invited to present background information and to assist the Committee in developing realistic and viable approaches.

The Plan Advisory Committee's recommendations were formally presented to the citizens of Duchesne County through this Plan. Each "priority issue" is presented in the following fashion: County Policy Statement, County Objectives, and Action/Implementation Strategies. As outlined in Utah State statute, these recommendations are the subject to Planning Commission and County Commission review through an open public hearing and adoption process.

Using and Amending the Duchesne County General Plan

It is intended that the General Plan will serve as a framework for Duchesne County as it considers future private and public land use decisions. The Plan is also designed to provide a policy foundation for the development of infrastructure and community and human services, as well as the pursuit of economic development opportunities.

To successfully implement specific portions of the General Plan, Duchesne County will need to take action beyond Plan adoption. Recommended actions are identified in the "Action/Implementation" sections following each County Objective or Policy.

While this plan, upon adoption, reflected the thoughtful direction of the citizens of Duchesne County in 1995, it is expected that the plan will be updated and revised as circumstances change and new challenges arise. The amendment process for the General Plan is defined by Utah statute, and follows the same requirements as the adoption process: hearings and action by the Planning Commission and County Commission with minimum 14 days notice by each body. Any interested person can propose an amendment at any time by filing an application with the Planning Commission.

The General Plan has been amended several times since initial adoption; in 1998, 2005, 2007, 2012, 2013 and 2017.

Value/Goal Statements: A Framework for Action

Maintaining the County's Rural Lifestyle and Character

Duchesne County residents enjoy the rural lifestyle and "small town" qualities of their County. The existing moral climate, low crime rates, community pride, and "neighborly" atmosphere are County characteristics residents desire to maintain and protect. The County will foster community and County pride through county-wide beautification and "take pride" campaigns. Two such programs are the Duchesne County Trailer Removal Program and the Junk Vehicle Contest. These programs, using funds generated by the Wasatch-Duchesne regional landfill, have resulted in the disposal of hundreds of abandoned mobile homes and thousands of junk vehicles since they began in 2005.

Duchesne County residents enjoy clean air and clean water and support County population growth and resource development as long as a "quality environment" can be maintained. County residents feel future growth and development decisions should consider the following issues:

a. Maintaining the current quantity and quality of public services and facilities through balancing growth and development (commercial, residential, industrial, and recreational) with facility/service capacity, e.g., water, sewer, waste disposal, transportation and roads, law enforcement, emergency services;

b. Ensuring that development decisions are sensitive to rural/agricultural interests; and

c. Maintaining zoning ordinances and development regulations consistent with the County's overall development preferences and objectives.

Public Lands/Federal and State Agencies

Over 44% of the land within Duchesne County is public land managed by the United States Forest Service and the Bureau of Land Management. Additional public lands and resources are managed by other federal agencies and the State of Utah. Decisions made by these agencies directly impact the County and its residents. For this and other reasons noted below, the resource management planning section was added to the general plan.

Due to Duchesne County's dependence on public lands and the accompanying resources, the County feels that all public land management agencies should actively solicit and adequately consider County input when making and implementing public land and resource management decisions. The County will encourage this interaction by participating in all public land management planning processes relevant to the welfare of the County and/or its residents. The County also anticipates agency participation in County planning efforts and activities.

The County also feels that public land and resource management decisions should be supported by accurate and adequate data. This data should include impacts to County residents, private

property rights, the local economy, the social structure of the County and the environment.

Specific County policy statements in respect to public land multiple-use, access, recreation and tourism, land classification, resource use and development, and wildlife management can be found in the Resource Management Plan section of this document.

Tribal Relations

Duchesne County recognizes the Ute Tribe as an important partner in county-wide planning efforts and development decisions. Cooperation between the Tribe and Duchesne County is necessary to adequately and effectively address Uintah Basin concerns and issues.

Historically, the relationship between the Tribe and Duchesne County has suffered due to issues with law enforcement jurisdiction, road access and other concerns. Mutual interests, such as water, transportation infrastructure, utility infrastructure, law enforcement jurisdiction, energy and mineral development, and wildlife management issues, are not being constructively discussed. Duchesne County wishes to have an open and positive dialogue with the tribe on issues of mutual interest. The County is also interested in forming working partnerships with the Tribe as mutually beneficial projects are identified. For example, coordination between the County and Tribe would be beneficial as the Tribe considers a new water code.

Policy: In an effort to foster better relations, the County will work toward gaining a better understanding of Bureau of Indian Affairs and Tribal policies and procedures.

Duchesne County Policy - Human and Community Services

Duchesne County recognizes the need to provide adequate services for its elderly, young, and disadvantaged resident populations. Existing programs within the County include a County hospital, food pantry, senior centers, and facilities for hospice care, memory care, rehabilitation and nursing care.

Policy: The County is committed to further addressing human and community service needs through encouraging self-sufficiency, personal responsibility, and family assistance. The County discourages making public assistance a way of life and views government assistance through human service programs as the last alternative.

Policy: The County will continue to support the Uintah Basin Association of Governments (UBAOG) in their efforts to provide adequate human and community services. The County will actively participate in the review of UBAOG's federally mandated "consolidated plan" and support UBAOG sponsored human and community capital facility projects as funding allows.

Policy: Duchesne County will assist the Uintah Basin Association of Governments, special interest groups, and/or private interests to prepare human/community service grant applications and identify possible funding sources.

Guideline: The County encourages residents to take an active interest in community-service projects and to participate in human and community service volunteer activities.

Objective: Continued County support for County and UBAOG sponsored human and community service programs.

Duchesne County residents desire to maintain and improve the current quantity and quality of public services and facilities through balancing growth and development with facility/service capacities.

Guideline: The County encourages private sector involvement to provide human and community services where applicable.

Emergency Services/Law Enforcement

Residents feel that Duchesne County is a safe place to live and raise their families. Considering the County's demographic and economic profiles, citizens feel that their law enforcement, fire protection, emergency response, and search-and-rescue personnel and agencies are well-prepared and trained. As a County, they feel that maintaining this level of preparedness is a necessity.

Policy: The County is dedicated to expanding services, personnel, and capital facilities in support of emergency services and law enforcement, according to County growth and needs.

Medical Facilities/Health Care

The Uintah Basin Medical Center (UBMC) maintains excellent medical facilities and provides the finest health care in the region. County residents desire to maintain this level of excellence and support expanding services and facilities to maintain and improve the quality of medical care available to County residents.

Senior Citizen Services

Duchesne County recognizes the need to provide adequate senior citizen care facilities and services, such as those offered at the Uintah Basin Rehabilitation and Senior Villa at UBMC. Expansion of recreational, educational, and medical services targeted for this sector of the population is encouraged by the County as doing so becomes feasible.

Education

Findings: The Economic Development Corporation of Utah has published a 2015 Economic Profile for Duchesne County. In this profile, educational attainment data is presented for Duchesne County residents 25 years old or older. The data shows that 2.4% of the population has a 9th Grade education, 12.8% have an education between the 9th and 12th Grades, 35.1% completed high school, 25.6% completed some college, 7.5% have an Associate's Degree, 10.9%

have a Bachelor's Degree and 5.7% have attended Graduate school.

The Utah System of Higher Education reports that 489 Duchesne County students were enrolled in post high school courses in the Fall of 2015. This was down from 549 enrollees in 2012.

Objective: Promoting quality educational opportunities for all residents is a top County priority.

Policies and Guidelines

The County supports Duchesne County School District, Utah State University, and the Uintah Basin Applied Technology Center (UBATC) efforts to improve and maintain the quality of education facilities, instruction materials, trained personnel (attracting and retaining quality/qualified teachers), and programs necessary to pursue this agenda.

Duchesne County recognizes the value and necessity of a solid public education system. Residents currently enjoy quality educational programs and receive additional benefits through Uintah Basin Applied Technology Center (UBATC) and Utah State University Uintah Basin Campus programs.

According to Utah State Office of Education data and statistics section, the Duchesne County School District had a fall 2015 enrollment of 5,076, which made it the 21st largest of the 42 school districts in Utah. Per-pupil expenditures in FY 2015 in the Duchesne County School District were $7,322, which ranked 22nd in the state and the Class of 2015 graduation rate was 84.2% (ranked 27th in the state). Duchesne ranked 16th in the pupil-teacher ratio (21.5 pupils per teacher) and 31.4% of the students qualified for school meal assistance (which was lower than 29 other districts).

The County encourages active public participation in the Duchesne School District's on-going strategic planning process and supports the District's efforts to retain quality teachers, provide on-going teacher training, improve classroom instruction, offer challenging courses, and increase vocational job training opportunities. The County and its taxpayers have recently supported construction of new school buildings in Altamont, Duchesne Roosevelt and Tabiona.

Duchesne County views the Uintah Basin Applied Technology Center (UBATC) and the Utah State University Uintah Basin Campus as valuable educational resources to the citizens of the Uintah Basin. Through their open access policy, these institutions offer students and the community higher education and vocation opportunities unsurpassed in a "rural" county.

Through County, School District, and community efforts; the following educational issues and objectives will be pursued.

Increasing Community Awareness

Objective: Assist the Duchesne School District and associated interests to improve the public's

understanding of educational issues.

Polices and Guidelines

The County supports the district's current practice of organizing citizen/teacher/administrator committees to address specific issues and feels that the County can provide valuable expertise and resources to these discussions.

The County also supports Parent/Teachers Association (PTA) activities and other programs that serve to inform the public on educational matters.

Increasing Community Involvement

Objective: Increase community involvement in public education activities and course development.

Polices and Guidelines

The County feels that the education of our young people should be a joint school and community effort.

The County supports the School District and educators in their efforts to increase community and parental involvement in student's lives through activities such as parent/teacher conferences, science fairs, and "back-to-school" nights.

The County also feels that the community at-large should become more involved in curriculum development.

The County feels that public school courses should include a balance of views and encourage an objective analysis of current issues facing the nation, the state, and the County. The County also feels that students should learn more about national, state, and local government functions and policies. Duchesne County will provide copies of County plans and ordinances to schools or individual teachers on request.

County and School District Partnerships

Objective: Continue Duchesne County and Duchesne School District partnerships.

Duchesne County and the Duchesne School District have many mutual interests. The County continues to show its support for educational activities by "partnering" with the School District on several projects.

Policy: The County will broaden this support by "partnering" with the School District to submit grant applications and share in matching funds allocations for mutually beneficial projects.

Proposals/projects will be evaluated on a case-by-case basis. The County's and School District's participation and role will be determined at that time.

Continued County Support for the Uintah Basin Applied Technology Center and the Utah State University Uintah Basin Campus

Duchesne County views the Uintah Basin Applied Technology Center (UBATC) and the Utah State University Uintah Basin Campus as valuable assets to the citizens of the County and northeast Utah. Through their open access policy, these institutions of higher learning offer students and the community higher education and vocation opportunities within the unique atmosphere of a "community college."

Policy: The County anticipates UBATC and USU playing major roles in the region's educational and economical future and will work closely with administrators, facility, staff, and alumni to accomplish these objectives.

Utah State University - Uintah Basin Campus

Objective: Continued County support for USU Extension programs.

The County feels that Utah State University, as a land-grant university, is a great educational and training resource for the area.

Policy: The County will assist, as necessary, to secure mineral lease monies for research and planning projects considered beneficial to the region, the County, and the institution.

Uintah Basin Applied Technology College (UBATC)

Objective: Continued County support of the Uintah Basin Applied Technology College. Currently, the Uintah Basin Applied Technology College is one of the best vocational training centers in the state. UBATC continues to provide a quality education at a cost significantly lower than other institutions of higher learning. As education costs continue to rise, and fewer students pursue a four-year degree, enrollment at UBATC will continue to grow.

Policy: The County encourages the State to allocate higher-education funds on the basis of program demand, cost to student, quality of programs offered, and utilization of facility resources by "non-traditional" students. The County will formally support UBATC's lobbying efforts as needed.

Economic Development

Objective: Diversify the economic base.

Duchesne County enjoys a strong economic base and employment profile. However, recent

reports show that a relatively small number of industries (especially the energy industry) generate the majority of economic returns.

Policy: In an effort to decrease "single industry dependence", the County will continue to support the economic diversification strategies of the Duchesne County Chamber of Commerce. These efforts include, but are not limited to, business retention and expansion, value-added agriculture, tourism and recreation.

County residents enjoy a quality of life unique in today's society. This lifestyle and rural environment also attracts businesses to the area. Residents and local leaders desire additional economic development, but feel that this growth should complement, rather than detract from the County's character. Residents feel that responsible natural resource use and development should be included as part of this priority.

Policy: The County will continue to work with the Tribe and federal and state agencies to identify mutually beneficial economic objectives. Partnerships with these entities will be formed when applicable and feasible.

Additional County policy statements in respect to business recruitment, retention, and expansion can be found in the Economic Development Policy, Objective, and Action Step section of this document.

Housing

Findings: The 2010 U.S. Census counted 9,493 housing units in Duchesne County, of which 6,003 were occupied and 3,490 were vacant. Of these vacant homes, the majority (2,803) were seasonal or recreational units, which are common in western Duchesne County. Of the vacant units, 107 were available for sale and 141 were available for rent. Of the 6,003 occupied units, 4,648 (77.4%) were owner-occupied. The remaining 1,355 units (22.6%) were renter-occupied. According to the Profile of Demographics, Duchesne County, Utah," Headwaters Economics Economic Profile System (EPS), in 2014, the number of housing units increased to 9,634, of which 6,738 were occupied and 2,896 were vacant. Of the vacant units, 2,191 were considered seasonal or recreational units.

The housing stock is newer than the nationwide average, with 15.1% of the homes in the County having been constructed before 1960 as compared to 29.5% nationwide. The 1970's saw 20.3% of the housing stock constructed and the period between 2000 and 2004 was also busy, with 26.5% of the County housing stock constructed. Housing construction in Duchesne County tends to follow the fluctuations in the energy industry.

Housing costs are lower in Duchesne County when compared to the nation. The median monthly mortgage cost in 2014 was $1,202 in the County compared to the national median of $1,522. The median monthly gross rent in 2014 was $803 in the County compared to the national median of $920. Lower housing costs in the County resulted in only 25.2% of County owner-occupied

households were paying more than 30% of their income on mortgage costs, as compared to 34% nationwide. The Fiscal Year 2016 Annual Report from the Utah State Tax Commission indicates that the average residential property tax in Duchesne County was $1,386, which was ranked 14th out of the 29 Utah counties. This relatively low property tax burden adds to the affordability of housing in Duchesne County.

For renter-occupied units, 38.3% of County households were paying more than 30% of their income on rent compared to 48.3% nationally.

In January, 2017, the Utah Department of Workforce Services and the Utah Housing and Community Development Division published the *State of Utah Affordable Housing Assessment and Plan, 2016.* This publication shows that housing is very affordable in Duchesne County, compared to other counties in Utah. There are 1,670 renter households in the county containing 4,460 persons. The median rent of $803 per month is 25.6% of the median income of $3,131 per month. When housing costs fall below the 30% threshold, they are considered affordable. Duchesne is one of only four counties in the state (the others being Uintah, San Juan and Emery) where the mean renter hourly wage is more than sufficient to afford a two-bedroom apartment at fair market rent. Specifically, in Duchesne County, the mean renter hourly wage is $15.47, while a wage of $14.54 is required to afford the fair market rent apartment (see Figures 4, 5, 13, 14 and 15 of the state study).

Objective: Develop partnerships with cities, towns and the Uintah Basin Association of Governments to address housing issues and implement appropriate strategies.

Housing Policies:

Duchesne County understands the relationship between sustained economic growth and housing availability and supports community housing plans that provide adequate and affordable housing opportunities and encourage residential development patterns that are compatible with the existing agricultural lifestyle and small-town atmosphere of the County.

The County supports community and private efforts to construct affordable housing units to the extent that these projects are compatible with existing subdivision development patterns.

The County supports the various housing assistance programs offered by the Uintah Basin Association of Governments, such as the Self Help Acquisition Rehabilitation Program, the Mutual Self Help Housing construction program, the Rental Assistance Program, the Homelessness Prevention Program, the One Time 50% Match Program and the Temporary Assistance for Needy Families Rapid Re-housing Program.

The County supports continued use of Community Development Block Grant and USDA Rural Development funds by the Uintah Basin Association of Governments to offer housing rehabilitation assistance to low-moderate income individuals and families in the County.

The county supports efforts of local utility service providers to extend their facilities to serve housing and other land uses as demand warrants and as economically feasible.

State Code Section 17-27-307 requires all County General Plans to include a housing element. The County's housing element was adopted as part of the County's General Plan by reference via Resolution #00-06 passed by the County Commission on March 27, 2000. This resolution adopted an "affordable housing plan" that included the following:

Affordable Housing Policies

A. Duchesne County perceives its role in supporting affordable housing as:

   1. Enabling the provision of at least enough equitable and affordable housing to accommodate Duchesne County's indigenous low to moderate income population.

   2. Reviewing existing ordinances, as opportunity or need arises, to eliminate inappropriate or excessive requirements that may post barriers to affordable housing within the county.

   3. Avoiding new regulations or ordinances that inappropriately or excessively burden prospective new home owners or home builders.

   4. Utilizing to the fullest extent possible, available federal and state funded housing rehabilitation and replacement programs including the Community Development Block Grant and HOME programs operated under the Uintah Basin Association of Governments.

B. The county commission will adopt amendments to its General Plan only after they have been reviewed for any possible barriers to equitable and affordable housing that they may create.

C. As time and opportunity arise, the Commission will review its General Plan for regulations affecting construction, annexation or subdivision which may give rise to inappropriate barriers to equitable and affordable housing. Appropriate adjustments will be made as necessary but at all times such adjustments in ordinance structure shall;

   1. Consider the financial capability of the County.

   2. Consider the infrastructure implications (e.g., capacities, demands, location, costs) of all proposed new construction or reconstruction and, within this context, consider the implications of new construction or reconstruction on utility rates and tax assessment levels of existing residents.

Implementation Guidelines

Coordinate planning activities with individual communities in an effort to meet the varied housing needs of each area.

Encourage residential development to occur within the incorporated cities and towns and town sites in order to maintain our agricultural lifestyle.

Offer and participate in training seminars on planning, zoning, and community development. Residential development within the unincorporated portion of the County must comply with the County Subdivision and Zoning Ordinances.

Action Implementation Steps

Develop housing strategies and determine criteria for development in the unincorporated areas of the County.

Encourage growth and design consistent with maintaining an agricultural atmosphere.

Transportation

Section 17-27a-403 (2) requires that the County adopt a transportation and traffic circulation element in its general plan. A draft transportation master plan has been prepared for the County by Jones & DeMille Engineering; however, the plan is currently in draft form and will be adopted by the County after further review, public comment and public hearings. The Transportation Master Plan will be a stand-alone document supplementing this general plan.

Duchesne County Resource Management Plan Findings, Objectives, Policies and Guidelines

Section 1. Land Use

Private Lands. The use of private lands is regulated by the Duchesne County zoning ordinance. The zoning map adopted by this ordinance, as amended from time to time constitutes the official land use map for the county. County zoning does not apply to state, federal or tribal lands.

Residential Development Trends. Residential development in the county can be categorized by average residential lot size.

- Urban/Suburban: Average residential lot size < 1.7 acres.
- Exurban: Average residential lot size 1.70–40.0 acres.
- Total Residential: Cumulative acres of land developed at urban/suburban and exurban densities.

The total acreage of private lands by type and percentages of private land developed for residential use in Duchesne County is shown in Table LU1.

Table LU1. Acres of Private Lands by Type and Percentages of Private Land Developed for Residential Use in Duchesne County

Land Type	Duchesne County
Total Private Land (acres)	597,004
Total residential, 2000	21,604
Urban/suburban, 2000	1,641
Exurban, 2000	19,963
Total residential, 2010	49,081
Urban/suburban, 2010	2,228
Exurban, 2010	46,853
Percentage change in total residential	127.2%
Total Private Land Developed for Residential Use (%)	
Total residential, 2000	3.6%
Urban/suburban, 2000	0.3%
Exurban, 2000	3.3%
Total residential, 2010	8.2%
Urban/suburban, 2010	0.4%
Exurban, 2010	7.8%

Source: EPS (2016).

Objective: Duchesne County feels that residential, commercial, and industrial development on private land should be allowed to continue in a responsible manner and in locations that contribute to the economic and social well-being of County residents.

Policy: The County will continually review and amend its existing ordinances as necessary to accurately and adequately reflect the land-use preferences of Duchesne County residents.

Policy: Under direction of the County Commissioners, the County Planning Commission will address the following issues and propose the appropriate revisions and amendments to the existing County land-use ordinances and regulations:

a. A County/community/Tribal agreement to notify and discuss impacts of Tribal and private land use development decisions,

b. Adequate protection of private property rights during the implementation of the CUP Completion Act,

c. Land use and amendments to the zoning map,

d. Implementing "pay your own way" cost-recovery strategies to help offset County-incurred service provision costs related to new development.

Duchesne County recognizes that land use decisions made by the County impact county communities and the Tribe. Likewise, the decisions made by these entities impact the County. The County proposes that an agreement be drafted to require notification of planning decisions made by each entity and to provide an opportunity for comments. The intent of this agreement is to coordinate planning efforts in a proactive, cooperative manner. Through a county-wide effort, land-use priorities and decisions of the Tribe, communities, and the County will complement rather than contradict each other.

Policy: Duchesne County supports better cooperation between the County, the Tribe, and communities in land-use and development plans.

Policy: Encourage approval of a County/Tribal agreement requiring notification of each entity of proposed Tribal and private land use development decisions.

Objective: Duchesne County has identified the need to improve communication and coordination among planning entities and service providers. A specific example identified is the lack of coordination between agricultural water users and municipalities in respect to current use and future demand/availability.

Policy: Duchesne County will encourage and maintain improved cooperation and coordination between planning entities and service providers.

Policy: The County encourages developing an open forum wherein municipalities and service providers can discuss ways to address future growth and service availability issues.

Estimates from the U.S. Census Bureau show that the Duchesne County population grew at a rate of 9.1% from 2010 to 2013 as about 1,700 new residents were added during that time period. The 2016 Economic Report to the Governor found that the Duchesne County population grew at a rate of 1.4% between 2013 and 2014, with the population of the county estimated to be 20,380 by July 1, 2014. The U.S. Census Bureau statistics show an estimated county population of 20,862 as of July 1, 2015 and a slight drop to 20,337 as of July 1, 2016.

The County supports orderly and responsible residential, commercial, industrial, and recreational growth and feels that there are areas within the County suited to accommodate these types of development. However, the County is concerned about its ability to provide an adequate level of service as growth in the unincorporated areas of the County continues. Land use changes and development can stress the services and infrastructure provided by county government and local municipalities. It is the County's position that new development should be required to pay its own way.

Objective: The County Planning Commission will identify cost recovery options and recommend revisions to the existing land use ordinances.

Policy: The County will develop, adopt, and implement the cost-recovery strategies necessary to cover the costs of providing services to new development.

Land use patterns have a considerable influence on the amount of energy needed to move from residences to jobs, services, shopping or recreation.

Policy: Duchesne County, through its zoning ordinance, encourages a mixture of land uses which helps shorten commuter trips, reduces vehicle miles traveled (VMT), encourages walking and biking and reduces energy consumption.

Private Property Rights Policies

It is the policy of Duchesne County, consistent with Section 63J-8-104 (j) of the Utah Code, that federal land agencies shall manage lands under their jurisdiction so as to not interfere with the property rights of private landowners as follows:

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

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

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

Public Lands

Findings

Information in this section is extracted from the Profile of Land Use, found in the Headwaters Economics Economic Profile System (EPS 2016). Headwaters Economics is an independent, nonprofit research group. EPS uses published statistics from federal data sources, including Bureau of Economic Analysis and Bureau of the Census, U.S. Department of Commerce, Bureau of Labor Statistics, and U.S. Department of Labor.

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

More than half of Duchesne County consists of public lands managed by federal or state agencies (See Table LU2 below and Map #1). These lands and their resources cannot be separated from the culture, quality of life and economic well-being of Duchesne County. The oil and gas, agriculture, and recreation and tourism industries are the lifeblood of Duchesne County and each requires access to public lands.

A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 33) that 81.7% of residents surveyed in the Daggett-Duchesne-Uintah County region somewhat agree (24.6%) or strongly agree (57.1%) that Utah's public lands are an important part of the culture and heritage of their communities.

Utah Department of Workforce Services 2013 data indicated that mining provided 2,269 (24.5%) of the 9,269 nonagricultural jobs in Duchesne County and the leisure and hospitality industry provided 449 jobs. These two industries generated over $171 million in annual payroll in the county at that time. However, due to a decline in the energy industry, the Utah Department of Workforce Services counted only 7,485 non-farm jobs in the county in February 2017, with the number of mining jobs declining to 1,519 by September 2016. The number of leisure and hospitality industry jobs has dropped slightly to 432 by September 2016.

The 2012 Census of Agriculture counted 1,058 farms in Duchesne County, with 375 of those providing the sole occupation for the owner. Duchesne County's acreage of farmland dropped

from 1,328,307 acres in 2002 to 1,088,559 acres in 2012. However, the market value of farm products sold in Duchesne County was over $57 million according to the 2012 census.

Given the economic data above, Duchesne County must exercise its right to participate in the planning and decision-making processes associated with public lands to the extent allowed by law. Historically, federal and state land management agencies have made a good effort to invite the County to participate in projects as a Cooperating Agency.

Table LU2. Acres & Percentages of Land Ownership of Duchesne County

Private lands	597,004	(28.9%)
Conservation easement	15,288	(0.7%)
Federal lands	926,679	(44.8%)
USFS	716,702	(34.6%)
BLM	209,977	(10.2%)
NPS	0	(0%)
Other federal	0	(0%)
State lands	148,968	(7.2%)
State Trust lands	55,051	(2.7%)
Other State	93,917	(4.5%)
Tribal lands	395,857	(19.1%)
Total Area	2,068,508	

In each county, the Headwaters Economics Economic Profile System (EPS) categorizes federal lands as Type A, B, and C to more easily distinguish lands according to primary or common uses and/or conservation functions, activities, permitted uses, and whether they have a special designation (EPS 2016). The three land types are defined as follows:

- Type A: National Parks and Preserves (NPS), wilderness (NPS, U.S. Fish and Wildlife Service [USFWS], USFS, BLM), National Conservation Areas (BLM), National Monuments (NPS, USFS, BLM), National Recreation Areas (NPS, USFS, BLM), National Wild and Scenic Rivers (NPS, USFS, BLM), Waterfowl Production Areas (USFWS), Wildlife Management Areas (USFWS), Research Natural Areas (USFS, BLM), Areas of Critical Environmental Concern (ACECs) (BLM), and National Wildlife Refuges (USFWS). Type A lands tend to have more managerial and commercial use restrictions than Type C lands.

- Type B: Wilderness Study Areas (NPS, USFWS, USFS, BLM), Inventoried Roadless Areas (USFS).

- Type C: Public Domain Lands (BLM), O&C Lands (BLM), National Forests and Grasslands (USFS). Type C lands generally have no special designations and may allow a wider range of uses.

Type A, B, and C federal lands in Duchesne County by acres and percentages are presented in Table LU3.

Table LU3. Acres and Percentages of Type A, B, and C Federal Lands in Duchesne County

Land Type	Duchesne County
Type A	328,817 (35.4%)
Type B	361,238 (38.9%)
Type C	237,784 (25.6%)
Total Federal Area	**927,839**

Source: EPS (2016).

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

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

This policy document has been developed to protect the interests of Duchesne County, the State of Utah, and the nation. It is designed to ensure the spirit and intent of the laws, regulations, and policies that govern and manage public lands. This policy document also provides the basis for federal and state consistency analysis.

This policy document and subsequent implementation plans are to be followed unless inconsistent with any statute or duly promulgated regulation. Should any part of this policy document or implementation plan be found inconsistent with such statute or regulation, or found by a court with competent jurisdiction to be void, unenforceable, or invalid, the remaining

provision or parts shall nevertheless remain in full force and effect. For the purpose of this policy, all reference to analysis means NEPA analysis, unless otherwise specified.

Local governments and citizens are often the "closest to the ground" and have the best understanding of how land use practices of federal agencies will affect local communities. The BLM, in mid-December 2016, revised the agency's planning regulations for developing resource management plans. The revised regulations are referred to by BLM as Planning 2.0. BLM's Planning 2.0 regulations would negatively affect Duchesne County by encouraging the agency to move away from multiple-use sustained-yield management principles to planning that focuses on ecological metrics and landscapes as opposed to commonly used administrative boundaries. Lawsuits were filed against the Planning 2.0 rule shortly after it was finalized and the rule was repealed by Congress in March 2017.

Section 102(a) of the Federal Land Policy and Management Act of 1976 (FLPMA) requires that all public lands be retained in federal ownership unless it is determined that disposal of a particular parcel will serve the national interest. Furthermore, Section 203(a) of FLPMA provides for the sale of public lands if one of the following criteria is met: 1) the tract is difficult and uneconomic to manage as part of the public lands and is not suitable for management by another federal agency; 2) such tract was acquired for a specific purpose and the tract is no longer required for that or any other federal purpose; or 3) disposal of such tract will serve important public objectives, including expansion of communities and economic development that cannot be achieved prudently or feasibly on land other than public land.

The *Bureau of Land Management Vernal Field Office Record of Decision and Approved Resource Management Plan* (BLM Vernal ROD/RMP) identifies 33,359 acres of land for potential federal disposal (of which 3,258 acres are in Duchesne County). The BLM has identified 42,550 acres of land for potential federal acquisition (of which 3,729 acres are in Duchesne County). See Map #2 for the location of these lands.

Objectives

The following objectives will guide the development of implementation measures to be used under this section and are a guide for public land managers during consistency review, planning and management processes. If the provisions of this policy document are germane to a proposal involving public lands planning by a state or federal agency, such agency shall consider the contents of this policy document in the decision-making process along with advice offered by Duchesne County during the process.

The County's objectives are:

1. Avoid loss of private lands within the county boundaries as measured by acreage and fair market value.

2. Encourage disposal of federal lands to support community growth and community needs.

3. Improve communication and coordination among various federal, state, tribal, and local land use authorities.

4. Minimize impacts of development and land use changes on local governments, infrastructure, and community services.

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

6. Discourage or eliminate land use restrictions or special designations that restrict economic growth and activity, especially on federal lands.

7. Promote land uses on federal lands consistent with the principles of multiple use and sustained yield as directed by the FLPMA and the Multiple Use and Sustained Yield Act of 1960 as amended by the Omnibus Parks and Public Lands Management Act of 1996.

Policies

1. Federal and state governments currently hold sufficient land to protect the public interest.

2. Federal lands shall be available for disposal when lands are difficult to manage or consist of isolated tracts, when such disposal meets the important public objective of community expansion or economic development, or when the disposal would serve the public interest.

3. The county should be consulted on any federal land acquisition or disposal actions located within the borders of, or in close proximity to, the county.

4. Lands must be made available for disposal under the Recreation and Public Purposes Act of 1954 and in resource management plans and upon request by an appropriate entity in accordance with the act.

5. The county shall encourage and participate in coordination and communication among various federal, state, tribal, and local land management authorities. Where appropriate, the county will enter into a reciprocal agreement to require notification of planning decisions made by each entity and to provide an opportunity for comments.

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

7. Multiple use and sustained yield management means that state and federal agencies shall develop and implement management plans and make other resource-use decisions which facilitate land and natural resources use allocation which would support the specific plans, programs, processes, and policies of state agencies and local governments. Such management plans shall be designed to produce and provide the watersheds, food, fiber, and minerals necessary to meet future economic growth needs and community expansion. Such plans shall meet the recreational needs of the citizens of Duchesne County and the state without permanent impairment of the productivity of the land.

8. In support of the national interest in energy independence and in consideration of the nation's dependence on foreign oil, it is important that public lands remain open for oil and gas exploration and production.

9. The County recognizes that federal agencies are mandated to manage public lands according to federal laws, policies, and regulations established within the framework of the U. S. Constitution, including**,** but not limited to the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Clean Water Act (CWA), the Federal Land Policy and Management Act (FLPMA), the National Forest Management Act (NFMA), the Wilderness Act, the Utah Wilderness Act and the Wild and Scenic Rivers Act.

10. The Secretary of Interior, under FLPMA, is required to ensure that federal land use plans are consistent with state and local plans to the maximum extent possible (provided the Secretary finds such plans to be consistent with federal law and the purposes of the act). Under NEPA, federal agencies are required to integrate environmental impact statements into state or local planning processes. Such statements shall discuss any inconsistency of a proposed action with approved state or local plans or laws (whether or not federally sanctioned). Where an inconsistency exists, the statement should describe the extent to which the federal agency would reconcile its proposed action with the plan or law.

11. Counties have the right to be involved in public lands planning before the general public has the opportunity to be involved and before a preferred alternative is selected. Counties may request that monitoring occur to determine the effects that land and resource management plans have on the local economy. Counties are allowed to define what constitutes "community or economic stability."

Sections 63J-8-103 and 63J-8-104 of the Utah Code define state participation in managing public lands and require consistency between federal and state plans as follows:

> Section 63J-8-103: "In view of the requirement in FLPMA, 43 U.S.C. Sec. 1712, that BLM must work through a planning process that is coordinated with other federal, state, and local planning efforts before making decisions about the present and future uses of public lands, the requirement in FLPMA, 43 U.S.C. Sec. 1714 that BLM may not withdraw or otherwise designate BLM lands for specific purposes without congressional

approval, and the requirement in the Forest Service Multiple-Use Sustained Yield Act of 1960, 16 U.S.C. Sec. 528, that lands within the national forests be managed according to the principles of multiple use, and in view of the right which FLPMA, the National Environmental Policy Act, 42 U.S.C. Sec. 4321 et seq. and the Federal Advisory Committee Act, 5 U.S.C. Appendix 2, give to state and local governments to participate in all BLM and Forest Service efforts to plan for the responsible use of BLM and Forest Service lands and the requirement that BLM and the Forest Service coordinate planning efforts with those of state and local government, the state [and Duchesne County] adopts the following policy for the management of the subject lands:

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

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

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

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

5. The BLM and the Forest Service should make plans for the use of the subject lands and resources subject to their management pursuant to statutorily authorized processes, with due regard for the provisions of the National Environmental Policy Act, by:

    a. Recognizing that the duly adopted Resource Management Plan or Forest Service equivalent is the fundamental planning document, which may be revised or amended from time to time;

b. Avoiding and eliminating any form of guidance or policy that has the effect of prescreening, segregating, or imposing any form of management requirements upon any of the subject lands and resources prior to any of the planning processes subject to Subsection (5)(a); and

c. Avoiding and eliminating all forms of planning that parallel or duplicate the planning processes subject to Subsection (5)(a)."

Section 63J-8-104: "The BLM and Forest Service land use plans should produce planning documents consistent with state and local land use plans to the maximum extent consistent with federal law and FLPMA's purposes, by incorporating the state's land use planning and management program for the subject lands that preserve traditional multiple use and sustained yield management on the subject lands to:

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

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

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

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

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

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

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

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

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

Duchesne County incorporates the above sections of the Utah Code into the county resource management plan and it is County policy that federal land management agencies are to comply with Utah law to the greatest extent possible, as required by FLPMA, as they manage federal land in Utah.

Multiple Use and Sustained Yield

Multiple Use and Sustained Yield, in terms of the national forests, is defined as follows:

Section 4 [16 U.S.C. 531] (a) "Multiple use'' means: The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

Section 4 [16 U.S.C. 531] (b) ''Sustained yield of the several products and services'' means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.

Policy: It is the policy of Duchesne County that:

1. The citizens of the County are best served by applying multiple-use and sustained-yield principles in public land use planning and management; and

2. Multiple-use and sustained-yield management means that federal agencies should develop and implement management plans and make other resource-use decisions that:

    a. Achieve and maintain in perpetuity a high-level annual or regular periodic output of mineral and various renewable resources from public lands;

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

    c. Support the specific plans, programs, processes, and policies of state agencies and local governments;

    d. Are designed to produce and provide the desired vegetation for the watersheds, timber, food, fiber, livestock forage, and wildlife forage, and minerals that are necessary to meet present needs and future economic growth and community

expansion without permanent impairment of the productivity of the land;

e. Meet the recreational needs and the personal and business-related transportation needs of the citizens of the state by providing access throughout the state;

f. Meet the recreational needs of the citizens of the state;

g. Meet the needs of wildlife;

h. Provide for the preservation of cultural resources, both historical and archaeological;

i. Meet the needs of economic development;

j. Meet the needs of community development; and

k. Provide for the protection of water rights and water quality.

3. All plans and management decisions must ensure that special designations do not influence the use of resources on lands not listed. The County opposes the use of a buffer zone management philosophy that dictates land use practices and influences decisions beyond the scope and boundaries of the designations. The County also opposes the imposition of Areas of Critical Environmental Concern (ACEC), National Conservation Areas or Visual Resource Management (VRM) classifications as substitutes for former Wilderness Inventory Units or Citizens' Proposed Wilderness Units, or as a means to displace valid surface occupying multiple use activities. ACEC and VRM classifications are improper management tools unless narrowly drawn and tailored, both geographically and programmatically, to effect only those restrictions which are actually necessary to prevent irreparable damage to valid and relevant resource values. Imposing VRM classifications that result in the prohibition of valid surface occupying or surface disturbing activities is an improper use of the VRM tool, which contradicts this County policy.

4. Restrictions placed on any resource must be based on trend analysis or other analysis applicable to the resource and only imposed after a complete analysis.

5. Lands designated open for specific uses should be available on a timely basis. If such use is not covered in a resource management plan, then it will be analyzed in a separate document or by amendment to the RMP. Extended delays or no action will not be used as a method to accomplish management goals.

Policy: It is the policy of Duchesne County that public land agencies must consult with Duchesne County on certain plans or actions they propose on public lands as required by agency regulations and rules. Public land agencies shall:

1. Grant the County cooperating agency status on any proposed actions within the NEPA process. The County shall be notified regarding natural resource area management actions and participate accordingly.

2. File a written report detailing how consistency was analyzed with respect to agency actions or plans. The report must identify where inconsistencies exist, why consistency is impossible, and any plausible way to correct the inconsistencies.

3. Provide an opportunity for the County to have meaningful participation in the development, monitoring and analysis of any studies conducted on resources associated with public lands.

4. Notify the County of any proposed action that will affect the County's culture and heritage values.

5. Provide a detailed socio-economic analysis, including cumulative impacts, of proposed agency actions on Duchesne County's tax base, economy, culture and heritage values.

6. Certify that applicable data used to develop agency proposals meet the requirements of the federal Data Quality Act.

7. Consider compensation of any individual or entity physically or financially harmed by federal and state actions, including negative impacts on the County tax base.

8. Analyze the ability of Duchesne County to provide emergency services, law enforcement, water and waste management, search and rescue and other essential services to support a proposed agency action.

9. Analyze the impacts of proposed agency actions on traditional uses such as recreation, grazing, energy development, timber, fish, and wildlife.

10. Make no decisions on agency plans and actions in a piece-meal fashion. The agency must analyze the present and future impact of the proposal, including but not limited to: the need for buffer zones, protection of prey species and protection of viewscapes.

11. Mitigate negative impacts of any agency proposed action.

12. Provide public access and rights-of-way for utilities and/or transportation of products and provide such additional access when future need is demonstrated.

13. Agency actions shall be reasonable and shall not cause excessive cost, time delays, or undue hardship to applicants or the citizens of Duchesne County.

14. Ensure that guidelines, protocols, and other policies used to direct any activity on public

lands do not contain restrictions or protections not provided by law or regulation. Any such actions must be developed and implemented with local government and public participation.

15. Keep the County fully informed of public land management action proposals and allow time for development of the County position should it not be clearly defined in the County general plan or this policy document.

In the event that an agency seeks consultation with the County, the request shall be in writing that such consultation is formal and will be treated as such.

Special Designations in General

Administrative designations contained in federal land use plans, such as ACECs, special recreation management areas (SRMAs), or other prescriptive designations, can dictate practices that restrict access or use of the land and negatively impact other resources or their use. Such designations cause resource waste, serious impacts to other important resources and actions, and are inconsistent with the principles of multiple use and sustained yield.

The Federal Land Policy Management Act (FLPMA) defines an ACEC as "areas within the public lands where special management attention is required (when such areas are developed or used or where no development is required) to protect and prevent irreparable damage to important historic, cultural, or scenic values, fish and wildlife resources or other natural systems or processes, or to protect life and safety from natural hazards."

Section 201 [43 U.S.C. 1711] (a) gives the following guidance regarding ACECs: "The Secretary shall prepare and maintain on a continuing basis an inventory of all public lands and their resource and other values (including, but not limited to, outdoor recreation and scenic values), giving priority to areas of critical environmental concern. This inventory shall be kept current so as to reflect changes in conditions and to identify new and emerging resource and other values. The preparation and maintenance of such inventory or the identification of such areas shall not, of itself, change or prevent change of the management or use of public lands."

The Bureau of Land Management, in their 2008 Vernal RMP, has established three Areas of Critical Environmental Concern and one SRMA that contain lands in Duchesne County (see Map #3).

Nine Mile Canyon ACEC	(40,285 acres in Duchesne County – 44,168 acres total)
Nine Mile Canyon SRMA	(36,956 acres in Duchesne County – 44,135 acres total)
Lear's Canyon ACEC	(1,375 acres – all in Duchesne County)
Pariette Wetlands ACEC	(839 acres in Duchesne County – 10,437 acres total)

General Policies: It is the policy of Duchesne County that:

1. In general, the objectives of special designations can be met by well-planned and managed development of natural resources. For this reason, no special designations shall be proposed until the need has been determined and substantiated by verifiable scientific data available to the public. Furthermore, it must be demonstrated that protection cannot be provided by other means and that the area in question is truly unique compared to other area lands.

2. Special designations can be detrimental to the County's economy, life style, culture, and heritage. Therefore special designations must be made in accordance with the spirit and direction of the laws and regulations that created them.

3. Special designation areas do not include, and Duchesne County expressly prohibits designation or creation of any protective perimeter or buffer zone around any special designation area, including wilderness. The fact that activities or uses can be seen or heard from within special designation areas shall not preclude such activities or uses up to the boundary of the special designation area.

Grazing Polices in Special Designation Areas

1. Special designation areas shall be actively managed by local, state and federal agencies to preserve valid existing rights and all grazing rights. Grazing permit holders and other affected parties may employ a full range of management techniques, including, but not limited to, mechanical, chemical, agricultural, natural or other methods as deemed necessary. Permittees, local, state and federal agencies, as stewards of special designation areas, shall fully cooperate and coordinate management efforts to ensure that water, soil, vegetation, timber, mineral, recreation, wildlife and other resources are properly managed in a cohesive and collaborative multiple use stewardship effort. This authority shall include fuel reduction and salvage harvest projects necessary to establish and maintain healthy forests.

2. The grazing of livestock in special designation areas shall continue to be regulated by the terms of the grazing allotment permit, rules, regulations, manuals and handbooks or other guidance that might apply to national forest or public domain lands (including the *BLM Utah Standards for Rangeland Health and Guidelines for Grazing Management* on BLM lands. Livestock grazing shall be entitled to continue as a valid existing right and shall be entitled to renewal consistent with the following:

    a. If range conditions warrant, grazing levels and season of use shall remain at the same level per permittee when the affected allotment is designated as a special designation area. Grazing levels may increase upon monitoring data developed for a minimum of five (5) years showing that there is additional forage and the increased grazing will not adversely affect vegetation resources.

b. There shall be no reductions in grazing numbers of both active and suspended AUM's or in the season of use in special designation areas simply because an area is, or has been designated as such, nor should any special designation be used by administrators to slowly phase out grazing. Any changes in grazing use shall only be temporary AUM reductions due to drought or other natural occurrences and shall be based on monitoring data of at least five (5) years duration from studies designed to measure change over time and which document a causal link between livestock grazing and resource deterioration. No permanent grazing reductions shall occur if the data fails to show that livestock grazing is a causal factor and does not distinguish livestock impacts from those of wildlife or natural forces, such as drought, wildfire or flood, or other activities, such as recreation. All monitoring shall be conducted in close cooperation, consultation and coordination with the permittees in any affected allotment.

c. The administration of grazing permits shall include the right to access the allotments and private lands using motorized vehicles, if applicable, and to apply the same full range of active management techniques on all range improvements including roads and trails as in any non-special designation area. The term "administration" is not limited to the grazing season and includes access to check on the status of range projects and range resource conditions, research and monitoring, maintenance, repair, construction, reconstruction, and installation of range improvements, trailing and moving livestock according to existing allotment management plans or established grazing practices. Special designation areas, in no way, limit administration of grazing permits.

d. Grazing permits shall be fully transferrable under the same Acts, rules and policies that apply to transfers of grazing permits located in non-special designation areas.

e. Special designation areas within the National Forest System shall not be managed to give priority or preference to wildlife populations or wildlife habitat over livestock grazing. Livestock grazing permits shall not be reduced, discontinued, or suspended due to big horn sheep populations, existing or re-introduced elk, moose, mule deer, mountain goats, wild horses, buffalo or any other wildlife species in special designation areas.

f. Livestock permits shall be renewed for a term of ten (10) years according to existing terms and permits consistent with the above or incorporation of new regulation changes that lengthen the term of the renewal.

Vegetation Management Policies for Special Designation Areas

1. In special designation areas, permittees, local, state and federal entities shall cooperate, consult and coordinate in order to actively manage vegetation with a full range of

management tools and techniques including, but not limited to, mechanical, chemical, agricultural, natural, or other methods as deemed necessary by the permittee or entity. Duchesne County finds the unhealthy state of the forest and timber resources in the County to be unacceptable. Duchesne County supports proper and active management of forest resources, as well as the myriad of resources that will be adversely affected by catastrophic wildfire. Such active management requires logging, motorized access, mechanical and chemical treatments, as well as monitoring, thinning, reclamation and seeding.

2. Vegetation management shall also include methods to control non-native, noxious and invasive plant species.

Wildlife Policies in Special Designation Areas

1. Permittees, local, state and federal entities shall be entitled to engage in a full range of active habitat management practices, including those vegetation treatments discussed above, as well as installation of physical water guzzlers or troughs, gates, fences or other improvements for the purpose of benefitting fish or wildlife habitat.

2. Motorized vehicle access and the use of mechanical equipment shall be permitted in the establishment of improvements for the purpose of benefitting fish or wildlife habitat.

3. Habitat improvement and vegetation management shall include reduction in fuel loads, removal or control or invasive or non-native species and removal of decadent or undesirable vegetation to improve habitat or biological diversity.

4. Wild horses, if any, shall be kept within their Herd Management Area (HMA) and shall be removed from any private, state or federal land outside of the HMA immediately upon notice by any Permittee, local, state or federal entity that wild horses have strayed from their HMA. The parties recognize that responsible management of wild horses is necessary to mitigate negative environmental effects on the range, wildlife habitat, riparian areas and other resources.

5. Special designation area management will not impair or impede predator control and a full range of methods shall be used to protect and actively manage wildlife and livestock. Areas established in County plans for habitat management, such as for the Greater Sage Grouse, will be counted as conservation areas for special designation mitigation.

6. Prior to listing any species as threatened or endangered pursuant to the Endangered Species Act, Duchesne County expects listing agencies to exhaust all potential conservation efforts to prevent listing of the species. Conservation efforts may include, but are not limited to, Conservation Plans or Conservation Agreements between federal agencies, the state and private landowners and permittees. All Conservation Plans and Agreements must be granted a minimum term of ten (10) years to show improvements in

habitat or population numbers. Demonstrable improvement will automatically extend the agreement for an additional five (5) year period until the species is stable. The MOU with the Animal and Plant Health Inspection Service (APHIS) will be acknowledged and used for predator control. Duchesne County encourages the U.S. Fish and Wildlife Service to acknowledge this authority and accept state management of wildlife under its sovereign rights.

Water Rights Policies in Special Designation Areas

1. No special designation areas shall include any water rights or the presumption of a water right, whether reserved, unreserved, absolute, conditional or otherwise for any purpose relating to said special designations.

2. Nothing in a special designation decision shall have any impact on the certification, development, use, change, maintenance or expansion of water rights to any existing or future use or permit as allowed by Utah State Code within a special designation area, whether such rights are held by a person or other entity.

3. No special designation area shall impair or impede construction of facilities to develop, divert, change, store, apply or otherwise use water.

4. Canals, ditches, springs and all other water structures must be accessible to motorized vehicles and equipment for maintenance and protection purposes. Administrative motor vehicle access shall be established for repair and maintenance of water impoundment facilities in the High Uintas Wilderness.

5. All canals, ditches and water structures shall be protected by an adequate buffer on either side of the center of the canal, ditch or structure. Management prescriptions associated with special designation areas shall not conflict with such protection areas.

6. Stock ponds, watering holes, fencing or the placement of troughs on springs shall be considered improvements.

7. Any in-stream water right created by the designation of Wild and Scenic Rivers is junior to all absolute and conditional water rights existing before the special designation is finalized.

8. Nothing in the special designation decision shall be construed to take or reduce the State of Utah's sovereign authority over all waters within the State and to make and enforce all laws, rules or regulations or Utah's rights and authority pursuant to the Colorado River Compact of 1922.

Watershed Policies in Special Designation Areas

1. Notwithstanding creation of a special designation area, and in accordance with the conservation principles set forth above, a permittee or local, state or federal agency shall actively manage and employ a full range of management techniques to protect water development, including domestic and agricultural water resources, in a watershed area and to promote watershed health. Watershed protection areas shall be counted as a conservation use.

2. Vegetation management projects in watershed areas shall include restoration and removal or timber to limit wildfire impacts, protect riparian areas, ensure appropriate water flows and enhance water flows.

3. Local, state and federal agencies responding to wildfire shall be allowed to use motorized vehicles, mechanical equipment and any other means necessary to protect watersheds. Special designation areas shall be a priority for fire suppression and control to protect water quality and water quantity.

Transportation Policies in Special Designation Areas

1. In general, all roads, two-tracks and historic trails in the County, located within, bordering or reaching a special designation area will continue to be open and accessible by all methods of travel, including motorized vehicles and shall not be closed, obliterated, gated or blocked without the prior approval of the Duchesne County Commission. This provision is consistent with the active management policies of Duchesne County and is necessary to facilitate use of the full range of land management tools.

2. Pursuant to the Act of July 26, 1866, Chapter 262, Section 8, Stat. 251, 253 codified at 43 USC Section 932, all public trails, roads, livestock byways and other rights of way shall remain open and accessible to historic uses and shall not be closed, obliterated, gated or blocked without the prior approval of the Duchesne County Commission.

3. Congress shall recognize all Duchesne County RS 2477 claims on public roads crossing federal lands, outside of special designation areas, in the County.

4. Congress shall allow for motorized travel in all existing or new wilderness in Duchesne County for the purpose of search and rescue in the event of an emergency.

5. In the Nine Mile Canyon ACEC, there is a pending Settlement Agreement (Settlement Agreement in Southern Utah Wilderness Alliance, et al. v. U.S. Department of the Interior, et al., U.S. District Court (D. Utah) Consolidated Case No. 2:12-cv-257 DAK U.S. Court of Appeals for the Tenth Circuit Nos. 15-4151, 15-4152, 15-4153, 15-4155, 15-4158). The court has ordered that a Travel Management Plan will take place in the Nine Mile Canyon ACEC. This Settlement Agreement dictates the requirements that will

be followed for evaluating all roads, routes, trails, etc. in this area. If Duchesne County (as an intervener) agrees to this settlement, then it will be obligated to abide by conditions spelled out in the Settlement Agreement, and consequently, the general policies above may not apply. Duchesne County will be invited to be a Cooperating Agency for the Travel Management Plan for the Nine Mile Canyon ACEC.

Recreation Policies in Special Designation Areas

1. All existing recreation uses, including hunting, fishing, off-road vehicle travel, snowmobiling and cycling shall continue to the same degree and in the same manner. Such continued right of use shall include the use of motorized vehicles and mechanical equipment along all existing roads and trails.

2. Dispersed camping shall be allowed within 300 feet of roads to provide an adequate buffer between campsites and roads and ensure a safe and healthy environment for camping and associated recreational activities.

3. Existing campgrounds shall be preserved and current recreation uses shall be allowed to continue in the same manner and degree.

Policies for Areas of Critical Environmental Concern

Consistent with Chapter 63J-4-401 of the Utah Code, County support for the designation of an Area of Critical Environmental Concern shall be withheld until:

1. It is clearly demonstrated that the proposed area satisfies all the definitional requirements of the Federal Land Policy and Management Act of 1976, 43 U.S.C. Sec. 1702(a);

2. It is clearly demonstrated that the area proposed for designation as an ACEC is limited in geographic size and that the proposed management prescriptions are limited in scope to the minimum necessary to specifically protect and prevent irreparable damage to the relevant and important values identified, or limited in geographic size and management prescriptions to the minimum required to specifically protect human life or safety from natural hazards;

3. It is clearly demonstrated that the proposed area is limited only to areas that are not already developed or used or to areas where no development is required;

4. It is clearly demonstrated that the proposed area contains historic, cultural or scenic values, fish or wildlife resources, or natural processes, which are unique or substantially significant and that the land area of the proposed designation is limited to the minimum acreage required to protect those resources;

5. The regional values, resources, processes, or hazards have been analyzed by the federal

agency for impacts resulting from potential actions which are consistent with the multiple-use, sustained-yield principles, and that this analysis describes the rationale for any special management attention required to protect, or prevent irreparable damage to the values, resources, processes, or hazards;

6. It is clearly demonstrated that the proposed designation is consistent with the plans and policies of the state and of the county where the proposed designation is located as those plans and policies are developed according to Subsection (3) of Chapter 63J-4-401 of the Utah Code;

7. It is clearly demonstrated that the proposed ACEC designation will not be applied redundantly over existing protections provided by other state and federal laws for federal lands or resources on federal lands, and that the federal statutory requirement for special management attention for a proposed ACEC will discuss and justify any management requirements needed in addition to those specified by the other state and federal laws;

8. The difference between special management attention required for an ACEC and normal multiple-use management has been identified and justified, and that any determination of irreparable damage has been analyzed and justified for short and long-term horizons;

9. It is clearly demonstrated that the proposed designation is not a substitute for a wilderness suitability recommendation, is not a substitute for managing areas inventoried for wilderness characteristics after 1993 under the BLM interim management plan for valid wilderness study areas; and it is not an excuse or justification to apply de facto wilderness management standards;

10. The conclusions of all studies are submitted to the State of Utah and to Duchesne County, as cooperating agencies, for review and the results, in support of or in opposition to, are included in all planning documents;

11. Any impacts on private property rights are evaluated and mitigated.

Visual Resource Management (VRM)

BLM and USFS resource management plans also consider an area's visual values and identify management classes with established objectives for public lands. The BLM's management of visual resources includes identification of visual resource management (VRM) classes, which are categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. There are four classes. Each class has an objective that prescribes the amount of change allowed in the characteristic landscape. USFS classes are similar but are referred to as visual quality objectives and include preservation, retention, partial retention, and modification designations.

- **VRM Class I objective:** To preserve the existing character of the landscape. The level of change to the characteristic landscape should be very low and must not attract attention.

- **VRM Class II objective:** To retain the existing character of the landscape. The level of change to the characteristic landscape should be low.
- **VRM Class III objective:** To partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate.
- **VRM Class IV objective:** To provide for management activities which require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high.

The 2008 BLM Vernal ROD/RMP (BLM 2008) and 1986 *Land and Resource Management Plan for the Ashley National Forest* (U.S. Department of Agriculture 1986) identify the following VRM prescriptions for federal lands (Tables LU4 and LU5):

Table LU4. Acres of Visual Resource Management Classes and Objectives for Federal Lands

BLM Class (USFS objective)	BLM	USFS
VRM Class I (Preservation)	57,776	338,088
VRM Class II (Retention)	259,734	473,545
VRM Class III (Partial Retention)	759,977	240,485
VRM Class IV (Modification)	642,450	332,581

Sources: BLM (2008), U.S. Department of Agriculture (1986).

Table LU5. Acres of Visual Resource Management Classes and Objectives for Bureau of Land Management Lands in Duchesne County

BLM Class	Duchesne County
VRM Class I	–
VRM Class II	7,943
VRM Class III	67,980
VRM Class IV	131,819

Sources: BLM (2009).

Bureau of Land Management visual resource management classes in Duchesne County are shown on Map #4.

Policy

In accordance with Section 63J-8-104 (m) of the Utah Code, it is the policy of Duchesne County that a BLM visual resource management class I or II rating is generally not compatible with the

county's plan and policy for managing federal lands. Such designations may cause resource waste, serious impacts to other important resources and actions, and are inconsistent with the principles of multiple-use and sustained yield. However; special cases may exist where such a rating is appropriate if jointly considered and created by state, local, and federal authorities as part of an economic development plan for a region of the state, with due regard for valid existing rights, school trust lands and private lands within the area.

Land Exchanges, Acquisitions, and Sales

Whereas more than fifty-percent of Duchesne County consists of public lands managed by federal or state agencies, further loss of private property will result in a diminution of the economic base and cultural values.

Policy: It is the policy of Duchesne County that:

1. Private property shall be protected from coerced acquisition by federal, state and local governments.

2. The County shall be compensated for loss of private lands or tax revenues due to land exchanges.

3. Private lands shall not be converted to state or federal ownership in order to compensate for government activities outside of Duchesne County.

4. A private property owner has a right to dispose of or exchange property as he/she sees fit within applicable law.

5. Any conversion from private property to public lands should result in no net loss of private property. No net loss shall be measured both in terms of acreage and fair market value.

   <u>EXCEPTION</u>: Private property may be converted to public ownership only after written approval by motion of the Duchesne County Commissioners on recommendation of the Duchesne County Public Lands Committee (if desired by the Commission). In making exceptions to the "no net loss rule," the following shall be considered:

   1. The acreage of the proposed acquisition.

   2. The proximity of the proposed acquisition to existing public lands.

   3. The proximity of the proposed acquisition to conservation areas on private lands.

   4. The property tax revenue received by the county under private ownership compared to estimated payment in lieu of taxation under public ownership.

5. The private development potential of the subject land, including proximity to public roads and utilities.

6. The proposed management scheme for the lands (the extent to which multiple use will be allowed rather than restricted).

7. Whether the acquisition is needed to mitigate adverse environment affects associated with public improvements that have occurred or are proposed.

8. Whether the agency proposing the acquisition has taken steps to dispose of surplus lands in the County.

Conservation Easements

Chapter 57-18 of the Utah Code is known as the Land Conservation Easement Act. Conservation easements are legal documents reducing certain property rights, in perpetuity, offered voluntarily by private property owners in exchange for compensation or tax breaks, from non-profit or government agencies. Once signed, conservation easements are to be recorded with the County and notice given to the County Assessor. Land values can be greatly reduced as a result of a conservation easement and such reductions have a negative effect on the County tax base.

Policy: Duchesne County encourages property owners to consult legal counsel before considering a conservation easement on their property and carefully consider the impacts of the loss of certain property rights in perpetuity.

Soils

Soils in Duchesne County vary considerably, as do most of the soils in the Intermountain West. Layers of Mancos shale are prevalent in the region and contain large amounts of salts. Flood irrigating this land raises these salts to the surface, affecting yield and water quality when runoff leaves the land. Deep percolation drives the salts down further into the soil and thus into the water table. This salty water then seeps into the Green River, which is a tributary of the Colorado River where high salinity is a problem.

To help alleviate this problem, farmers are being encouraged to convert from flood irrigation to sprinklers. These sprinklers are more efficient, giving just enough water to help counter the salt build-up on the surface of the land, as to not further contaminate the Colorado River. The soil in Duchesne County is also very high alkaline.

Duchesne County is currently one of the few counties in the entire United States that is yet to have its Digitized Soil Survey completed. Therefore, some soil information is not readily available to the general public.

Soils used for agriculture production vary across the county, from most of the higher elevation irrigated lands consisting of shallow rocky soils used mostly for grass and pasture production to lower elevation lands used mostly for small grains and hay production.

Policy: It is the policy of Duchesne County that land management agencies shall:

1. Apply scientifically effective practices to maintain and improve the quality and quantity desirable plant cover to protect watersheds, timber, and rangelands from soil erosion.

2. Install structural measures to prevent soil erosion, as needed.

3. Recognize the Natural Resource Conservation Service (NRCS) soil survey as the authority in matters of soil conservation.

4. Encourage that a Digitized Soil Survey be completed for Duchesne County so that soil information is readily available to the public.

5. Base soil conservation activities on all available survey drafts until a final survey is published. Any deviation from this material or soil data developed outside of the survey must be coordinated with the Duchesne County Soil Conservation District and Natural Resource Conservation Service (NRCS).

6. Continue use of the NRCS Soil Climate Analysis Network (SCAN) sites located at Little Red Fox and Mountain Home to monitor soil moisture and assess drought risk.

Water Considerations

Land use policies can have an effect on water quality and water consumption.

Policy: Duchesne County encourages preservation of water quality for beneficial uses and to encourage conservation of water. Zoning ordinance standards shall encourage xeriscape and drought tolerant landscaping over treatments that require significant watering.

Transfer of Public Lands to the State

Findings: Legislation passed in the State of Utah (HB 148, signed into law in 2012) has demanded that the federal government extinguish title to certain public lands that the federal government currently holds. This legislation was analyzed in a study entitled "*A Legal Overview of Utah's H.B. 148 — The Transfer of Public Lands Act*," written by Donald J. Kochan. As Kochan writes, "the State of Utah claims that the federal government made promises to it (at statehood when the federal government obtained the lands) that the federal ownership would be of limited duration and that the bulk of those lands would be timely disposed of by the federal government into private ownership or otherwise returned to the State." Those promises were kept with Hawaii and states east of Colorado; but not with the states in the Intermountain West.

This demand does not include National Parks, Wilderness, and several other special-designation federal holdings.

Kochan concludes his study by noting that "Utah's Transfer of Public Lands Act presents fascinating issues for the areas of public lands, natural resources, and constitutional law. There are credible legal arguments supporting Utah's demand that the federal government extinguish certain public lands within the State. At the very least, it seems clear that the law is not "clearly" unconstitutional as some opponents contend." While Kochan offers the analysis above, others have disagreed and the matter will likely be decided in court.

A group called the American Lands Council was formed in 2012 to advocate for the transfer of federal lands to the states. A recent American Lands Council news release stated that "the economic, legal, and environmental case for transferring public lands to the states is so strong that hundreds of elected officials have joined our efforts to improve access, health, and productivity on public lands through local control, and nearly every state in the west has introduced transfer of public lands related legislation. Some states have called for the transfer and others are studying it. Even eastern states are coming on board."

Policy: Duchesne County shall continue to support efforts to legally relieve the Federal Government of ownership, control and jurisdiction over public lands in Duchesne County (except for designated wilderness areas).

SITLA Lands

Approximately 55,051 acres of land in Duchesne County (about 2.7% of the County) is owned and managed by the State School and Institutional Trust Lands Administration (SITLA). SITLA also owns the subsurface mineral estate in many areas of the county.

SITLA leases land surface in Duchesne County for grazing, mining and for oil and gas development. According to SITLA's 2015 Annual Report (for the 2014-15 fiscal year), they generated $109.2 million in revenue from land sales, leases and other activities. After administrative operating costs were deducted, the agency was able to provide $100.1 million to permanent funds and beneficiaries. Of the total revenue received, $61.7 million came from the oil and gas industry and $7.9 million from the mining industry. The largest beneficiary of SITLA revenues is the public K-12 school system, which received $45.7 million in 2015.

Many Class B and Class D county roads cross SITLA lands and the county has been able to acquire easements from SITLA to ensure the continued use of those routes by the public.

Policy: It is the policy of Duchesne County to closely coordinate with the State Institutional Trust Lands Administration to help meet the needs of citizens and companies using trust lands and to help continue the economic benefits of multiple use of SITLA lands.

Duchesne County Public Lands Committee

Consistent with its responsibility to participate in the public land management process, the Duchesne County Commission established the Duchesne County Public Lands Committee and charged the committee in 2003 to write and implement a new public lands policy document that shall outline the County's policies as they relate to public land management agencies. Those policies were adopted in 2005 and are being updated in 2017.

The Public Lands Committee has been assigned the following tasks:

a. Study public land management planning, policies and decision-making processes.

b. Develop an action-plan to provide a basis for the county's participation in public lands issues.

c. Monitor the activities of public land management agencies.

d. Engage the citizenry in dialog relative to public land issues.

e. Make recommendations to the Duchesne County Commission with regard to public lands issues.

f. At the direction of the Duchesne County Commission, participate in the public lands management planning and decision-making processes on behalf of the county.

g. Revise or amend the county public land use policies, as needed.

In order to accomplish these tasks, the Public Lands Committee shall:

a. Meet once a month or as necessary

b. Select a chairman who shall:

    1. Assign qualified committee members to attend specific meetings relative to public lands issues.

    2. Assign qualified committee members to review environmental and public land use documents.

    3. Assign qualified committee members to prepare reports for the Duchesne County Commission, which shall document compliance or noncompliance with the county public land use policies.

4. Assign qualified committee members to prepare responses from the Duchesne County Commission to the public land management agencies.

5. Report to the Duchesne County Commission once per month or as necessary.

6. Recommend the hiring of consultants with special expertise to review documents, perform surveys, write opinions, and perform other tasks as directed by the Duchesne County Commission.

Section 2. Energy, Mining & Mineral Resources

Findings: The energy and mining industries are an important part of the culture, heritage and economy of Duchesne County and will be for a number of years to come. The future looks bright for energy development in Duchesne County, as an "Assessment of Undiscovered Oil and Gas Resources in the Uteland Butte Member of the Eocene Green River Formation, Uinta Basin, Utah," published by the U.S. Department of the Interior, U.S. Geological Survey, August 2015, found that the Uteland Butte Carbonate Continuous Assessment Unit and the Uteland Butte Conventional Oil and Gas Assessment Unit (portions of which are in Duchesne County) contain estimated mean undiscovered resources of 214 million barrels of oil, 329 billion cubic feet of associated/dissolved natural gas, and 14 million barrels of natural gas liquids.

A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 34) that 79.3% of residents surveyed in the Daggett-Duchesne-Uintah County believe that federal land managers should either maintain (41.0%), moderately increase (27.4%) or substantially increase (10.9%) the extent to which mineral exploration and extraction activities occur on Utah's public lands. The same study found (in Table 37) that 80.2% of residents surveyed in the Daggett-Duchesne-Uintah County believe that federal land managers should either maintain (32.4%), moderately increase (29.4%) or substantially increase (18.4%) the extent to which oil and gas exploration and development activities occur on Utah's public lands.

The *Bureau of Land Management Vernal Field Office Record of Decision and Approved Resource Management Plan* (BLM Vernal ROD/RMP) made the following allocations for oil and gas leasing (BLM 2008). Note: The Utah Recreational Land Exchange Act of 2009 resulted in 27,726.13 acres of BLM land being transferred to SITLA; however, none of this acreage was in Duchesne County.

<u>Unavailable</u>: 190,434 acres:

- 53,058 acres of wilderness study areas (WSAs) in the BLM Vernal Field Office plus 2,750 acres of WSA in the BLM Moab Field Office.

- 99,498 acres in 14 areas identified as lands with wilderness characteristics (LWC) (does not include 6,680 acres of LWC in BLM White River Field Office that are no surface occupancy [NSO]).

- 35,128 acres within the Hill Creek Extension.

<u>Open subject to NSO</u>: 86,789 acres:

- 0.25-mile area around greater sage-grouse (*Centrocercus urophasianus*) leks.

- High-use recreation areas such as Pelican Lake.

- White River LWC.

- Areas of critical environmental concern (ACECs) including the Nine Mile Canyon ACEC (44,168 acres in Duchesne and Carbon Counties), Lear's Canyon (1,375 acres, all in Duchesne County), and the Pariette Wetlands (10,437 acres, the bulk of which are in Uintah County).

Open subject to moderate constraints: 890,280 acres

Open subject to standard terms and conditions: 750,131 acres

Mineral leasing categories on BLM land in Duchesne County are shown on Map #5.

Section 63J-8-104 of the Utah Code gives the state's position regarding energy, mining and mineral resources on federal land. Duchesne County supports the state's position, which requires federal land management agencies to achieve and maintain at the highest reasonably sustainable levels a continuing yield of energy, hard rock, and nuclear resources in those subject lands with economically recoverable amounts of such resources as follows:

Policies: It is the policy of Duchesne County that:

1. The development of the solid, fluid, and gaseous mineral resources in portions of the subject lands is an important part of the state's economy and the economies of the respective counties, and should be recognized that it is technically feasible to access mineral and energy resources in portions of the subject lands while preserving or, as necessary, restoring non-mineral and non-energy resources;

2. All available, recoverable solid, fluid and gaseous mineral resources in the subject lands should be seriously considered for contribution or potential contribution to the state's economy and the economies of the respective counties;

3. Those portions of the subject lands shown to have reasonable mineral and energy potential should be open to leasing, drilling, and other access with reasonable stipulations and conditions, including mitigation, reclamation, and bonding measures where necessary, that will protect the lands against unnecessary and undue damage to other significant resource values;

4. Federal oil and gas existing lease conditions and restrictions should not be modified, waived, or removed unless the lease conditions or restrictions are no longer necessary or effective;

5. Any prior existing lease restrictions in the subject lands that are no longer necessary or effective should be modified, waived, or removed;

6. Restrictions against surface occupancy should be eliminated, modified, or waived, where reasonable;

7. In the case of surface occupancy restrictions that cannot be reasonably eliminated, modified, or waived, directional drilling should be considered where the mineral and energy resources beneath the area can be reached employing available directional drilling technology;

8. Applications for permission to drill in the subject lands that meet standard qualifications, including reasonable and effective mitigation and reclamation requirements, should be expeditiously processed and granted; and

9. Any moratorium that may exist against the issuance of qualified mining patents and oil and gas leases in the subject lands, and any barriers that may exist against developing unpatented mining claims and filing for new claims, should be carefully evaluated for removal;

Policy: Consistent with the above state law, Duchesne County's support for mineral development provisions within federal land management plans will be withheld until the appropriate land management plan environmental impact statement clearly demonstrates:

1. That the authorized planning agency has:

    a. Considered and evaluated the mineral and energy potential in all areas of the planning area as if the areas were open to mineral development under standard lease agreements; and

    b. Evaluated any management plan prescription for its impact on the area's baseline mineral and energy potential;

2. That the development provisions do not unduly restrict access to public lands for energy exploration and development;

3. That the authorized planning agency has supported any closure of additional areas to mineral leasing and development or any increase of acres subject to no surface occupancy restrictions by adhering to:

    a. The relevant provisions of the Federal Land Policy and Management Act of 1976, 43 U.S.C. Sec. 1701 et seq.;

    b. Other controlling mineral development laws; and

c. The controlling withdrawal and reporting procedures set forth in the Federal Land Policy and Management Act of 1976, 43 U.S.C. Sec. 1701 et seq.;

4. That the authorized planning agency evaluated whether to repeal any moratorium that may exist on the issuance of additional mining patents and oil and gas leases;

5. That the authorized planning agency analyzed all proposed mineral lease stipulations and considered adopting the least restrictive necessary to protect against damage to other significant resource values;

6. That the authorized planning agency evaluated mineral lease restrictions to determine whether to waive, modify, or make exceptions to the restrictions on the basis that they are no longer necessary or effective;

7. That the authorized federal agency analyzed all areas proposed for no surface occupancy restrictions, and that the analysis evaluated:

   a. Whether directional drilling is economically feasible and ecologically necessary for each proposed no surface occupancy area;

   b. Whether the directional drilling feasibility analysis, or analysis of other management prescriptions, demonstrates that the proposed no surface occupancy prescription, in effect, sterilizes the mineral and energy resources beneath the area;

   c. Whether, if the minerals are effectively sterilized, the area must be reported as withdrawn under the provisions of the Federal Land Policy and Management Act; and

   d. That the authorized planning agency has evaluated all directional drilling requirements in no surface occupancy areas to determine whether directional drilling is feasible from an economic, ecological, and engineering standpoint;

Energy Resources in General

Findings: The Utah Code, in Section 40-6-1, declares that it is in the public interest to foster, encourage and promote the development of natural oil and natural gas resources in Utah in such a manner to prevent waste of those resources.

The oil and gas industry has been a significant economic factor in Duchesne County since the early 1970's. The energy industry provides employment and economic opportunity and accounts for a significant percentage of the County's tax base. However, the energy industry is prone to boom and bust cycles based on fluctuating prices of crude oil and natural gas. The boom and bust cycle is demonstrated by the amount of revenue collected by the Utah State Tax

Commission each fiscal year (see Table EM1 below).

Table EM1. Oil and Gas Severance Tax Net Revenue in Utah

Fiscal Year	Oil and Gas Severance Tax Net Revenue Collected
2011	$ 59,855,286
2012	$ 65,540,973
2013	$ 53,164,253
2014	$ 89,159,562
2015	$ 69,685,131
2016	$ 20,759,297
Total	**$358,164,502**

Source: Utah State Tax Commission, FY 2011-2016 Annual Reports

Severance tax revenue has dropped substantially in the recent "bust" years from a high of over $89 million in FY 2014; but remains an important part of local and state budgets. The Utah Legislature has designated 12% of the first $3 million collected ($360,000) to be distributed to Duchesne County and for the second $3 million collected, the county receives $1 million.

The State of Utah also collects an Oil and Gas Conservation Fee from the production, sale or transport of oil and gas resources. Table EM2 shows the impact of this fee on the state budget. These funds are used for plugging or reclaiming abandoned wells, boring holes, and mineral/petroleum resources and industry education programs.

Table EM2. Oil and Gas Conservation Fee Net Revenue in Utah

Fiscal Year	Oil and Gas Conservation Fee Net Revenue Collected
2011	$ 5,784,545
2012	$ 6,432,953
2013	$ 5,870,532
2014	$ 7,821,433
2015	$ 6,727,949
2016	$ 3,121,286
Total	**$35,758,698**

Source: Utah State Tax Commission, FY 2011-2016 Annual Reports

The State of Utah also receives 49% of the mineral lease money collected by the federal government, in the form of royalties, lease bonuses and rentals. Of this 49%, the state sends 25% to the county of origin. Thirty two and one half percent (32.5%) is deposited into the Permanent Community Impact Fund according to Section 59-21-2 of the Utah Code. Forty percent of the mineral lease funds go to the Utah Department of Transportation, which distributes a portion to counties or county special service districts for road projects. Smaller percentages are allocated to the Department of Workforce Services, the State Board of Education, the Utah Geological Survey and the USU Water Research Laboratory.

Over the 2012-2016 fiscal years, the PCIF reports distributing a total of $114,075,616 in grant and loan funds for water, street and other infrastructure or public improvement projects in Duchesne County and a total of $553,815,871 was distributed to projects statewide. Local beneficiaries of these funds during the 2012-2016 fiscal years included the Cedarview-Montwell Special Service District, Duchesne City, the Duchesne County Municipal Building Authority, Duchesne County Special Service District #2, Duchesne County Water Conservancy District, East Duchesne Culinary Water Improvement District, Fruitland Special Service District, Hanna Water and Sewer District, Johnson Water District, Myton City, Neola Water and Sewer District, Pinion Forest Special Service District, Roosevelt City, Tabiona Town, Tabby Valley Parks District and the Upper County Water Improvement District.

The positive and substantial economic impact of energy and energy-related mining on the state economy is summarized in a May 2015 report prepared by Applied Analysis for the Governor's Office of Energy Development. This report found that oil and gas development produced a total economic output of $5.2 billion in 2013, including 6,976 direct, indirect and induced jobs and labor income of $503.9 million associated with these jobs. The income from these oil and gas jobs created approximately $8.0 million in state income tax revenue in 2013. The above benefits do not count the economic benefits of petroleum refineries in the state, which produced $7.2 billion in economic output in 2013, including 9,522 direct, indirect and induced jobs generating labor income of $677.4 million (and state income tax revenue of $3.6 million).

The Applied Analysis report also found that oil and gas production generated $9.2 million of sales tax revenue in FY 2013 and $8.8 million in FY 2014. Oil and gas production on SITLA lands resulted in $69.1 million in revenue for Utah schools and other SITLA beneficiaries in FY 2013.

The Utah Division of Oil, Gas and Mining has identified several major oil and gas fields in Duchesne County (see Map #6). Oil and Gas production areas (well sites) are also shown on Map #6).

In 2012, the Duchesne County Conservation District identified Energy as one of the top five natural resource concerns. The District encouraged energy conservation measures, increased use of renewable energy sources, increased use of natural gas and support of the petroleum extraction industry in the County.

The District identified the following challenges associated with energy resources:

a. Obtaining permits to drill on federal land is becoming more difficult due to increasing environmental regulations.

b. Distribution of energy commodities to markets is difficult due to the lack of rail service, lack of crude oil pipelines, geographic isolation from refineries and markets and dangerous conditions on state highways, particularly during the winter.

c. Energy companies are becoming more hesitant to invest in Duchesne County due to the environmental regulations affecting federal lands that make it more costly to access the resource.

d. Private land owners do not understand the implications of the Split Estate and feel violated or not adequately compensated when wells are drilled on their property.

e. Although there is a vast amount of energy in the Uintah Basin within oil shale and tar sands, the technology to extract the energy from these resources has not been proven to be economically viable.

According to data from the Utah Division of Oil, Gas and Mining, Duchesne County is the top oil producing county in Utah, having produced 19.4 million barrels (of the 40.9 million barrels produced in Utah) in 2014 and 17.1 million barrels (of the 37.1 million barrels produced in Utah) in 2015. Due to low crude prices, the production in Duchesne County has dropped to about 13.9 million barrels (of the 30.5 million barrels produced in Utah) in 2016.

Duchesne County is currently the third highest natural gas producing county in Utah; having produced 49.7 million MCF of gas in 2014 and 41.7 million MCF in 2015 (1 MCF equals 1,000 cubic feet of gas). Production of gas dropped to about 35.9 MCF in 2016.

The most recent oil and gas boom resulted in Duchesne County being the second-fastest growing county in the nation in 2013 (for counties with over 10,000 residents) with a 5.5% growth rate that year. Between 2000 and 2012, the county population grew by 29.48 percent. During boom times, the county unemployment rate has been known to drop into the 2.7% range (December 2014). During bust times, such as in early 2016, the unemployment rate increased to over 11%.

This bust is illustrated by Division of Oil, Gas & Mining data that shows the applications for permits to drill (APDs) in Duchesne County decreasing from 794 in 2013 to 511 in 2014, 77 in 2015 and only 48 in 2016. By May 31, 2017, 59 APDs had been issued in the county, reflecting a slow rebound of the energy industry.

Spudding of new wells in Duchesne County decreased from 441 in 2013 to 433 in 2014 to only 37 in 2015. Only 27 new wells were spudded in 2016. As of May 31, 2017, 21 new wells were spudded in the county, showing the potential for a better year than 2015 or 2016.

For decades, the wealth created by oil and gas development has provided for the growth of local government services. It has helped build schools, roads, public buildings, utility infrastructure and family fortunes. Historically, much of this activity has taken place on private land. Trends since the late 1980's have emphasized development of oil and gas on public lands; however, recent restrictive federal government policies have caused a shift toward drilling on private and tribal lands. According to the Utah Division of Oil, Gas and Mining, the amount of oil production in Duchesne County from federal leases dropped from 32.7% of total production in 2011 to 29.1% of total production in 2013. Access to public lands is critical to the development of energy resources.

Additional Findings

More upgraded pipeline and crude oil infrastructure is needed to bring crude oil products produced in the Uintah Basin to market.

The business environment for renewable energy and non-renewable energy is not on a level playing field because renewable energy is heavily subsidized.

The management of the greater sage-grouse by federal and state entities has implications for the level of mineral development that is allowed in the counties. Voluntary management provisions in the *Conservation Plan for Greater Sage-grouse in Utah* (Utah Division of Wildlife Resources 2013) are as follows:

a. Avoid disturbance within a lek if possible. Project proponents must demonstrate why avoidance is not possible.

b. If avoidance is not possible, use minimization as appropriate to the lek.

c. If minimization is not sufficient, mitigation is required. Mitigation should be calculated at a minimum of a 4:1 ratio starting with the first acre disturbed. Mitigation must produce lands capable of supporting greater sage-grouse as habitat before the proposed disturbance occurs, although birds do not need to be using the mitigated area.

d. The proponent of the disturbance must demonstrate that the conditions have been met. Cumulative new permanent disturbance should not exceed 5% of the surface area of other habitat within the sage-grouse management area.

The BLM Vernal ROD/RMP manages the greater sage-grouse in Utah with some of the following provisions:

a. NSO in a 0.25-mile zone around leks year-round;

b. No permanent facilities or structures allowed within 2 miles of a lek when possible;

c. No surface-disturbing activities within 2 miles of active greater sage-grouse leks allowed from March 1 to June 15;

d. Within 0.5 mile of known active leks, the best available technology used to reduce noise, e.g., installation of multi-cylinder pumps, hospital sound-reducing mufflers, and placement of exhaust systems.

In September 2015, the BLM and Forest Service signed a Sage Grouse EIS that establishes new guidance for sage grouse habitat management on federal lands in the West. The RMP Amendments for managing Greater Sage-Grouse in Utah can be found at: https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=99423.

A fact sheet available at: https://www.blm.gov/programs/fish-and-wildlife/sagegrouse/state-sagegrouse-efforts/utah provides a good summary of BLM and USFS conservation plans in Utah. The fact sheet notes that "the highest levels of protections are applied to Sagebrush Focal Areas (SFA), which are landscapes with high breeding population densities of sage-grouse, high-quality sagebrush habitat and a preponderance of federal ownership or protected areas that serve to anchor the conservation value of the landscape. These areas are prioritized for habitat improvement and vegetation management efforts and proposed for locatable mineral withdrawal. Priority Habitat Management Areas (PHMA), equivalent to Core Areas, are managed to avoid and minimize further disturbance. Surface energy and mineral development is limited in these areas. Development is capped with limits on the amount and density of disturbance allowed. General Habitat Management Areas (GHMA) provide greater flexibility for land use activities. Mitigation and required design features ensure that impacts from development are avoided, minimized and mitigated in GHMA.

The RMP Amendment document indicates that 1,100 acres of surface estate and 2,700 acres of mineral estate in Duchesne County have been identified as Priority Habitat Management Areas (PHMA) and 28,600 acres of surface estate and 7,200 acres of mineral estate have been identified as General Habitat Management Areas (GHMA). In total, 29,700 acres of surface estate and 9,900 acres of mineral estate are within habitat management areas. There are no Sagebrush Focal Areas in Duchesne County. About 95 percent of federal lands with high and medium oil and gas potential in Utah are outside of federally-managed priority conservation areas and valid existing lease rights are recognized. As such, the potential impacts of sage grouse management on energy development on federal lands in Duchesne County are lessened.

Oil Shale

The U.S. Geological Survey has studied the "In-Place Oil Shale Resources of the Mahogany Zone, Green River Formation, Sorted by Grade, Overburden Thickness, and Stripping Ratio, Piceance Basin, Colorado, and Uinta Basin, Utah" in a February, 2015 report. This study found total oil shale resources in the Eocene Green River Formation of the Piceance and Uinta Basins

in Colorado and Utah amount to an estimated 2.845 trillion barrels of oil in-place regardless of grade according to the most recent U.S. Geological Survey (USGS) assessment. This total value does not represent how much of the resource is likely to be recoverable, because much of the oil shale is of insufficient grade (as determined by yield in gallons per ton of oil generated per ton of rock processed) or occurs in intervals too thin to be targeted for development.

In the Uinta Basin, 29.9 billion barrels of the 214.5 billion barrels of Mahogany zone oil in-place meets the overburden and stripping ratio criteria that make recovery of shale oil the most feasible. Although southeastern Duchesne County contains oil shale, the study shows that the most likely extraction/mining locations, containing the best overburden and gallons per ton conditions, are to the east in Uintah County.

In 2013, the BLM completed an Oil Shale/Tar Sands EIS. For the Vernal BLM Field Office, 360,350 acres of land within the most geologically prospective oil shale area was designated as available for application for leasing for commercial oil shale development in accordance with applicable Federal and State regulations and BLM policies. A very small portion of SE Duchesne County is within that area. All lands within the most geologically prospective oil shale area that are not excluded from commercial leasing by existing laws and regulations, Executive Orders, or administrative land use plan designation, or have not been specifically excluded by the BLM for other reasons, will be available for application for commercial leasing.

The decision specified that applications for commercial leases using surface mining technologies will only be accepted within an area of 133,194 acres within the most geologically prospective oil shale area where the overburden is 0 to 500 feet thick. Applications for commercial leasing using surface mining technologies will not be accepted in any other areas as 500 feet is assumed to be the maximum amount of overburden where surface mining can occur economically using today's technologies.

Tar Sands

The 2013 Oil Shale/Tar Sands EIS designated the following amounts of land within Special Tar Sand Areas (STSA) in the Vernal RMP, Vernal Field Office as available for application for leasing for commercial tar sands development in accordance with applicable Federal and State regulations and BLM policies:

- Argyle Canyon STSA: 5 acres
- Asphalt Ridge STSA: 2,123 acres, which represents the acreage subject to the pending tar sands lease application.
- Hill Creek STSA: 45,307 acres
- Pariette STSA: 860 acres
- P.R. Spring STSA: 43,293 acres
- Raven Ridge STSA: 9,134 acres
- Sunnyside STSA: 1,982 acres

All lands within the designated STSAs that are not excluded from commercial leasing by existing laws and regulations, Executive Orders, or administrative land use plan designation, or have not been specifically excluded by the BLM for other reasons, will be available for application for commercial leasing. The Argyle Canyon and Pariette STSAs are within, or partially within, Duchesne County.

Geothermal Resources

The Utah Geological Survey published a map of Geothermal Resources in Utah in 2004. While counties such as Juab, Millard, Beaver and Iron were depicted to have potential for geothermal energy development, that map showed very few geothermal resources in Duchesne County and no designated geothermal resource areas. The 2004 map depicted only the Warm Springs on the Duchesne River near Hanna and eight other thermal springs or wells in the central part of the county. This map was updated by the Utah Geological Society in the 3rd edition of "*Utah's Energy Landscape*," and the 2014 map (see Map #7) shows three thermal wells in northeastern Duchesne County with temperatures over 50° Celsius. The map also shows the location of about 48 wells with elevated heat flow and a thermal spring in the Hanna area.

Many of the oil and gas wells in the southern part of Duchesne County have potential for production of geothermal energy, but the temperatures are low, and the main focus of such wells is the production of crude oil and natural gas. When those wells are no longer productive for oil and natural gas, they could become productive for generation of low-level geothermal energy, according to the Ashley National Forest mineral specialist.

The BLM has the delegated authority for leasing public lands, including U.S. Forest Service lands, with geothermal potential in 11 Western States and Alaska. The BLM presently manages 818 geothermal leases, with 59 geothermal leases in producing status, with a total capacity of 1,500 megawatts of geothermal energy on public lands. This amounts to over 40 percent of U.S. geothermal energy capacity and supplies the electrical needs of about 1.5 million homes. The BLM's geothermal leases provide not only electrical power generation but also alternative heat sources for direct-use commercial endeavors.

The BLM produced a *Nationwide Geothermal Resources Leasing Programmatic EIS and issued a Record of Decision* in December 2008. According to an associated BLM fact sheet, this decision amended 114 BLM resource management plans and allocated about 111 million acres of BLM-managed public lands as open for leasing. An additional 79 million acres of Forest Service lands are also available for leasing. Since the completion of the Programmatic EIS, the BLM has competitively leased over one million acres of Federal lands, generating over $76 million in bonus bids for geothermal lease parcels. The overall lease sales include 67 parcels in Utah, totaling 241,490 acres; 11 parcels in Oregon, totaling 41,362 acres; 13 parcels in Idaho totaling 17,580 acres; 18 parcels in California, totaling 21,835 acres; 1 parcel in Colorado, containing 799 acres; and 262 parcels in Nevada, totaling 737,785 acres. None of the geothermal leases are located within Duchesne County.

Biomass

The National Renewable Energy Laboratory produced a map for the U.S. Department of Energy in 2007 showing Biomass Resource potential for all counties in Utah. Duchesne County, along with 26 of the 29 counties in Utah, has a low potential, with less than 50 thousand tons of biomass available for production of energy per year. Biomass includes agricultural residue, wood residue, municipal discards and dedicated energy crops.

Table EM3 shows the amount of green tons of biomass made available for bio-energy on the Ashley National Forest during fiscal years 2010-2016.

Table EM3. Green Tons of Biomass for Bio-Energy from the Ashley National Forest

Fiscal Year	Tonnage of Biomass
2010	18,625.2
2011	19,267.7
2012	17,428.2
2013	17,132.6
2014	19,042.8
2015	N/A
2016	N/A
Total	**91,496.5**

Source: **Ashley National Forest (2017)**

Wind Resources

Wind energy has yet to be developed in Duchesne County. A June 2005 study of Bureau of Land Management lands in Utah found all BLM lands in Duchesne County to have low wind resource potential. The Bureau of Land Management then issued a Record of Decision regarding "Implementation of a Wind Energy Development Program and Associated Land Use Plan Amendments," in December 2005 that found no suitable wind development areas within the Vernal Field Office.

A wind power classification map for Utah prepared by the National Renewable Energy Laboratory in 2007 showed that most all of Duchesne County has poor or marginal 50m wind resource development potential; with the exception of high elevation ridges and mountain tops in the High Uintas Wilderness area (see Map #8). The Utah Renewable Energy Zones task force collected data from 109 anemometer towers throughout Utah (three are in Duchesne County) and identified 51 wind development zones covering 1,838 square miles of land, with a potential wind generating capacity of 9145 megawatts. These sites, mapped in the 2014 Utah Geologic Service's 3rd edition of "Utah's Energy Landscape," were identified after screening out

environmentally sensitive areas, elevations over 9,500 feet, lands too rugged for development and military operating airspace. Two linear wind potential sites are in high elevation areas of southern Duchesne County and are depicted as Wind Energy Zones on Map #8.

With newer wind generation technologies, including increased hub heights and increased rotor diameters, the Four Corners Wind Resource Center and the Governor's Office of Energy Development, in 2015, found that some sections of south central and southeast Duchesne County could be suitable for wind energy development. The total potential capacity is in the county is estimated to be 320 megawatts.

Development of the renewable energy resources in Duchesne County has the potential to be an important contributor to the economy of the county. Wind and solar resource development costs have dropped dramatically in the last several years. In many places, electricity from wind and solar resources is now cost competitive with all other sources of new electricity generation, and many existing sources of generation. Due to advancements in technology, better forecasting, and better controls, wind and solar energy can be economically developed in areas not previously thought possible.

Wind turbine technologies continue to improve and turbines are now able to generate economically competitive electricity in lower wind speed areas through the use of longer turbine blades, taller hub heights, and advanced controls. Also, improvements in wind resource forecasting, wind plant control technologies, and energy storage now allow wind plants to generate electricity at a smoother, more consistent rate than in the past. These factors enable more accurate predictions of output for management by the electric utilities that generate and/or purchase the power generated by wind projects.

The cost of solar photovoltaic installations has fallen dramatically in recent years and continues to decline, making solar an increasingly economically attractive source of electricity.

Utah has an abundance of developable wind and solar resources. In 2015, the National Renewable Energy Laboratory released new wind resource maps showing development potential in Utah at 110 and 140 meter hub heights. Duchesne County has less wind generation capacity compared to Utah's west desert areas, where the potential seems to be the greatest (http://apps2.eere.energy.gov/wind/windexchange/wind_resource_maps.asp?stateab=ut).

Solar Energy

As one of the seven sunniest states in the nation, Utah has an incredible solar resource and Duchesne County has the potential to benefit from that resource. In 2007, the U.S. Department of Energy released solar photovoltaic resources maps showing solar potential across the state. (http://apps1.eere.energy.gov/states/maps.cfm/state=UT).

However, in 2012, the Departments of Energy and Interior conducted a programmatic EIS for solar energy development in Utah and five other southwestern states **(**found at

http://solareis.anl.gov/documents/docs/Solar_PEIS_ROD.pdf). This document identified no acreage within the Vernal Field Office suitable for development as a solar energy zone. An associated map prepared by the Argonne National Laboratory for Utah (http://solareis.anl.gov/documents/fpeis/maps/alternatives/Final_Solar_PEIS_UT_map_poster.pdf) shows all of the BLM land in Duchesne County being proposed for exclusion from solar leasing under the program alternative.

The Utah Renewable Energy Zones Task Force identified about 6,371 square miles of land suitable for solar power generation at the utility scale. This land could support up to 826 GW of solar generating capacity. The task force screened out environmentally sensitive areas, areas with slopes greater than three percent and lands where the Direct Normal Irradiance fell below the threshold of six kilowatt hours per square meter per day. Much of the lower elevation areas in east-central Duchesne County are included in the suitable area (see Map #9).

Several factors are contributing to growth in the market for wind and solar energy development across the country and in the West:

a. There is increasing demand nationwide for renewable energy development, due to economic and policy drivers. Duchesne County has some potential to supply this demand with wind or solar projects at the utility scale.

b. Increasing commitments to renewable energy in states throughout the west will drive demand and create competition for development of renewable resources.

c. With the expansion of Energy Imbalance Markets in the West, higher levels of renewable energy can be managed by participating utility electrical systems. Thus, geographically dispersed renewable energy development, such as Utah based projects, can more easily contribute to local and regional energy needs and clean energy goals.

d. Reduced use, partial unit closure, and retirement of fossil electricity generation plants create capacity on existing transmission lines, making it easier for renewable development projects to get energy resources to market.

Hydro Power

Generating power from flowing water is addressed in the Water Quality and Hydrology section of this plan.

Objectives:

1. Ensure federal recognition of the Uintah Basin Energy Zone in Uintah and Duchesne Counties.

2. Maintain federal lands available for oil and gas leasing and development with standard

stipulations while considering the impacts to other public land resources and uses.

3. Avoid unnecessary federal rules associated with fracking and master leasing plans.

4. Support infrastructure that conveys energy resources such as pipeline development (e.g., pipeline from the Uintah Basin to existing railroads).

5. Encourage technology that would allow for the transport of crude oil.

6. Eliminate or reduce the amount of federal agency approval requirements for development to simplify and encourage investment in the area.

7. Promote renewable energy development.

Policies: It is the policy of Duchesne County that:

1. Access to public lands for all forms of energy development must be increased in the economic interest of the county citizens and government.

2. Energy exploration and development are consistent with the multiple use philosophy for management of public lands. These activities constitute a temporary use of the land that will not impair its use for other purposes in the future. All energy development activities shall comply with appropriate laws and regulations.

3. Identification of energy potential and location is important for planning future energy needs and resource management. Agencies shall plan, fund, and encourage by way of policy management decisions relative to energy resources.

4. All management plans must address and analyze the possibility for the development of energy resources where there is a reasonable expectation of their occurrence within the planning area.

5. After environmental analysis, and as provided for in the governing resource management plan, all tracts will be available and offered for lease or open to be claimed as provided by law. Duchesne County recognizes that decisions are made regarding oil and gas leases through the land use planning process. Alternatives identify areas where leasing may occur with standard lease terms, timing and controlled surface use stipulations or no surface occupancy. Additionally, some areas may be considered for no leasing in the future.

6. Local authorities shall encourage federal and state authorities to decrease regulatory burdens and ensure efficient processing of permits to utilize state or federal lands for energy resource extraction. All permits and applications must be processed on a timely basis, provided that the applicant follows proper procedures and submits all required

information at the time of application.

7. Development of the fluid, and gaseous energy resources of the state should be encouraged. The waste of fluid and gaseous minerals within developed areas should be prohibited. This policy is not intended to prohibit necessary flaring of gas at well locations. Requirements to mitigate or reclaim energy development projects should be based on credible evidence of significant impacts to natural or cultural resources.

8. For private lands within the County, the County supports the provisions of the Surface Owner Protection Act, which was enacted by the 2012 Utah Legislature to establish surface owner rights and responsibilities when working with energy development companies. An Oil & Gas Liaison has been appointed by the County to help improve communication and cooperation between fee owners and energy development companies.

9. The development of geothermal, wind and solar energy at large and small scales, for generating electricity for sale or for use on site, on public and private lands throughout the county shall be supported. The County will establish policies, guidelines, and/or goals to support the development of geothermal, wind and solar energy resources on public and private lands in the county.

10. The development of infrastructure needed to transport energy resources to market, such as railroad lines and pipelines shall be supported.

11. The development of local refineries and crude upgrading facilities shall be supported.

12. The use of alternative fuel vehicles and development of fueling facilities for said vehicles shall be supported.

13. The development of technologies that will further the development of the vast oil shale and tar sands resources in the Uinta Basin shall be supported.

14. Oil and gas production in the Uintah Basin has increased in recent years due to technological advancements such as hydraulic fracturing or “fracking”. Fracking is regulated by the State of Utah and has produced no documented instances of earthquakes or negative impacts to water quality. Duchesne County supports the continued regulation of oil and gas production, including fracking, by the State of Utah and opposes efforts by the federal government, such as federal fracking rules, which add unnecessary layers of bureaucracy and increased costs to producers.

15. The Utah Department of Transportation’s (UDOT’s) 2015–2040 Long-Range Transportation Plan (UDOT 2015) will be supported. Energy development generates the need for sufficient transportation facilities to support the industries. This plan supports the widening of U.S. Highway 40 and the development of passing lanes in Duchesne and Uintah Counties.

16. The decisions of the BLM Vernal ROD/RMP should remain in effect until they are lawfully amended so that energy projects are not held up for an undetermined amount of time while a decision is considered.

Uintah Basin Energy Zone

There is established, pursuant to Utah Code, the Uintah Basin Energy Zone in Duchesne County for the purpose of maximizing efficient and responsible development of energy and mineral resources. The land area and boundaries of the Uintah Basin Energy Zone in Duchesne County consist of federal lands within the Townships and Ranges described below and as depicted on Map #10.

Uintah Special Base and Meridian: Township 3N, Range 1W; Township 3N, Range 2W; Township 3N, Range 3W; Township 3N, Range 4W; Township 2N, Range 1W; Township 2N, Range 2W; Township 2N, Range 3W; Township 2N, Range 4W; Township 2N, Range 5W; Township 2N, Range 6W; Township 1N, Range 6W; Township 1N, Range 7W; Township 1N, Range 8W; Township 1N, Range 9W, Township 5S, Range 8W, Township 5S, Range 9W; Township 6S, Range 3W; Township 6S, Range 4W; Township 6S, Range 5W; Township 6S, Range 6W; Township 6S, Range 7W; Township 6S, Range 8W; Township 6S, Range 9W; Township 7S, Range 4W; Township 7S, Range 5W; Township 7S, Range 6W; Township 7S, Range 7W; Township 7S, Range 8W; Township 7S, Range 9W.

Salt Lake Meridian: Township 8S, Range 15E; Township 8S Range 16E; Township 8S, Range 17E; Township 9S, Range 15E; Township 9S, Range 16E; Township 9S, Range 17E; Township 10S, Range 14E, Township 10S, Range 15E; Township 10S, Range 16E; Township 10S, Range 17E; Township 11S, Range 10E; Township 11S, Range 11E; Township 11S, Range 12E; Township 11S, Range 13E; Township 11S, Range 14E; Township 11S, Range 15E; Township 11S, Range 16E; and Township 11S, Range 17E.

The county finds, based on the 2002 Mineral Potential Report for the BLM Vernal Planning Area, that the lands comprising the Uintah Basin Energy Zone contain abundant, world-class deposits of energy and mineral resources, including oil, natural gas, oil shale, oil sands, gilsonite, coal, phosphate, gold, uranium, copper, sand/gravel, dimension/building stone, as well as areas with high wind and solar energy potential.

The highest management priority for all lands within the Uintah Basin Energy Zone is responsible management and development of existing energy and mineral resources in order to provide long-term domestic energy and supplies for Utah and the United States.

Policies: Duchesne County supports:

1. Efficient and responsible full development of all existing energy and mineral resources located within the Uintah Basin Energy Zone, including oil, oil shale, natural gas, oil sands, gilsonite, phosphate, gold, uranium, copper, solar, and wind resources; and

2. A cooperative management approach among federal agencies, state, and local governments to achieve broadly supported management plans for the full development of all energy and mineral resources within the Uintah Basin Energy Zone.

The county calls upon the federal agencies who administer lands within the Uintah Basin Energy Zone to:

1. Fully cooperate and coordinate with the county to develop, amend, and implement land and resource management plans and to implement management decisions that are consistent with the purposes, goals, and policies described in this section to the maximum extent allowed under federal law;

2. Expedite the processing, granting, and streamlining of mineral and energy leases and applications to drill, extract, and otherwise develop all existing energy and mineral resources located within the Uintah Basin Energy Zone, including oil, natural gas, oil shale, oil sands, gilsonite, phosphate, gold, uranium, copper, solar, and wind resources;

3. Allow continued maintenance and increased development of roads, power lines, pipeline infrastructure, and other utilities necessary to achieve the goals, purposes, and policies described in this section;

4. Refrain from any planning decisions and management actions that will undermine, restrict, or diminish the goals, purposes, and policies for the Uintah Basin Energy Zone as stated in this Resolution; and

5. Refrain from implementing a policy that is contrary to the goals and purposes described within this Resolution.

The county calls upon Congress to establish an intergovernmental standing commission among federal, state, and local governments to guide and control planning decisions and management actions in the Uintah Basin Energy Zone in order to achieve and maintain the goals, purposes, and policies described in this Resolution.

Energy and Water Considerations

Findings: The production of energy resources can have impacts on water quality.

Policy: It is the policy of Duchesne County that the development of energy resources be conducted in a manner that minimizes adverse impacts to water quality in accordance with state and federal standards.

Findings: The production of energy resources can have impacts on water supplies.

Policy: It is the policy of Duchesne County that the development of energy resources be conducted in a manner that uses water in accordance with terms set forth by the Utah Division of Water Rights and the State Engineer.

Other Energy Considerations

Findings: Data from the federal Office of Natural Resources Revenue (ONRR), compiled in 2015, reveals that federal revenues generated from natural resource development in Duchesne County reached $37.2 million in federal fiscal year 2010, $36.5 million in federal FY 2011, $40.2 million in FY 2012, $45.8 million in FY 2013 and $53.9 million in FY 2014. Much of this revenue came from oil and gas development.

Policy: Maintaining the Duchesne County energy industry and the associated revenue should be a high priority for local, state and federal government agencies.

Mining & Mineral Resources in General (other than Energy)

Findings: Section 40-8-2 of the Utah Code states that a mining industry is essential to the economic and physical well-being of the state.

The State of Utah collects a severance tax from the mining industry. Table EM4 shows the impact of this fee on the state budget.

Table EM4. Mining Severance Tax Net Revenue in Utah

Fiscal Year	Mining Severance Tax Net Revenue Collected
2011	$ 27,118,296
2012	$ 25,401,211
2013	$ 16,940,927
2014	$ 15,850,801
2015	$16,346,625
2016	$ 6,977,039
Total	**$108,634,899**

Source: Utah State Tax Commission, FY 2011-2016 Annual Reports

Continued access to mineral resources associated with public lands is paramount to the well-being of Duchesne County's and the State of Utah's economy, the national economy, and national security especially because mining is on a different economic cycle than the oil and gas industry.

It is necessary to alter the earth's surface to extract minerals required by our society, but such mining should be done in a manner that minimizes undesirable effects and provides for reclamation of the surface when mining is completed.

The Utah Division of Oil, Gas & Mining requires permits for mining operations in the state. According to the DOGM website, there are six active mines, one proposed mine and five retired mines in Duchesne County (see Map #11). The active mine permits are for rock and building stone, rip rap, calcite, silver, copper, uranium and gold.

According to the USFS mineral specialist, there are two calcite mines located on the Ashley National Forest in the Blind Stream area. The Honeycomb Mine is an intermittently active open pit mine, producing small tonnages of locatable high-value decorative calcite blocks, for use in countertops, light fixtures, and other assorted decorative household fixtures and semi-precious gemstone applications. The Amber Onyx Mine is a proposed and approved open pit mining operation, similar in scale and nature to the Honeycomb Mine. When it begins operating, this mine is expected to produce small tonnages of decorative calcite boulders, similar to those from the Honeycomb Mine.

The USFS has permitted the Dal Cuinn Exploratory Drilling Project, located in the Dry Ridge area west of Moon Lake. It is a small-scale exploratory drilling program seeking to demonstrate and delineate the occurrence of disseminated copper-silver mineralization. There has been ongoing exploration with no production and no significant un-reclaimed disturbance.

The Ashley National Forest is also the site of the Iron King Exploratory Drilling Project, in the Pole Mountain / Farm Creek area of northeastern Duchesne County. This project is a small-scale exploratory drilling program, seeking disseminated and fault-bound precious metals in the Farm Creek Area. This project currently includes 1.6 miles of temporary road, and single plugged drill hole. The site is planned for reclamation, but as of August 2016, had not yet been reclaimed, according to the USFS minerals specialist.

Finally, the USFS service has also permitted the Kenya's Quest Exploratory Drilling Project, in the Rock Creek area. This is a small-scale exploratory drilling program, seeking disseminated precious metals. This project has been approved, but as of August 2016, has not yet begun active drilling operations.

The retired mine sites shown on Map #11 were for hematite gemstones, sandstone and clay extraction operations. The clay extraction was active during the expansion of the Big Sand Wash Reservoir.

The *Bureau of Land Management Vernal Field Office Record of Decision and Approved Resource Management Plan (*Vernal ROD/RMP; BLM 2008) allocates the following acreages for mineral exploration and development activities on public lands (information about oil and gas leasing can be found in the Energy and Mineral Resources section):

- Unavailable: 190,434 acres
- Open (subject to major constraints such as no surface occupancy [NSO]): 86,789 acres
- Open (subject to moderate constraints such as timing limitations/controlled surface use): 890,280 acres
- Open (subject to standard terms and conditions): 750,131 acres
- Total: 1,917,634 acres

The BLM Vernal ROD/RMP (BLM 2008) includes the following management decisions regarding mining on public lands (information about oil and gas leasing can be found in the Energy and Mineral Resources section):

- For leasable minerals:
    - 36,846 acres of BLM-administered lands along 172 miles (approximately 11 miles in Duchesne County) of Gilsonite veins will be available for prospecting, leasing, and development (additional veins located through field study or prospecting will also be available if such are within "open" category lands).
    - 76,208 acres of BLM-administered lands (none of which are located in Duchesne County) will be open to phosphate prospecting, leasing, and development with standard and special stipulations within the phosphate occurrence areas.
    - Other minerals defined in the BLM Vernal ROD/RMP include coal, asphalt, sulfur, potassium, and sodium. However, no designated leaseable acreages are provided for these minerals.

Mineral allocations and mining information in Duchesne County is shown on Map #12.

- For locatable minerals:
    - Operations on lands open to mineral entry (as well as on claim locations that pre-date withdrawal) must be conducted in compliance with 43 Code of Federal Regulations (CFR) 3809 and 3715 regulations. The three levels of operation under these regulations are casual use, notice, plan of operation. A plan will have to be filed for operations usually conducted under notice in the following:
        - Areas in the National Wild and Scenic Rivers System and areas designated for potential addition to the system.
        - Designated areas of critical environmental concern.
        - Areas designated as part of the National Wilderness Preservation System and administered by the BLM.
        - Areas designated as “closed” to off-highway vehicle use as defined in 43 CFR 8340-5.

        - Any lands or waters known to contain federally proposed or listed threatened or endangered species or their proposed or designated critical habitat.
        - National Monuments and National Conservation Areas administered by the BLM; see 43 CFR 3809.11(c).
        - A plan must be submitted for any bulk sampling of 1,000 tons or more of presumed ore for testing (see 43 CFR 3809.11(b)).
- For saleable minerals and mineral materials:
    - All existing mineral material sites will be evaluated to determine continual need and to ensure that they are accommodating user needs.
    - Mineral material common use areas, community pits, free-use permits, competitive and noncompetitive contract sales and testing and sampling of mineral materials may be authorized by the BLM in "open" areas.
    - 390,307 acres of BLM-administered lands (approximately 14,915 acres in Daggett County, 38,612 acres in Duchesne County, and 336,762 acres in Uintah County) will be available for mineral material disposal with standard and special stipulations (BLM 2008).
    - Close non–wilderness study area lands with wilderness characteristics to the disposal of mineral materials (106,178 acres).

In accordance with the Federal Land Policy and Management Act of 1976 (FLPMA), the U.S. Forest Service (USFS) must consider that all National Forest system lands are available for mineral exploration and development unless they are withdrawn from mineral entry and leasing. The total area within the boundary of the Ashley National Forest is 1,405,042 acres.

Approximately 20,910 acres of this area are state and private land. This leaves 1,384,132 acres available subject to the constraints imposed by the following (U.S. Department of Agriculture [USDA] 1986):

- <u>Outstanding or Reserved National Forest System Lands Mineral Rights</u>: There are 22,356 acres of acquired federal lands within the Ashley National Forest where all mineral rights are outstanding or reserved. An additional 5,087 acres have the oil and gas rights only outstanding.
- <u>Existing National Forest System Lands Withdrawals:</u> In total, 137,729 acres of National Forest System lands in Daggett, Duchesne, and Uintah Counties have been formally withdrawn from all forms of appropriation under the public land laws. This includes 33,162.6 acres of withdrawals in Daggett County, 74,188.1 acres of withdrawals in Duchesne County, and 30,379.8 acres of withdrawals in Uintah County.
- <u>Special Legislation</u>: Approximately 185,645 acres (93,930 acres in Daggett County) of

Ashley National Forest were withdrawn under Public Law 90-540 when the Flaming Gorge National Recreation Area was established on October 1, 1968. Approximately 276,175 acres were withdrawn with the passage of the Utah Wilderness Act of 1984.

  - Lands with Wilderness Characteristics: Daggett County = 40,660 acres, Duchesne County = 22,670 acres, Uintah County = 209,683 acres
  - Wilderness Study Areas: Daggett County = 7,207 acres, Uintah County = 46,831 acres.

- Summary: The National Forest land with the above constraints totals 523,344 acres. This leaves 861,355 acres, which include outstanding oil and gas rights (information about oil and gas leasing can be found in the Energy and Mineral Resources section) considered available for mineral appropriation and entry as follows:
  - Locatable minerals: 861,355 acres
  - Leasable minerals: 1,083,830 acres
  - Oil and gas: 1,083,830 acres

The Ashley National Forest applies the following objectives, standards, and guidelines to mineral activities on Forest System lands (USDA 1986):

- Objective: Control mineral activities to protect other resources, and restore disturbances resulting from mining or leasing activities.
  - Standards and Guidelines:
    - Accomplish needed reclamation work on abandoned and/or invalid mining claims.
    - Prohibit the depositing of material from drilling, processing, or site preparation in natural drainages or floodplains unless restricted to prevent contamination of overland flow.
    - Surface occupancy will be allowed only where impacts on surface resources will be acceptable.
    - Recommend against leasing and sale of minerals when critical adverse impacts cannot be mitigated.
    - Recommend withdrawal of lands from mineral leasing when there are sensitive, unique surface resources that cannot be adequately protected under current public laws and federal regulations.
    - Specific stipulations will be assigned on a case-by-case basis for all mineral activities and designed to protect other resource values.
    - Prohibit open pit phosphate mining visible from Flaming Gorge Reservoir or Highway 44 from Greendale to Manila.

        - Prohibit surface occupancy of mineral leases within 500 feet of highways and lakes.
        - Retain mineral entry withdrawal for the Sheep Creek Geological Area. Except for existing valid claims, the entire geologic area is withdrawn from all mineral entry.
        - Mineral activities will not be allowed on areas where the erosion hazard rating or geologic hazard rating is high.
        - Require leases, prospectors, and miners to complete reclamation work on all disturbed lands.
        - Disposal of mineral waste material will be allowed only when there is no risk to the public or will not result in adverse environmental impacts.
- Objective: Inventory, conserve, and determine in-service needs, and establish proper use levels of all common variety minerals.
    - Standards and Guidelines:
        - Maintain an inventory of both proven and probable mineral material availability.
        - Estimate in-service demands and allow out-service use only in excess of that need.

The State of Utah School and Institutional Trust Lands Administration (SITLA) manages 3.4 million surface and subsurface acres, and an additional 1.1 million acres of mineral estate, which include land in the Uintah Basin (55,051 acres in Duchesne County). The revenue generated from SITLA lands is transferred into the Permanent School Fund, and Utah's public schools are the beneficiary of 96% of all SITLA lands.

Utah Code 53C-2-4 and Utah Administrative Code R850 define SITLA's responsibilities regarding mineral leases.

The hard rock mineral, coal, and industrial mineral assets of SITLA are managed by the Administration's mining group. Revenue is generated primarily through rents and production royalties. Crushed stone aggregate and tar sands are the main (non-oil and gas) mineral assets SITLA manages in the Uintah Basin. Information about oil and gas leasing can be found in the Energy and Mineral Resources section.

Minerals on Uintah and Ouray Reservation lands are managed by the Ute Tribe and the U.S. Bureau of Indian Affairs.

Coal

Coal is the remains of plant material preserved in stratified layers in the earth's crust. Mining of

coal beds in Utah is conducted mainly to provide fuel for the electric power generation industry, as well as for some commercial and industrial uses. Minable coal occurs in beds greater than four feet thick and at depths generally less than 3,000 feet deep.

The Utah Division of Oil, Gas and Mining has identified one coal field in Duchesne County (see Map #13). The coal field is located in the Tabby Mountain area, where much of the surface is owned by the State Institutional Trust Lands Administration and most of the coal has tribal mineral rights. A 1980 study by Margaret A. Adams and James N. Kirr found that the Tabby Mountain coal field contains an estimated 1.8 billion short tons of coal, with about 231 million tons found in coalbeds greater than four feet thick and less than 3,000 feet deep.

The Mineral Potential Report for the Vernal Planning Area, prepared for the Vernal BLM Field Office in October 2002, verified the occurrence of coal in these areas, but noted that "it is highly unlikely that coal will be developed in the Planning Area in the foreseeable future because of the low-grade quality of the coal in the area and the high-grade abundant coal in nearby Colorado and Wyoming. Coal extraction did occur in the first half of the 20th century at a few mines on private lands. Maximum coal production from the Planning Area (10,000 to 13,000 tons) occurred in 1903. The total historic production from all mines in the Planning Area is estimated at 250,000 tons."

Coal is a low-cost, bulk commodity that is sensitive to transportation costs, and therefore development is often constrained by proximity to existing road and railroad transportation infrastructure. There is no railroad service in Duchesne County. There are no active coal mining permits in Duchesne County, according to the Utah Division of Oil, Gas and Mining and Duchesne County contains only 0.1% of the coal resources in Utah.

Mining and Mineral Resource Objectives

Continue to allow access, and increase access to public lands for mining and mineral resource development in a manner that 1) satisfies local and national needs and provides for economical and environmentally sound exploration, extraction, and reclamation practices; and 2) is consistent with, and complementary to, the County's lifestyle, character, and economy.

Mining and Mineral Resource Policies

1. Mining and mineral resource exploration and development are consistent with the multiple use philosophy for management of public lands. These activities constitute a temporary use of the land that will not impair its use for other purposes in the future. All mineral resource exploration activities shall comply with appropriate laws and regulations.

2. All available, recoverable solid mineral resources in Duchesne County should be seriously considered for contribution or potential contribution to the state's economy and the economies of the respective counties.

3. Those portions of Duchesne County shown to have reasonable mineral potential should be open to leasing and other access with reasonable stipulations and conditions, including mitigation, reclamation, and bonding measures where necessary, that will protect the lands against unnecessary and undue damage to other significant resource values.

4. Any prior existing lease restrictions in Duchesne County that are no longer necessary or effective should be modified, waived, or removed.

5. Restrictions against surface occupancy in Duchesne County should be eliminated, modified, or waived, where reasonable.

6. Any moratorium that may exist against the issuance of qualified mining patents in Duchesne County, and any barriers that may exist against developing unpatented mining claims and filing for new claims, should be carefully evaluated for removal.

7. Future withdrawals of land from mineral exploration and development should be avoided.

8. Consistent with Utah Code 63J-8-104, Duchesne County's support for mineral development provisions within federal land management plans will be withheld until the appropriate land management plan environmental impact statement clearly demonstrates the following:

    a. That the authorized planning agency has considered and evaluated the mineral potential in all areas of the planning area as if the areas were open to mineral development under standard lease agreements and has evaluated any management plan prescription for its impact on the area's baseline mineral potential.

    b. That the development provisions do not unduly restrict access to public lands for mineral exploration and development.

    c. That the authorized planning agency has supported any closure of additional areas to mineral leasing and development or any increase of acres subject to NSO restrictions by adhering to:

        1. The relevant provisions of FLPMA, 43 United States Code (USC) 1701 et seq.;

        2. Other controlling mineral development laws;

        3. The controlling withdrawal and reporting procedures set forth in FLPMA, 43 USC 1701 et seq.; and

        4. The relevant laws and regulations governing land management decisions of the USFS, the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, and other federal agencies managing land in the Uintah Basin.

d. That the authorized planning agency evaluated whether to repeal any moratorium that may exist on the issuance of additional mining patents.

e. That the authorized planning agency analyzed all proposed mineral lease stipulations and considered adopting the least restrictive necessary to protect against damage to other significant resource values.

f. That the authorized planning agency evaluated mineral lease restrictions to determine whether to waive, modify, or make exceptions to the restrictions on the basis that they are no longer necessary or effective.

g. That the authorized federal agency analyzed all areas proposed for NSO restrictions, and that the analysis evaluated:

1. Whether analysis of management prescriptions demonstrates that the proposed NSO prescription, in effect, sterilizes the mineral resources beneath the area; and

2. Whether, if the minerals are effectively sterilized, the area must be reported as withdrawn under the provisions of FLPMA.

9. Identification of mineral potential and location is important for planning future energy needs and resource management. All management plans must address and analyze the possibility for the development of mineral resources where there is a reasonable expectation of their occurrence within the planning area.

10. All mining permits and applications should be processed on a timely basis, provided that the applicant follows proper procedures and submits all required information at the time of application. The regulations implementing the National Environmental Policy Act provide guidance on reducing delay (40 CFR 1500.5). The Utah Administrative Code R645 and R647 include the timelines and requirements for mining permit applications.

11. Development of mineral resources of Duchesne County should be encouraged. The bypassing of valuable mineral resources within developed areas should be avoided. The requirements to mitigate or reclaim mineral resource development projects should be based on credible evidence of significant impacts to natural or cultural resources.

12. Mining operations that serve the energy industry should be supported, provided that such operations comply with the requirements of county zoning ordinances that attempt to mitigate nuisance impacts on surrounding property owners. In split-estate situations, the subsurface owners shall work cooperatively with surface owners to resolve any nuisance issues.

13. The development of mining and mineral resources should be conducted in a manner that minimizes adverse impacts to water quality in accordance with local, state, and federal standards.

14. The development of mining and mineral resources should be conducted in a manner that uses water in accordance with terms set forth by the Utah Division of Water Rights and the State Engineer, county zoning ordinances, and is in compliance with other applicable laws and regulations, such as Utah Administrative Code R317-1-3.3, which requires that discharges having reasonable potential to discharge phosphorus implement new water quality monitoring requirements and the dischargers must meet specified effluent limits by January 1, 2020.

15. Provide, as appropriate, incentives to encourage economic development and stimulate natural resource-based business recruitment, retention, and expansion activities.

16. An environment that is conducive to owner-operator natural resource-based businesses should be encouraged, created, and maintained.

17. A broad spectrum of educational and vocational programs relating to natural resource use and development should be encouraged and supported.

18. County land use plans and regulations that complement Duchesne County's natural resource exploration and development interests and objectives should be maintained and should accommodate resource planning efforts.

19. Additional transportation options (including air, rail, pipeline, and interstate roadway system, corridors) to expand natural resource development opportunities and markets should be explored.

Energy Considerations

Findings: The energy industry in Duchesne County relies on a supply of rock and gravel to construct roads and well pads needed to produce energy resources.

Policy: It is the policy of Duchesne County to support mining operations that serve the energy industry, provided that such operations comply with the requirements of the County zoning ordinance that attempt to mitigate nuisance impacts on surrounding property owners.

Water Considerations

Findings: The production of mining and mineral resources can have impacts on water quality.

Policy: It is the policy of Duchesne County that the development of mining and mineral resources be conducted in a manner that minimizes adverse impacts to water quality in accordance with state and federal standards.

Findings: The production of mining and mineral resources can have impacts on water supplies.

Policy: It is the policy of Duchesne County that the development of mining and mineral resources be conducted in a manner that uses water in accordance with terms set forth by the Utah Division of Water Rights and the State Engineer.

Section 3. Agriculture

Agriculture in General

Findings: Duchesne County contains substantial farm lands which produce a variety of high quality agricultural products. The 2012 Census of Agriculture revealed that there are 1,058 farms in Duchesne County. This is an increase from 932 farms counted in 2002 and 879 farms counted in 2007. Of the 1,058 farms, 410 (38.8%) produce beef cattle, but only 10 dairy farms remain. The land area in farms in the County in 2012 was 1,088,559 acres, which is 52% of the total county land area. This acreage includes public lands rangeland allotments. Pasture and rangeland covered 954,517 acres, or 87.7% of all farm land. The remaining percentage is in Cropland (7.2%), Woodland (2.7% and Farmsteads (2.5%). The total acreage in farms has decreased from 1,304,716 acres counted in the 2002 Census of Agriculture. Thus, although the total number of farms has increased from 2002 to 2012, the total acreage in farms has decreased, showing a trend toward smaller farms. The average size of farms in Duchesne County decreased from 1,400 acres in 2002 to 1,029 acres in 2012.

The estimated market value of land and buildings on farms in Duchesne County has steadily increased from an average of $535,609 in 2002 to $809,965 in 2007 to $856,720 in 2012. Likewise, the estimated market value of machinery on farms in Duchesne County has steadily increased from $65,921 in 2002 to $78,236 in 2007 to $98,000 in 2012.

The amount of irrigated farm land has increased slightly from 94,723 acres in 2002 to 100,909 acres in 2012. The County has seen a decrease in flood irrigation as federal programs have provided resources to install irrigation systems that decrease the amount of salinity deposited into waterways.

Policy: It is the policy of Duchesne County to support efforts to provide more efficient irrigation systems that decrease salinity impacts in the Colorado River Drainage basin.

Findings: The market value of agricultural products sold by farms in Duchesne County increased from $46,047,000 in 2002 to $57,123,000 in 2012. Of the 2012 value of sales, 66.8% came from livestock and 33.2% from crops. Although the amount of acreage in farms has decreased, that decrease has not prevented the value of products sold from increasing.

The number of farms receiving government payments decreased from 201 in 2002 (receiving $1,643,000 in support) to 89 in 2012 (receiving $455,000 in support).

The number of farms with an operator whose primary occupation is farming decreased from 472 of the 932 farms (50.6%) in 2002 to 375 of the 1,058 farms (35.4%) in 2012. The data show that more farmers are making their living from other occupations than in the past. According to the *Profile of Agriculture*, found in the Headwaters Economics Economic Profile System (EPS), Duchesne County had 1,037 persons employed on farms in 2014, which is 7.4% of the total employment in the County. This compares to only 1.4% of jobs in farming nationwide. Farm

labor earnings in Duchesne County were only 4.4% of total labor earnings in the county. From 1970 to 2014, net farm business income in Duchesne County increased from $8.9 million to $29.8 million. However, there have been several years recently when farm business net income was "in the red" (2007, 2009, 2010) only to rebound strongly in 2012-2014.

Objective: The County will continue to support "value-added" agricultural programs. In 1995, Duchesne was one of three counties selected by the State to participate in a "value-added agriculture" feasibility study. This opportunity explored "adventure tourism and ranching" opportunities in the area.

Policy: The County will continue to pursue "value added agriculture" options with the assistance of local Utah State University extension agents and offices.

Other resources available to agricultural interests within the County include the Uintah Basin Applied Technology Center, the Natural Resources Conservation Service, Dinosaurland Resource Conservation and Development, and the United States Forest Service. These institutions and agencies are actively involved in providing expertise and funding for agriculture-related projects.

One such funding source is the federal Grassland Reserve Program. According to the USDA Natural Resource Conservation Service, the Grassland Reserve Program (GRP) is a voluntary program that helps landowners and operators protect eligible grazing lands, including rangeland, pastureland, shrubland and certain other lands using rental contracts or conservation easements. The program emphasizes support for working grazing operations, enhancement of plant and animal biodiversity, and protection of grasslands under threat of conversion to cropping, urban development and other activities. Eligible land includes privately owned grasslands; land that contains forbs (including improved rangeland and pastureland or shrubland) for which grazing is the predominant use; or land that is located in an area that historically has been dominated by grassland, forbs, or shrubland that has the potential to serve as wildlife habitat of significant ecological value. In 2011, the Grassland Reserve Program was used to fund $18.2 million worth of sage grouse habitat conservation work in Idaho, Utah and Wyoming. Utah received $2.3 million of this funding, which was used in seven projects in Box Elder, Rich and San Juan counties.

Policy: The County will facilitate on-going interaction between information and training resources and County agricultural interests to ensure that residents are fully aware of available technological advances and funding sources.

Energy and Agriculture

Energy resources in Duchesne County have been developed on federal, state, tribal and private lands. Due to restrictive policies of the federal government, the percentage of energy production on federal lands has been decreasing. Energy companies have increasingly moved onto private lands to develop energy resources, which can result in conflicts between the agricultural surface

owners and the subsurface mineral owners. Duchesne County has appointed an Oil & Gas Liaison to help resolve such conflicts. Other issues, such as continued greenbelt taxation of oil and gas well lease sites, remain under discussion.

Policy: It is the policy of Duchesne County that surface disturbance associated with energy development, including loss or damage to agricultural lands, irrigation systems, crops or surface improvements due to energy development (such as well pads, roads and pipelines) shall be limited to that which is reasonably necessary and practical to extract the resource.

Agricultural Water Use

Agriculture operations require water for irrigation of crops and pastures. Since much of Duchesne County receives around ten inches of precipitation on an average year, farmers rely on supplemental irrigation water, much of which comes from streams and reservoirs on the south slope of the Uinta Mountains. See Section 11 of this plan for more detailed considerations and County policies associated with Irrigation.

Agricultural Pests

Grasshoppers and Mormon Crickets do a lot of damage to agricultural crops on private and public lands in Duchesne County. The Utah Department of Agriculture and Food, in cooperation with local county extension services, surveys and monitors the population of such pests. This data is used to target the spraying of pesticides to reduce the impacts of such infestations.

In its 2015 Utah Mormon Cricket and Grasshopper Report, the department provides data showing the trends in cricket and grasshopper infestation since 2000. In Duchesne County, the worst year for grasshopper infestation was 2004; in which 230,190 acres were affected. The next highest years during this period were 2009 and 2001; in which 85,391 and 82,400 acres were infested respectively. No infestations of grasshoppers were found in 2005. In the past five years, an average of slightly less than 19,000 acres of land has been infested. In 2015, Duchesne County saw 22,817 acres infested, with 17,502 of those acres being privately owned. This was the third highest acreage infested of the 29 counties in the state.

Mormon crickets have been less of a problem recently in Duchesne County. There was a large infestation of crickets in 2001 (83,900 acres) and a smaller infestation of 7,000 acres in 2002; but no infestations since that time.

The Utah Department of Agriculture and Food published a 2012 report on its accomplishments in controlling insect pests, which included the following Summary of Invasive and Native Pests Risk:

- Africanized Honey Bee: Potential to disrupt Utah's $1.5 million honey industry, health risks to humans and livestock. As of the 2012 report, this species had not been found in Duchesne County; but has been found in four southern Utah counties.

- Orchard Pests such as Apple Maggot, Brown Marmorated Stink Bug, Chinese Long Horn Beetle, Plum Curculio, Spotted Wing Drosophila and Cherry Fruit Fly: Potential to devastate Utah's $17 million fruit industry.

- Cereal Leaf Beetle: Potential to reduce Utah's $715 million small grain and field crop industry.

- Emerald Ash Borer: Threat to kill all ornamental and native ash trees in Utah.

- European Corn Borer: Potential to devastate Utah's $69 million corn harvest.

- Gypsy Moth: Potential to destroy Utah's watersheds, coniferous forests, and residential landscapes.

- Japanese Beetle: Potential to damage Utah's $128 million nursery and floriculture industry, and $17 million fruit industry.

- Mormon Cricket and Grasshopper: Potential to significantly reduce Utah's $715 million small grain and field crop industry.

- Red Imported Fire Ant: Economic damage caused in the US exceeds $5 billion, public health risk.

Policy: It is the policy of Duchesne County to support efforts to control agricultural pests that do or could in the future affect county agriculture through the use of surveys and targeted pesticide applications. The County encourages state and federal agencies and the Ute Tribe to support similar pest control efforts on lands under their management within the county.

Agricultural Sustainability

As agriculture in Utah continues to face increased pressure from urban development, changing demographics, economic pressures, and a myriad of other issues, it is becoming increasingly important that policy makers and citizens understand the critical role that agriculture plays in promoting Utah's security, economy, society, culture, and well-being.

To better understand and address these concerns, former Lieutenant Governor Greg Bell and former Commissioner of Agriculture Leonard Blackham convened the Utah Agriculture Sustainability Task Force in 2011. The Task Force was comprised of state legislators, local government officials, conservation districts, agricultural producers, and other interested parties. They came together to gather and analyze data and information, and to make recommendations to promote the sustainability of all types of agriculture in Utah. During the discussion of key agricultural sectors, eight major issues emerged:

Food Security - Local farming gives us the ability to feed people in their communities independent of outside influences and keeps dollars spent on agricultural products in the local economy. Once prime or important agricultural lands are converted to urban development, the ability to produce food is lost and our ability to be self-sufficient is decreased.

Invasive Species - More effective coordination is needed to inventory and control weeds on public and private lands. Increased public awareness is critical to minimize the spread of invasive species.

Grazing Management - Livestock grazing is the dominant sector in Utah agriculture. While the number of permitted livestock on public lands has been decreasing, rangeland can support additional livestock grazing that is beneficial to wildlife, healthy lands, and quality recreational opportunities, if it is properly managed. Landscape-scale grazing management can be a tool to effectively manage natural resources for wildlife and livestock.

Immigration - Utah farms and ranches require an ample, sustainable, and legal workforce.

Urban Agriculture - Urban agriculture is a growing segment in which ―every acre counts‖. Creating agriculture-friendly zoning ordinances will help expand food-producing opportunities throughout our cities and counties.

Agriculture Promotion and Profitability - To be sustainable, agriculture must be *profitable*. This will require increased local marketing opportunities, processing capacity, and distribution networks.

Next Generation Farms - As the average age of farm operators in Utah continues to increase, it will be important to provide Utah farmers and ranchers with reasonable options for generational farm transfer.

Irrigation Infrastructure - The availability of water is critical to agriculture. Improving water distribution systems to deliver water to farm lands in a cost-effective manner will be important for both sustainable agriculture and projected population growth.

In order to address these issues, the Task Force developed a list of proposed actions that state, local and federal governments and the private sector can implement. All proposed action items were unanimously supported by all members of the task force, with the exception of conservation easements. A few members of the task force had concerns with the structure and appropriateness of conservation easements. Duchesne County supports the findings and recommendations of the Task Force below.

Agriculture Sustainability Task Force Proposals:

Policy: Prime, important and unique agricultural lands and soils are vital to sustain human life. The protection of prime agricultural lands should be given the same consideration as other lands

by federal agencies, the State of Utah, and its political subdivisions. It is important these lands be conserved for our food security needs.

Proposed Actions:

State

- Develop legislative policy that provides protection for important agricultural lands and soils equal to wetlands in order to sustain food security.
- Fund conservation easement legislation that gives priority to important productive agricultural lands with prime soils or important farmlands. Dedicate greenbelt rollback monies to conservation easements or other productive agricultural uses within the counties where rollback funds are generated. Enable local conservation districts to make recommendations to county commissions related to the use of annual rollback funds.
- Provide new monies to the LeRay McAllister Fund to match funds for conservation easements on productive agricultural lands with prime state or locally-important soils.
- Create a separate greenbelt designation for smaller-acreage productive operations.
- Amend Utah law to fund mitigation of agriculture lands lost to eminent domain.
- Amend Utah law to encourage energy producers to use directional drilling and other techniques to minimize the surface impacts on agricultural lands caused by energy development.
- Provide a $1,000,000 increase in money from the State of Utah General Fund for invasive species mitigation, especially weed control.
- Consider other sources of funding for weed control tied to the spread of weed seeds including: funds earned from unclaimed property, trailer licenses, noxious weed impact fees from recreational ATVs, gravel pit fee assessments, a portion of the sportsmen fees gathered by the Utah Department of Natural Resources, and other appropriate sources.
- Provide $1,000,000 of on-going state funding to increase landscape-scale coordinated resource management planning. Where feasible, this money will facilitate the development of grazing management plans, watering facilities, fencing improvements, weed control, and other grazing improvement projects.
- Augment existing funding or develop alternative funding sources to improve and update irrigation system technologies.
- Enhance the Utah Division of Wildlife Resources Big Game Depredation program to mitigate crop and other damages caused by big game to farm and ranch land.

Utah Department of Agriculture and Food

- Increase the capacity of the Utah Department of Agriculture and Food to directly participate in the planning of state and local infrastructure needs when agricultural lands are an issue.
- Work with the Governor‘s Office of Economic Development to improve local processing capacity.
- Develop incubator kitchens in each county to provide small agricultural companies places to test new products.

Local

- Encourage local governments to recognize the importance of agricultural land uses in their general plans, policies and ordinances.
- Encourage local governments to develop specialized local food security plans that work toward these goals.
- Partner with USU Extension, conservation districts, county and city officials, and other interested parties to provide technical assistance for conservation.

Federal

- Encourage the federal government to eliminate subsidies for agriculture-related products diverted from the food supply for energy production.
- Urge the federal government to allow greater state agricultural environmental stewardship oversight using the traditional educational and voluntary programs of the USDA, conservation districts, and the Utah Department of Agriculture and Food as models.
- Create federal block grants to fight invasive species on federal and state lands.
- Pass a resolution calling on Congress to create a new national agriculture guest worker program.
- Support federal legislation to provide funding for improved agriculture irrigation infrastructure.

Call to Action: Under the leadership of UDAF, engage partners, educational institutions, support groups, and others to:

- Update the inventory of invasive species in Utah, more clearly define the role of county weed boards in statute, and identify and prioritize weed control measures.
- Establish outreach and education campaigns to inform the public about how to minimize the spread of invasive species.

- Improve agricultural product distribution capacity by supporting the existing *Utah's Own* program to provide:
    - Incentives and/or legislation to encourage local stores, restaurants, school lunch programs, state agencies, and other public sector services to buy Utah products first, (when available)
    - A fund to facilitate central distribution points for the purchase of local Utah agricultural products
    - Promotion of innovative agricultural practices and products in our partnerships with food buying groups, restaurant groups and emerging businesses
- Increase the funding and effectiveness of predator control, and allot reasonable and sufficient compensation to agricultural producers for wildlife impacts that may disrupt agricultural production.
- Support Utah House Bill 116: an ample, sustainable and legal workforce is critical for our farms and ranches.
- Oppose using E-verification to verify worker status until federal guest worker laws are in place.
- Work with Utah State University and support groups to develop and implement planning and farm transfer programs that will complement retirement and insurance programs for farmers and ranchers. Support efforts to match farmers without identified successors, with young farmers seeking opportunities to purchase or lease farms or ranches. Encourage the financial community to finance farm ownership transfer.
- Work with conservation districts in a statewide effort to map Utah irrigation systems, and educate the general public about the irrigation needs of agriculture and the benefits of well-maintained irrigation delivery systems.

Policy

Duchesne County concurs with the findings of the 2011 Utah Agriculture Sustainability Task Force as published in their report dated January, 2012 and supports efforts at the local level to protect agricultural land and sustain the agricultural industry in the County.

Section 4. Livestock & Grazing

Livestock & Grazing in General

Findings: Agricultural production in Duchesne County is based mainly on the rearing of livestock and crops to support the livestock industry. As part of the livestock industry, the use of pastures and rangelands are an important tool used in the area. Pasture and rangeland health are key to long-term watershed health and profitability. Often, livestock using permitted allotments are under-managed by ranchers who are unable to make dramatic changes in grazing plans due to regulatory, financial, legal, and technical complications. Proper nutrient management is key to water quality concerns for animal feeding operations that combine the use of pastures/rangelands and corals for confined feeding of animals.

Today's rangeland in Duchesne County provides feed for domestic livestock, forage and habitat for wildlife, and outdoor recreation. The various demands on this resource make grazing on public lands a delicate balance. Most of the grazing occurs in the summers in the forests, with some winter grazing occurring in the lowlands. Federal and state rangelands have been an important source of livestock grazing, while private lands provide feed for use in winter.

Rangelands are an integral part of the economy and the landscape of Duchesne County. A comprehensive range management program cannot be overemphasized. The majority of the livestock operators in the county are dependent upon rangelands for their forage base, and large portions of livestock are grazed on public lands. Numerous wildlife species also use these same public and private lands. Pasture and rangeland health are key to long-term watershed health and profitability. Drought years limit available water for irrigation and stock. Inadequate water developments create management challenges that limit livestock distribution. Being located in a salinity control area, funding for improved irrigation systems and pipelines has become available and yields and management have increased.

Animal agriculture in Utah represents the single largest sector of farm income in Utah. At a value of more than $1 billion, 25 of the state's 29 counties report livestock as the dominant agricultural sector (Utah Department of Agriculture and Food 2016).

The cultural heritage of Duchesne County is based on agriculture and livestock. These industries formed the historic basis of the local economy from the beginning days of settlement until the development of significant oil and gas resources in the early 1970s. Livestock grazing influenced lifestyles, left its imprints on the landscapes, and is one of the oldest enduring and economically important cultural heritage resources in the west. The following data from the U.S. Census of Agriculture illustrate the trends taking place in Duchesne County livestock and grazing.

Duchesne County has traditionally contained more livestock than people. The 2002 Census of Agriculture counted 63,395 head of cattle and calves in Duchesne County. By the 2007 Census, that count had dropped to 45,222 head. By 2012, the number rebounded upward to 46,907 head.

The number of beef cows in Duchesne County dropped from 30,651 in 2002 to 24,823 in 2007 then rebounded to 28,082 in 2012. This ranked Duchesne County third in the State of Utah for the number of beef cows. The number of farms raising beef cows increased from 458 in 2002 to 558 in 2012.

The number of milk cows in the County has also decreased over the past three census periods, from 3,050 in 2002 to 2,249 in 2007, with an increase to 2,608 in 2012. The number of farms raising milk cows decreased from 30 in 2002 to 20 in 2012.

The Census of Agriculture also counts "other cattle" which include heifers that had not calved, steers, calves and bulls. The number of other cattle in Duchesne County has decreased from 29,694 head in 2002 to 18,150 in 2007 to 16,127 in 2012.

The population of sheep and lambs in Duchesne County has decreased substantially over the past three census periods, from 7,525 head in 2002 to 2,072 in 2007 and 1,514 in 2012. Summertime allotments on the south slope of the Uinta Mountains are used by Wyoming sheep ranchers. The U.S. Forest Service is looking at the impacts of domestic versus bighorn sheep in the Uinta Mountains. At the request of a permittee, the USFS recently converted an allotment in the Strawberry Peak area from sheep to cattle, which will reduce conflicts with bighorn sheep.

The number of farms raising hogs and pigs has increased from 22 (with 166 head) in 2002 to 32 (with 793 head) in 2007. By 2012, the same number of farms had only 216 head of hogs/pigs.

Between 2007 and 2012, Duchesne County had a 20% increase in the number of farms and 66% increase in the market value of products (USDA 2007, 2012). Duchesne County government payments and average per farm receiving payments has decreased slightly, -3% and -2%, respectively (see Table LG1 for more information).

Table LG1. Number of Farms, Market Value, Government Payments and Average Per Farm Receiving Payments for Duchesne County, Years 2007 and 2012

Duchesne County	2007	2012	Percentage Change
Number of farms	879	1,058	+20
Market value of products sold Crop sales = 33%, livestock sales = 67%	$34,427,000	$57,123,000	+66
Government payments	$469,000	$455,000	-3
Average per farm receiving payments	$5,209	$5,116	-2

Source: U.S. Department of Agriculture (2012).

Although farms and ranches in the County were established on a private land base, during parts of the year, livestock is pastured on public rangeland. The combination of public rangeland and private farmland constitutes the economic base for many of the County's livestock operations. If either the grazing permit on public lands or the private grazing land is lost or diminished, the economic viability of those operations can be jeopardized.

A 2013 study by Utah State University, for the Utah Department of Agriculture and Food, contained an "economic analysis of potential changes in grazing access" to public lands in several counties in Utah, including Duchesne. This study found that the production of cattle contributes 1.6% of the Duchesne County economy. By 2016, with the decline in the energy industry, that percentage has likely risen. The USU researchers found that there are about 930,000 acres of federal lands supporting the cattle industry, with just under 32,000 AUMs available.

Given production practices in Duchesne County, these federal lands support cow herds of 9,125 head and contribute to 48% of the value of cattle production. In Duchesne County, the continued availability of federal lands for grazing produces direct, indirect and multiplier effect labor income of $3.9 million and total value added to the county economy of $6.2 million per year. The study looked at the economic effects of three scenarios; the status quo, the elimination of grazing on federal lands and the transfer of federal grazing lands to the state.

The USU study found that if federal grazing lands were lost, the profitability of grazing in Duchesne County would suffer, but not as much as in other Utah counties (many of which have less than the 28% private land base that Duchesne County enjoys). While many grazers keep their animals on private lands (grazing for about seven months and feeding grass and hay for about five months) the Duchesne County grazers that do use federal lands generally do so for about 4.5 months, use private lands for about 4 months and feed hay and grass for 3.5 months during the winter. The loss of federal lands would result in added expense of purchasing livestock feed, which would reduce the profit from about $270 per cow down to about $118 per cow. Under this scenario, the labor income would drop 34% to $2.555 million and the total value added to the county economy would decrease by 31% to $4.25 million.

The final scenario looked at the impacts of transferring federal grazing lands to the State of Utah. The study found that state management could increase the grazing season on these lands by up to one month. This would add to the profitability of raising cattle provided that grazing fees charged by the state do not become excessive (a state grazing fee of $4.22 per AUM would result in 7.5% increase in value added and a 13.5% increase in labor income. However, a state grazing fee of $7.34 per AUM would largely negate those benefits).

Map #14 shows the location and types of grazing lands available on public lands in Duchesne County.

Federal grazing permits issued under the Taylor Grazing Act (BLM) or the Granger-Thye Act (USFS) allow permittees the privilege to use publicly owned forage.

Data gathered by the Utah Department of Agriculture and Food shows that the amount of federally permitted AUMs in Utah declined four fold between 1940 and 2005. On BLM land, 2,749,000 AUMs were available in 1940 but were reduced to less than 675,000 AUMs in 2009. On Forest Service land, the AUMs available decreased from 2.7 million in 1940 to 614,000 in 2008.

According to a report, circa 2008, entitled "Status of Utah Rangelands, Livestock Grazing in Utah," by Roger E. Banner, livestock grazing use on BLM-administered land has declined from 2,749,000 AUMs in 1940 to less than 1,000,000 AUMs currently, a decline of 63 percent. Much of that decrease came as licensed use decreased in the 1940s, 1950s, and 1960s, with permit reductions associated with adjudication programs to bring livestock stocking rates in line with carrying capacity of allotments.

Grazing permits on BLM-administered rangeland were reduced rather dramatically over several decades after the Taylor Grazing Act of 1934 was passed. Permit reductions in Utah began to level out in the 1960s and 1970s at about 1,250,000 AUMs, which included a substantial amount of grazing preference (AUMs) held in suspended use and unavailable for licensing. This was in response to excessive grazing use of the public domain prior to and immediately after passage of the Taylor Grazing Act and establishment of the Grazing Service, predecessor to the BLM. Suspended use represents a formal reduction in permit (AUMs) that remains with the permit under the assumption that when and if forage production increases, some or all of the suspended AUMs could be reinstated to active preference. Licensed use and suspended use, when summed, may equal active preference. However, they often do not if drought or other conditions do not support full use of active preference. For example, licensed use was curtailed on BLM-administered land in Utah during the drought years of 2003 to 2005.

Grazing permit reductions continue on BLM land. Active preference has decreased by about 6 percent over the past 12 years. This has occurred for a variety of reasons, including interpretation of BLM policy guidelines; closing of allotments or portions of allotments for wildlife benefit, recreation conflict, watershed health, erosive soils, riparian enhancement, cultural resource conflict; and special area designations, such as Areas of Critical Environmental Concern, specific recreation areas, and area restrictions associated with population goals for some wildlife.

During the 2006 Utah legislative session, in response to these declines, the Rangeland Improvement Act was passed (House Bill 145). The bill provided for the establishment of a State Grazing Advisory Board and six Regional Grazing Advisory Boards (including one with representatives from Daggett, Duchesne and Uintah Counties) to improve the grassroots voice of both private and public grazing land managers. The goals of the act are to strengthen Utah's livestock industry, improve rural economies, and enhance the environment.

A new division was then established within the Utah Department of Agriculture and Food; known as the Utah Grazing Improvement Program (UGIP). The UGIP's mission is "to improve the productivity, health and sustainability of our rangelands and watersheds." The UGIP operates under the basic beliefs that "well planned and managed livestock grazing is the most important

landscape scale tool for maintaining healthy rangelands, watersheds, and wildlife habitats" and that "healthy rangelands contribute to a healthy livestock industry and productive rural economies." The program has four major components:

1. With input from grazing boards, USU extension and the UDAF, recommend positions on grazing issues for federal and state agencies.

2. Implement projects that rehabilitate our natural resources, increase productivity and protect the landscape.

3. Work with state and federal agencies to make land management decisions that are "open" and are more reasonable, affordable and effective in addressing grazing management and productive capacity of rangeland and watersheds.

4. Partnering with others to improve resource health and preserve livestock grazing on public lands.

The UGIP has set forth the following goals:

Strengthen Utah's Livestock Industry

- Improve the sustainability of livestock grazing through science-based management principles.

- Work cooperatively with federal agencies and partners to promote efficient multiple-use management of public lands.

- Work with federal agencies and Congress to implement policies and procedures that allow maximum flexibility when addressing grazing and environmental issues.

- Curtail the decline of public lands grazing opportunity by using sustainable management practices.

Improve Rural Economies

- Maintain viable ranches as a critical contributor to the economy, customs and culture of rural Utah.

Enhance the Environment

- Demonstrate the power of managed livestock grazing as an important tool for improving/maintaining rangeland resource health.

- Plan and implement rangeland improvement projects that improve grazing management.

- Provide technical expertise and educational opportunity for working ranches and the next generation of ranchers.

The UGIP has implemented hundreds of projects since 2006. The UGIP website (http://ag.utah.gov/conservation-environmental/grazing-improvement-program.html) contains many examples of how grazing improvement projects have benefitted the range environment. These include reseeding of lands damaged by fire with vegetation that benefits wildlife and livestock, watering facilities that help reduce impacts along riparian areas and removal of juniper trees and rabbit brush infestations to allow grasses and forbs to thrive to the benefit of grazing and wildlife.

Measuring the success of the UGIP is best achieved in three main ways:

- Monitoring on the ground results of projects and land management changes. This is done using both on-the-ground and remote sensing techniques.

- Tracking the economic viability of the livestock industry and rural economies related to ranching in Utah. This includes tracking federal, state and private forage allocation over time.

- Partnering with others to improve resource health and preserve livestock grazing on public lands.

In 2007, the Governor's Office of Planning and Budget presented data to the Governor's Task Force on Sustainable Agriculture showing that the average age of the principal operator of Utah's farms and ranches has increased from 47 years of age in 1940 to 57.4 years of age. The UGIP includes a program focused on assisting the next generation of ranchers. Through a USDA grant, and in cooperation with Utah State University Extension, the UGIP has provided several multi-day rangeland management workshops over the last two years. Pre and post event surveys demonstrate the effectiveness of helping young ranchers learn from each other as well as from those who have managed successful ranches for decades.

In addition to the Grazing Improvement Program, the Utah Legislature has taken action to address the issue of wildlife eating the forage grown by ranchers to support their livestock. The legislature created the Cooperative Wildlife Management Unit (CWMU) program to provide incentives for large private land owners to manage for wildlife values. The program has resulted in vastly increased hunting opportunities and has mostly resolved wildlife/rancher conflicts on large private land holdings. However, restitution of damages to crop land is still inadequate. The program, guided by DWR, puts management in the hands of those most capable to achieve results and allows these large landowners to recover the cost of production for wildlife. Finding similar programs to provide solutions for smaller operations has been elusive.

In 2012, the Duchesne County Conservation District identified Pasture and Rangeland to be one of the top five resource conservation priorities. The District identified several challenges

associated with pasture and rangeland management:

a. Most land used for pasture consists of soils that are not suitable for other crops. These include those areas that are too wet, dry, rocky or shallow.

b. Due to lack of grazing management, or inability to utilize grazing management, some pastures are not very productive and are over-used.

c. Most pastures consist of native grasses or those grass species that can withstand livestock use.

d. Understanding of grazing management including irrigation, fertilizer, rotation and noxious weed control (including the Russian Olive).

e. Improvements to inefficient irrigation systems.

f. Invasive and Noxious weeds continue to be a concern for rangeland and watershed health.

g. Pressures from the endangered species act and the potential for listing of the Greater Sage Grouse.

h. Increasing costs of energy that impact production and transportation costs.

i. Challenges from interest groups to public lands grazing.

j. Energy production impacts on desert range lands.

k. Insect infestations, such as grasshoppers and crickets.

Section 63J-8-104 of the Utah Code states that federal land management agencies shall achieve and maintain livestock grazing on federal lands at the highest reasonably sustainable levels by adhering to the policies, goals, and management practices set forth in Subsection 63J-4-401(6)(m) of the Utah Code.

A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 42) that only 9.1% of the survey respondents in the Daggett-Duchesne-Uintah County area believed that public land managers should moderately (6.3%) or substantially (2.8%) reduce the extent to which livestock grazing occurs on Utah's public lands.

Objectives:

1. Maintain cattle and sheep grazing on BLM and U.S. Forest Service lands at the highest reasonably sustainable levels.

2. Maintain cattle and sheep grazing on BLM and U.S. Forest Service lands during seasons of use that benefit livestock producers but maintain healthy range conditions.

3. Avoid the reduction of grazing to support wildlife, especially non-native species.

4. Cooperate with U.S. Forest Service to address the transmission of disease from domestic sheep to wild sheep.

Policies: Consistent with the state laws associated with grazing on federal lands, it is the position of Duchesne County that:

1. Well managed livestock grazing, though poorly understood by the average citizen, is the most effective way to manage vegetation on a large scale to benefit watershed health and preserve wildlife habitat.

2. Improving grazing management on Duchesne County's private and public lands should be viewed as a long term priority.

3. Public lands shall be managed to maintain or increase forage allocation for livestock grazing. Annual monitoring should be done to verify whether desired conditions are being maintained.

4. Good monitoring and allotment management plans shall be supported. The County encourages frequent data collection to inform allotment management plans. The Utah Department of Agriculture and Food should be involved in areas of dispute regarding range conditions.

5. Public land agencies shall maintain livestock grazing permits and grazing allocations at present levels unless a study of rangeland conditions justifies increased or decreased grazing. The county recognizes that drought, wildfire and other factors may affect the terms of grazing permits.

6. The County opposes the reduction, relinquishment or retirement of grazing animal unit months in favor of conservation, wildlife, and other uses. Any decreases should be temporary in nature due to ever-changing range conditions. The county expects the Utah Division of Wildlife Resources to coordinate with land management agencies as they manage forage and grazing allotments for the benefit of livestock and wildlife populations.

7. Land management plans, programs, and initiatives should provide that the amount of domestic livestock forage, expressed in animal unit months, for permitted, active use as well as the wildlife forage included in that amount, be no less than the maximum number of animal unit months sustainable by range conditions in grazing allotments and districts, based on an on-the-ground and scientific analysis.

8. The County favors the best management practices that are jointly sponsored by cattlemen's, sportsmen's and wildlife management groups such as chaining, logging, seeding, burning, and other direct soil and vegetation prescriptions that are demonstrated to restore forest and rangeland health, increase forage, and improve watersheds in grazing districts and allotments for the mutual benefit of domestic livestock and wildlife. When the practices described above increase a grazing allotment's forage beyond the total permitted forage use that was allocated to that allotment in the last federal land use plan or allotment management plan still in existence as of January 1, 2005, a reasonable and fair portion of the increase in forage beyond the previously allocated total permitted use should be allocated to wildlife as recommended by a joint, evenly balanced committee of livestock and wildlife representatives that is appointed and constituted by the governor for that purpose. The County favors quickly and effectively adjusting wildlife population goals and population census numbers in response to variations in the amount of available forage caused by drought or other climatic adjustments, and state agencies responsible for managing wildlife population goals and population census numbers will give due regard to both the needs of the livestock industry and the need to prevent the decline of species to a point where listing under the terms of the Endangered Species Act when making such adjustments.

9. The County recognizes grazing permits on public lands as an asset, which may be transferred by the permit owner. Such transactions must be processed by the land management agency within a reasonable time frame after proper notification. Any reduction in the size of the permit or forage allocation as a result of the transaction shall not be made without a specific scientific justification.

10. When grazing permits are withdrawn from a livestock operator due to grazing violations, the permit shall not be reallocated to other uses and shall be made available for continued livestock use as soon as possible.

11. Access to public rangeland is a valid existing right that is vital to the permit-holders and the land management agency for planning, management, and development. Access shall be maintained open and shall be improved as management needs require.

12. The permit-holder shall be compensated for the remaining value of improvements made by the permittee on reduced allotments, unless the permit was canceled for non-compliance with grazing regulations. Said compensation will be provided for in accordance with Section 402 of the Federal Land Policy and Management Act of 1976, which provides a reasonable compensation for the adjusted value, to be determined by the

Secretary concerned, of his interest in authorized permanent improvements placed or constructed by the permittee or lessee on lands covered by such permit or lease, but not to exceed the fair market value of the terminated portion of the permittee's or lessee's interest therein.

13. The County opposes the transfer of grazing animal unit months to wildlife for reasons of rangeland health. Livestock allocations shall not be converted to wildlife allocations as long as the land supports the grazing Animal Unit Months (AUM's) assigned to the allotment. See Chapter 5 (Wildlife).

14. Reductions in domestic livestock animal unit months must be temporary and scientifically based upon rangeland conditions. Reductions in AUMs should be allocated on a species basis [wildlife, wild horse, wild burros & livestock] with a percentage allocated to each species type. The only justification for decreasing domestic livestock grazing AUM's is for there to be a valid and documented scientific finding that the range district will no longer support the AUM's in question. The BLM and Forest Service are expected to comply with and honor the domestic grazing preference on grazing districts. Likewise, the permittee is also expected to abide by the terms and conditions identified in the grazing permit.

15. Federal policies, plans, programs, initiatives, resource management plans, and forest plans may not allow the placement of grazing animal unit months in a suspended use category unless there is a rational and scientific determination that the condition of the rangeland allotment or district in question will not sustain the animal unit months sought to be placed in suspended use. Any grazing animal unit months that are placed in a suspended use category should be returned to active use when range conditions improve.

16. Federal policies, plans, programs, and initiatives related to vegetation management should recognize and uphold the preference for domestic grazing over alternate forage uses in established grazing districts while upholding management practices that optimize and expand forage for grazing and wildlife in conjunction with state wildlife management plans and programs in order to provide maximum available forage for all uses. In established grazing districts, animal unit months that have been reduced due to rangeland health concerns should be restored to livestock when rangeland conditions improve, and should not be converted to wildlife use.

17. Duchesne County recognizes that 43 CFR part 4110.3 provides for changes in permitted use. Conversion of allocated forage from one grazing animal to another would require a NEPA process that conforms to land use plans.

18. Management decisions shall be based on the individual range allotment condition and not on the overall condition of surrounding lands. Increases in available forage resulting from the conservation practices of livestock permit-holders shall not be allocated or credited to other uses.

19. Forage allocation reductions resulting from forage studies, drought, or natural disasters shall be implemented on an allotment basis. Reductions shall be applied proportionately to all allocations unless it can be proven that a specific type of grazing animal is causing the land health degradation. Duchesne County recognizes that, in the event of fire, drought or natural disaster, a variety of emergency or interim actions may be necessary to minimize land health degradation, such as temporary reduced forage allocation for livestock and wildlife. Forage allocation reductions shall be temporary. Grazing allocations shall be restored when forage production is restored.

20. Weed control efforts that affect forage allocations shall be discussed by the land management agency with livestock representatives, neighboring landowners, and the County weed specialist. After the discussion, a weed control plan shall be developed and implemented.

21. Public land management agencies shall endeavor to inspect riparian and sensitive areas with livestock permittees approximately one week before livestock are admitted to the grazing allotment. If riparian areas are damaged or degraded before the livestock enter the grazing allotment, the management agency and representatives shall make a record of the condition and appropriate mitigation shall be acceptable to all parties. A copy of the signed report shall be filed with the agency and provided to the permit-holder.

22. Increases in available forage resulting from practices or improvements implemented by managing agency will be allocated proportionately to all forage allocations, unless the funding source specifies the benefactor.

23. Changes in season of use or forage allocation must not be made without full and meaningful consultation with permittee. The permittee must be the first point of contact.

24. The continued viability of livestock operations and the livestock industry shall be supported on federal and state lands within Duchesne County by management of the lands and forage resources and the optimization of animal unit months for livestock in accordance with the multiple-use provisions of the Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701 et seq., the provisions of the Taylor Grazing Act of 1934, 43 U.S.C. 315 et seq., and the provisions of the Public Rangelands Improvement Act of 1978, 43 U.S.C. 1901 et seq.

25. Duchesne County encourages responsible and innovative grazing management, increased grazing education opportunities, rangeland restoration projects as identified by the Utah Department of Agriculture's Grazing Improvement Program, improved rangeland monitoring, noxious and invasive weed control, brush management, wildlife management, irrigation improvements, nutrient management and soils testing to improve pasture and rangeland conditions.

26. Duchesne County supports the Cooperative Wildlife Management Unit (CWMU) program and advocates its continuation and expansion to provide compensation to large and small ranching operations to offset the damage to forage crops by wildlife.

Energy Considerations

Findings: Energy development can have impacts on livestock and grazing. Energy development within grazing allotments on federal land or on grazed private lands will disturb the surface and reduce the amount of forage available for livestock. Care must be taken during the planning of energy development projects to recognize the needs of the livestock industry.

Policy: It is the policy of Duchesne County that the adverse impacts of energy development on the livestock industry shall be mitigated or compensated for.

Water Considerations

Findings: Livestock grazing, if not managed properly, can have negative impacts on water quality.

Policy: It is the policy of Duchesne County that livestock grazing be managed on public and private lands in a manner that keeps water resources from being degraded below state or federal standards.

Section 5. Wildlife

Findings: Wildlife has always been an important part of America's cultural lifestyle and is an important part of Duchesne County's tourism and recreation economy. Duchesne County and its partners recognize the need for improved management of wildlife and habitat to minimize negative impacts and maximize positive impacts to both private and public lands. Collaboration of private, federal, state, local, and other groups is needed in order to maintain healthy wildlife populations as well as to protect the local agriculture economy and watershed health.

Because Duchesne County is predominately public lands, wildlife management becomes a critical issue to watershed health, recreation, and agriculture sustainability. Invasive species, threatened and endangered species and big game encroachment are important issues. Located on the south side of the Uinta Mountains, the area is a key part of the habitat for many big game species and grazing lands for livestock.

In Utah, "wildlife" includes brine shrimp and crayfish; mollusks; and vertebrate animals (fish, amphibians, reptiles, birds, and mammals) living in nature, except for feral animals. Wildlife is protected, except for: coyotes, field mice, gophers, ground squirrels, jack rabbits, muskrats, and raccoons. Rare species and those subject to federal listing under the Endangered Species Act are referenced more fully in the chapter of this plan entitled "Threatened, Endangered, and Sensitive Species." Although fish are legally considered "wildlife," fisheries and angling-related benefits for local economies are addressed in the "Fisheries" chapter of this plan. Limited amounts of Geographic Information System (GIS) data on a number of common vertebrate wildlife species in Utah can be accessed online at the DWR's Index of Available GIS Data (DWR 2016a). The most current GIS data is available for some species at: http://dwrcdc.nr.utah.gov/ucdc/downloadgis/disclaim.htm. GIS shape files for Bird Habitat Conservation Areas are available at: https://iwjv.org/sites/default/files/ut_bhca_map_w_own.pdf.

The Utah Division of Wildlife Resources (DWR) Utah Wildlife Action Plan (Utah Wildlife Action Plan Joint Team 2015) presents strategies for managing native wildlife species and their habitat to help prevent listings under the Endangered Species Act.

Objectives

1. Encourage the Watershed Restoration Initiative **(**WRI**)** to focus on projects that include private landowner involvement by having county representatives attend meetings of the WRI regional teams, express their views, advise the WRI to involve private land owners, and advocate for the kinds of watershed restoration efforts they feel are most important.

2. Maintain healthy populations of mule deer while minimizing negative impacts from winter migration, including vehicle collisions and residential and commercial vegetation damage.

3. Avoid damage caused by wild horses by preventing the introduction of wild horse populations.

4. Support bighorn sheep populations for hunting, viewing, and ecosystem support.

5. Support energy development while minimizing loss or fragmentation of habitats and disturbance during sensitive periods.

6. Meet municipal and industrial water needs while preserving traditional agricultural uses and ensuring aquatic habitat to support wildlife.

Balancing Interests

Wildlife and their habitat contribute to a productive natural environment. They improve our quality of life, and provide a rich source of aesthetic enjoyment, inspiration, and outdoor recreation for many people.

At the same time, we all need to recognize that wildlife can have an impact on the economic activities of mankind, influencing how people experience the benefits of their private property. Wildlife can affect local economies in both positive and negative ways (see Section 4, Livestock & Grazing).

Most people support efforts to find a balance between the habitat requirements of wildlife populations and the economic activities of man. Wildlife is capable of yielding important social and economic values including: hunting, photography, and wildlife observation.

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

The Wildlife Board

The Wildlife Board is composed of individuals nominated by a committee selected by the governor. The board contains members from 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.

Agricultural impacts

Thriving populations of big game animals will, at times, cause some level of damage to farming and ranching operations, by competing with domestic livestock for available forage, or by damaging crops, fences, or irrigation equipment. A number of methods can be applied to mitigate the damage, including various forms of wildlife harvest and removal, issuance of landowner permits, development of a conservation lease which involves remuneration or other forms of compensation for depredation, and, finally, direct monetary compensation for agricultural damages. Although depredation mitigation review and appeal procedures apply, and are used as needed, the total amount of compensation that can be provided to landowners to prevent or compensate for damages may not exceed the funding amounts appropriated by the legislature for fencing material and compensation for damaged crops, fences, and irrigation equipment.

The Utah Grazing Improvement Program (UGIP) is a program under the Utah Department of Agriculture and Food designed to improve the productivity, health, and sustainability of rangelands and watersheds throughout the state. UGIP devotes considerable time and resources to improve rangelands, which results in a better environment, a healthier livestock industry, and more abundant wildlife. The program has established a State Grazing Advisory Board and six Regional Grazing Advisory Boards to improve the grassroots voice of both private and public grazing land managers.

WRI Habitat Restoration

Utah's Watershed Restoration Initiative (WRI) provides a balancing influence that promotes wildlife values and supports agricultural needs. WRI is a diverse partnership of state and federal agencies working together with private organizations, industry, local elected officials and stakeholders, coordinated by the Utah Department of Natural Resources.

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.

Duchesne County appreciates 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.

Map #26 and the WRI website (https://wri.utah.gov/wri/project/search.html) shows the location of Watershed Restoration Initiative Projects and their status (draft, proposed, current, pending completion or completed).

Objective: To participate effectively, counties need representatives 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.

Compensation for damage

Although predator management is dealt with under a separate chapter of this plan entitled "Predator Management," the Wildlife Damage Compensation Act (see Utah Code 23-24-1) 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.

Species management plans

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.

With regard to wolves, Senate Bill 36 (Wolf Management Act) from the 2010 General Session directed the Division of Wildlife Resources to prevent any wolf packs from establishing in the portion of the state where wolves are removed from the protection of the Endangered Species Act. The law also directs the Division of Wildlife Resources to request that the U.S. Fish and Wildlife Service immediately remove any wolves discovered in areas of Utah where they are still protected under the Endangered Species Act (including Duchesne County). This law suspends the portion of the *Utah Wolf Management Plan* that allows two packs to become established in Utah, although the remaining strategies of the plan are still in effect. If wolves are delisted across all of Utah, the management plan then will be fully implemented.

Greater Sage Grouse

The *Conservation Plan for Greater Sage-grouse in Utah* (February 2013) was developed to help

eliminate threats facing the greater sage-grouse while balancing the economic and social needs of Utahans through a coordinated program which provides for:

a. Voluntary programs for private, local government, and School and Institutional Trust Lands Administration ("SITLA") lands; and

b. Cooperative regulatory programs on other state and federally managed lands.

These voluntary and cooperative regulatory programs include WRI, Utah Partners for Conservation and Development, National Resources Conservation Service's Sage-grouse Initiative, and UGIP.

Mapped within each county are winter, brooding, and occupied greater sage-grouse habitat (see Tables WLF1 and WLF2 and Map #15).

Table WLF1. Acres of Greater Sage-Grouse Habitat in Duchesne County

Habitat	Duchesne County
Winter	258,289
Brooding	442,932
Occupied	476,227

Source: DWR (2015a). *Note*: Acres by county cannot be totaled because these areas overlap.

Table WLF2. Acres of State Greater Sage-Grouse Management Areas in Duchesne County

Habitat	Duchesne County
Nesting and brood-rearing non-winter habitat	277
Nesting and brood-rearing winter habitat	14,568
Winter habitat	48,630
Non-winter habitat	16,912
Non-winter other	7,607
Non-winter opportunity	23,534

Source: DWR (2016b).

As stated earlier, in September 2015, the BLM and Forest Service signed a Sage Grouse EIS that establishes new guidance for sage grouse habitat management on federal lands in the West. The RMP Amendments for managing Greater Sage-Grouse in Utah can be found at:

https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=99423.

A more complete discussion of Greater Sage Grouse in Duchesne County is found in Section 22 of this plan (Threatened and Endangered Species).

Big Game

In 2014, the Utah Division of Wildlife Resources published the Utah Big Game Annual Report. This report is a summary of big game harvest information and monitoring efforts for eight species (mule deer, Rocky Mountain elk, pronghorn, Shiras moose, American bison, desert bighorn sheep, Rocky Mountain bighorn sheep, and mountain goat) in the state of Utah. Those species are managed based on species management plans that have been developed through a public review process and approved by Utah's Wildlife Board. Big game management units do not follow county boundaries, so it is not possible to determine how a particular big game species is faring in a particular county. However, this annual report does provide data showing how many of the various big game species have been harvested over the years and how the desired populations compare to the estimated populations. Statewide, the mule deer population in 2014 was the highest it has been since 1992. The wintertime elk population in Utah has increased by about 20,000 head between 1995 and 2014. Pronghorn antelope numbers are down by over 1,000 head statewide between 1999 and 2014. Moose numbers have been decreasing since a high point in 2005 (moose habitat is depicted on Map #16). Wild Bison and desert bighorn sheep are not found in Duchesne County. There is a transplanted population of Rocky Mountain bighorn sheep in the Avintaquin area, which appears to be doing well**;** however there are recent reports from the Utah Division of Wildlife Resources that disease is becoming a problem. Mountain goats appear to be doing well in the High Uintas Wilderness (mountain goat habitat is depicted on Map #17).

Deer and Elk

In the case of mule deer (*Odocoileus hemionus*) and elk (*Cervus canadensis nelsoni*), 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.

During the past fifty years there have been wide swings in deer and elk populations. In the 1950's deer populations were extremely high, while no elk were present in the County. Following the 1950's, elk were re-introduced to the area and have increased to the present high levels. Following a mild winter of 2014-15, deer populations were at high levels according to the

Utah Division of Wildlife Resources.

Portions of northern Duchesne County are within the South Slope Deer Herd Unit #9 Management Plan (which also includes lands in Daggett, Summit, Uintah and Wasatch counties). The target winter herd size is 26,000. The majority of the Summer Range for deer (85%) is located on Forest Service and BLM lands. Winter range is more evenly distributed, with 31% on BLM land, 28% on tribal land and 24% on private lands. Factors that drive deer population include forage conditions, predation (especially by coyotes) highway collisions, disease, poaching and the severity of winters. Mule deer habitat is described in Table WLF3 and consolidated as habitat in Map #18.

Table WLF3. Acres of Mule Deer Habitat in Duchesne County

Habitat Type	Duchesne County
Spring/fall, crucial	3,064
Summer, crucial	758,251
Summer, substantial	–
Winter, crucial	597,509
Winter, substantial	212,063
Year-long, crucial	140,951
Year-long, substantial	201,269
Total	**1,913,107**

Source: DWR (2015b).

The Utah Division of Wildlife Resources has a management plan for Deer Herd Unit #11 in southern Duchesne County and portions of Carbon, Emery and Uintah counties. The target winter herd size is 8,500 deer. The majority of the summer range (51%) is located on private land, with 31% on BLM land. The majority of the winter range (57%) is on BLM land, with only 14% on private land. Winter range conditions in the northern parts of the unit, around Nine Mile Canyon and Anthro Mountain, were classified as excellent in 2010, while areas to the south, in Carbon County were deemed fair to good.

Portions of western Duchesne County are within the Wasatch Mountains Deer Herd Unit #17 management plan (which also includes areas of Carbon, Salt Lake, Summit, Utah and Wasatch counties). In this area, 62% of the deer summer range is on Forest Service land and 26.8% on private land. Winter range is 50% on private land. The target winter herd size is 40,800 deer. The winter range in the Currant Creek and Avintaquin subunits (which include lands in Duchesne County) has trended from fair-good condition to good condition between 1995 and 2010. Many (14) habitat improvement projects occurred in this area between 2006 and 2014, that enhanced 8,064 acres of deer habitat in the unit. Annual and seasonal precipitation patterns

remain critical to the growth of vegetation needed to support the desired deer populations.

Portions of western Duchesne County are within the Wasatch Mountain Elk Herd Unit #17 Management Plan (which also includes lands within Carbon, Salt Lake, Summit, Wasatch and Utah counties. The target winter herd size for this unit is 5,400. A majority of the lands used by elk in the Spring, Summer and Fall are on Forest Service lands (77% for spring/fall and 83% for summer); however, the largest group of lands used by the elk in the winter is private lands (46%). Elk habitat is described in Table WLF4 and consolidated as habitat in Map #19.

Table WLF4. Acres of Elk Habitat in Duchesne County

Habitat Type	Duchesne County
Elk, spring/fall, crucial	11,525
Elk, summer, crucial	679,677
Elk, summer, substantial	–
Elk, winter, crucial	702,539
Elk, winter, substantial	104,525
Elk, year-long, crucial	95,836
Elk, year-long, substantial	143,992
Total	**1,738,093**

Source: DWR (2015b).

On a seasonal basis, big game animals migrate among public, private and tribal lands. These movements create game management issues as a result of damage to private property and consumption of livestock feed by wildlife. To address these issues, the UDWR plan seeks to enhance forage production through prescribed fire, pinion-juniper chaining, conifer thinning and protect habitat using tools such as conservation easements, conservation agreements and cooperative wildlife management units. Utah Code 23-21-2.5 (2) states that "When changing any existing right to use the land, the division shall seek to make uses of division-owned land compatible with local government general plans and zoning and land use ordinances."

The Western Association of Fish and Wildlife Agencies (WAFWA) Mule Deer Working Group produced an informative Fact Sheet "Understanding Mule Deer Migration" (WAFWA 2015a). This fact sheet was developed after wildlife researchers tracked deer migration using global positioning system technology. Several potential risks to migrating deer and their corridors were mentioned; including energy development, vehicle collisions, fences and increasing residential and urban development. The fact sheet presents the following conclusions regarding the preservation of deer migration corridors:

> "Efforts to conserve migration corridors are an important component of overall conservation of mule deer in the West because the largest and most productive mule deer herds are migratory. As awareness of the importance of migration corridors grows, conservation efforts to maintain these corridors and incorporate them into land-use planning processes are imperative. Similar to critical winter ranges, migration corridors need to be considered in local, state, and federal land-use planning in order to sustain current mule deer populations. Common sources of risk to migrating mule deer and their corridors include fences, road crossings, energy development, and residential development. With specific maps of migration routes now available, we can identify and prioritize where conservation efforts should be focused to reduce risks to migrating mule deer and migration corridors. Effective conservation measures may include road crossing structures, fence alterations or removal, modifications to proposed industrial developments, conservation easements, leasing stipulations, and state, provincial, or federal protections available through land-use planning. Mule deer migration corridors are essential to the long-term conservation of this iconic species. Many corridors are more than 100 miles in length and cross through many different land ownerships and agency jurisdictions. This situation complicates conservation efforts and requires people work together to develop site-specific measures to ensure migrations continue into the future" (WAFWA 2015a).

Another WAFWA fact sheet entitled "*Understanding Mule Deer and Winter Feeding*," deals with the issue of winter feeding of mule deer (WAFWA 2015b). After looking at the biological, behavioral, disease, predation, competition and sociological issues associated with winter feeding, WAFWA reached the conclusion that:

> "At best, feeding has a limited nutritional benefit, often negated by undesirable, even catastrophic, behavioral and biological effects. Of course, we all have the best interest of wildlife in mind. However, we must ensure we understand the biology of the animals we're concerned about so our actions are truly beneficial. This is often the point of debate as society considers winter feeding mule deer. Our conventional wisdom, experience, and professional consensus is clear - feeding mule deer violates the most basic principle of population regulation within natural systems. At best, winter feeding for mule deer is only successful in making people who are compassionate about wildlife feel better and seldom are any benefits of winter feeding realized" (WAFWA 2015b).

Wildlife management agencies generally agree that although winter mule deer feeding is based on good intentions, it can result in a variety of issues ranging from disease, malnutrition, predation, behavior changes, and rangeland damage. For these reasons and others, it is discouraged. Information about winter feeding is available from DWR and the Mule Deer Working Group (2015b)

As the Duchesne County population grows in the future, the likelihood of conflicts between mule deer and rural or urban fringe homeowners will increase. WAFWA has published a fact sheet to address that issue, entitled "*Urban Mule Deer Issues*" (WAFWA 2015c). Mule deer population

can increase rapidly in rural residential or urban fringe areas as deer take advantage of the abundant forage and water sources provided by humans as well as protection from hunting and other types of predation. Mule deer are browsers; preferring leaves, stems, and buds of woody plants, as well as forbs (weeds). Like many other wildlife species, mule deer are opportunistic and in some cases will eat and damage ornamental plants, hedges, vegetables, flowers, and lawns. Bucks can damage shrubs and saplings by rubbing the bark with their antlers. This damage to personal and commercially-grown vegetation is not well-tolerated and can make people view mule deer as a nuisance. WAFWA recommends several strategies to deal with these conflicts, including prohibiting supplemental feeding of deer, chemical repellents and scare devices, construction of fencing, using deer resistant plantings, regulated hunting and relocation of deer to more remote areas.

Conservation Hunting Permits

Conservation permits are hunting permits auctioned annually at banquets, fundraisers and other events sponsored by various conservation groups. Since the program began in 1981, these permits have raised more than $35 million. The majority of that revenue—more than 90 percent—has gone toward projects that directly benefit the species for which the permit was issued. These projects include: habitat enhancement and restoration, species transplants, radio telemetry studies and research projects, aerial surveys and education efforts.

Duchesne County Wildlife Policies

It is the policy of Duchesne County that:

1. Wildlife management agencies, public land management agencies and the County shall work together to manage big game populations, identify their migration corridors and seek to remove barriers along those corridors.

2. Wildlife agencies shall find effective ways to mitigate and compensate landowners for damage caused by big game animals on private property. Duchesne County recognizes that the Utah Division of Wildlife Resources is mandated by Utah Code to mitigate damage to agricultural crops, equipment and improvements and that a process to do so is in place.

3. Wildlife populations shall not be increased nor shall new species be introduced until forage allocations have been provided and an impact analysis that includes participation and concurrence by the county, wildlife management agencies, public land management agencies, and private landowners is completed for the effects on other wildlife species and livestock.

4. Reduction in forage allocation resulting from forage studies, drought, or other natural disasters will be shared proportionately by wildlife, livestock and other uses.

5. Increases in forage allocation resulting from improved range conditions shall be shared proportionally by wildlife, livestock and other uses.

6. Wildlife target levels and/or populations must not exceed the forage assigned in the RMP forage allocations.

7. Predator and wildlife numbers must be controlled to protect livestock and other private property and to prevent population decline in other wildlife species.

8. Resource-use and management decisions by federal land management and regulatory agencies should support state-sponsored initiatives or programs designed to stabilize wildlife populations that may be experiencing a scientifically proven decline in numbers.

9. The Conservation Hunting Permit program should be continued to help generate needed funding for wildlife conservation projects.

Feral or Wild Horses

At present there are no Wild Horse Herd Management Areas in Duchesne County. However, the Ashley National Forest reports a problem with feral horses trespassing from tribal lands in the Dry Gulch Allotment area in the Yellowstone region of the forest. At last report, about 100 feral horses are using the allotment area. Free-roaming horses on public lands adversely impact soil, water, wildlife, and vegetative resources and increase the possibility of equine disease among domestic horses. Wild and free-roaming horses rapidly increase in population, cause overgrazing, negatively impact wildlife and livestock, and burden the land managing agency with unnecessary costs. The introduction of wild horses would adversely affect the county's environment and economy.

Policy: It is the policy of Duchesne County that:

1. No forage allocations or permits shall be provided for feral or wild horses on public lands in Duchesne County.

2. All feral or wild horses found roaming on public lands in Duchesne County are trespassing and shall be removed.

Pronghorn Antelope

The Utah Division of Wildlife Resources (UDWR) administers a Pronghorn Herd Management Plan for non-tribal lands in the area generally bounded by Nine Mile Canyon on the south, Highway 191 on the west, Highway 40 on the north and the Green River to the east. It is the purpose of this plan to:

a. Manage for a population of healthy animals capable of providing a broad range of

recreational opportunities, to include hunting and viewing.

b. Balance the pronghorn population with human needs, such as authorized livestock grazing rights, private land development rights, and local economies.

c. Maintain the population at a level that is within the long term habitat capability."

UDWR has a goal of maintaining a population of 1,125 pronghorn in this area, with a buck to doe ratio of 25:100. Counts in 2008 estimated a population of about 340, with a buck to doe ratio of 41:100. UDWR plans to transplant about 50 pronghorn in the herd management area per year until the population reaches the goal. Table WLF5 describes the type of pronghorn antelope habitat present within Duchesne County, which is consolidated into general habitat in Map #20.

Table WLF5. Acres of Pronghorn Antelope Habitat in Duchesne County

Habitat Type	Duchesne County
Summer, crucial	–
Summer, substantial	–
Year-long, crucial	131,511
Year-long, substantial	48,612
Total	**180,123**

Source: DWR (2014b).

Policy: It is the policy of Duchesne County to support the efforts of the UDWR to maintain a healthy population of pronghorn in the area described above, provided that the rights of farmers, ranchers and mineral owners are protected.

Bison

There are six bison management areas in Uintah County, one of which extends into Duchesne County. There are no known populations of wild bison in Duchesne County. A bison herd does exist on tribal lands east of the Green River in Uintah County. The UDWR has considered reintroduction of bison in the Book Cliffs area of Uintah and Grand Counties. Table WLF6 describes the type of bison habitat present within Duchesne County, which is defined as winter, substantial habitat (see Map #21).

Table WLF6. Acres of Bison Habitat in Duchesne County

Habitat Type	Duchesne County
Winter, crucial	–
Winter, potential	–
Winter, substantial	4,983
Year-long, crucial	–
Year-long, potential	–
Year-long, substantial	–
Total	**4,983**

Source: DWR (2014c).

Policy: It is the policy of Duchesne County to oppose any proposals to introduce bison into the County, due to the impacts such action would have on available forage for livestock and wildlife.

Bighorn sheep

The Utah Division of Wildlife Resources (through its Utah Wildlife Board) adopted a *Utah Bighorn Sheep Statewide Management Plan* on June 4, 2013 (DWR 2013b). This plan is effective for five years. The plan notes that Bighorn sheep are one of the most sought-after and highly prized big game animals in North America. Demand for hunting opportunities far exceeds the supply of hunting permits. There is also great demand for bighorn sheep viewing opportunities. Bighorn sheep are an important part of fragile ecosystems in Duchesne County.

Rocky Mountain Bighorn sheep habitat exists in Duchesne County in the High Uintas Wilderness and in the southwestern areas of the county around Timber, Avintaquin, Indian and Lake Canyons (known as the Avintaquin Management Unit). In 2009, 30 Bighorn sheep were transplanted from Montana into the Lake Canyon area and an additional 30 were transplanted into the Indian Canyon area. The state management plan calls for augmentation of existing populations to meet management objectives in the Avintaquin Management Unit (DWR 2013b). A summary of bighorn sheep habitat is provided in Table WLF7 and Map #22.

Table WLF7. Acres of Bighorn Sheep Habitat in Duchesne County

Habitat Type	Duchesne County
Spring/fall, crucial	–
Year-long, crucial	429,791
Year-long, substantial	50,630
Total	**480,420**

Source: DWR (2006).

One of the key management issues associated with Bighorn sheep is the prevention of disease that can result from contact with domestic sheep and goats. There is also the potential for bighorn sheep to compete with domestic sheep for limited forage resources.

BLM Manual #1730 (*Management of Domestic Sheep and Goats to Sustain Wild Sheep*) issued in March 2016, provides guidance for the coordination and management of domestic sheep and goats to sustain wild sheep on the BLM managed lands. The manual notes that respiratory disease is one of the most crucial factors influencing bighorn sheep populations. Domestic sheep and goats are carriers of bacteria that may cause substantial wild sheep mortality as a result of respiratory disease. These carriers are generally not fatal to adult domestic sheep. Currently, physical separation of domestic sheep or goats from wild sheep is the only effective means to reduce the potential for pneumonia-type disease transmission.

To help prevent such disease transmission, the BLM policies are to:

1. Achieve effective separation of BLM authorized domestic sheep or goats from wild sheep on BLM lands, and

2. To minimize the risk of contact between the species. Effective separation is defined as the spatial or temporal separation between wild sheep and domestic sheep or goats, resulting in minimal risk of contact and subsequent transmission of respiratory disease between animal groups.

The BLM Management Practices associated with domestic sheep/goats (to minimize the risk of contact with wild sheep include the consideration of:

a. Habitat distribution;

b. Habitat connectivity;

c. Wild sheep occurrence;

d. Wild sheep population numbers;

e. Proximity of wild sheep populations to areas authorized for domestic sheep and goat grazing or trailing;

f. Risk of inter-species contact;

g. Domestic sheep and goat allotment boundaries and season of use;

h. Domestic livestock operational needs; and

i. Other pertinent parameters affecting the BLM's ability to provide for effective separation when authorizing domestic sheep and goat uses on BLM lands.

Policy: It is the policy of Duchesne County to support efforts by the Utah Division of Wildlife Resources and federal land management agencies to manage Bighorn sheep populations for recreational purposes such as hunting and viewing and to ensure their contribution to ecosystems, provided that such management can be accomplished in coordination with the domestic sheep industry in a manner that does not force domestic sheep operators from their ranges or force them out of business. The County supports efforts to manage and augment the bighorn sheep population as long as there is not competition or interference with domestic animals.

Bear

The Utah Division of Wildlife Resources publishes a *Utah Black Bear Annual Report*. The report gives detailed information on how many bears were harvested in various wildlife management units across the state, but provides no county-specific data and no statewide black bear population data.

Raptors

Many types of raptors, such as Golden Eagles, Red-tailed hawk and Ferruginous hawks utilize habitat in Duchesne County. The impact of oil and gas development on the population of raptors has been a concern of land management agencies.

A 2010 study was prepared for the U.S. Department of Interior by Mark R. Fuller of the U.S. Geological Survey, entitled *"Raptor Nesting Near Oil and Gas Development: An Overview of Key Findings and Implications for Management Based on Four Reports by Hawk Watch International."* This study was an overview of key findings about the effectiveness of stipulations used to manage the potential effects of disturbance to raptor nesting in areas where oil and gas are being extracted from BLM lands in Utah, Wyoming, and Colorado.

Historically, BLM raptor management has included stipulations that restricted human activity near raptor nests during the raptor nesting season. The Hawk Watch International (HWI) study

was undertaken to seek information that would contribute to enhancing oil and gas extraction operations while providing environmental protection, including raptor conservation.

Some of the findings were that the development of new well sites temporarily deterred some Golden Eagles from nesting, and some Golden Eagles habituated to established wells and associated well maintenance. Golden Eagles responded differently to various types of development, and when alternative nest sites existed, the birds were able to choose a site where they felt less disturbed.

The Hawk Watch International study noted that, since 1987, the BLM has erected artificial nesting structures (ANS) to discourage Ferruginous Hawks from nesting on oil and gas infrastructure. Nests on structures such as condensation tanks commonly failed, so the BLM staff installed 105 artificial nest structures in the Rawlins, Wyoming field office area from 1987 to 2004 to provide the hawks with alternative nest substrates. All ANSs were inaccessible from the ground and likely provided nesting birds with a sense of security in the face of development activities. Inaccessible nests were nearly always successful, and nearly all such nests were at least minimally productive." The study found that ANSs may be an effective mitigation tool where Ferruginous Hawks are nesting on inappropriate man-made structures; however, a long-term commitment to the maintenance of the structures needed to be made.

Further, the HWI study found that it was important to consider factors associated with other human influences, vegetation, climate, etc., when evaluating the potential effects of oil and gas activities near raptor nests. The data gathered by the study was insufficient to determine if the apparent negative effects of energy development were associated with raptor population characteristics such as fledging young from the nest or a trend in numbers of nesting raptors. HWI suggested that existing nesting-season protection buffers of 0.8-km radius should not be reduced, because the focal raptor species exhibited negative relationships with energy development that occurred within 0.8 km of nest clusters.

It could not be determined by HWI if there has been a change in the populations of raptors in conjunction with oil and gas development. Nonetheless, it was concluded that applying spatial and temporal buffers around nests is a useful management practice to continue as part of a raptor conservation strategy.

HWI recommended that the BLM use the study findings to further develop management strategies to conserve raptor nesting habitat near oil and gas activities by:

- Developing survey designs with thorough, consistent methods for monitoring raptor nesting, and for monitoring factors that likely affect raptor nesting;

- Conducting surveys to document raptor nesting and associated environmental factors in areas unaffected by energy development, especially areas where energy development might occur;

- Implementing survey and monitoring of select factors (species, vegetation, anthropogenic) at oil and gas activity sites and at control sites;

- Gathering raptor food habits data, and prey – vegetation association data and use results to manage habitat for prey;

- Conducting management to conserve and enhance existing vegetation that is presumed to be beneficial based on these HWI study results;

- Comparing Ferruginous Hawk use of ANSs and associated survival and reproduction among ANSs in oil and gas areas and non-oil and gas areas;

- Providing ANSs for other species and evaluate their use and effectiveness as a mitigation method;

- Refining time and space stipulations by experimentally manipulating when and where OG activities occur relative to raptor nesting.

Hawk Watch International published another study in 2010 that addressed the need for improved methods for raptor nest monitoring. HWI found that various federal office personnel in Utah and Wyoming did not use standardized terminology for what constitutes a used, active, occupied or successful nest. Nest naming conventions also varied which made it difficult to track nest records on the landscape. Even with new GPS technology, inconsistent use of mapping datums resulted in inaccuracies. Failure to survey all nests in a nest cluster each year resulted in incomplete data. The lack of maps and data associated with oil and gas spudding and completion dates, road locations, vegetation and the weather made it difficult to model the influences of habitat conditions and oil and gas development levels on nesting activity.

HWI made several recommendations to improve raptor nest monitoring, including establishment of a pre-development monitoring period of at least 3 to 5 years and monitoring a spatial domain of 5 to 10 km outside of the proposed development area for adequate identification of nest clusters. Very specific recommendations were also given for data gathering, including a comprehensive nest inventory, gathering annual monitoring data for all known and newly discovered nests for all species, gathering annual representative prey monitoring data, gathering annual representative climatic and gathering landscape condition data and other desired GIS data layers describing the study area landscape. Ground-based survey methods were recommended to obtain the most accurate monitoring data as was comprehensive annual nest monitoring or annual monitoring of a representative sample of nests.

Policy: It is the policy of Duchesne County to support research efforts to seek information that would contribute to enhancing oil and gas extraction operations while providing protection of raptor populations.

The Ashley National Forest has provided data that shows their efforts to restore and enhance terrestrial habitat, which benefits wildlife in the county (see Table WLF8).

Table WLF8. Ashley National Forest Terrestrial Habitat Restoration/Enhancement (2010 – 2016)

Fiscal Year	Acres of Habitat Restored or Enhanced
2010	3,305.0
2011	5,404.0
2012	7,550.0
2013	2,485.0
2014	6,379.0
2015	12,146.74
2016	9,144.0
Total	**46,413.74**

Source: Ashley National Forest (2017).

Energy Considerations

Energy development provides an important economic stimulus in Duchesne County and for the State of Utah. However, energy development and transmission also may cause impacts to valued wildlife species. Typical impacts may include loss or fragmentation of habitats, and increased disturbance during sensitive periods such as when the young are born or during winter while harsh climatic conditions may already be causing stress to animals. Development-related impacts need to be mitigated to promote a balance among competing uses of natural resources occurring within the County.

Measures taken to reduce habitat fragmentation, create buffers around breeding or nesting sites or establish seasons of the year when human activity is not allowed in a wildlife habitat area, can make production of energy resources more costly or unfeasible.

Policy

Duchesne County's policy is that all federal or state wildlife management agencies shall coordinate with the County prior to establishing regulatory measures associated with wildlife that could impact energy development.

Water Considerations

Water is vital for all living organisms, including wildlife. Most terrestrial wildlife species must drink water on a daily basis, although many supplement their intake by absorbing water from foods. Some desert species get by solely on the moisture they derive from their diet. Fish, many mollusks, crustaceans, amphibians, aquatic mammals (e.g., beavers, otters, muskrats) and water birds (e.g., waterfowl, shorebirds, dippers, ospreys) depend more directly on aquatic systems.

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

Water use and the resulting alteration of aquatic habitats cause substantial stress for aquatic wildlife. Water management needs to be carefully considered, so that we can meet municipal and industrial needs, while preserving traditional agricultural uses, and ensuring aquatic habitat to support wildlife.

Wildlife, if not managed properly, can have negative impacts on water quality.

Policy: It is the policy of Duchesne County that wildlife shall be managed on public and private lands in a manner that keeps water resources from being degraded below state or federal standards.

Section 6. Forest Management

Findings: Forest lands make up 29% of the Utah landscape and provide scenic, recreation, wildlife, and other forest values underscoring the importance of forest health (Utah Division of Forestry, Fire and State Lands [FFSL] and U.S. Forest Service [USFS] 2014). In Utah, approximately 15 million acres of forest are administered by federal, state, and local agencies with another 2.8 million acres held privately (FFSL and USFS 2014).

Forested lands are an important natural resource in Duchesne County and contribute to the quality of life by providing employment, forest products, open space, wildlife habitat, forage for livestock, recreation, and numerous other social and economic benefits.

From an elevational gradient, the lowest species of forested land consists mainly of pinyon pine and juniper. This type of forest encompasses a majority of the landscape. Recently, there have been attacks on pinyon pine from the pinyon engraver beetle. With recent above normal precipitation, the pinyon pine forests are recovering from past drought and should be able to more effectively fight the attack of the beetle.

Moving higher in elevation, the Douglas-fir is another dominant species found on the landscape. Over the past several years, the Douglas-fir beetle has taken a devastating toll on the forests, creating very high mortality rates. Field observations are showing a decrease in beetle populations and attack. This could be attributed to the increased precipitation amounts the area has received over the past few years.

Other species which can be found at mid-elevations (8,000 to 9,500 feet) are White fir, Ponderosa pine, Limber pine, and Lodgepole pine. These species are not as common, but they still serve as important habitat for wildlife and provide a diversity of tree species within the area.

The highest elevation species found in the area are Englemann spruce and Subalpine fir. Currently, the spruce beetle is moving further north, and some areas of spruce are experiencing high mortality rates.

Quaking aspen can be found from low elevations to high elevations. The health of aspen depends on stand age, disease, and recruitment of aspen and aspen suckers in the understory. Much of the aspen in the western United States is being overrun by the encroachment of an understory conifer. The decrease of aspen is associated with the lack of natural disturbances, like wildfire.

Blue spruce is another species which can be found mainly in riparian areas or areas with moist rich soil types.

Management practices (silviculture) can be a significant source of phosphorus and sediments in water bodies. Major wildfires and beetle infestation can lead to increased erosion in the watershed, due to land disturbance and increased lack of ground cover. Forest management practices should include re-vegetating disturbed areas, erosion prevention by timber harvesting

activities, stream channel protection, and riparian area designation. Forest health is an important key to overall watershed health and plays an essential role in the lifestyle and economics of residents and those that visit Duchesne County for recreational purposes.

National Land Cover Database (NLCD) geospatial data use a 16-class land cover classification scheme at a spatial resolution of 30 meters (Homer et al. 2015). Acres of forested NLCD land cover types predicted to occur in Duchesne County are listed in Table FM1 and shown on Map #23.

Table FM1. Acres of Forested National Land Cover Database Land Cover Types in Duchesne County

Forest Cover Type	Duchesne County
Deciduous Forest	77,635
Evergreen Forest	764,079
Mixed Forest	13,230
Shrub/Scrub	826,194
Woody Wetlands	14,803
Total	**1,695,940**

Source: U.S. Geological Survey (2010).

Table FM2, taken from the USFS-published report *Forest Resource Statistics for Northern Utah, 1993* (Brown and O'Brien 1993) illustrates acres of timberland by county. *Timberland* is defined as forested areas "capable of producing commercial wood products" (Brown and O'Brien 1993) and differs from other estimates of forest (vegetation community) or USFS-managed forest lands.

Table FM2. Acres of Timberland in Duchesne County

Land Management	Duchesne County
National Forest	243,921
Other public	19,752
Non-industrial private	92,352
Total	**356,025**

Source: Brown and O'Brien (1993).

Employment in the timber industry has dwindled over the years to almost nothing. According to the Profile of Timber and Wood Products found in the Headwaters Economics Economic Profile System (EPS), Duchesne County has only 18 jobs in the timber and wood products industry, which is only .25% of the total private employment in the county. Many of the mills have closed

in the county and in the region due to the lack of timber harvesting on private and public lands.

Table FM3 lists the amount of timber harvest on the Ashley National Forest during fiscal years 2010-2016.

Table FM3. CCF (Hundred Cubic Feet) of Timber Volume Sold on the Ashley National Forest

Fiscal Year	Hundred Cubic Feet of Timber Volume Sold
2010	13,158.2
2011	13,176.7
2012	11,045.9
2013	7,392.8
2014	13,448.0
2015	12,035.0
2016	6,803.0
Total	**77,059.6**

Source: Ashley National Forest (2017)

Of the 21 Utah sawmills listed by the Utah State University Forestry Extension Program, three are in Duchesne County: Defa Sawmill, Hanna, Utah; John Larson Sawmill, Neola, Utah; and Knotty Wood Products, Duchesne, Utah.

A 1998 Government Accounting Office report titled *Forest Service Barriers to Generating Revenue or Reducing Costs* portrays the importance of 'economic sustainability' on USFS lands and demonstrates the critical importance of multiple uses for the lands (Government Accounting Office 1998). The report provides good examples for a more 'capitalistic' approach to public land management based on private land models.

Significant issues impacting the timber resource in Duchesne County include declining forest health, productive capacity of forest ecosystems, fragmentation, and socio-economic concerns. Due to a lack of active vegetation management, forests in Duchesne County have become more susceptible to intense wildfire, insects, and diseases. Sustaining a full range of services and benefits that people desire from forests will require a diverse mosaic of forest conditions and a full suite of active management strategies across the landscape.

In many cases, statutory, administrative, and physical constraints limit the ability to implement restoration treatments within the context of historical functions and conditions. Existing legal

authorities, however, do provide justification for these types of activities. Legal mechanisms include the National Forest Management Act, the Multiple Use Sustained Yield Act, the Federal Land Policy and Management Act, the National Fire Plan, the Healthy Forests Restoration Act, the Organic Administration Act and the Clean Water Act.

Achieving measurable progress toward a desired future condition is important and will serve as a benchmark for future management direction. To do so, it is also important that timber resources be characterized within the landscape setting. Sustainable forest systems begin with the development of assessments that describe the biological, social and economic environment in which the landscape resides.

Invariably, the concept of forest sustainability tends to integrate society's essential values of environmental, social and economic considerations. Thus, it is equally important to talk about sustaining forest dependent communities in our discussions of sustaining forests. The following questions deserve further discussion: What is the existing infrastructure and capacity related to forest products manufacturing and forest dependent communities? How much area is available for timber production and the level of growing stock (merchantable vs. non-merchantable) available for timber harvesting? What is the direct and indirect employment in the forestry sector? What is the ability and willingness of the forestry sector to adapt to changing economic conditions and technologies?

By its nature, managing forest resources encompasses a high degree of conflict. What's important is to reach a "balanced" and agreeable approach through mechanisms that support the conservation and sustainable management of forests. The National Forest Management Act requires that the Forest Service coordinate their land management planning with the related planning efforts of state, local and tribal governments. The USFS publication *"Understanding Your Opportunities for Participating in the Forest Service Planning Process"* details how coordination helps ensure that landscape management has consistency across ecosystems and political boundaries so that mutual goals can be achieved where possible. The 2012 Forest Planning Rule requires that the Forest Service review and consider state, local and tribal land use plans and policies during the forest plan process and assess the interrelated impacts of these local plans when developing forest plans. While the Forest Service is not required to comply with state, local and tribal plans, it must consider and review such plans during the planning process.

Successful coordination will depend on each party taking the time to understand each other's management objectives and working to find and include mutually beneficial and coordinated direction in final plans. For upcoming or ongoing planning efforts, state, local, and tribal governments should be sure to inform the Forest Service and seek mutual dialogue and engagement early in the process. Where state, local, or tribal governments have already adopted relevant land use plans or planning processes and polices (such as this County Resource Management Plan) active engagement with the Forest Service can ensure that such plans and policies are known, understood, and effectively considered during the Forest Service planning process. In both cases, early and active engagement to share information and objectives is necessary for success. While state, local, and tribal governments lack jurisdiction over Federal

lands within their areas, these lands are often included in broad local concepts of socioeconomic well-being, safety, and culture.

The viewpoints of state and local residents have been surveyed and provide insight into how they would like to see the national forests managed. A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 18) that 80% of residents surveyed in the Daggett-Duchesne-Uintah County region believe that having forested areas that provide timber used by logging operations and lumber mills is moderately important (37.4%) or very important (42.6%) to the quality of life of their communities. In that same study, (Table 35) 76.1% of residents surveyed in the Daggett-Duchesne-Uintah County region believe that public land managers should maintain (43.6%), moderately increase (20.5%) or substantially increase (12.0%) the extent to which timber harvest activities occur on Utah's public lands. Of these survey respondents, according to Table 54 of the report, only 18.2% had a moderate (12.7%) or strong (5.5%) disagreement with Forest Service lands being managed to provide for economic uses like grazing or mining to help encourage local economic development. As set forth in Table 55 of the report, only 13.6% had moderate (9.8%) or strong (3.8%) opposition to Forest Service lands being managed for economic uses like recreation and tourism to help encourage local economic development. Only 10.2% of these survey respondents (see Table 40 of the report) believed that public land managers should moderately (5.2%) or substantially (5.0%) reduce the extent to which controlled burns are used to improve ecological conditions on Utah's public lands. Finally, only 7.1% of these survey respondents believed that public land managers should moderately (4.7%) or substantially (2.4%) reduce the extent to which forested areas are thinned to reduce fire risk on Utah's public lands (see Table 41 of the report).

The legal framework of forest management includes periodic planning, assessment and policy review that recognize the range of forest values. This includes opportunities for public participation, decision-making and coordination with affected sectors. The economic and institutional framework of forest management includes education and awareness, planning and coordination, establishment of important infrastructures to support implementation of forest management. Another important consideration is continued research and understanding of the dynamic nature of forest ecosystems and their functions.

The timber resources and woodlands of Duchesne County are considerable and mostly located on public lands. In recent years, timber harvesting has decreased on the Ashley National Forest. The risk of timber loss from wildfire, insects, and disease and from reduced water yields from watersheds is increased as a result of these management policies. Economic opportunities are also lost. Tables FM4 – FM8 illustrate a variety of forest management actions on the Ashley National Forest from 2010 to 2016. Not all of these actions occurred in Duchesne County.

Table FM4. Ashley National Forest Management Actions (FY 2010-2016) - Acres of Forestland Vegetation Established

Fiscal Year	Acres of Forestland Vegetation Established
2010	1,370.0
2011	1,075.2
2012	1,189.0
2013	1,009.0
2014	1,016.0
2015	1,002.0
2016	658.0
Total	**5,949.2**

Source: Ashley National Forest (2017)

1

Table FM5. Ashley National Forest Management Actions (FY 2010-2016) - Acres of Forestland Vegetation Improved

Fiscal Year	Acres of Forestland Vegetation Improved
2010	522.0
2011	716.0
2012	836.0
2013	668.1
2014	697.1
2015	N/A
2016	N/A
Total	**3,439.2**

Source: Ashley National Forest (2017)

2

Table FM6. Ashley National Forest Management Actions (FY 2010-2016) Acres of Fuels Treated in the Wildland Urban Interface

Fiscal Year	Acres of Fuels Treated in the WUI
2010	2,843.0
2011	2,971.0
2012	66.0
2013	1,855.0
2014	-
2015	1,179.0
2016	2,438.0
Total	**11,352.0**

Source: Ashley National Forest (2017)

Table FM7. Ashley National Forest Management Actions (FY 2010-2016) Acres of non-Wildland Urban Interface Fuels Treated

Fiscal Year	Non-WUI Fuels Treated
2010	5,571.7
2011	5,283.0
2012	4,744.3
2013	3,707.1
2014	4,602.0
2015	2,513.0
2016	3,549.0
Total	**29,970.1**

Source: Ashley National Forest (2017)

Table FM8. Ashley National Forest Management Actions (FY 2010-2016) Acres Treated to Reduce Risk of Catastrophic Wildfire

Fiscal Year	Catastrophic Fire Fuels Reduced
2010	8,414.7
2011	8,254.0
2012	4,810.3
2013	5,562.1
2014	7,642.0
2015	-
2016	-
Total	**34,683.1**

Source: Ashley National Forest (2017)

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

While county-specific forest health statistics are lacking, the 2016 Utah Forest Health Highlights publication gives an indication of what is happening to our forests state-wide (Forestry Fire and State Lands 2016). Figures 2 and 3 of that study shows that, between 2002 and 2011, only two species groups (Ponderosa & Jeffrey pines and Cottonwood & Aspen) showed a positive growth. However, a decline in aspen (Populus tremuloides) has been mapped since 2003 and is caused largely by drought, canker diseases, and insect borers (FFSL and USFS 2014).

Conversely, Lodgepole pine, Douglas fir, True firs, Engelmann and other spruce, other western hardwoods and other western softwoods all showed more mortality than growth. Average net annual growth of trees in Utah is -4,556 thousand cubic feet per year indicating more mortality than growth (FFSL and USFS 2014). The study found that insect and disease-caused tree mortality generally increased from 2013 to 2014. For example, Douglas fir beetle induced mortality increased by 73%, while spruce beetle kill increased 35% (from 412,662 killed in 2013 to 555,435 killed in 2014). Fir engraver induced mortality increased from 761 trees killed in 2013 to 34,303 in 2014. Subalpine fir mortality increased by 300% during that time period.

Western Bark Beetle Strategy activities in Utah, including Duchesne County, center on three objectives: 1) increasing safety to ensure that people and community infrastructure are protected

from the hazards of falling bark beetle–killed trees and elevated wildfire potential, 2) facilitating recovery to re-establish forests damaged by bark beetles, and 3) cultivating resiliency to prevent or mitigate future bark beetle impacts (U.S. Department of Agriculture 2016). Between 2004 and 2016, there were 14,930 acres treated. The locations of Western Bark Beetle Strategy activities, timber harvest, and brush disposal activities are described on Map #24.

Objective: Reverse the negative fire trends in forest health by actively managing the forest.

A study released by the U.S. Forest Service Pacific Southwest Research Station on November 25, 2013 (summarized at https://www.treesearch.fs.fed.us/pubs/45108) found that lowering stand density reduces mortality of ponderosa pine stands. As trees grow larger in even-aged stands, competition develops among them. Competition weakens trees as they contend for soil moisture, nutrients, and sunlight. Competition also increases trees' risk to bark beetles and diseases, and subsequently leads to a buildup of dead fuels. Duchesne County suspects that these principles apply not only to ponderosa pine forests in California, but generally to pine forests across the West, including in the Ashley National Forest in Duchesne County.

The study, led by Dr. Jianwei Zhang (https://www.fs.fed.us/psw/programs/efh/staff/jzhang/) considered if the onset of this risk could be determined. The study also considered if the relationship between density and mortality varies with site quality as ponderosa pine stands developed. Based on the analysis of 109 long-term research plots established on even-aged natural stands and plantations from 1944 to 1988, and 59 additional ponderosa pine plots measured by the Forest Service's Forest Inventory and Analysis group, these researchers found that site quality affected the relationship between density and mortality.

"Any silvicultural treatments that enhances growth will reduce mortality rate for a given stand density." Dr. Zhang said. "By establishing the self-thinning boundary lines from the size-density trajectories, the onset of mortality risk can be determined for ponderosa pine stands."

As stated in *"Lowering stand density reduces mortality of ponderosa pine stands,"* USDA Forest Service, Pacific Southwest Research Station, Science Findings (http://www.fs.fed.us/psw/news/2013/20131125_PonderosaPineStands.shtml) the research also confirmed the added value of such long-term study sites which allow new questions to be addressed that were not included in the original studies. Other recently published research from this group of scientists demonstrated thinning forest stands to a lower density reduces fuel buildup significantly, and enhances its economic value by increasing growth of residual trees. Specifically, stand basal area, which is the cross sectional area of all trees in a stand measured at breast height, is not affected by thinning ponderosa pine stands to half the normal basal area of a specific site quality. If the stand has experienced high mortality caused by bark beetles, it can be thinned more heavily without sacrificing timber, biomass, or volume increment and plant diversity.

In addition, results from these long-term studies show that early shrub removal and tree density control are the most effective and efficient ways to reduce fuel buildup. Under Mediterranean

climatic conditions, shrubs reduce over-story tree growth and keep tree crowns in contact with the shrub canopy. In turn, this growing fuel ladder can carry a ground fire into the crowns of the over-story trees. Although carbon stocks may be the same with or without understory vegetation, by controlling competing vegetation, carbon is reallocated into the trees instead of shrubs; and carbon loss to wildfire is reduced.

While the latest science is showing that reducing tree stand density is beneficial for forest health, the funding for such projects is lacking. A study of ponderosa pine (Pinus ponderosa) forests by Arizona State University, with funding from The Nature Conservancy (*"Modeling the Economic Viability of Restorative Thinning, Initial Assessment Report"* The Nature Conservancy and the Walton Sustainability Solutions Initiatives, Arizona State University, December 2013), indicates that harvesting small diameter wood (8 to 12 inches) is critical to restoring the structure, pattern, and composition of fire-adapted ecosystems, and also provides for fuels reduction, forest health, and wildlife and plant diversity. Costs typically born by state and federal agencies can be reduced through development of a wood products supply chain, which includes lumber, pellets, and chips (Arizona State University 2013). The study methodology, which should be repeated on the Ashley National Forest, consisted of four parts:

1. Technology Inventory. Understand current and emerging enabling technologies for wood processing, including emerging technologies (for instance, biomass-to-energy).

2. Business Inventory. Develop an inventory of possible large, medium, and small business possibilities that could utilize SDW.

3. Industry Viability Assessment. Conduct an initial industry viability assessment, based on analyzing a variety of business combination and configuration scenarios.

4. Initial Assessment Report & Presentation. Provide an initial assessment report and presentation.

Objectives: Reducing fire hazards and improving forest health across landscapes with the additional benefit of providing raw material to forest industries. Prescribed fire can reduce fuel loads and potential for catastrophic wildfire, application of appropriate silvicultural prescriptions can be used to promote regeneration while providing a sustainable flow of forest products.

2016 Utah Forest Action Plan

A portion of the forests in Utah and in Duchesne County are on state and private lands. The Utah Division of Forestry, Fire and State Lands collaborated with numerous partner agencies and organizations, including the USDA Forest Service, Bureau of Land Management, Division of Wildlife Resources, the Utah Partners for Conservation and Development and numerous stakeholders to develop the 2016 Utah Forest Action Plan. Quoting from the Executive Summary (see *"Utah Forest Action Plan 2016,"* Utah Division of Forestry, Fire and State Lands, (http://www.ffsl.utah.gov/images/forestry/stateassessment/UtahFAP-2016-LowRes.pdf), this

plan provides a comprehensive analysis of the forest-related conditions, trends, threats and opportunities within Utah and will be used to guide the Division's planning efforts and project work.

The Forestry Title of the 2008 Farm Bill required all states to produce a Forest Action Plan in order to more effectively focus management priorities and funding opportunities. The Utah Forest Action Plan will drive future grant requests from USDA Forest Service, State and Private Forestry and other funding sources. The purpose of the Plan is to ensure resources are being focused on important landscape areas with the greatest opportunity to address shared management priorities and achieve meaningful outcomes.

The Utah Forest Action Plan concentrated on eight key themes for the geospatial analysis portion of the Plan. These eight themes are Fire Risk, Forests, Wildlife Action Plan, Water Quality, Riparian Areas, Forest Health, Distance to Managed Lands and Urban and Community Forestry. These eight themes utilized 17 data layers to conduct the analysis and identify those areas of important forest resources for project work.

The analysis resulted in the development of five priority areas across the state. These priority areas are named for their geographic location. They are, from north to south, Wasatch, Uinta, Sevier-Skyline, La Sal and Cedar.

Each chapter of the Plan details the current condition, program overview, objectives and strategies for the themes used in the model. Additional chapters address the Forest Legacy Program, Climate Change and a Dynamic Modeling proposal. The Plan is intended to be a living document that the Division can refer to for reference and guidance. The Dynamic Model allows the Division to be adaptable, responsive and proactive. This adaptability and responsiveness is critical to keeping the Division ahead of changes in ecosystems, data and funding sources.

The Utah Forest Action Plan (2016) establishes the following objectives and strategies in several key areas of forest management:

Wildland Fire Fuel Management

Fuel Management refers to the act or practice of controlling flammability and reducing resistance to control of wildland fuels through mechanical, chemical, biological, or manual means, or by fire in support of land management objectives. The Division area WUI and fuels specialists that assisted communities with the development of CWPP's will continue to aid with implementing mitigation strategies. Hazard fuel mitigation grant funds can be requested through several sources. Thousands of acres of defensible space and fuel breaks have been created through this program making communities and firefighters safer.

In 2013, the State of Utah developed the Catastrophic Wildfire Reduction Strategy (Catfire) in response to the severe 2012 fire season. Reducing the catastrophic wildfire requires attention to three interdependent goals identified in the National Cohesive Wildfire Management Strategy –

Restore and Maintain Landscapes, Fire Adapted Communities, and Wildfire Response. These goals have been embraced throughout the development of the state's Catfire strategy.

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

<u>Objectives and Strategies</u>

a. *Reassess the existing education program to meet current and future needs*.

1. Make sure literature is updated as necessary to incorporate current research information.

2. Identify gaps in research and pursue funding to address research needs.

3. Distribute materials to community members, individual landowners, public officials, interagency partners and media for further dissemination and outreach.

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

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

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

b. *Expand planning opportunities*

1. Utilize existing tools to effectively and efficiently expand planning opportunities to the 625 identified Communities at Risk within the State of Utah.

2. Train urban and volunteer fire departments to deliver the National Cohesive Strategy objectives and strategies to more efficiently reach those in the Wildland Urban Interface.

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

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

c. *Organizational development*

1. Provide technical and financial assistance to the 501c3, Utah Living with Fire.

2. Standardize program delivery to improve consistency across the state.

3. Provide cross discipline training to meet needs of individuals and other programs.

4. Expand cross ownership contract sharing to reduce mitigation costs.

Resources required: Catfire Program Coordinator and Regional planning process.

d. *Wildland Fire legislation*

1. Update statues and codes to align more closely with current suppression management decision tools.

2. Establish a reward system through tax relief for preparing for wildland fire.

3. Provide increased funding to help communities prepare for wildfire.

4. Create a funding mechanism which allows the participation for all interested entities for wildland fire suppression.

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

e. *Program integration*

1. Increase communication and cooperation among programs within the Department of Natural Resources and other State and Federal agencies.

2. Utilize when appropriate other programs to meet the intent of the National Cohesive Strategy.

3. Help to identify areas of potential integration through the Landscape Scale Restoration process.

Resources required: Catfire Program Coordinator and Catfire Fire Risk Assessment.

f. *Project identification and implementation*

1. Identify both federal and non-federal mitigation projects identified in the priority areas of the Forest Action Plan, through the Interagency Fuels Committees and/or through the Catastrophic Wildfire Reduction strategy process.
2. Plan and complete projects that meet the needs of entire communities; focusing on resilient landscapes and fire adaptive communities.

3. Incorporate a maintenance schedule for communities that are achievable and effective.

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

Forest Stewardship

The Utah Forest Action Plan (2016) notes that, across Utah's landscape, approximately 2.7 million acres or 19% of Utah's forests are held in private ownership. Many of these private forests were originally acquired for cattle grazing, agriculture or mining development and are typically located near larger tracts of public forest where critical watershed areas exist. Although relatively small in acreage, these private forestlands overlay many of the state's most valuable watershed, wildlife and recreation areas and form critical fringe and connectivity zones throughout larger tracts of public forests (Utah Forest Legacy Program, Assessment of Need). Because of their location, these lands are capable of providing benefits as well as posing risks for nearby communities if not properly managed.

Utah's private forest landowners are a diverse group, consisting of corporate owners and private individuals, owners of large and small acreages, multi-generation owners and those who have only recently acquired forestland. Utah's non-industrial private forest (NIPF) landowners are distributed throughout all twenty-nine counties and own land for a variety of reasons.

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

The average forest landowner holds 600 acres of forestland, ranging anywhere between 40 to 15,000 acres. Utah has over 13,000 farms and ranches spread throughout the state. Rural forest landowners, ranchers and farmers can, through use of conservation plantings and other management practices, improve forest health and productivity, reduce soil erosion, improve riparian areas, improve crop and livestock productivity and improve wildlife habitat.

Utah has seen slow, yet steady progress towards increasing interest in forest management. This is shown by the increased level of involvement of program delivery staff promoting forest stewardship and landowner education efforts.

Objectives and Strategies

a. *Develop management direction for non-federal land use activities, utilizing standards for stewardship and ecosystem management.*

1. Identify and target private forest landowners located in important forest resource areas for assistance with stewardship or other planning purposes.

2. Develop forest stewardship management plans concurrent with Division standards for private forest landowners who demonstrate their commitment to proactive management.

3. Include non-federal landowners in landscape-level, ecosystem-based planning where appropriate and acceptable to the landowner.

4. Encourage and promote the use of cooperative activities by other land management agencies (i.e., state, private and federal) employing ecosystem management, forest health and stewardship principles.

5. Where appropriate, encourage commodity production from private lands within the context of multiple-use and sustained yield.

Resources required: Forest Stewardship Coordinator

b. *Plan, develop and implement new information and education programs to inform Utah citizens of the importance of balanced conservation.*

1. Develop and present workshops for private forest landowners.

2. Participate in local community and agency planning processes.

3. Demonstrate the concepts of ecosystem, stewardship, recycling and urban tree care through public presentations and interpretive sites.

Resources required: Forestry Program Administrator, Forest Stewardship Coordinator, and Area Foresters

c. *Maintain or expand existing information and education programs.*

1. Participate in youth-oriented education programs and activities (i.e. Natural

Resource days)

2. Cooperate and participate in ecosystem field days and career days.

3. Have timely input into work planning of USU's Landowner Education.

Resources required: Forestry Program Administrator, Forest Stewardship Coordinator, and Area Foresters

d. *Develop partnerships and cooperative relationships with organizations and individuals who share our goals.*

1. Formalize current and future relationships with agreements that specify desired results.

Resources required: Forestry Program Administrator

e. *Use all available management tools, including forest industry, to restore and maintain healthy ecosystems.*

1. Design and implement demonstration areas.

2. Whenever possible, utilize local mills and forest industry professionals to implement forest stewardship projects.

Resources required: Forestry Program Administrator, Forest Stewardship Coordinator and Area Foresters

f. *Develop and maintain appropriate natural resource databases.*

1. Inventory and catalog existing data on natural resources.

2. Adopt training, facilities, hardware and staff for using GIS.

3. Develop a process for acquiring and managing necessary resource data.

4. Utilize current and emerging technologies to analyze natural resource data in support of the Division's annual plan of work.

Resources required: Forestry Program Administrator, Forest Stewardship Coordinator, Area Foresters,

g. *Promote the professional development of Division employees.*

1. Promote job-related training and education opportunities.

Resources required: Forestry Program Administrator, Forest Stewardship Coordinator, Area Foresters, and Salt Lake GIS Staff

Wildlife

Objectives and Strategies

As stated in the Utah Forest Action Plan (2016), the Division of Forestry, Fire and State Lands intends to support the Division of Wildlife Resources in the Wildlife Action Plan (WAP) strategies. Coordination between the two agencies is especially important for species of conservation concern, such as the greater sage grouse, where forest management and wildland fire control are critical to maintain habitat for the bird.

Broadly stated, the goal of Utah's Wildlife Action Plan is to maintain or restore healthy populations of native wildlife, thereby preventing the need for federal Endangered Species Act protection. It cannot be disputed that achieving this goal will deliver better outcomes for the people of Utah and for the wildlife held in perpetual trust for them. The strategy being employed to achieve this goal is to: clarify and communicate WAP implementation goals, objectives and priorities in order to align capacity with needs in order to maximize efficiency, in a coordinated, voluntary fashion.

Resources required: Salt Lake GIS Staff, DWR Wildlife Action Plan Program Manager.

Water Quality and Riparian Areas

The Utah Forest Action Plan identified five priority areas throughout the state, including the Uinta Mountains area, partially within Duchesne County. The Division of Forestry, Fire and State Lands can achieve positive changes in water quality and quantity in these areas through:

1. Continued education of loggers and landowners with regards to Best Management Practices (BMP's);

2. Providing leadership and implementing strategies that will reduce invasive species in riparian corridors; and

3. Assisting communities with urban tree projects adjacent to rivers and streams.

Objectives and Strategies

The water quality strategies presented below will be implemented in all five priority areas throughout the state.

a. *Develop management direction for non-federal land use activities, utilizing standards for stewardship and ecosystem management.*

1. Continue the development of educational publications for landowners regarding silvicultural practices, Forest Water Quality Guidelines and forest health issues.

2. Pursue opportunities for application and adoption of Forest Water Quality Guidelines (FWQG) and encourage landowners and industry to include FWQG in all silvicultural activities.

3. Continue to implement monitoring programs to determine effectiveness of the Forest Practices Act, FWQG and Forest Stewardship Management Plans.

4. Pursue opportunities to develop watershed assistance programs for Utah's non-federal forested lands through available funding sources.

5. Utilize grants to support native tree planting efforts along riparian areas within municipalities.

6. Provide technical assistance to developers and city planners to help reduce impervious surfaces and utilize trees and other plant materials for water filtration and to slow run off rates.

Resources required: Forestry Program Administrator, Forest Stewardship Coordinator, Urban and Community Forestry Coordinator.

Forest Health

The 2016 Utah Forest Action Plan states that the purpose of the Forest Health Program is to provide the necessary technical and financial assistance for the detection and evaluation of forest insect or disease problems and to assist Division service foresters, community foresters and other partners by providing information, education, technical assistance and appropriate management strategies to achieve healthy forest conditions and to prevent, manage or control significant insect or disease outbreaks on non-federal lands.

State priority areas and forest health issues are congruent with each other. Nearly all forests in Utah have health issues. Spatially, priority areas for forest health fit within State priority areas.

Insects and disease are oblivious to landownership boundaries and therefore, need to be evaluated on a landscape scale. A coalition between all landownership must be made before effective, comprehensive plans to improve forest health can be made. During outbreak conditions, forest health treatments made on some lands at risk and not others often are ineffective.

Insect suppression strategies are often specific to insect and tree species whether forest insects or urban. However, these strategies should be included in stewardship plans and urban planning efforts. Forest health is an important and integral component of the Forest Stewardship program which maintains the long-term goal of placing non-industrial private forest lands under active management through a proactive approach involving information, education, technical assistance and partnerships. Forest health issues must be taken into account as forest health assessments and stewardship plans are developed for forest landowners. Forest health assessments attempt to characterize potential forest stressors and their capacity to affect the condition of forest stands. As activities prescribed in management plans are implemented, forest health must be monitored on a continuous basis.

In agro-forestry and urban forestry, as with forest land applications, forest health must consider the function of the planting, not just the survival of the individuals in the stand. A windbreak planting composed of trees that are alive, but with poor form or density, defeats the purpose of the planting.

Stand structure and composition often determine whether an insect population will reach epidemic levels. Specific attributes of inventory data collected may be used to rate stands according to bark beetle hazard potential. Hazard ratings help identify stands where substantial losses can be expected if an outbreak occurs.

USDA Forest Service regional and national program data will be used as is appropriate for planning purposes. Coordination and cooperation with federal, state and local municipalities will remain key to project planning and implementation.

<u>Objectives and Strategies</u>

a. *Utah's forested resources are used to meet public needs while being appropriately managed to provide sustainability for future generations.*

1. Provide sufficient technical assistance, training, information, databases and publications to allow land managers and/or private landowners to effectively deal with insect and disease issues using integrated pest management techniques.

Resources required: Forest Health Coordinator, Area Foresters.

b. *Information for all forested lands in Utah is available to the State Forester, State and Federal Legislators, other decision makers and land mangers; allowing appropriate actions in high-priority areas to enhance the health of Utah natural resources.*

1. Coordinate detection efforts with cooperators for significant forest insects and disease and monitor trends in forest health conditions on non-industrial private and state forest lands.

2. Collaborate with partners to participate in the national Forest Health Monitoring Program (FHM).

3. Provide input in the development of the national Forest Inventory and Analysis Core Field Guide.

Resources required: Forest Health Coordinator.

c. *Utah natural resources are minimally affected by introduced, exotic species due to aggressive interagency cooperation to prevent introduction and quick action to reduce populations if introduced.*

1. Collaborate with partners to minimize the impacts of introduced pests.

Resources required: Forest Health Coordinator, Forest Stewardship Coordinator, and Area Foresters.

Proximity to Lands Managed by other Agencies

Much of the project work and planning efforts undertaken by the Division of Forestry, Fire and State Lands may see increased benefits in relation to their proximity to other managed lands. It is less likely that these managed lands will lose their conservation values to development which in turn makes adjacent WUI work, conservation easements, planning efforts, etc. more valuable.

Also, the collaboration between Federal, State and Tribal agencies enables the efficient, strategic and focused use of limited program resources as well as producing the most benefit in terms of critical resource values and public benefits.

The Division of Forestry, Fire and State Lands has worked with landowners to provide Forest Stewardship Plans on more than 295,000 acres of the 2.8 million acres of private forest land in the state. The Division also holds conservation easements on more than 67,000 acres of private forest land. It is also important to consider these managed lands when considering project work and planning efforts.

<u>Objectives and Strategies</u>

a. *Increase project benefits through proximity to managed lands.*

1. Coordinate with other State, Federal, Tribal and private entities to identify project work in proximity to existing management plans and/or conserved lands.

2. Give priority to projects and planning efforts adjacent to or in close proximity to existing Federal and Tribal lands and to private lands with existing Forest Stewardship Plans and/or conservation easements.

3. Maintain and update existing Division Forest Stewardship Plan and conservation easement databases yearly to ensure current information is being utilized.

Resources required: Forestry Program Administrator, Area Managers, and Salt Lake City GIS Staff

Forest Legacy Program

Utah's Forest Legacy Program, described in the 2016 Utah Forest Action Plan, is designed to facilitate state, local and private open space and resource conservation initiatives by assisting with the purchase of conservation easements or fee title on nonindustrial private forest lands and by aiding private forest landowners with the development of long-term Forest Stewardship Plans. The Forest Legacy Program fulfills both of these directives by providing the vital educational, technical and financial tools needed by private landowners and local governments to accomplish their goals with regard to conservation and sustainable forestry.

Because the Forest Legacy Program was created through a 1990 amendment of the Cooperative Forestry Assistance Act of 1978, many aspects of Utah's program follow national requirements and criteria. The remaining elements specifically reflect the state's unique resource needs, political climate and public attitudes. Valuable input from private landowners, public citizens and several resource management agencies played a primary role in the development of these components. The following explains Utah's Forest Legacy Program functions and provides detail on the national program, the eligibility criteria for lands to be included in the program, the selection of Utah's Forest Legacy Areas and the process through which willing forest landowners can benefit from the program's many opportunities. The Forest Action Plan is not intended to replace Utah's Forest Legacy Assessment of Need. For more detailed information about the Forest Legacy Program refer to the Utah's Forest Legacy Assessment of Need.

The United States Congress created the national Forest Legacy Program (FLP) recognizing that the majority of the nation's productive forest lands are in private ownership and that private landowners are facing growing pressures to convert their lands to non-forest uses, namely residential subdivisions and commercial development. Greater population density and user needs are increasing this pressure by demanding that private lands not only compensate for the current timber shortfalls on federal lands but that they also provide a wider variety of products and services, from fish and wildlife habitat to aesthetic and recreational opportunities. The FLP mitigates the negative effects of these pressures and facilitates long-term resource management partnerships between local, state and federal governments. Authorization for the FLP was granted through Section 1217 of Title XII of the Food, Agriculture, Conservation and Trade Act of 1990, also referred to as the 1990 Farm Bill. This law amended the Cooperative Forestry Assistance Act (CFAA) of 1978 in order to allow the Secretary of Agriculture to establish the FLP for the protection of environmentally important forest areas that are threatened by conversion to non-forest uses. This authority continues indefinitely. Currently, the USDA Forest Service serves as the lead federal agency for the FLP. The Forest Service implements the Program through close cooperation with a lead state agency as designated by the Governor. In

1996, Utah's then Governor, Michael Leavitt, designated the Division of Forestry, Fire and State Lands as the state's lead agency.

The establishment of a state FLP includes several steps that are specified by the Forest Legacy Program Implementation Guidelines. The first step in these guidelines is the completion of a state-wide Assessment of Need (AON) which documents the demand for a FLP in the state; identifies and delineates the boundaries of eligible forest areas; and recommends to the Forest Service areas which should be included in the FLP. At a minimum, the AON must address the following as they relate to the purpose of the FLP:

1. Forested areas threatened by conversion to non-forest uses;

2. Forest resources including:

    a. Aesthetic and scenic values,

    b. Fish and wildlife habitat, including threatened and endangered species,

    c. Mineral resource potential,

    d. Public recreation opportunities,

    e. Soil productivity,

    f. Timber management opportunities and

    g. Watershed values;

3. Historic uses of forest areas and trends and projected future uses of forest resources;

4. Current ownership patterns and size of tracts, and trends and projected future ownership patterns;

5. Cultural resources on forested lands;

6. Outstanding geological features;

7. Demographic trends as they relate to conversion of forest areas; and

8. Other ecological values.

Based on the AON, the state lead agency identifies specific geographic Forest Legacy Areas (FLA) that meet both national and state eligibility requirements. It then recommends these areas to the Forest Service for inclusion in a state FLP. Once designated, FLAs and resulting maps of

FLAs may be modified and amended upon recommendation by the state lead agency if future conditions make changes necessary. Following completion, the AON and identification of proposed FLAs must be submitted by the state to the Forest Service for review. The Secretary of Agriculture provides final approval for establishing the state's FLP.

Forest Legacy Area boundaries must encompass forest lands with significant environmental and other resource-based values. These areas may also include non-forested areas such as farms and villages if they are an integral part of the landscape and are within the logical boundaries. In order to ensure that all lands nominated for FLA designation meet the minimum goals and intent of the program, the Implementation Guidelines specify the following eligibility criteria:

1. Proposed Forest Legacy Areas must represent an important forest area that is threatened by conversion to non-forest uses.

2. Proposed Forest Legacy Areas must contain one or more of the following important public values: scenic resources; public recreation opportunities; riparian areas; fish and wildlife habitat; known threatened and endangered species; known cultural resources; and/or other ecological values.

3. Proposed Forest Legacy Areas should provide opportunities for the continuation of traditional forest uses, such as timber harvesting, forest management and outdoor recreation.

The delineation of boundaries for Utah's FLAs stemmed from a multi-level review involving public attitudes and input from local, state and federal resource managers. The Division of Forestry, Fire and State Lands began this review by generating a map of the state's public and private forest lands using information contained on Geographic Information Systems (GIS) data layers. For the purposes of analysis, these forested areas were then divided according to critical hydrologic basins as established by the Utah Division of Water Resources. The use of these regional boundaries reflects the Division's concern for landscape level management of forest resources and its commitment to working with local and regional entities in facilitating their existing plans for land conservation. Due to the limited private forest ownership on tribal lands within the state, tribal lands were not considered as part of the Assessment of Need process.

The Division's second phase of review entailed soliciting input from various resource managers and considering a wide array of printed and computerized data regarding Utah's forest resources. This data included information on water quality and quantity, critical wildlife habitat, high density recreation areas, demographic and economic factors affecting forest conversion, regional activity of private land trusts, opportunities for the continuation or development of wood products industries, existing open space plans and public attitudes regarding land conservation. A report regarding this information was presented to Utah's Forest Stewardship Coordinating Committee which subsequently established the following resource priorities for the selection of Utah's Forest Legacy Areas:

1. Protection and enhancement of water quality;

2. Protection of wildlife/fish habitat and maintenance of habitat connectivity;

3. Protection of riparian areas and restoration of natural ecosystem functions;

4. Maintenance of traditional forest uses; and

5. Contribution to rural economies.

After comparing all these factors to the national eligibility criteria, the Division designated nine FLAs with boundaries corresponding to established state hydrologic basins. Two of the state's eleven basins were not designated as FLAs at this time because of limited forest resources or Legacy-related opportunities in those areas. The widespread nature of these Areas reflects the dispersed distribution of Utah's forest resources and the close proximity of nearly all significant forest stands to rapidly developing urban locations.

All owners of private forest land within a designated FLA are eligible to apply for enrollment of interests in their lands in the state's FLP. It is important to note, however, that participation of any landowner in Utah's Forest Legacy Program is entirely voluntary. Under no circumstances will the right of eminent domain be used for the unwilling "taking" of any private property rights.

Participation also requires preparation of a Forest Stewardship Plan for the forest resources located on a proposed parcel. Eligible landowners who want to participate in the Program may submit a letter of interest to the Division of Forestry, Fire and State Lands at any time. After receiving this letter, the Division will provide the landowner with an application form which requests information regarding the parcel's environmental values and the landowner's conservation and management objectives. A subcommittee of the Forest Stewardship Coordination Committee reviews and prioritizes the applications for acquisition each year based on the program goals. The top three applications are submitted to the National Review Panel for review and prioritization.

The goals of the Forest Legacy Program are to:

- Prevent future conversions of forest land and forest resources;

- Protect and enhance water quality and water supplies;

- Protect wildlife habitat and maintain habitat connectivity and related values needed to ensure biodiversity;

- Protect riparian areas;

- Maintain and restore natural ecosystem functions; and

- Maintain forest sustainability and the cultural and economic vitality of rural communities.

Objectives and Strategies

a. *In order to protect and enhance water quality and water supplies, priority will be given to:*

1. Parcels on which land management directly affects streams and other waterways that support domestic and agricultural water supplies.

2. Parcels owned by landowners who will identify and seek to minimize past and potential sources of non-point source pollution, including erosion potential and sedimentation resulting from road construction.

Resources required: Forest Legacy Program Coordinator.

b. *In order to prevent future conversion of forest land and forest resources, priority will be given:*

1. Parcels in danger of conversion to non-forest uses within five years.

2. Parcels for which there is a cost share match available.

3. Parcels in danger of being over-harvested or degraded through surface mineral development.

4. Parcels containing 100 or more available acres.

5. Parcels held by owners who will preclude parcel divisions and non-forest development projects on parcels included in the Program. Appropriate exemptions may be negotiated for maintaining compatible development.

Resources required: Forest Legacy Program Coordinator.

c. *In order to protect wildlife habitat and maintain habitat connectivity and related values needed to ensure biodiversity, priority will be given to:*

1. Parcels located adjacent to public lands managed for wildlife habitat.

2. Parcels which currently exhibit connective habitats, migratory corridors, habitat linkages and areas that reduce biological isolation or could be managed to do so.

3. Parcels held by owners who will identify and protect areas with species or communities of concern and seek to manage for key habitats.

4. Parcels held by landowners who will maintain and/or restore forest cover and structure to provide habitat connectivity for the range of wildlife species which would normally populate the area.

Resources required: Forest Legacy Program Coordinator.

d. *In order to protect riparian areas, priority will be given to:*

1. Parcels owned by landowners who will encourage regeneration of healthy stands of native species in riparian areas where they are/were naturally occurring.

2. Parcels owned by landowners who will identify and protect sensitive riparian habitats, including stream banks.

3. Parcels including over 300 feet of river or wetland shoreline.

4. Parcels including a minimum 80 foot strip of native trees and shrubs as a natural buffer and sediment filter.

Resources required: Forest Legacy Program Coordinator.

e. *In order to maintain and restore natural ecosystem functions, priority will be given to:*

1. Parcels which include healthy forests, including a natural species mix and a genetically sound mix of trees within the species represented on the parcel.

2. Parcels owned by landowners who will manage the parcel or key portions of it to restore a natural mix of forest species, structure and stages across the landscape.

3. Parcels owned by landowners who will utilize prescribed fire or other practices to restore more naturally functioning landscapes.

Resources required: Forest Legacy Program Coordinator.

f. *In order to maintain forest sustainability and the cultural and economic vitality of rural communities, priority will be given to:*

1. Parcels which could contribute to the development or sustainability of local and regional wood products industries.

2. Parcels owned by landowners who will work cooperatively to develop a long-term forest stewardship plan for their property.

3. Parcels which could contribute to the continuance of wildlife production and

livestock grazing on forested lands.

Resources required: Forest Legacy Program Coordinator.

Climate Change and Forest Management

The Utah Forest Action Plan (2016) notes that the Division of Forestry, Fire and State Lands is working cooperatively with several agencies and organizations to develop policies and strategies for addressing climate change. These include the Western Forestry Leadership Coalition, the Council of Western State Foresters and the Western Governors' Association Forest Health Advisory Committee (Climate Change Subcommittee). All recommendations, guidance and policy resolutions from these groups focus on ensuring that the role of forests are recognized in the development of national climate policy.

Forests are critical to state, regional, national and international efforts to reduce atmospheric carbon. Healthy, growing forests are essential for removing and storing carbon from the atmosphere ("carbon sinks"), but this carbon storage is vulnerable to the risks of climate change through large-scale disturbances such as epidemic bark beetle outbreaks and increased severity and extent of wildfire. These disturbances can release very large amounts of stored carbon during short periods of time ("carbon sources").

Successful climate change policies must address both mitigation and adaptation. Effects of climate change can be mitigated through:

- Reductions in forestland conversion to other uses;
- Increased carbon sequestration and storage in forests and wood products;
- Substituting wood products for non-renewable building materials;
- Substituting woody biomass for fossil fuels.

Our forests can best adapt to climate change when they are actively managed to increase resistance to catastrophic disturbances (wildfire, insects) and by ensuring forest species biodiversity. Maintaining diverse forest stands will ensure that with climate change (either warmer or colder) there will be some species that can remain and thrive in the new conditions, while allowing other species to move either geographically or to other elevations over time.

Climate change was identified as a threat during Utah's initial Forest Action Plan stakeholder meeting, but stakeholders subsequently ranked it relatively low (19 out of 22 issues). However, despite climate change not being directly carried forward as a theme (input) in the Utah Forest Action Plan, it is indirectly incorporated into other themes such as forest health and wildfire where it may act as a contributing factor. The Nature Conservancy and others have recently initiated a state-wide vulnerability assessment which, after completion, will be reviewed for

possible inclusion into Forest Action Plan updates.

Climate Change Objectives and Strategies

While most of the nation's forests are in private ownership, Utah's forests are mostly managed by federal agencies. This limits how much direct impact state agencies can have on managing forests for climate change. However, broader efforts can include:

- Conduct education & outreach on the importance of healthy forests in mitigating climate change.
- Develop projects and policies that promote healthy forests and reduce catastrophic wildfire, thereby maintaining forests as a carbon sinks and not carbon sources.
- Promote the increased use of woody biomass as a renewable and carbon neutral energy source.
- Develop a funding mechanism to achieve these goals, including a Wood Utilization Coordinator position within the Division of Forestry, Fire & State Lands.

Grazing and Forest Management

The Utah State University Cooperative Extension Service published a *Utah Forest Facts* fact sheet in May 2012, entitled: *Forest Grazing; Managing Your Land for Trees, Forage and Livestock.* This publication contains good advice for private and public land managers as they seek to manage for suitable interactions between trees, forage and livestock.

This publication recognizes that grazing on forests is common in Utah and encourages the use of deferred, rotational or intensive grazing management systems. Aggressive fire suppression (and environmental) policies have left many forests so dense that forage plants cannot receive the light, nutrients and moisture that they need to grow. Thinning to no more than fifty percent canopy cover is generally recommended to support forage production. Seeding with a mixture of native or introduced species is recommended to prolong the growing season and better protect the soil. Livestock do need to be excluded from riparian areas and seeded areas until the plants have developed an adequate root system.

Incorporating grazing in forest management improves conditions for wildlife, reduces density of hazardous fuels and can help in exposing the bare mineral soil that is necessary for the regeneration of some tree species.

The Ashley National Forest reports that, between FY 2010 and FY 2014, an average of 947,580.6 acres of land on the forest was sustainably managed for all rangeland products. The forest also reports that FY 2015 saw 1,909 acres of rangeland vegetation improvements and that increased to 8,276 acres in FY 2016.

Forest Management Objectives

1. Use active and adaptive forest management to improve forest health and support multiple use and sustained yield with emphasis on employment, forest product production, open space, wildlife habitat, forage, recreation, and other social and economic benefits.

2. Manage forest resources to reduce the risk of catastrophic fires, which cause unacceptable harm to resources and assets valued by society, including ecosystem and community health and resilience. In most cases, fires reach catastrophic levels largely as the result of human intervention, or lack thereof, on the land. Catastrophic wildfires are more intense than natural fires and kill practically all vegetation within the fire perimeter. They can also sterilize soils, resulting in difficult regeneration and depositions of ash and sediments in waterways. Catastrophic wildfires also have a higher probability of threatening private property and public infrastructure, and they can adversely affect public health and safety.

3. Encourage and support the expansion of the local forest product market at sustainable harvest levels.

4. Develop new markets for timber and forestry products that are available for harvest (e.g., use timber products for bracing in nearby coal mines or biofuels industry).

5. When sustainable and based on scientific knowledge and local data, increase grazing to historic levels (allotments, AUMs, or seasonal use) to reduce fuel loads, support local economies, and support rural lifestyles for county residents.

6. Manage forest watersheds for optimal yield without compromising other resources.

7. Seek opportunities to use and harvest forest products that have been affected by wildfire or pests (e.g., beetle).

8. Reduce time required for National Environmental Policy Act processes associated with timber harvests so that economic benefits can be maximized.

Forest Management Policies:

1. Timber resources shall be managed to achieve multiple benefits.

2. All forestlands shall be managed for multiple use and sustained yield.

3. Grazing access on national forest land should be tied to historic levels and healthy forest conditions. Public forest land management should be consistent to the greatest degree possible with the private forest land recommendations of the Utah State University Cooperative Extension Service.

4. Tree species selection, stocking levels, age class distribution, integrated pest management and fuel loading shall be addressed at some level within the forest planning process.

5. Forest risk assessments, monitoring and prevention tasks shall be completed. Areas of forest affected by processes or agents beyond the range of historic variation shall be identified.

6. Forest management plans shall be written and effective management techniques adopted to promote a stable forest economy and enhanced forest health, in accordance with the National Healthy Forest Initiative.

7. Opportunities for harvesting forest products shall be promoted, including the harvest of small diameter wood and biomass that can be used for energy, lumber, pellets, chips and other products. A study of the economic viability of forest restorative thinning projects on the Ashley National Forest should be launched.

8. Timber and non-timber products and habitats shall be identified for the forest. Long and short-term productive capacities and targets shall be established. Removal of forest products shall be viewed as achievable and sustainable provided that appropriate science and technology are used.

9. Management strategies shall protect timber resources from fire (in accordance with the National Fire Plan), insects, and disease. Such management strategies shall provide for proper vegetation management practices so that excessive fuel loading and high intensity fires do not damage soil productivity.

10. Harvesting techniques shall be employed that will prevent waste of forest products.

11. Sound fuel load management techniques shall be used to minimize fire potential at the urban interface and prevent catastrophic events.

12. Forest management techniques shall be implemented that will increase watershed health and long-term water quantity yield and quality.

13. Management programs must provide opportunities for citizens to harvest forest products for personal needs, economic value and forest health. Sound economic approaches, considering both long and short-term goals shall be used when considering the harvesting of both wood and non-wood products and appropriate social values shall be considered.

14. The County shall be given an opportunity to participate as a Cooperating Agency in forest planning processes and assist in identifying areas where restoration treatments are needed on federal land.

15. The objectives and strategies identified in the 2016 Utah Forest Action Plan shall be

supported.

16. Participate as a Cooperating Agency in the planning for and revision of USFS forest management plans and Bureau of Land Management resource management plans affecting forest management.

17. Encourage USFS to open appropriate areas for commercial timber harvest.

18. Encourage USFS to find commercial uses for timber and forest products affected by wildfire or pests.

19. When revising or updating a forest plan, USFS should engage with the county in developing alternative management strategies and management policies.

20. Collect and provide data to USFS regarding appropriate forest management methodologies. Data may include published scientific literature, local case studies, inventories, or other pertinent information.

21. USFS forest plans should address commercial tree species selection, stocking levels, age class distribution, integrated pest management, and fuel loading. Additionally, areas for timber and non-timber product harvest and wildlife habitats shall be identified for the forest. Long- and short-term productive capacities and targets shall be established.

Energy Considerations in Forest Management

Findings: The South Unit of the Ashley National Forest contains substantial oil and gas resources. This section of the forest should be made available for oil and gas leasing and production of these valuable resources.

Policy: It is the policy of Duchesne County that special designations, such as roadless areas and wilderness should not be established in areas of the South Unit containing energy resources.

Water Considerations in Forest Management

Findings: Healthy forests result in healthy watersheds. Healthy watersheds provide optimum water quality and optimum water yields to support a wide variety of water uses important to the citizens of the County. Watershed management can affect water resources in several ways. The quantity, quality, and timing of runoff from watersheds are influenced by the condition of the watershed. Good vegetative cover holds back the runoff, controlling flooding and erosion and allows for deep percolation of the water. This percolation can improve the timing of the runoff making it available later as base flow in the stream. Residential and commercial development, agricultural practices, resource and vegetative management may affect the quality and timing of runoff. Other factors such as dams and flow control structures can affect streamflow.
At the heart of conflicts in local watersheds is land use and ownership. There are many possible

uses of land within a watershed ranging from untouched habitat to agriculture to mining to urban and industrial. Much public input is needed when attempting to balance these needs. Other conflicts arise over the use of water, water quantity and quality, and development versus environmental and social issues.

Increases in population in Duchesne County will require additional water for municipal and industrial (M&I) uses. Water conservation can be used to reduce those additional demands, but will not completely eliminate the need for additional water. It is anticipated that as agricultural lands are developed for housing a portion of the agricultural water will be converted to municipal and industrial uses. The effects of these changes and other changes in watershed function need to be considered.

Forest managers know that thinning forests to a more natural state is a good way to reduce the severity of wildfires. Now scientists suggest that it also could offer help in saving water in times of drought. Researchers at the Sierra Nevada Research Institute at UC Merced found in 2015 that thinning overgrown forests throughout the Sierra in California could result in as much as a million acre feet of extra water supply each year for the state. However, years of fire suppression have left much of the Sierra overgrown with small trees that consume a lot of water.

A local study published in 2008 looked at the prospects for increased water yields from the Ashley National Forest. This study, authored by Mark Muir, is entitled *"Review of Vegetation Management and Water Yield with Local Application to the Ashley National Forest."* This document considers precipitation to be the primary parameter affecting water yield. Therefore, maximizing or appreciably changing the amount and timing of water is unrealistic. However, optimizing water yield can result in maintenance of healthy vegetation in aquatic ecosystems, which in turn supplies clean water for both consumptive and non-consumptive uses (Muir 2008).

The summary of this study set forth the following findings:

- Local observations on the Ashley N.F. demonstrate that a long term program of managing for increased water yield is currently not feasible or compatible with desired conditions.

- Forest Plan Standards and Guidelines related to other resources and values preclude the level of harvest necessary to create measurable increases in water yield (20% of the forested area in a watershed at a given time).

- In addition to resource constraints, the combined fuels and timber vegetation treatments on the Ashley N.F. (~5,000 acres per year) are currently not of sufficient scale to create and maintain the disturbed area sufficient for measurable water yield increases in the major watersheds that drain to downstream communities.

- Vegetation management for a variety of purposes (fuels treatments, timber harvest, habitat improvement, aspen regeneration etc.) could temporarily increase water yields on a small scale, but the changes would be difficult or impossible to detect at the watershed

scale. The best opportunities to enhance water yield, if any exist, are in places where aspen or meadow communities have been replaced by conifer species.

- Local observations on the Ashley N.F., water yield research, and regional policy all demonstrate the numerous constraints and limitations of augmenting water yields. The Ashley N.F will continue to focus on healthy watersheds and optimal flow, instead of maximum flow. Optimal flow implies healthy vegetative and aquatic ecosystems, which supply clean water for all beneficial uses of that water, both consumptive and non-consumptive.

The Ashley National Forest contributes the following percentages of flow to the following surface waters according to the USFS national forest contributions to streamflow project (Table FM9; USFS 2016), and these percentages reflect current water yields.

Table FM9. Percentages of Streamflow Contributions from the Ashley National Forest

Location	Percentage
Green River at the confluence with the Colorado River	13%
Green River at the confluence with the Yampa River	4%
Green River at the confluence with the Duchesne River	4%
Ashley Creek at the confluence with the Green River	91%
Green River at the confluence with the Price River	14%
Strawberry River at the confluence with the Duchesne River	24%
Duchesne River at the confluence with the Green River	67%

Source: USFS (2016).

Policy: Based on this science, it is the policy of Duchesne County to encourage thinning of the forest to allow more water to flow into drainage basins and be put to a variety of beneficial uses, provided that such vegetation management does not compromise watershed health.

See Section 9 of this plan for more detailed analysis of the water considerations associated with water that originates on the south slope of the Ashley National Forest.

Section 7. Noxious Weeds

Findings: The Utah Department of Agriculture and Food defines a noxious weed as "any plant the Commissioner [of Agriculture] determines to be especially injurious to public health, crops, livestock, land, or other property."

Most noxious weeds are non-native plants that have been intentionally or accidentally introduced into the county. Some of the main problems caused by noxious weeds are reducing crop yields, reducing livestock forage, limiting recreational opportunities, reducing wildlife habitat, displacing native vegetation, increasing soil erosion, and altering soil and water quality.

Once treated, the most effective way to keep the weeds from returning is planting desirable plants and managing to promote beneficial plants.

Invasive noxious weeds have been described as a raging biological wildfire – out of control, spreading rapidly, and causing enormous economic losses. Weeds often reduce crop yields and can damage watersheds, increase soil erosion, negatively impact plant and animal communities, and adversely affect outdoor recreation.

Utah Administrative Rule R68-9, sets forth that the following weeds are officially designated and published as noxious for the State of Utah, as per the authority vested in the Commissioner of Agriculture and Food under Section 4-17-3 of the Utah Code.

Class 1A: Early Detection Rapid Response (EDRR) Watch List: Declared noxious and invasive weeds not native to the State of Utah that are not known to exist in the State and that pose a serious threat to the state and should be considered as a very high priority.

Common crupina	Crupina vulgaris
African rue	Peganum harmala
Small bugloss	Anchusa arvensis
Mediterranean sage	Salvia aethiopis
Spring millet	Milium vernale
Syrian beancaper	Zygophyllum fabago
Ventenata (North Africa grass)	Ventenata dubia
Plumeless thistle	Carduus acanthoides
Malta star thistle	Centaurea melitensis

Class 1B: Early Detection Rapid Response (EDRR): Declared noxious and invasive weeds not native to the State of Utah that are known to exist in the state in very limited populations and pose a serious threat to the state and should be considered as a very high priority.

Camelthorn	Alhagi maurorum
Garlic mustard	Alliaria petiolata
Purple star thistle	Centaurea calcitrapa

Goatsrue	Galega officinalis
African mustard	Brassica tournefortii
Giant reed	Arundo donax
Japanese knotweed	Polygonum cuspidatum
Blueweed (Vipers bugloss)	Echium vulgare
Elongated mustard	Brassica elongata
Common St. Johns wort	Hypericum perforatum
Oxeye daisy	Leucanthemum vulgare
Cutleaf vipergrass	Scorzonera laciniata

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

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

Class 3: Containment. Declared noxious and invasive weeds, not native to the State of Utah, that are widely spread. Weeds listed in the containment noxious weeds list are known to exist in various populations throughout the state. Weed control efforts may be directed at reducing or eliminating new or expanding weed populations. Known and established weed populations, as determined by the weed control authority, may be managed by any approved weed control methodology, as determined by the weed control authority. These weeds pose a threat to the agricultural industry and agricultural products.

Russian knapweed	Acroptilon repens
Houndstounge	Cynoglossum officianale
Perennial pepperweed (Tall whitetop)	Lepidium latifolium
Phragmites (Common reed)	Phragmites australis ssp.
Tamarisk (Salt cedar)	Tamarix ramosissima
Hoary cress	Cardaria spp.
Canada thistle	Cirsium arvense
Poison hemlock	Conium maculatum

Musk thistle	Carduus nutans
Quack grass	Elymus repens
Jointed goat grass	Aegilops cylindrica
Bermuda grass	Cynodon dactylon
Perennial Sorghum spp. including but not limited to Johnson grass	Sorghum halepense and Sorghum almum
Scotch thistle (Cotton thistle)	Onopordum acanthium
Field bindweed (Wild Morning-glory)	Convolvulus spp.
Puncture vine (Goat head)	Tribulus terrestris

<u>Class 4: Prohibited.</u> Declared noxious and invasive weeds, not native to the State of Utah, that pose a threat to the state through the retail sale or propagation in the nursery and greenhouse industry. Prohibited noxious weeds are annual, biennial, or perennial plants that the commissioner designates as having the potential or are known to be detrimental to human or animal health, the environment, public roads, crops, or other property.

Cogon grass (Japanese blood grass)	Imperata cylindrica
Myrtle spurge	Euphorbia myrsinites
Dames Rocket	Hesperis matronalis
Scotch broom	Cytisus scoparius
Russian olive	Elaeagnus angustifolia

The administrative rule states that each county in Utah may have different priorities regarding specific State designated Noxious Weeds and is therefore able to reprioritize these weeds for their own needs.

Noxious weeds are a significant problem in Duchesne County and have been the focus of a considerable effort for many years (see Map #25). The County maintains a Weed Board consisting of five individuals representing the Neola-Roosevelt, Myton-Arcadia, Upper Country, Pleasant Valley and Tabiona-Fruitland areas. Members of the board are appointed by the County Commissioners to four-year terms. One County Commissioner, the County Weed Department Supervisor and the local USU Extension Agent provide support and technical assistance.

In recognition of the ecological and economic impacts of weeds, the Utah Noxious Weed Act requires landowners to control state-listed noxious weed species on their lands. The act stipulates that each county and municipality in Utah must adopt a noxious weed management plan for its jurisdiction and identify the plant species in its area that it considers noxious weeds. In addition, if landowners and managers fail to control weeds on their property, the county or municipality may legally enter the property, control weeds, and charge the landowner for the cost of control work.

Utah Administrative Rule R68-9-5 requires reports from counties on their efforts to control weeds. The Board of County Commissioners of each county, with the aid of their county Weed

Board and their County Weed Supervisor, must submit an "Annual Progress Report of County Noxious Weed Control Program" to the Commissioner of Agriculture and Food by January 15 of each year, covering the activities of the previous calendar year.

The Duchesne County Code recognizes the weeds listed in Utah Administrative Rule R68-9 and emphasizes the following for treatment in the county:

A. Bermuda grass;
B. Field bindweed (morning glory);
C. Perennial pepper weed (tall white top);
D. Hoary cress (short white top);
E. Canada thistle;
F. Dyer's woad;
G. Johnson grass;
H. Leafy spurge;
I. Musk thistle;
J. Scotch thistle;
K. Yellow star thistle;
L. Quack grass;
M. Russian knapweed;
N. Squarrose knapweed;
O. Diffuse knapweed;
P. Spotted knapweed;
Q. Medusa head;
R. Purple loosestrife;
S. Russian olive;
T. Western Water hemlock;
U. Poison hemlock;
V. Tamarisk (salt cedar);
W. Yellow toadflax;
X. Dalmatian toadflax.

Cooperative Weed Management Areas

Cooperative weed management areas (CWMAs) can be an effective resource in the prevention, detection, and suppression of noxious and invasive weeds. Coordinated mechanical, chemical, and biological control over large areas by multiple landowners has proven successful for a variety of weed species. These areas replace jurisdictional boundaries in favor of natural boundaries that facilitate cooperation, coordination, and implementation of effective integrated weed management programs for listed noxious weeds. In 2003, the Duchesne County Weed Management Area was formed to facilitate the management of weeds on lands under various jurisdictions and to combine resources for education opportunities and weed control activities. Other local CWMAs include the Uintah Basin CWMA and the North Ute Indian Tribe CWMA in Uintah County, and the West Basin CWMA in Duchesne County (U.S. Forest Service, 2016).

In 2012, the Duchesne County Conservation District, in their Duchesne County Resource Assessment, identified noxious weed control to be one of the top five natural resource issues in the County. The District identified these challenges associated with noxious weeds facing the County:

a. Russian Olive invasion into pasture and range lands.

b. Neighboring lands can harbor weed stock, making prevention difficult in adjacent fields.

c. A mix of land ownership, including federal, state, tribal and private makes weed control efforts hard to coordinate.

d. Lack of effort put into controlling weeds while the problem is small leads to great effort and expense being required to control an exponentially larger weed infestation.

e. Limited resources available to control weeds.

f. Increased mobility of weed seeds due to human activity.

The State of Utah has a strategic plan for managing noxious and invasive weeds *(The Utah Strategic Plan for Managing Noxious and Invasive Weeds).*

The plan identified the following priorities in addressing noxious and invasive weeds, drawing a comparison between fighting weed infestations and fighting wildfire:

Prevention

a. Early Detection and Rapid Response

b. Management of Establish Populations

1. Identify the perimeter

2. Eradicate satellite populations

3. Contain and suppress main population

c. Revegetation and Restoration

d. Protect Defensible Spaces

Dr. Whitesides used the strategies above and recommended the following ways to manage weeds in Utah:

a. Education and Research

b. Mapping and Monitoring

c. Prevention, Early Detection and Rapid Response

d. Control – Integrated Weed Management

e. Restoration

f. Regulation and Enforcement

g. Funding

NRCS Guidance

The Natural Resources Conservation Service (NRCS) publishes an Herbaceous Weed Control guide as part of its Conservation Practice Standards, Code 315. The document includes several purposes for such guidance, enabling land managers to:

- Enhance accessibility, quantity, and quality of forage and/or browse.
- Restore or release native or create desired plant communities and wildlife habitats consistent with the ecological site.
- Protect soils and control erosion.
- Reduce fine-fuels fire hazard and improve air quality.

This NRCS Guidance gives land managers tips for meeting the purposes listed above and encourages them to take the following under consideration as they develop their weed control plans:

- Consider using Integrated Pest Management in support of herbaceous weed control.
- Consider soil erosion potential and difficulty of vegetation establishment when choosing a method of control that causes soil disturbance.
- Consider the appropriate time period for treatment. Some herbaceous weed control activities can be effective when applied within a single year; others may require multiple years of treatment(s) to achieve desired objectives.
- Consider impacts to wildlife food supplies, space, and cover availability when planning the method and amount of herbaceous weed control.

- State issued licenses may be required when using chemical pesticide treatments.

- For air quality purposes, consider using chemical methods of herbaceous weed control that minimize chemical drift and excessive chemical usage and consider mechanical methods of herbaceous weed control that minimize the entrainment of particulate matter.

- Adjacent land uses must be considered before chemicals are used.

Integrated Weed Management

An important component of adaptive management is an integrated weed management plan that uses multiple weed management techniques. Integrated weed management is a process that combines biological, chemical, mechanical, and cultural management techniques to synergistically control target weed species with minimal adverse impacts to non-target organisms (Colorado Natural Areas Program et al. 2000). Most traditional weed management concentrates only on suppression, typically by using herbicides; however, this approach does not address the ultimate causes of weed invasion. Integrated weed management uses ecological principles of plant community establishment and persistence and integrates strategies that are practical, economical, and protective of public and environmental health (Colorado Natural Areas Program et al. 2000). By implementing multiple weed control methods, the likelihood that one of the methods will control or eliminate the target weed species is increased. Objectives of an adaptive weed management process that uses the principles of integrated weed management are as follows:

- Work to establish and maintain functioning native plant communities. Disturbance—both anthropogenic and natural—is the primary factor in the degradation of native plant communities and spread of noxious weeds.

- Implement appropriate prevention methods. Preventing weeds from invading a site in the first place is the most effective and least costly method for controlling weeds.

- Choose appropriate control actions. Control strategies are a function of the biology and ecology of the target species. The appropriate strategy should also be
    - Applied at the most effective time,
    - The least damaging to non-target organisms,
    - The least hazardous to human health,
    - The least damaging to the general environment,
    - The most likely to reduce the need for weed control over the long term,
    - The most easily implemented, and
    - The most cost effective in the short term and long term.

Noxious Weeds and Sage Grouse

In 2013, the U.S. Fish and Wildlife Service (USFWS) Conservation Objectives Team identified wildfire and the associated conversion of low- to mid-elevation sagebrush habitats to invasive annual grass-dominated vegetation communities as the two primary threats to the sustainability of Greater sage-grouse (GRSG) in the western portion of the species range. To facilitate the examination and evaluation of the role fire and invasive plants play in the conservation of GRSG, the USFWS solicited the assistance of the Western Association of Fish and Wildlife Agencies (WAFWA) to conduct a collaborative assessment of the conservation challenges associated with the fire and invasive threat.

In 2015, WAFWA published a report entitled "Invasive Plant Management and Greater Sage Grouse Conservation." The report finds that much public and scientific attention has been paid to wildfire and its effects on public safety, property and GRSG habitat and populations.

However, the story of the effects of fire on GRSG conservation cannot be effectively told without recognizing and evaluating the critical role invasive annual grasses and invasive perennial forbs play, both in the wildfire cycle and the direct effect they have on the quality of GRSG habitat. Wildfire, while having a direct effect on GRSG habitat, has been shown to have a significant association with invasive non-native annual grasses such as cheatgrass and medusahead. Many invasive plant species (both annual grasses and perennial forbs) have degraded GRSG habitat by outcompeting native species and by directly affecting the frequency and intensity of wildfires. Invasive annual grasses in particular fuel the wildfire threat and cause degradation of sagebrush communities, resulting in habitat loss and negative effects on GRSG. Deep-rooted, creeping invasive perennials such as Russian knapweed, Squarrose knapweed, Dalmatian toadflax and Canada thistle is often some of the hardest invasive plants to manage, can dominate large areas, and are becoming increasingly important in terms of their effect on sagebrush habitat.

The report finds that the spread of invasive plants is exceeding treatment rates conducted by most weed management programs. Invasive plant management activities conducted on federally administered lands in the West are often coordinated with state and local governments and may be largely performed by contractors (including county weed programs) under assistance agreements. Federal funding for these activities, however, is severely lacking throughout the 11-state GRSG range, and has resulted in the curtailment of many federal research and management programs or a significant reduction in their scope and scale. The lack of adequate federal infrastructure, funding, and management capacity severely hampers the ability to effectively deal with landscape-scale invasive species threats, including — and perhaps especially — infestations of invasive plants that degrade or eliminate native sagebrush ecosystems across the western U.S. Improving organizational capacity and regulatory mechanisms may lead to more effective invasive plant management and increase the ability of land managers to address the problems associated with the spread of invasive plants (particularly invasive annual grasses). A corresponding emphasis on advancing scientific research in invasive plant prevention and control techniques and development of new approaches for effective restoration of sagebrush ecosystems should also occur.

WAFWA identified several key challenges and barriers that will significantly affect the ability to effectively manage non-native plant invasions and conserve native sagebrush ecosystems and the wildlife that depend on those native plant communities for survival. These challenges and barriers fall into four major categories:

Information Management and Science Challenges

- Lack of emphasis on surveys, inventories, and monitoring activities
- Lack of scientific information to successfully re-establish desired perennial vegetation
- Inadequate collection, retrieval, and sharing of invasive plant data
- Lack of certainty for actions under a changing climate

Leadership, Coordination, and Communication Challenges

- Governmental Coordination and Emphasis for Invasive Species Management is Insufficient at Nearly All Levels (local, state, federal)
- Very limited coordination and collaboration with non-traditional stakeholders
- Lack of effective communication and engagement with the public.
- Low level of public awareness and support for invasive species management

Policy and Regulatory Challenges

- Lack of effective legal and regulatory framework for invasive species management
- Insufficient evaluation, compliance monitoring, and enforcement

Operational Capacity and Program Management Challenges

- Highly variable management prioritization of high risk invasive plants; Programs do not emphasize sagebrush conservation when targeting invasive plants across the range of the GRSG
- Lack of internal structure and capacity for weed management programs at all levels
- Lack of federal funding at the field level, which transfers risk to state and local governments
- Inconsistent and fragmented prevention operations
- Lack of an effective early detection and rapid response (EDRR) system across the landscape
- Inadequate restoration strategies, implementation, and approaches

After identifying the challenges and barriers listed above, WAFWA made several recommendations in the report to address the invasive species – noxious weed problem across the western landscape. These recommendations include:

1. The Invasive Species Advisory Committee should establish a standing committee dedicated to promoting research and adaptive management to determine how we can a) prevent spread of existing weed infestations, and b) consistently re-establish desired perennial plants in invaded sites. This effort should be paired with a corollary initiative to develop scientific standards, protocols and methods for invasive species assessment and

monitoring to be used for a) determining the most critical locations for prevention emphasis, and b) accurately tracking spatial dynamics of weed populations over time as well as the impact of weed treatments on those dynamics. These efforts need to be supported through a directive of the National Invasive Species Council departments and agencies, supported at the state level, and initially focused on invasive annual grass species.

2. Convene a summit of federal departments and agencies, state government agencies, tribes, and key non-government organizations to review existing invasive species mandates (e.g., 1999 Presidential Executive Order 13112), overarching policies, and invasive species program budgets. The goal of the summit would be to develop a plan for consistent and appropriate implementation of the existing mandates, fill gaps in law and policy, and develop recommendations for securing adequate and consistent program funding at local, state and federal levels. In particular, develop federal departmental orders, and other direction for accelerating invasive plant management activities to meet the needs of GRSG conservation across the western U.S.

3. Re-engage the National Invasive Species Council at the Department level to establish a high-level multi-federal agency working group and charge them with drafting a National Invasive Species Strategy in the U.S. Develop a template for the establishment of regional invasive plant management strategies that consist of assigned responsibilities, funding, invasive plant assessments and action plans. Link regional strategies to GRSG (and other imperiled wildlife) conservation priorities.

4. Establish a subcommittee within the Invasive Species Advisory Committee to review the current legislative and regulatory framework (federal and state) on invasive species, including coordination with the Association of Fish and Wildlife Agencies and recommendations for NEPA categorical exclusion authority for rapid response against invasive plant infestations in priority areas. From this review, the subcommittee should provide a status report with recommendations for consolidation, elimination, and/or establishment of new laws, policies, and regulations that would facilitate and improve the assessment, control and management of invasive species.

5. Establish a working group to review federal, state, and provincial rules, procedure's, work contract and permit clauses, and Best Management Practices (BMPs) designed to prevent the spread of invasive plants. The work group should make recommendations to establish a set of consistent, ubiquitous standards across the North America to better manage and prevent the spread of invasive plants across the range of the GRSG and other regions. If plausible, the approach developed could be similar in design and function as the interagency/ intergovernmental fire model, but for invasive species, with standard procedures and reporting of actions and effectiveness.

6. Conduct a comprehensive evaluation, including potential restructuring, of the funding and personnel model for invasive species management programs at all levels across federal,

state, and county agencies and governments. Programs should consider instituting a holistic, site-based management approach to protect and restore critical areas from invasive plant invasions, and restore native plant communities in those areas to accomplish GRSG conservation goals. Rather than limiting activities to only a few, targeted high-risk invasive plants, design programs to build stronger capacity to address all invasive plant threats in priority areas to achieve long-term restoration success within GRSG habitats. Emphasis on the risk and threat to economies, human health, and the environment should be incorporated within program justifications for increasing operational capacity. Examine opportunities and examples within other invasive species management arenas for site-based approaches to help accelerate and emphasize invasive plant management capacity at local, regional, state, and national levels. Lead National Invasive Species Council departments should consider assigning this task to the Invasive Species Advisory Committee for developing a first-cut draft, thereby leveraging the technical expertise provided by the Invasive Species Advisory Committee membership.

7. Develop funding mechanisms at state and federal levels to significantly increase program capacity to accelerate invasive plant prevention and control activities at all levels, with the goal of achieving a measurable net reduction of priority invasive plant populations each year and curtailing the exponential rate of spread of those priority populations, across the range of the GRSG. Financial support for pre-and post-treatment ecosystem restoration activities, including but not limited to native plant restoration should be included in the design of the program funding mechanisms.

8. A new approach needs to be developed and funded to provide for early detection, rapid management response (EDRR) and restoration of areas to prevent invasive plant species from becoming established or spreading. A national system for invasive species EDRR should include consistent funding and a formal incident command structure (ICS) that can address invasive species threats at all levels and across all landownerships, particularly within the range of GRSG, in a timely and efficient manner. Again, this approach could mirror the relevant aspects of the national interagency/intergovernmental fire model, particularly with infrastructure and capacity to respond rapidly and share resources.

9. Develop a nationally consistent public awareness and education program for the prevention and management of invasive species, similar to the successful national fire prevention program campaign, coordinated across public and private sectors. Such a program will require professional marketing and education expertise to design and implement an effective campaign to reach target audiences in a productive manner, with a goal of changing public behavior and elevating the priority of invasive species issues nationwide.

10. Coordination between the public and private landowners to manage invasive plants across landscapes is essential and is occurring through the creation of Cooperative Weed Management Areas. Thus, the support and implementation of these CWMAs needs to be implemented across the range of GRSG. An assessment of the status and functional

effectiveness of each CWMA should be conducted across the range of the GRSG. Using the assessment information, expand mechanisms to increase capacity building and support for CWMA operations to address GRSG conservation needs.

11. Wherever feasible, maximize niche occupation with desired native species. Aggressive, fire-resistant, non-native perennial species, such as crested wheatgrass, may be necessary to stabilize and prevent further invasion of cheatgrass and medusahead. However, these species should be only used with the intent to stabilize the plant community and allow for long-term recovery of sagebrush and other native species.

As stated earlier, in September 2015, the BLM and Forest Service signed a Sage Grouse EIS that establishes new guidance for sage grouse habitat management on federal lands in the West. The RMP Amendments for managing Greater Sage-Grouse in Utah can be found at: https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=99423.

Noxious Weeds in the National Forest

According to the Land and Resource Management Plan for the Ashley National Forest (U.S. Department of Agriculture 1986):

a. The Ashley National Forest has been actively involved in the control of noxious farm weeds on U.S. Forest Service–administered lands in cooperation with state and local weed control organizations.

b. Noxious farm weeds are defined as "Those pernicious plant species occurring unnaturally on National Forest System lands that have the greatest potential of contributing to an unfavorable economic impact on crop or pasture land downstream" (U.S. Department of Agriculture 1986).

In addition to the weeds listed above, the Ashley National Forest reports that Whitetop (Cardaria draba) and Musk Mustard (Chorispora tenella) are problem weeds on forest lands in the county.

The Ashley National Forest reports that 2,422.9 acres of land were treated for noxious weeds or invasive plants in FY 2015 and that such treatments decreased slightly to 2,396.9 acres in FY 2016.

Noxious Weeds on BLM Land

According to the BLM Vernal ROD/RMP (BLM 2008), management for noxious weed and invasive species will continue to implement control actions as per national guidance and local weed management plans in cooperation with state and federal agencies, affected counties, adjoining private landowners, and other partners or interests directly affected. The BLM will use

principles of integrated pest management for control and management of noxious weeds and invasive species. This includes prevention methods as well as control through mechanical, cultural, biological, and chemical methods.

County Objectives

1. Reduce or eliminate noxious weed infestations and minimize the establishment of new weed species across jurisdictional boundaries using adaptive management and integrated weed management approaches.

2. Accomplish weed control without adverse human, grazing, and environmental effects.

3. In areas where weeds have been treated, revegetate and restore with desirable native plant species.

4. Manage noxious weeds to enhance wildlife habitat and farmland.

Policies: It is the policy of Duchesne County that:

1. Farmers, ranchers, land management agencies and governments work together in a coordinated effort to control noxious weeds in Duchesne County. These interests shall develop common management goals, utilize guidance from the Natural Resource Conservation Service, establish funding to facilitate effective treatment, and coordinate efforts along logical geographic boundaries.

2. Early detection and rapid response measures to control noxious weeds shall be supported.

3. Land managers and property owners shall comply with state, county, and federal rules, regulations, ordinances, and directives pertaining to noxious weeds and the application of herbicides to manage noxious weeds.

4. Efforts to implement weed monitoring and weed mapping programs shall be supported.

5. An integrated weed management plan shall be implemented for preventing, containing, or controlling undesirable plant species or groups of species using all available strategies and techniques prescribed by the State Noxious Weed Act, including prevention, biological controls, chemical controls and mechanical controls. Such plan should include mapping of weed infestations. Such a plan shall be developed to allow the County to obtain funding for weed control efforts.

6. Preserving and protecting lands not presently infested is the first line of defense against aggressive noxious weeds. Prevention requires awareness and action by land managers, as well as the general public, to recognize, report and control new weed infestations before they have a chance to establish, expand and spread.

7. A quick response team of volunteers should be established to combat new areas of noxious weed invasion regardless of the status of land ownership.

8. Continuing efforts should be made to inform and educate the public, land managers and property owners regarding the economic and environmental impacts of noxious weeds.

9. Once a noxious weed is controlled in an area, the area should be seeded with beneficial plant species to help prevent another type of noxious weed establishing in the area.

10. Land management agencies should follow the recommendations of the WAFWA report on invasive plant management to help protect and restore native sagebrush ecosystems and the wildlife that depend on those systems for survival.

11. Land management agencies should follow the recommendations of the Colorado Natural Areas Program to establish integrated weed management plans that use multiple weed management techniques to control target weed species with minimal adverse impacts to non-target species.

Energy Considerations

Findings: Energy development can create surface disturbance that can lead to the spread of noxious weeds on public and private lands in the County.

Policy: The County supports weed control and reclamation requirements associated with energy development. County policy requires energy development companies to work with the Duchesne County Weed Department to help prevent the spread of species listed on the county's list of noxious weeds.

Water Considerations

Findings: Duchesne County finds that there are water considerations associated with noxious weed management. First, herbicide applicators must comply with state and federal standards associated with the application of chemicals near regulated surface water. Second, uncontrolled noxious or invasive weed growth can use large amounts of water that would otherwise be available for more beneficial uses. According to the USGS Scientific Investigations Report #2009-5247 (*Salt cedar and Russian Olive Control Demonstration Act Science Assessment*), Salt cedar (known locally as Tamarisk) and Russian olive communities will consume just as much water as native cottonwood and willow communities. The report notes that most wildlife, including many birds, prefer native cottonwood or willow habitat to habitat dominated by Tamarisk or Russian olive. Other negative impacts of dense Tamarisk and Salt cedar include impeded access to waterways and recreational areas, increased fire hazard and clogging of irrigation ditches.

Policy: Noxious weeds and invasive plant species shall be controlled in Duchesne County to reduce their negative impacts on water yields and water supply for beneficial uses.

Section 8. Predator Control

Findings: The Utah Division of Wildlife Resources (DWR) recognizes predator management as an important tool available to DWR staff and U.S. Department of Agriculture-Wildlife Services personnel, when needed. Although predator management can be controversial, it is important under certain circumstances for the effective management of predator and prey populations.

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.

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

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

Of these programs, the one that targets coyotes is the largest and most costly for DWR.

Appropriately targeting and timing predator removal efforts are essential for reducing the impact that coyotes have on fawn survival. In Utah, targeted contracts allow removal of coyotes from fawning grounds from March through August, and the coyote bounty program is most effective during the coyote breeding season (January–March).

Coyote Bounty Program

Utah's Mule Deer Protection Act went into effect in July of 2012. The primary goal of the program was to remove coyotes from areas where they may prey on deer fawns. The Utah Legislature set aside $500,000 from the General Fund to pay individuals to kill coyotes in Utah. Coyotes are not considered protected wildlife and there is a bounty program to encourage coyote control. 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.

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. However, significant numbers were harvested from the Nine Mile and Book Cliffs areas near Duchesne County (Coyote harvest data is gathered on a hunt unit basis rather than by county). The bounty program increased the number of coyotes killed in Utah and provided government-supplied economic rewards to individuals and businesses throughout the state. It may take several years of program implementation before improvements in fawn-doe ratios are observed. Both location and timing are essential in reducing the impact of coyote predation on mule deer fawn survival.

The updated approach directs additional financial resources ($600,000 annually) to the U.S. Department of Agriculture-Wildlife Services for coyote control. The most recent data from the Utah Division of Wildlife Resources found a total estimated harvest of coyotes in FY 2015 of 8,192 from the General Predator Control Program, 305 from the Targeted Control Program, 2,903 from additional general fur harvest not redeemed through the Predator Control Program, and 3,099 by the Wildlife Services program for a total of 14,499 coyotes.

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 at: wildlife.utah.gov/pdf/cmgtplan.pdf.

Two additional wildlife species can at times exhibit predatory behavior in Utah: black bears and wolves. Both of these species are managed under specific plans (Utah Black Bear Management Plan and Utah Wolf Management Plan), although wolves do not present predator-management challenges to Utah wildlife managers at this time.

Bears

Black bears occur in stable, healthy populations across certain parts of Utah. Normally, they don't occur in the mountain ranges of the western deserts. Geographic Information System (GIS) data showing black bear distribution and hunt boundaries can be downloaded at http://dwrcdc.nr.utah.gov/ucdc/DownloadGIS/disclaim.htm. Bears are more of an omnivore, and the vast majority of their diet is composed of plant material and, at certain times of year, insects or insect larvae. Often when bears do eat meat, they are relying on carrion which they have happened upon, not fresh prey. Black bears have under certain conditions been known to take a significant number of newborn deer fawns, bovine calves, sheep and lambs.

Wolves

Wolves exhibit behavior patterns, such as cooperative hunting in packs, which clearly separate them from bears and other predators. By any measure, wolves are highly effective and efficient predators. Currently, there are not any established breeding populations of wolves in Utah; however, there are occasional transients and migrants.

Senate Bill 36 (Utah Wolf Management Act) (http://le.utah.gov/xcode/Title23/Chapter29/23-29.html?v=C23-29_1800010118000101) from the 2010 General Session directed the Division of Wildlife Resources to prevent any wolf packs from establishing in the portion of the state where wolves are removed from the protection of the Endangered Species Act. That area includes only the portion of Utah located north of I-80 and east of I-84. DWR has given authority to the U.S. Department of Agriculture-Wildlife Services to act on our behalf to resolve livestock depredation incidents which involve wolves in this area.

For the remainder of the state, wolves are classified as a federally endangered species, and management authority lies with the U.S. Fish and Wildlife Service (FWS). The state law referenced above also directs the Division of Wildlife Resources to request that the FWS immediately remove any wolves discovered in areas of Utah where they are still protected under the Endangered Species Act. The Utah Wolf Management Act suspends the portion of the Utah Wolf Management Plan that would allow two packs to become established in Utah, although the remaining strategies of the plan are still in effect. If wolves are delisted across all of Utah, the management plan then would be fully implemented.

Cougar and Bear Livestock Depredation

Black bears can cause site-specific depredation problems among livestock, especially domestic sheep bedded down for the night during the summer months. Although cougars prey primarily on adult deer, they are opportunistic predators, and can also cause site-specific livestock depredation problems. Livestock depredation incidents are immediately referred to Wildlife Services staff specializing in removal of specific predators associated with depredation incidents. DWR provides compensation to ranchers with documented livestock losses attributed to cougar or bear. DWR also issues increased cougar and bear permits in areas with chronic livestock losses caused by predation from these species.

Duchesne County Predator Control Policies

Duchesne County maintains an annual contract with the Administrative Services Division of the Utah Department of Agriculture to assist in the funding of predator control services to support the livestock industry in the County. In the last Census of Agriculture (2012) there were 46,907 cattle and calves and 1,514 sheep and lambs counted in Duchesne County. Many of these are subject to predation while on private or public rangelands.

Policy: Predator control is a necessary service to protect the investment that ranchers make in their livestock.

Predator control is also important when it comes to threatened and endangered species, such as the Greater Sage Grouse. Experience in this region shows that (in addition to anthropogenic activity, conifer encroachment and over-grazing) wildfire, invasive plant species and predation are major contributors to sage grouse mortality.

Policy: Duchesne County encourages the Utah Division of Wildlife Resources to make and implement plans to reduce predation affecting threatened and endangered species. For the Greater Sage Grouse, Duchesne County encourages the Utah Division of Wildlife Resources to consider offering a bounty on common predators such as raccoon and skunk to protect sage grouse nests.

In 2005, the Utah Wildlife Board approved a wolf management plan for the state. The plan envisions the delisting of the wolf in the entire state. With delisting, wolves would be managed by the state, rather than by the U.S. Fish & Wildlife Service. Unmanaged wolf populations are a threat to Utah's wildlife and livestock. Sightings of wolves in Duchesne County are rare.

Policy: It is the policy of Duchesne County that Rocky Mountain gray wolves should be delisted statewide and that the Utah Division of Wildlife Resources is better equipped to manage wolf populations in a way that protects wildlife and livestock. It is the position of Duchesne County that no species of wolves be introduced into the County.

Section 9. Water Quality and Hydrology

Water Quality and Hydrology in General

Findings: Clean water is essential to the health of county residents.

The infrastructure and communities of Duchesne County are primarily located on 583,334 acres of privately owned land. The utility of these lands is dependent on water that flows to them from watersheds located on public lands. The rivers and streams flowing from these watersheds supply water for municipal, industrial, livestock, irrigation, and recreation use. As set forth in Utah Code 63-38d-401 (5) (c), "The waters of the state are the property of the citizens of the state, subject to appropriation for beneficial use, and are essential to the future prosperity of the state and the quality of life within the state."

Section 63J-8-104 of the Utah Code states that federal land management agencies shall manage the watershed on federal lands to achieve and maintain water resources at the highest reasonably sustainable levels as follows:

a. Adhere to the policies, goals, and management practices set forth in Subsection 63J-4-401(6)(m) of the Utah Code;

b. Deter unauthorized cross-country OHV use in the subject lands by establishing a reasonable system of roads and trails in the subject lands for the use of an OHV, as closing the subject lands to all OHV use will only spur increased and unauthorized use; and

c. Keep open any road or trail in the subject lands that historically has been open to OHV use, as identified on respective county road maps;

Watersheds

Watersheds in the Uinta Mountains provide a major source of water used in Duchesne County. Consumptive and non-consumptive uses of surface water generally occur downstream of the Ashley National Forest. As depicted earlier in Table FM9, the U.S. Forest Service estimates that the Ashley National Forest contributes the following percentages of stream flow in regional streams (U.S. Forest Service 2016):

- 13% of the flow at the Green River at the confluence with the Colorado River
- 4% of the flow at the Green River at the confluence with the Yampa River
- 4% of the flow at the Green River at the confluence with the Duchesne River
- 91% of the flow at the Ashley Creek at the confluence with the Green River
- 24% of the flow at the Strawberry River at the confluence with the Duchesne River
- 67% of the flow at the Duchesne River at the confluence with the Green River

The management of the watersheds should allow for continued multiple use. It should preserve the quality and quantity of water as well as environmental values and allow the watershed to support existing as well as future uses. Healthy watersheds are important because they provide:

- Plenty of clean drinking water
- Irrigation for farms and ranches
- Clear streams and reservoirs for fishing
- Healthier rangeland that supports both livestock and wildlife
- Reduced risk of Endangered Species Act listings
- More hiring of local contractors, which helps rural economies
- Improved air quality
- Decreased fire frequency, intensity and suppression costs

The Utah Division of Wildlife Resources manages a program called the Watershed Restoration Initiative (WRI). The Watershed Restoration Initiative is a partnership based program to improve high priority watersheds throughout the state. WRI is sponsored by the Utah Partners for Conservation and Development and is in its 11th year. The Watershed Program focuses on three ecosystem values: 1) wildlife and biological diversity, 2) water quality and yield, and 3) opportunities for sustainable uses of natural resources. WRI is a bottom-up initiative where project planning, review, and ranking occur at a local level. Five regional teams elect their own leaders, establish focus areas, review, score and rank project proposals using a comprehensive project prioritization score sheet, and assist their members in implementing projects. Duchesne County is located within the Northeastern Region.

In State Fiscal Year 2015, 122 agencies, organizations and individuals participated in projects in the WRI database through funding, project management, technical assistance or in-kind services. WRI, through its partners, provides a number of project services including: funding, assistance with project planning and implementation, contracting and accounting, seed purchasing, storage, mixing and delivery, free use of restoration equipment, project monitoring and reporting, project management, and an on-line project database. The locally-led teams provide a means to work on a landscape scale across ownership boundaries.

From 2006-2015, WRI projects have exceeded 1.2 million acres treated in Utah. Projects can generally be categorized into two types, restoration projects to improve the health of watersheds and rehabilitation projects following wild fire to re-establish the structure and function of watersheds. As of 2016, 333 projects are in various stages of completion that would treat an additional 342,714 acres. Proposed projects at this time would treat 35,441 acres in 42 different project areas. The WRI website shows 86 projects in Duchesne County that have either been completed or are currently underway (see Map #26).

WRI projects receive funding from a number of sources but the core funding comes from an appropriation by the Utah Legislature to the Department of Natural Resources (DNR). These funds are matched many times over by contributions from partners. Contributors of funding to WRI vary annually but other consistent funding for projects comes from federal agencies (e.g.

Bureau of Land Management, Natural Resources Conservation Service, U.S. Forest Service, U.S. Fish and Wildlife Service), state agencies (e.g. Division of Wildlife Resources, Division of Forestry, Fire, and State Lands, Department of Agriculture and Food, State Institutional Trust Lands Administration, Governor's Public Lands Policy Coordination Office, Department of Environment Quality) and non-governmental organizations such as, but not limited to, the Mule Deer Foundation, Sportsmen for Fish and Wildlife, Rocky Mountain Elk Foundation, Foundation for North American Wild Sheep, Safari Club International, National Wild Turkey Federation and Utah Bowman for Habitat). Many private landowners provide funding to complete projects on their own land or grazing allotments).

Watershed Restoration Plans

The EPA requires that watershed plans contain the following nine elements in order for projects to be eligible for funding under Section 319 of the Clean Water Act:

1. Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan. Sources that need to be controlled should be identified at the significant subcategory level along with estimates of the extent to which they are present in the watershed (e.g., X number of dairy cattle feedlots needing upgrading, including a rough estimate of the number of cattle per facility; Y acres of row crops needing improved nutrient management or sediment control; or Z linear miles of eroded streambank needing remediation).

2. An estimate of the load reductions expected from management measures.

3. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions and a description of the critical areas in which those measures will be needed to implement the plan.

4. Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement the plan.

5. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.

6. Schedule for implementing the nonpoint source management measures identified in the plan that is reasonably expeditious.

7. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.

8. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.

9. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item h immediately above.

A Watershed Restoration Plan for the Duchesne River watershed was prepared by the Uinta Basin Watershed Council in 2012. The goals of this plan are to:

- Provide a cohesive strategy for implementing needed water quality improvements for the watershed such that state water quality standards are restored and maintained in the Duchesne River and tributaries.

- Improve water quality in the watershed by decreasing the TDS and Sediment load.

- Improve wildlife habitat.

- Educate the public about water quality issues in the watershed as well as BMP's to protect and improve the water quality.

The Duchesne River Watershed Restoration Plan found that the main sources of TDS loading in the watershed include "areas of surface disturbance, irrigation activities, natural sources (geology), streambank erosion/destabilization, grazing, roadways, and energy development." The plan also found that "if the load reductions identified in the Duchesne River TMDL are attained from recent or future salinity control projects and water quality standards are still violated, the TMDL will be reviewed or site-specific water quality standards will be developed based on additional data collected. Regardless of the short-term effect on instream flows and concentrations, the available and recommended control efforts should improve irrigation efficiencies and water quality will ultimately benefit."

Tables in the Duchesne River Watershed Restoration Plan contain recommended best management practices for all of the sub-watersheds that were analyzed, current implementation projects, funding needs, technical assistance needs, an implementation schedule, an education effort and a monitoring program. About $2,417,781.00 of funding is needed to fully implement the plan.

Future Water Demand

The current and future water demand for surface waters within Daggett, Duchesne, and Uintah Counties is illustrated in Table WAT1 and is excerpted from *Conceptual Analysis of Uinta and Green River Water Development Projects* (Franson Civil Engineers & CH2M Hill 2007).

Table WAT1. Summary of Overall Existing and Future Demands (acre-feet per year)

Demand Type	Total Existing Demand	Total Near Future Demand	Total Likely Future Demand
Agricultural	253,424	261,882	286,055
Municipal	4,228	14,782	14,782
Energy Industry	4,230	116,710	241,710
Total	**261,882**	**393,374**	**542,547**

Source: Franson Civil Engineers & CH2M Hill (2007).

The Franson Civil Engineers & CH2M Hill study contained a summary of the water development scenarios for the Uintah Basin as defined by the DWRe (see Table WAT2). Some of the listed projects are not in Duchesne County.

Table WAT2. Water Development Scenario Summary

Project Features	1	2	3	4	5	6	7	8	9	10
Stabilize High Uinta High Mountain lakes (Transfer storage to downstream storage)		x	x	x	x	x	x			
Upper Uinta Reservoir (28,000 acre-feet storage)		x	x			x	x			
Brown's Draw Enlargement (adds 1,900 acre-feet storage)				x	x	x	x			
Montes Creek Enlargement (950 acre-feet storage increase)				x	x	x	x			
Bennett Reservoir (5,000 acre-feet storage)				x	x	x	x			
Neola Reservoir (5,000 acre-feet storage)				x	x	x	x			
East Cottonwood Reservoir (5,200 acre-feet storage)				x	x	x	x			
Renn Smith Reservoir		x	x	x	x	x	x	x	x	x
Cliffs and Whiterocks High Mountain Lakes transfer to M & I demand		x								
Fill Cottonwood Reservoir with Exchange								x	x	x
Yellowstone Feeder Canal Extension to Area 16 (capacity = 19 cubic feet per second)				x	x	x	x			
Pump from Green River to Pelican Lake		x		x		x		x	x	x
Pump from Green River to Ouray Park, Cottonwood Area		x		x		x		x		
Pump from Pelican Lake to Cottonwood Area (3,500 acres in Cottonwood Service Area)										x

Source: Franson Civil Engineers & CH2M Hill (2007)

The Utah DWRe further describes these scenarios below and in Table WAT3. Combinations of computer models were used to estimate the water yield for each scenario. A cost estimate was developed for each project and for each scenario. Ranking criteria were then developed that, "assumed an alternative must be complete, effective, efficient and acceptable in order to be viable." Each scenario was then ranked and assigned a score. Finally, in September 2007 a public meeting was held with all of the stakeholders participating. The outcome was a decision that scenarios two, four, six, eight and 10 would remain as viable ones to consider. In addition to being the ones most favored, these also had either the highest ranking score or lowest total cost. Figure 3 shows the preferred scenarios along with the water developed, total capital cost, cost per acre-foot and score. (DWRe 2015)

Table WAT3. Water Development Viable Scenario Summary

Scenario	Water Developed (acre-feet)	Total Capital Cost	Capital Cost per Acre-Feet of Developed Water	Score
2	22,300	$137,468,000	$6,200	593
4	17,900	$251,865,100	$14,100	593
6	26,200	$355,523,600	$13,600	593
8	9,800	$25,133,300	$2,600	464
10	8,400	$35,978,400	$4,300	427

Source: Utah DWRe (2015).

The U.S. Geological Survey publishes a National Water Information System that provides data on water usage by county. This database provides the following data for Duchesne County as of December 2014. Of the 18,607 residents of Duchesne County (based on the 2010 U.S. Census), 16,570 were served by public water systems. These water consumers used an average of 282 gallons of water per day, per person. Of that usage, 177 gallons per day were for domestic use. The remaining 2,037 residents were found to be using water from non-public sources, such as private wells. These consumers used less water (167 gallons per person per day).

The National Water Information System also gives us data on the acreage of lands irrigated in the County. The database indicates that, in 2010, 70,160 acres of land in the county were irrigated with some type of sprinkler system and 53,760 acres were surface irrigated. These numbers were an increase in irrigated acreage from 2005, when 55,780 acres received sprinkler irrigation and 42,770 acres were surface irrigated.

The greatest increase in Utah's and Duchesne County's future water demands will be for municipal & industrial water as a result of population growth. In some areas, new and substantial water demands could come from industrial development. The growth of these municipal and industrial water demands will drive many future water decisions. Conservation, in order to reduce per capita demands, is an essential first step in meeting future demands. While

the conversion of agricultural water supplies to municipal and industrial uses will occur as farmland is urbanized, these conversions will not always be sufficient to satisfy future demands. Therefore, other means of securing adequate water supplies are necessary.

In order to meet all demands on water resources, a cooperative effort is needed to better use existing water supplies. The county and state must promote water conservation measures and innovative water management technologies. New water developments will also be needed. The timing and scope of these developments will depend on the ability to reduce water demand through water conservation, agricultural water conversions and other water management strategies.

Water is considered the "lifeblood" of the Uintah Basin. Additional residential, industrial, recreational, and agricultural development will be determined by water quality and availability. There is overwhelming public support for water development projects on public lands (which occurs predominately on the Ashley National Forest). A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 44) that only 3.1% of the survey respondents in the Daggett-Duchesne-Uintah County area believed that public land managers should moderately (0.0%) or substantially (3.1%) reduce the extent to which development of water storage and delivery systems to meet the needs of communities occurs on Utah's public lands.

Objective: Duchesne County desires to protect the quality of its water resources.

Policy: The County supports responsible use and development of this resource and feels that all users should meet appropriate water quality testing standards.

Policy: Duchesne County will protect this limited resource by promoting the efficient use and management of its water resources. Relative to this agenda, the County will take an active role in all relevant state, regional, and local water-resource management plans and decision-making processes.

Findings: Competition for available water supplies is great. While agriculture has been and will continue to be the largest consumer of water in the state and in Duchesne County, municipal and industrial uses are growing rapidly. The growing population will seek water-based recreation and will become more vocal for their interests. Similarly as we have become established and moved beyond meeting basic survival needs, there are more people calling for preservation of the environment.

Proposed federal land management policies, such as ACEC's, Wild & Scenic Rivers, and Wilderness, also may limit further development of some water supplies. Federal reserved water rights which will be set aside for the various federal parks, Indian tribes, etc. located in the state, including within Duchesne County, must also be considered in future water resource decisions. Future water needs can be satisfied in many different ways, including water conservation, agricultural water conversions, water transfers, new water development, conjunctive use of

surface and ground water, aquifer storage and recovery, secondary irrigation systems, cooperative agreements (arrangements with other water suppliers to share/lease their excess supplies) and water reuse (recycling wastewater effluent). Reuse of wastewater in the energy industry is a big issue in Duchesne County. Companies such as Newfield have constructed water processing plants that have significantly reduced water use and the amount of water dumped into evaporation ponds.

Policy: It is the policy of Duchesne County to encourage energy companies to construct modern water reclamation facilities to allow for the reuse of water and help the county meet future needs.

Ideally, every community should have a plan in place to ensure the water needs are met for at least two decades into the future. These plans would outline water conservation goals and how they will be met as well as a balanced combination of other means that will allow future needs to be satisfied. Water supplies needed to meet future demands should be identified and should include sufficient excess above projected demand to be reliable in times of drought or emergency. In Duchesne County, the Culinary Water Master Plan prepared for the Duchesne County Water Conservancy District in 2006 looks at water needs to the year 2050. In 2017, the district started the process of updating this plan.

While one method may be sufficient to meet future needs over the next 5 to 10 years, a balanced combination of several methods will likely be required to meet needs over the next 20, 50 or even 100 years.

Most residents of the County, if not receiving water from a municipality, receive water from one of the special service districts or via a private well. Local water service entities need to project future water needs and determine the corresponding amounts of conservation and agricultural conversion that will be available for future needs. The difference between these future needs and supplies is the amount of water that needs to be developed. Water service entities then need to factor future development plans into the local watershed plans, balancing that against other uses including agricultural, environmental and recreational. Local water service entities and land managers should also consider the effects of vegetation management on the water yield and quality.

Policies: It is the policy of Duchesne County to encourage communities and special service districts to:

1. Collect sufficient revenue to keep their systems in good and proper operating condition.

2. Set aside revenue to pay for at least part of costly future improvements and new water developments.

3. Prepare or participate in long-term water plans that address how to meet future water needs.

4. Prepare water conservation plans to reduce their future water resource demands.

5. Acquire water historically used for agriculture as lands are developed.

6. Meter all water connections and keep track of water use to determine whether conservation goals are being met.

Duchesne County benefits from the vast water knowledge and expertise of its residents. Many are directly involved in water management, allocation, and use within the Uintah Basin. The County encourages increased cooperation among irrigation companies, special service districts, municipalities, the Ute Tribe and water user associations as these entities address water management issues and make decisions that impact county citizens.

In 2012, the Duchesne County Conservation District found Water Quality and Quantity to be one of the top five areas of resource conservation concern. Some of the challenges found by the District were:

a. Increased government regulations and the high cost of planning and constructing water storage and delivery systems makes it difficult to construct and maintain additional facilities.

b. Irrigation companies and water organizations oversee the use and delivery of water within the County. With all of these entities, it becomes more complex to coordinate water storage and delivery in the county.

c. Salt entering the Colorado River drainage basin from poor irrigation methods and the lack of understanding by the area producers.

d. Threats to Uintah Basin water rights.

Water Quality

As required by the Clean Water Act, the Utah Division of Water Quality (UDWQ) is charged with establishing and maintaining water quality standards designed to protect, restore, and preserve water quality in Utah. The UDWQ regularly conducts monitoring of surface waters to assess water quality. An integrated report, which can be found at http://www.waterquality.utah.gov/documents/pdf, is provided to the EPA and to the public to report assessments results and account for the states progress in addressing TMDL requirements. Total maximum daily load (TMDL) studies are one tool used to manage water quality.

Watersheds are the primary means of organizing surface waters for management, and if a specific lake, river, or stream within that watershed is considered impaired (i.e., on the 303(d) list), a TMDL study is typically required.

Monitoring sites at which water quality data are gathered and assessment units inform this process and are illustrated in Map #27. Watershed condition information and boundaries are illustrated in Map #28.

Total Maximum Daily Load (TMDL) Studies

Section 303(d) of the federal Clean Water Act requires states to develop Total Maximum Daily Loads (TMDLs) for waters that do not meet water quality standards even after technology-based controls are in place. The TMDL process establishes allowable loadings of pollutants or other quantifiable parameters for a waterbody on the basis of the relationship between pollutant sources and instream water quality conditions.

Duchesne River Watershed. The Utah Department of Environmental Quality (UDEQ) listed several stream segments in the Duchesne River watershed on Utah's 2004 Section 303(d) list of impaired waters for TDS (Total Dissolved Solids). The beneficial uses that are impaired are agriculture and the warm water fishery. A July 2007 report prepared by Tetra Tech, Inc. for the Utah DEQ Water Quality Division and EPA Region 8 documents the development of TMDLs for total dissolved solids for the Duchesne River (two segments) and Lake Fork River and development of site-specific criteria for TDS in Antelope Creek and Indian Canyon Creek within the Duchesne River watershed. The Duchesne River watershed drains approximately 2,679 square miles (1,714,553 acres) in northeastern Utah. It occupies approximately 102 square miles of Wasatch County, 2,103 square miles of Duchesne County, and 474 square miles of Uintah County.

The Duchesne River TMDL report notes that the subsurface bedrock formations in the basin are saline and soluble, dissolving easily and contributing TDS to water flowing through them. Natural background sources of TDS in the watershed include saline soils and areas of poor drainage where groundwater rises to the surface and evaporates leaving the soluble salts on the surface. This salt efflorescence is then available for wash-off and delivery to watershed streams. Precipitation that falls in excess of plant uptake potential and soil holding capacity also percolates down into the shallow alluvial aquifer where it comes in contact with saline bedrock formations. The primary source of human induced TDS loading in the watershed has been attributed to seepage from canals and deep percolation of irrigation water, which then discharges to surface streams as base-flow.

Along the Duchesne River, from Myton to the County line, the TDS reduction sought is 40,101 kg/day. In the Lake Fork River, the TDS reduction sought is 11,070 kg/day. The report notes that because load reductions in this TMDL document will focus on natural background and nonpoint sources, implementation of best management practices (BMPs) is purely voluntary. BMPs will preserve current water rights and needs while optimizing use and minimizing deep percolation of irrigation water. If irrigation water is applied in excess of plant requirements, that excess proportion will percolate below the rooting zone where it picks up TDS and returns it to the watershed streams either as surface runoff or groundwater base-flow with elevated TDS concentrations. Because TDS is also washed off watershed surfaces and delivered to receiving

streams, potential control options should address surface delivery as well as subsurface delivery of TDS. The key to effectively reducing the anthropogenic TDS loads in the Duchesne River watershed while maintaining current water rights and use is to improve the efficiency of water use and transport and to minimize surface runoff, seepage, and deep percolation. Steps being taken in the local salinity control efforts are making a difference.

Pariette Draw Watershed. A TMDL study for the Pariette Draw was prepared by the Utah Division of Water Quality and approved by Region 8 EPA on September 28, 2010. The Pariette Draw starts in Duchesne County then extends easterly into Uintah County on its way to the Pariette Wetlands and the Green River. The Pariette Draw watershed receives most of its water from the Duchesne River via the Pleasant Valley Canal. Pollutants of concern in this area are the trace elements Selenium and Boron and Total Dissolved Solids. Levels of Selenium would ideally be reduced by 0.33 lbs. /day to protect warm water fish, waterfowl and other aquatic life. Boron levels need to be reduced by 36.38 tons/day to benefit agricultural uses (crops and stock watering) in the area. Installing more efficient irrigation systems and following best management practices for riparian areas will help reduce the level of these minerals and dissolved solids in the water.

In 2015, a team of USGS scientists extracted and submitted for analysis various rock, soil, sediment, surface water and groundwater samples at numerous sites within the Pariette Draw watershed in an effort to "establish a process-based understanding of salt, Selenium, and Boron behavior to address whether these contaminants can be better managed, or if uncontrollable natural processes will overwhelm any attempts to bring Pariette Draw into compliance with respect to recently established total maximum daily limits (TMDLs)." The results of this study will better enable scientists to understand the mobility of these trace elements during water-rock-soil interactions.

Nine Mile Creek Watershed. A TMDL study is currently being prepared for the Nine Mile Creek located in Carbon and Duchesne counties. In this creek, the impact of water temperatures on fish and other aquatic life is being studied. It is anticipated that the lower reaches of the creek will be changed from a cold water fishery to a warm water fishery.

The Nine Mile Creek Total Maximum Daily Load (TMDL) water quality study was presented to the Utah Water Quality Board on October 26, 2016. The Board approved staff's request to proceed to rule making to adopt the TMDL. A 30-day public notice period began on December 1, 2016 and ended on January 3, 2017. In summary, a 72% reduction in solar heating is needed to meet Nine Mile Creek's water quality standard of 20 degrees Celsius (68 degrees Fahrenheit). Based on the analysis this can be achieved through a 36% increase in shading from riparian vegetation, which we will be the goal of voluntary projects outlined in the study's implementation plan. This goal applies to the Upper Nine Mile Creek Watershed (to the confluence with Argyle Creek). Lower Nine Mile Creek, below the confluence with Argyle Creek to the Green River, will be addressed separately due to results suggesting the 20 degree standard cannot be reasonably achieved through increased shading.

Strawberry River Watershed. There are currently no point sources of pollution within the Strawberry watershed. Total Phosphorous loading into Strawberry Reservoir is derived from non-point sources such as soil erosion and land use. Examples of land use sources of pollution include recreation, hydrologic modifications, grazing, roads, and energy development.

Uinta River Watershed. The following findings are excerpted from the 2006 Uinta River, Deep Creek and Dry Gulch Creek TMDLs for Total Dissolved Solids (Tetra Tech, Inc. 2006).

> "The Uinta River and Dry Gulch Creek watersheds are located in northeastern Utah approximately 140 miles east of Salt Lake City in Uinta and Duchesne counties. The Uinta River is approximately 60 miles long and drains the southern slope of King's Peak, Utah's highest point, until it converges with the Duchesne River, a tributary of the Green River. The Uinta River has a large network of tributary streams and mountain lakes that make the river the largest on the southern slope of King's Peak. Deep Creek is a tributary of the Uinta River and drains the area northeast of the Uinta River. Dry Gulch Creek is a tributary of the Uinta River and drains the area west of the Uinta River.
>
> The Uinta River, Deep Creek and Dry Gulch Creek are included on the state of Utah's 2000 303(d) list as a high priority for TMDL development due to impairments associated with high concentrations of total dissolved solids (TDS).
>
> The subsurface bedrock formations in the lower basin are saline and soluble, dissolving easily and contributing TDS to any water that comes into contact with them." (Tetra Tech, Inc. 2006)

BLM Water Quality Manual

The Bureau of Land Management has developed a water quality manual to establish policies, guidance, and assign responsibilities for the BLM's stewardship of water resources, including protecting, restoring, and maintaining the quality of waters located on the National System of Public Lands.

The objectives of the water quality program on the BLM's National System of Public Lands are to:

1. Maintain and/or Restore Water Quality. In managing the public lands, protect, restore and maintain the chemical, physical, and biological (ecological) services of surface and groundwater to support resource management needs.

2. Maintain Functioning Hydrologic Systems. This section includes in-stream flows and surface and groundwater interactions. In managing the public lands, protect, restore and maintain the hydrologic regime (i.e., timing, magnitude, recharge, duration, stream network/groundwater connectivity, temperature, and spatial distribution of peak, high, and low flows) of surface and ground water, to the extent practical, to achieve sustainable riparian, aquatic, and wetland habitats.

3. Provide for Compliance with Applicable Anti-Pollution Laws and Water Quality Regulations. In managing and administering BLM programs, projects, and land use activities, require users of the public lands to comply with applicable federal law, and to the extent applicable to the BLM under the provisions of the Clean Water Act (specifically 33 U.S.C. 1323), state, tribal, and local water laws and regulations.

4. Cooperate with Stakeholders. Coordinate, cooperate, and consult with federal, tribal, state, and local agencies, private landowners, and stakeholder organizations to foster a watershed-based approach to water resource stewardship.

5. Incorporate a Watershed Approach for Water Quality Protection and Restoration. Provide a science-based watershed (and landscape) approach to natural and human-influenced water systems. This approach should be consistent with federal and state water quality assessment methods, including monitoring, sampling, and reporting protocols and public availability, for example, following guidance provided in the Unified Watershed Assessment Framework developed under the Clean Water Action Plan.

6. Protect Municipal and Sole Source Aquifers. Engage in collaborative planning, protection and remediation efforts that focus on Municipal Supply watersheds and Drinking Water Source Protection Zones. Many of these areas occur where the source or diversion is off BLM lands, but the contributing surface/groundwater system extends onto the National System of Public Lands.

EPA Clean Water Rule

Waters of the State of Utah are generally delineated as “blue lines” on topographic maps, named features on maps, or support riparian vegetation. Surface waters including perennial, intermittent, and ephemeral streams are regulated under the Clean Water Act and for these reasons are considered waters of the U.S.

Stream gages and National Hydrography Dataset information pertaining to surface waters in Duchesne County are illustrated in Map #29.

In January 2015, the U.S. Environmental Protection Agency's (USEPA) Office of Research and Development finalized a report entitled “Connectivity of Streams and Wetlands to Downstream Waters: A Review and Synthesis of the Scientific Evidence.” The report reviewed more than 1,200 peer-reviewed publications and summarized current scientific understanding about the connectivity and mechanisms by which streams and wetlands, singly or in aggregate, affect the physical, chemical, and biological integrity of downstream waters. The focus of the report is on surface and shallow subsurface connections by which small or temporary streams, non-tidal wetlands, and open waters affect larger waters such as rivers, lakes, reservoirs, and estuaries. The report was developed to inform rulemaking by the U.S. EPA and the U.S. Army Corps of Engineers on the definition of "waters of the United States" under the Clean Water Act (CWA). Because the report is a technical review of peer-reviewed scientific literature, it neither considers

nor sets forth legal standards for CWA jurisdiction, nor does it establish EPA policy.

The report represents the state-of-the-science on the connectivity and isolation of waters in the United States. It makes five major conclusions, summarized below, that are drawn from a broad range of peer reviewed scientific literature.

1. The scientific literature unequivocally demonstrates that streams, regardless of their size or frequency of flow, are connected to downstream waters and strongly influence their function.

2. The scientific literature clearly shows that wetlands and open waters in riparian areas (transitional areas between terrestrial and aquatic ecosystems) and floodplains are physically, chemically, and biologically integrated with rivers via functions that improve downstream water quality. These systems act as effective buffers to protect downstream waters from pollution and are essential components of river food webs.

3. There is ample evidence that many wetlands and open waters located outside of riparian areas and floodplains, even when lacking surface water connections, provide physical, chemical, and biological functions that could affect the integrity of downstream waters. Some potential benefits of these wetlands are due to their isolation rather than their connectivity. Evaluations of the connectivity and effects of individual wetlands or groups of wetlands are possible through case-by-case analysis.

4. Variations in the degree of connectivity are determined by the physical, chemical and biological environment, and by human activities. These variations support a range of stream and wetland functions that affect the integrity and sustainability of downstream waters.

5. The literature strongly supports the conclusion that the incremental contributions of individual streams and wetlands are cumulative across entire watersheds, and their effects on downstream waters should be evaluated within the context of other streams and wetlands in that watershed.

Policies: It is the policy of Duchesne County that:

1. Any proposed agency action must include an analysis of the effects on water quality, stream flow, the amount of water yields, and the timing of those yields. Any proposed action or non-action that results in a decrease in water quality, quantity, or flow, or changes the timing of flows in a way that negatively affects water rights, shall be opposed.

2. Any proposed agency action must be analyzed for impacts on water resource and management facilities such as dams, reservoirs, delivery systems, culinary water supplies, and monitoring facilities, etc., located on or downstream from land covered by the

proposal.

3. Livestock grazing and other multiple uses are compatible with watershed management.

4. All reasonable water conservation efforts shall be supported. Water conserved as a result of these efforts shall be allocated to those persons or entities whose efforts created savings, within the limits of their water rights.

5. The management of the watershed should allow for continued multiple use. It should preserve the quality and quantity of water as well as environmental values and allow the watershed to support existing as well as future uses.

6. Explore changing the focus of water storage sites from larger impoundments on federal lands to small impoundments on private lands and storage of water off channel, away from "waters of the U.S.". Coordination with the Ute Tribe is needed to determine if water storage sites benefitting all residents of the area could be located on tribal lands.

7. Increased coordination among water management entities is needed to ensure that timely actions dealing with water storage and delivery systems are achieved.

8. Participation in the Colorado River Basin Salinity Control Program is important and will require improved irrigation management and water conservation.

9. Increased educational efforts are needed to train water managers, producers, public officials and the public so they understand the importance of water storage, water delivery systems and water conservation.

10. Projects that will protect water quality during periods of flash flooding shall be encouraged and supported. Such projects include installation of flood control structures, dams, retention basins, gully plugs and seeding of drainage ways.

Objective: Duchesne County desires to protect and enhance the quality and quantity of useable water by promoting and expanding the efficient management of water resources.

Policy: The County supports the development, adoption, and implementation of water storage and distribution plans by individuals, irrigation companies, industrial users, and municipalities.

SNOTEL Sites

There are currently eight SNOTEL (snowpack telemetry) sites in the County, located in the following areas: Brown Duck, Chepeta, Five Points Lake, Indian Canyon, Lake Fork #1, Lake Fork #2, Lake Fork Basin and Rock Creek. There are an additional five sites that provide data for the Duchesne River basin (Trial Lake, Mosby Mountain, Strawberry Divide, Daniels-Strawberry and Currant Creek). The County is particularly interested in having the Lightening

Lake SNOTEL site reestablished to help forecast the stream flow for Rock Creek and Upper Stillwater Reservoir.

Policy: The County supports the continued use of the NRCS Snow Survey Program's SNOTEL sites for forecasting snow pack and anticipated stream flows.

Objective: The County feels that adequate maintenance access to existing reservoirs should be protected.

Policy: It is the policy of Duchesne County that access for maintenance of existing reservoirs should be maintained and that potential reservoir sites should be protected from wilderness designation and/or wild and scenic rivers status. The County feels that routine maintenance by helicopter or snow machine should be allowed in wilderness areas, where necessary.

Un-funded Mandates

Objective: That mandates from federal and state agencies should be funded by those agencies and tailored to fit local circumstances and need.

Policy: It is the policy of Duchesne County that water quality testing guidelines should be established by the state and not the federal government. The County also feels that mandated water quality tests should be financed by the agency requiring the testing. At a minimum, the County feels that agencies should modify testing requirements to fit local necessity and circumstances.

Central Utah Project and Colorado River Water Leasing Proposal

Objective: Duchesne County feels that the Central Utah Project has not provided the benefits or physical facilities promised to the Basin under the initial agreement. The County supports the timely completion of these projects as outlined in the Central Utah Completion Act.

The Central Utah Project was authorized in April 11, 1956 to help meet the long-term water needs of Utah; especially the growing Wasatch Front. When Duchesne County agreed to join the Central Utah Water Conservancy District in 1963 and allow for water to be transferred from the Duchesne River basin to the Wasatch Front, the County stipulated that the following compensatory measures be completed:

1. *The lining of several Duchesne County canals to reduce water loss and salinity.* This has been partially completed, but much remains to be done.

2. *Adjudication of water rights on the Duchesne River would be completed.*

3. *Water rights held by the Utah Water and Power Board would be made available to County water users or not be used to adverse interest against County water users.*

4. *Segregation of sufficient water to provide all of the storage necessary to supplement the natural flow of the Duchesne River to provide the annual supply of water as specified in the adjudication for all of the presently irrigated land in Duchesne County.*

5. *That water storage be provided for Duchesne County, without cost to the County, in Starvation Reservoir, sufficient to supply the full duty of water for all of the presently irrigated land in Duchesne County that is irrigated from the Duchesne River.*

6. *That Starvation Reservoir be the first feature of the Bonneville Unit of the Central Utah Project to be constructed.* Starvation Reservoir has been completed.

7. *That at least 40,000 acre feet of additional water storage capacity be constructed in the Lake Fork River system to serve the homestead land now irrigated from this river (using the Utah Water and Power Board water right #18043 and the Moon Lake Water Users Association water right #17978).* This water storage has not been constructed as promised.

8. *That 15,000 acre feet of water storage capacity be constructed in the Uinta River system for the benefit of the Moon Lake project area (using the Utah Water and Power Board water right #18043) and a consistent amount for other homestead lands west of the Uinta River.* This water storage has not been constructed as promised.

9. *That provisions be made for the use of Green River water by the construction of the final phase of the Central Utah project to irrigate all non-Indian owned irrigable land in Duchesne County for which there will be no water provided in the initial phase of the project.* The necessary pipeline to transport water from the Green River to the Upper Stillwater Reservoir in Duchesne County has not been constructed as promised. The Duchesne County has a 47,600 acre foot water right on the Green River but, because the ultimate phase of the Central Utah Project was de-authorized, there is no way to transport the water for use in the County.

Objective: Provide adequate protection of private property rights during the implementation of the CUP Completion Act.

In addition to having local water diverted to more populous areas, Duchesne County has been the host to several mitigation measures committed to by the federal government in the CUP Completion Act. This mitigation has resulted in the loss of private lands in the County; after acquisition for conservation purposes by the Utah Mitigation Commission.

Policy: It is Duchesne County's policy that the County Commissioners, the County Planning Commission, and all affected landowners should be notified and consulted through the CUP planning, implementation, and completion process.

Objective: Duchesne County is also interested in the Colorado River water leasing proposal and will make every effort to ensure the interests of the County and its residents are adequately addressed.

Through the Central Utah Project, Duchesne County entered into agreements that included the development of Colorado River water to replace Uintah Basin water diverted to the Wasatch Front. The State has discussed leasing this "replacement water" to Lower Colorado River Basin states since the County has no current means of transporting and utilizing the water. Original agreements with the Uintah Basin were never fulfilled.

Policy: It is the policy of Duchesne County that any programs, including the completion of the Central Utah Project and/or future water leasing proposals, must adequately consider and address the County's interests in order for the County to willingly participate and support.

Duchesne County would be directly impacted by the leasing of Colorado River water to downstream users.

Policy: It is the policy of Duchesne County that Basin users be allowed to develop available water resources, in accordance with the ultimate phase of the Central Utah Project, before the option of leasing water to out-of-state interests is explored.

Objective: If the state pursues the "water banking" concept, the County feels that participating water owners, regardless of sovereign status and/or number of shares, should be required to contribute to the bank through the State of Utah and not as private interests.

Policy: It is the policy of Duchesne County that counties contributing resources to be leased should be adequately compensated. Revenue derived from leasing Uintah Basin water should come back to the Basin and be used to improve water storage and distribution facilities here. The County does not support using revenues to improve water-handling facilities in other areas of the State that have not contributed water to the project.

The County also prefers a shorter initial lease period. The County feels that a fifty-year lease does not allow adequate flexibility to react to changing demand and markets.

Objective: The County will actively participate in all relevant local, regional, state, and federal water management efforts.

Policy: To ensure that the County's water resource issues and interests are adequately heard and addressed, the County will actively participate in the Colorado River water leasing discussion and all other relevant federal and state water resource planning efforts and decisions.

Water Resources

Adequate water quality and availability is necessary for significant residential, industrial,

commercial, agricultural, and recreational development.

The county has a wide fluctuation of water availability from year to year. Some areas are still lacking water storage and use snowpack and stream runoff as a water supply. Often this creates a problem of too much water in the spring and not enough water in the summer. More water storage would be very beneficial to this area. Continued work with the salinity control program, implementing improved irrigation systems and piping canals is important to water conservation and water quality. More water storage needs to be considered.

The "checker-boarded" land ownership pattern in Duchesne County continues to be a challenging aspect of any water project. There is a need for more communication and cooperation between all parties to meet the water concerns in the county.

The Utah Department of Natural Resources, Water Resources Division, has written a Utah State Water Plan, which includes a plan for the Uintah Basin (*Uintah Basin Planning for the Future*), updated in November 2016. This plan describes the Uintah Basin as follows:

"The Uintah Basin, located in the northeast corner of Utah, is defined in this UDWRe planning document in terms of watersheds and includes Daggett, Uintah, and portions of Duchesne, Grand, Emery, Carbon, Wasatch, and Summit Counties. The Uintah Basin receives an average of 15.5 inches of precipitation annually (only slightly more than the statewide average of 13 inches) and contains many of Utah's largest water supply reservoirs. While much of the water stored in these reservoirs is used in the basin, a significant amount is transferred out of the basin to satisfy water needs along the Wasatch Front.

The Uintah Basin is predominantly a rural agricultural area with farms distributed throughout the basin. The Uintah Basin is not densely populated like other Utah basins, and while subject to similar issues associated with providing water for a growing population, does not experience them at the same magnitude. The basin is rich in energy resources and thus highly influenced by the ebb and flow of the oil and gas industry.

The potential for large scale oil shale and tar sands extraction within the basin illustrates the need for future water planning. In addition to uncertainties surrounding future energy development, not all streams and other water bodies in the basin meet Utah's water quality standards.

Increasing environmental and recreational demands bring greater competition for the water in the basin and will require more emphasis on integrated water resource management and efficient use of the basin's water resources." (DWRe 2015)

This water plan gives an overview of the water resources of the basin and the history of water project development. Water supplies and water rights are covered, as well as population and water use trends and projections. The population of Duchesne County is projected to grow to about 29,275 people by the year 2060, which will increase demands for municipal and industrial water. Water use in the basin is about 288 gallons per person, per day, which is about 20 percent

higher than the statewide average. The Uintah Basin water plan addresses future water needs for the oil and gas industry, including oil shale and tar sands development. It includes a chapter on water conservation and water management strategies that will be necessary to save millions of dollars in future infrastructure costs. Water quality and salinity projects are covered by this plan as well.

Objective: Duchesne County desires to protect and enhance the quality and quantity of usable water by promoting and expanding the efficient management and use of water resources.

Policies:

1. The County supports timely completion of Central Utah Completion Act projects as long as projects are shown to benefit the County as approved by the County Commission.

2. The County favors the continued efforts of the Duchesne County Water Conservancy District to pursue development projects specific to County needs.

3. The County feels that private water rights should be protected from federal and state encroachment and/or coerced acquisition.

4. The County supports the findings and recommendations of the 2016 Utah State Water Plan for the Uintah Basin.

Water Treatment

A significant amount of the drinking water used in Duchesne County comes from the Central Utah Water Conservancy District's Duchesne Valley Water Treatment Plant, located on the east side of Starvation Reservoir. This plant is a direct filtration plant that uses ozone, coagulation, flocculation and filtration to ensure that the water obtained from the reservoir is safe to drink.

Objective: It is important to protect Starvation Reservoir from contaminants, such as human and livestock waste, spills from oil well drilling and operations, chemicals and other impurities that can find their way into the lake. The Central Utah Water Conservancy District maintains a Drinking Water Source Protection Plan for the drainage basin that feeds the reservoir. In addition, a Strawberry River Watershed Restoration Plan was published in August, 2015 and can be found on the Utah Department of Environmental Quality website at: http://www.deq.utah.gov/ProgramsServices/programs/water/watersheds/docs/2015/08Aug/StrawberryRiver.pdf.

Policy: It is policy of Duchesne County to work with the Central Utah Water Conservancy District, the Utah Department of Environmental Quality and the TriCounty Health Department to enact ordinances as needed to protect the quality of water in Starvation Reservoir. For example, no onsite wastewater system drain fields should be allowed at a distance of less than 500 feet from the mean high water mark of the reservoir.

Duchesne County supports the findings and recommendations of the Strawberry River Watershed Restoration Plan to protect the fishery at Strawberry Reservoir and the quality of the water that flows into Starvation Reservoir. Duchesne County supports the findings and recommendations of the Watershed Restoration Plan for the Duchesne River watershed with a goal of maintaining acceptable water quality in the Duchesne River.

Source Water Protection and Groundwater

Another significant source of drinking water in the County are numerous water wells and springs that supply water to several public and non-public water systems and individual property owners. In 2009, the County passed Ordinance #09-273 to establish drinking water source protection regulations. Various pollution sources are regulated by the ordinance when located within Zone 1 (which is within a 100 foot radius of the well head or spring source) or Zone 2 (which is within an estimated 250-day groundwater travel time to a well head or spring source).

A team of researchers from Utah State University produced a publication in 1989 entitled "Agricultural Pesticide Hazard to Groundwater in Utah." This report found that contamination of groundwater in Utah from pesticide use can be expected and that the agricultural areas of Weber, Wayne, Cache, Davis, Utah, Wasatch, Duchesne, Summit and Juab counties are the most vulnerable. The report noted that the likelihood of finding pesticides in water samples from shallow aquifers:

a. Decreases with increasing depth to the groundwater;

b. Decreases with increasing distance between the pesticide application site and the sampling site;

c. Increases with decreasing irrigation efficiency;

d. Depends on pesticide application and irrigation timing; and

e. Is virtually zero if the pesticide is applied downstream (in terms of groundwater flow) from the sampling site.

The USU report concluded that pesticide selection and agricultural practices such as pesticide incorporation, irrigation, and the time of pesticide application can significantly influence pesticide movement. These influences should be investigated further and quantified. In addition, site-specific strategies should be developed in order to prevent pesticide movement to groundwater.

Since 1996, the State of Utah Department of Agriculture and Food has taken samples of groundwater from water wells across the state. The most recent samples were taken in 2010 and the results reported in a publication entitled "2010 State of Utah Ground-Water Program." During this latest survey, of the 100 water wells and springs tested statewide; three wells in

Duchesne County were sampled and 120 water quality tests were run. There were no confirmed pesticide detections in the 2010 sampling season based on EPA standards. There were no detections of coliform or E.coli bacteria in any of the Duchesne County wells. Statewide, 49% of the wells and springs sampled in 2010 tested positive for coliform bacteria and 9.3% of the wells and springs sampled tested positive for E.coli. The Duchesne County wells did show water "hardness" and bicarbonate alkalinity to be above desired standards.

Policies:

1. It is the policy of Duchesne County that the TriCounty Health Department serve as the culinary water authority for the County to ensure that drinking water sources are protected and that clean, safe drinking water is supplied to new land uses.

2. It is policy of Duchesne County to work with culinary water suppliers using well or spring sources to protect such sources from contamination in accordance with Ordinance #09-273.

Aquatic Invasive Species

The Utah Division of Wildlife Resources adopted a Utah Aquatic Invasive Species Management Plan in 2009. This plan notes that, over the years, the geographic area of Utah has unfortunately become home to several aquatic invasive species (AIS). Some AIS that exist in other areas of the nation and world have not yet made their way to Utah, it is feared they could. Prior to 2007, the Utah Division of Wildlife Resources only committed a small part of one staff person's time to the problem, although biologists statewide occasionally directed their efforts toward specific local AIS problems. Universities, tribal, federal, state and local government agencies, including private interests and organized sportsman groups also on occasion directed some effort toward the AIS problem. The advancing threat from Dreissenid mussels, of which the quagga mussel was found in Lake Mead during January 2007, spurred the state of Utah to action. It was the "straw that broke the camel's back." Threats and impacts from the multitude of AIS already in the state, not to mention those on their way, became fully recognized as needing more attention.

The Utah Aquatic Invasive Species Task Force, representing a multitude of tribal, federal, state, and local government agencies; water user interests; and organized fishing groups; was formed to prepare and guide implementation of this Utah Aquatic Invasive Species Management Plan. The plan was subjected to public review via Utah Division of Wildlife Resources' five statewide Regional Advisory Councils and approved by Utah's Wildlife Board and the State of Utah's Governor, which led to ultimate approval by the national Aquatic Nuisance Species Task Force. The main thrust of Utah's Aquatic Invasive Species Management Plan is to deal with Dreissenid mussels. A second priority group consisting of New Zealand mud snail and Eurasian watermilfoil will receive less, but significant management attention. And a third priority group, consisting of all other AIS will receive less management attention. This descending order of importance is dictated by a lack of authority and funds for management actions by the Utah Division of Wildlife Resources.

A significant staff is now assigned within Utah Division of Wildlife Resources to implement the plan, accepting and directing assistance from cooperating partners, many of whom are members of the Utah Aquatic Invasive Species Task Force. Stable funding at a level of $1.4 million per year has been provided for plan implementation by Utah's Legislature. Some of the Utah Aquatic Invasive Species Task Force partners have been able to secure additional funding to assist in this effort, while others are seeking funds.

Implementation of the plan is largely steeped in public outreach about AIS, coupled with pre-launch interdiction of watercraft and resultant decontaminations targeted on killing AIS being inadvertently transported by outdoor recreationists or other pathways. The Utah Division of Wildlife Resources' Aquatic Invasive Species Program made a significant step forward in 2012, bringing the Utah Division of State Parks and Recreation onboard via a contract for implementation of the Utah Aquatic Invasive Species Plan at the State's 22 water-based state parks. The Parks and Recreation Division had always participated in the overall annual planning for implementation of the AIS project, but now their personnel are implementing the Plan in each of their parks.

To date, Lake Powell and Deer Creek Reservoir are the only Utah waters that require decontamination of vessels to prevent the spread of AIS. However, monitoring is done at the following water bodies in Duchesne County to ensure that they do not become contaminated: Big Sandwash Reservoir, Big Springs Fish Hatchery, Midview Reservoir and Starvation Reservoir.

Policy: Duchesne County supports efforts of the Divisions of Wildlife Resources and Parks and Recreation to prevent the spread of aquatic invasive species to water bodies in the county.

Energy Considerations

Hydroelectric power accounts for only two percent of the power generated in Utah, according to the Utah Geological Survey's 2011 publication, "Utah's Energy Landscape", which was updated in 2014. In Duchesne County, the Moon Lake Electric Association, Inc. operates a small hydroelectric project on the Uinta River, on Ashley National Forest and tribal lands north of Neola. The project has a capacity of 1,200 kilowatts (1.2 megawatts). The project has a FERC license in effect until 2019 and Moon Lake is working on an extension of that license. Moon Lake Electric also has a small hydroelectric facility on the Yellowstone River, which has a capacity of 900 kilowatts; however, the company has elected not to pursue its relicensing.

Due to the large topographic variations in the County, additional opportunities for hydropower generation certainly exist, but the undeveloped rivers tend to be small, and the amount of hydropower potentially available is also small relative to other potential sources.

Water resources are important for fossil fuel energy development. Large amounts of water are required to drill oil and gas wells; however, much of this water can be recycled and reused. Water is also injected into oil fields to maintain subsurface pressures to help force oil into wells.

Policies:

1. It is the policy of Duchesne County to supports efforts to make adequate water available for the energy industry and supports efforts of the industry to conserve, recycle and reuse water.

2. The County discourages efforts to evaporate wastewater, but allows for evaporation ponds to be constructed in accordance with the County zoning ordinance.

Summary of Water Resource Objectives

1. Maintain or improve water quality to protect the health and well-being of county residents and the desirability of the county as a place to visit and recreate.

2. Balance water resource allocation among beneficial uses, e.g., agricultural, recognizing that growing populations will require larger portions of municipal and industrial water and an increased interest in water-based recreation.

3. Support ongoing water quality and quantity monitoring to inform water and land management activities that protect surface water and groundwater.

4. Obtain benefits allocated to the county as part of state and federal water development projects, e.g., Central Utah Project.

5. Ensure that allocation of water resources is administered under applicable Utah laws and Prior Appropriation Doctrine.

6. Ensure that federal lands and watersheds are managed for optimal water yield.

7. Integrate multiple strategies for meeting future water demands not limited to conservation, conversion, water transfers, water development, conjunctive use of surface and ground water, aquifer storage and recovery, secondary irrigation systems, cooperative agreements (arrangements with other water suppliers to share/lease their excess supplies), and water reuse (recycling wastewater effluent).

8. The high quality of Ashely National Forest water should not be impaired.

9. Take an active role in state and federal water resource management processes, including revisions to the definition of waters of the U.S. and groundwater management.

Summary of Water Resource Policies

1. Adhere to state-developed water quality standards.

2. Support ongoing water quality monitoring to establish baseline conditions to track potential surface and groundwater contamination that could result from changes in land use, e.g., oil shale and oil sands development.

3. Recognize that natural conditions and processes may affect achievement of state water quality standards and might not be indicative of impairment.

4. Adhere to water quality standards and those mitigation strategies outlined for nonpoint and point sources in local total maximum daily load documents.

5. Water quality studies undertaken by or on behalf of the public land management must be coordinated with the counties.

6. Protect against surface and groundwater contamination.

7. Support projects that improve water quality and increase quantity and dependability of water supply.

8. Impound wastewater/stormwater from agriculture, mining, or other surface disturbance activities.

9. Water quality testing guidelines should be established by the state and not the federal government. Mandated water quality tests should be financed by the agency requiring the testing. At a minimum, the county feels that agencies should modify testing requirements to fit local necessity and circumstances.

10. Participate in the Colorado River Basin Salinity Control Program.

11. Work toward recognition of industrial applications, e.g., mining processes, as a beneficial use.

12. Participate in integrated water resource management processes that seek to coordinate development and management of water, land, and related resources in order to maximize economic and social welfare without compromising the sustainability of vital ecosystems.

13. Ensure that federal reserved water rights, tribal rights, and threatened and endangered species conservation flow recommendations located within the county are included in discussions regarding future water resource management, development, and conservation decisions. The onus of water resource management, development, and conservation should not fall only to the counties or individual water rights holders.

14. Use the best available water resource data when conducting planning activities.

15. Support maintenance of existing water quantity measurement equipment, e.g., U.S. Geological Survey gauges and SNOTEL, to document water resource availability.

16. Consider installing water meters at appropriate locations.

17. Water rights held by federal entities must be obtained through the state water appropriation process and will not infringe upon downstream water rights.

18. Protect property rights associated with implementation of state and federal water development projects.

19. As a stakeholder, the county has a voice in any proposed sale, lease, exchange, or transfer of water rights and should comment.

20. Decreases in consumptive and non-consumptive uses of water downstream of the Ashley National Forest are not supported.

21. Incorporate a watershed approach for water quality protection and restoration that supports current and potential future uses.

22. Initiate local water management planning that addresses water supply and demand for agriculture, industry, recreation, culinary, ecosystem, and other uses and coordinates with local water conservancy districts and DWRe plans (or planning processes) that currently extend into the future.

23. Use existing local water resource knowledge and develop future knowledge through education.

24. Use and adapt water conservation education strategies developed by the state and other entities that focus on water supply and demand and on diverse strategies for meeting demand.

25. Coordinate with county landowners, e.g., public, tribal, and private, to assess potential water storage sites to meet increased demands for water.

26. Establish reasonable water conservation objectives as one way to meet future water demands.

27. Direct water development for livestock outside of sensitive riparian, stream, and wetland areas.

28. Encourage management of unpaved roads on the Ashley National Forest for watershed and water quality protection while protecting existing access rights and public access.

29. As a stakeholder, provide comments on new Clean Water Act rules that modify the definition of waters of the U.S. and increase federal jurisdiction among other topics.

30. Participate in upcoming Ashley National Forest plan revisions and all future revisions.

Section 10. Water Rights

Findings: Water is the lifeblood of the Uintah Basin and Duchesne County. Efficient water conservation is essential to maintain a balance of usage by agriculture, industry and public. Protection of water rights is important as the demand for water increases with growth and development.

As set forth in Section 73-1-1 of the Utah Code, all waters of the state are owned exclusively by the state in trust for its citizens. These waters are subject to appropriation for beneficial use; and are essential to the future prosperity of the County and the quality of life within the County. As set forth in Section 73-1-3 of the Utah Code, this beneficial use shall be the basis, the measure and the limit of all rights to the use of water in the state.

Most of Duchesne County lies within the Duchesne River drainage basin, where water appropriation is in the restricted category (see Map #30). Water rights applications are reviewed by the regional office of the Utah Division of Water Rights, located in Vernal (see Map #31).

The major elements of a water right include the priority date, the quantity of water involved (flow rate and volume), the source of the water supply, the approved point of diversion, the approved uses for which the water can be used (such as irrigation, domestic, stock water, mining or municipal), the period of allowed use and the place of allowed use.

The State of Utah will consider issuance of a water right after analysis of several factors, which are set forth in Section 73-3-8 of the Utah Code.

The State of Utah may allow changes in water rights, such as changing the point of diversion, the place of use, the nature of the use or the period of use after considering whether the change will impair existing water rights and determining that the change will not enlarge the underlying water right.

The State of Utah has the right to develop and use its entitlement to interstate rivers for the benefit of all citizens. All water rights desired by the federal government must be obtained through the state water appropriation system.

Flaming Gorge – Green River Water Rights

As stated in Section 9 above, Duchesne County has a 47,600 acre foot water right on the Green River but, because the ultimate phase of the Central Utah Project was de-authorized, there is no way to transport the water for use in the County.

In their 2015 publication *Uintah Basin Planning for the Future*, the Utah Division of Water Resources (DWRe) describes how local water districts intended to use the Flaming Gorge water rights. "In 2007, a collaborative study was done by the Central Utah Water Conservancy District (CUWCD), Duchesne County Water Conservancy District (DCWCD) and the Uintah Water

Conservancy Districts (UWCD). The purpose of this study was to show how the districts intended to use the Flaming Gorge water rights awarded to them by the Board of Water Resource. The study also identified and evaluated scenarios to use the water rights on the Uinta and Green Rivers (held by the Duchesne County WCD and Uintah WCD) to meet municipal, agricultural, and energy industry demands (Figure 2). These demands were split into two categories— near future and likely future. Near future demands refer to applications for a portion of the Green River Allocation that have been approved by the Uintah WCD and Duchesne County WCD and are imminent water needs. Likely future water demands are those that are expected to be realized in the future because of projected growth based on previous studies and discussions with land owners, municipalities and energy industry." (DWRe 2015)

Energy Considerations

The production of energy resources can have impacts on water supplies.

Policy: It is the policy of Duchesne County that the development of energy resources be conducted in a manner that uses water in accordance with terms set forth by the Utah Division of Water Rights, the State Engineer and the Utah Division of Oil, Gas and Mining fracking rules.

Summary of Water Rights Policies

It is the policy of Duchesne County that:

1. Utah State Water Laws of Prior Appropriation Doctrine and Beneficial Use are recognized as the legal basis for perfecting all water rights for the use of all water within Duchesne County.

2. Privately held water rights shall be protected from federal and/or state encroachment or coerced acquisition. Duchesne County shall oppose any movement toward nationalization or federal control of Utah water rights and resources.

3. State water right filings held by individuals, partnerships, irrigation districts, culinary water districts, or corporations are a private property right that may be sold, exchanged, or held separately from the land by any entity.

4. Individual stockholders within a mutual irrigation company are entitled to a proportionate share of the company's water for irrigation use, based on their shares of stock in the company.

5. Any proposed sale, lease or exchange of water rights involving a public land management agency shall address the interests of Duchesne County and such a sale must include appropriate mitigation.

6. Duchesne County supports the State of Utah's "prior appropriation" and "beneficial use" principles of water right allocations.

7. Duchesne County insists that all government agencies, private citizen groups, private citizens, corporations, partnerships and any other organized or unorganized entity must obey the current laws of the State of Utah and acknowledge the rules, by-laws, policies and/or articles of incorporation that have been established over many years of operation by water right owners.

8. Any non-owner entity must purchase, lease, trade, or borrow water rights using the accepted legal processes of water right acquisition as allowed by State law and water right owner procedures and policies. If someone wants in-stream flows, they should be required to purchase the water for that use under a fair-market system.

Section 11. Irrigation

Findings:

The irrigation water supply comes from precipitation, mostly in the higher elevations of Duchesne County. Rainfall alone is not adequate for crop production. Therefore, irrigation water derived from winter snow pack is used to supplement plant growth requirements. Irrigation companies service approximately 122,400 acres of agricultural land in the county.

Duchesne County irrigators are served by several irrigation companies. The Utah Division of Water Rights lists the following companies (and acreage served) in their database: Dry Gulch Irrigation (over 53,000 acres), Red Creek Irrigation (2,763 acres) and the Pioneer Canal Company (1,180 acres). Other irrigation companies listed are the Hidden Valley Irrigation Company, the Midview Irrigation Company (470 acres) the Tabby Irrigation Company (529 acres), the Uintah Basin Irrigation Company (279 acres) and the Windy Ridge Water Company (30 acres). The following irrigation companies are not listed by the Division of Water Rights but are known to exist: Rhodes Canal Company, Lake Fork Company, Farnsworth Company, Rocky Point Company, Shank's Ditch/Knight's Canal and the Duchesne Feeder Company. Other irrigation companies with facilities in Duchesne County, but serving primarily Uintah County are the Ouray Park Irrigation Company and the Uintah River Irrigation Company.

These irrigation companies hold various water rights issued by the State and individual irrigators own shares of stock in the companies. Water is distributed based on hours, acres or water volume. Shareholders must meet certain rights or obligations established by the companies. Water right changes can be filed by the shareholder.

Irrigation water comes primarily from lakes in the Uinta Mountains and streams or canals that flow into the Uinta Basin from the south slopes of the Uintas. Early irrigation systems were constructed to serve Indian lands; then such systems were expanded once the Uinta Basin was opened to homesteading in 1905. A 1991 publication entitled, "Beyond the Wasatch: The History of Irrigation in the Uinta Basin and Upper Provo River Area of Utah," by Gregory D. Kendrick and Charles S. Peterson, the National Park Service and Bureau of Reclamation, goes into great detail regarding the development of the irrigation system that serves present day Duchesne County.

Wise use of irrigation water in the arid climate of Duchesne County is critical. The Natural Resources Conservation Service (NRCS) publishes an Irrigation Water Management Guide as part of its Conservation Practice Standards, Code 449. The document includes several purposes for such guidance, enabling irrigators to:

- Manage soil moisture to promote desired crop response.
- Optimize use of available water supplies.
- Minimize irrigation induced soil erosion.

- Decrease non-point source pollution of surface and groundwater resources.
- Manage salts in the crop root zone.
- Manage air, soil, or plant micro-climate.
- Proper and safe chemigation or fertigation.
- Improve air quality by managing soil moisture to reduce particulate matter movement.
- Reduce energy use.

This NRCS Guidance gives irrigators tips for meeting the purposes listed above and encourages irrigators to take the following under consideration as they plan their irrigation systems:

- Consideration should be given to managing precipitation effectiveness, crop residues, and reducing system losses.
- Consider potential for spray drift and odors when applying agricultural and municipal waste waters. Timing of irrigation should be based on prevailing winds to reduce odor. In areas of high visibility, irrigating at night should be considered.
- Consider potential for overspray from end guns onto public roads.
- Equipment modifications and/or soil amendments such as polyacrylamides and mulches should be considered to decrease erosion.
- Consider the quality of water and the potential impact to crop quality and plant development.
- Quality of irrigation water should be considered relative to its potential effect on the soil's physical and chemical properties, such as soil crusting, pH, permeability, salinity, and structure.
- Avoid traffic on wet soils to minimize soil compaction.
- Consider the effects that irrigation water has on wetlands, water related wildlife habitats, riparian areas, cultural resources, and recreation opportunities.
- Management of nutrients and pesticides.
- Schedule salt leaching events to coincide with low residual soil nutrients and pesticides.
- Water should be managed in such a manner as to not drift or come in direct contact with surrounding electrical lines, supplies, devices, controls, or components that would cause shorts in the same or the creation of an electrical safety hazard to humans or animals.
- Consideration should be given to electrical load control/interruptible power schedules, repair and maintenance downtime, and harvest downtime.
- Consider improving the irrigation system to increase distribution uniformity or application efficiency of irrigation water applications.

Salinity Control

According to the USDA - Natural Resources Conservation Service, in the 1960s, more than two-thirds of the water taken from the Colorado River and its tributaries was used to irrigate agricultural lands. Flood irrigation was the main type of irrigation and such practices resulted in massive amounts of salt being dissolved by excess irrigation water and carried back to the river. Water diverted to irrigate cropland and pasture, deep percolates through saline soil formations, transporting dissolved salts to the river system. Salts come from a source of dissolved solids from Tertiary saline lacustrine deposits.

With irrigation being controllable and a major contributor to the salt load in the river, it was determined that irrigation system improvements, both on-farm and off-farm, would provide the most economical opportunity to reduce salt loading by improving irrigation efficiencies to reduce deep percolation and seepage conditions.

The Colorado River Basin Salinity Control Act of 1974 authorized federal funding of salinity control projects to manage salinity in the Colorado River. Each of the listed Salinity Control Units was facilitated through the Salinity Control Act (PL-93-320) and subsequent legislation authorizes the USDA Soil Conservation Service to implement and manage salinity control throughout the Colorado River Basin.

Salinity control projects were launched in Utah starting with Uintah Basin Unit in 1982, Price-San Rafael Rivers Unit in 1997, Manila-Washam Unit in 2007, Green River Unit in 2010 and Muddy Creek Unit in 2010. The Uintah Basin Salinity Control Unit located in Duchesne and Uintah counties, encompasses 225,000 irrigated agricultural acres irrigated with water diverted from tributaries of the Duchesne and Green Rivers south of the Uinta Mountains and north of Ouray, Utah (see Map #32).

The Salinity Control Act – Environmental Assessment (EA) requires that areas within the designated project units where wildlife habitat values were lost due to irrigation improvements will be replaced concurrently and proportionally to the installation of the improved irrigation system acres. NRCS and U.S. Fish and Wildlife Service have agreed on set wildlife habitat replacement acreage amounts for each designated project unit. NRCS is responsible to apply, greater than 2% of the irrigation improvement acres in wildlife replacement habitat acres within each Unit. The Uintah Basin wildlife replacement acreage goal of 3,200 acres is now at 21,000 acres, showing 656% of the acreage goal completed.

The 1982 EIS for the Uintah Basin anticipated treating 160,000 acres, controlling 140,500 tons/year of salt at a cost of $196/ton. A second EIS was written in 1991 expanding the Uintah Basin Unit by 20,800 acres, 8900 acres would be treated (7.5% improved flood) to reduce salt load by 8600 tons/year of salt at a cost of $188/ton.

Treatment options to reduce salinity have been continuously reevaluated. It is now expected that 70% of the original 225,000 irrigated acres in the Uintah Basin area will ultimately be treated

which is goaled at 160,000 acres.

During fiscal year 2015, the NRCS treated 923 acres in the Uintah Basin, controlling 692 tons/year of salt at a cost of $196/ton. Cumulative thru fiscal year 2015, the NRCS has treated 158,092 acres, controlling 128,029 tons/year of salt, on-farm. Of the original 160,000 acres to be treated, another 1908 acres or 1% will continue to be converted to improved irrigation systems. In fiscal year 2015, no additional acres of wildlife habitat replacement has taken place in the Uintah Basin Unit.

Policies: It is the policy of Duchesne County that:

1. Potential reservoir sites and delivery system corridors shall be identified in land use plans and protected from federal or state action that would prohibit or restrict future use for those purposes. Said plans would include provisions for adding or deleting potential reservoir sites and delivery system corridors when deemed appropriate.

2. All federal agency actions shall recognize legal canal, lateral, and ditch easements and rights-of-way.

3. Many wetlands are created by fugitive water from irrigation systems. It is the policy of Duchesne County that when law requires mitigation of impacts from conservation and other projects, the creation of artificial wetlands shall be considered only after all other mitigation possibilities have been exhausted. Creation or maintenance of an artificial wetland is contrary to the intent of conservation.

4. Irrigators should adhere to the Irrigation Water Management guidance set forth in the Natural Resource Conservation Service Conservation Practice Standards.

5. Continued efforts should be made to reduce salinity impacts of irrigation on waters of the Colorado River Basin.

Section 12. Ditches & Canals

Findings: The major rivers in the Duchesne County include the Duchesne River, Strawberry River, Lake Fork River, Rock Creek and the Yellowstone River. There are many other smaller creeks that feed into them. These streams are fed by springs, storm runoff, and snowmelt from the Uinta Mountains and foothills and by ground water discharge. These streams, lakes and reservoirs supply water via pipelines, ditches and canals to provide irrigation water for use in towns and communities.

Ditches and canals are an important part of the infrastructure of Duchesne County. Some can be traced back to pioneer times when the County was initially settled. These facilities convey water to agricultural uses and other secondary water irrigators. Some ditches and canals provide storm water services and some may mitigate high groundwater problems.

In Utah, there have been several situations where ditches or canals have failed. These failures have caused not only property and infrastructure damage, but injury and loss of life. The Utah Legislature, in the 2014 general session, attempted to address this problem. Section 73-5-7 of the Utah Code gives the State Engineer authority to inspect ditches and canals and order repairs as necessary to protect public safety. The State Engineer also has the responsibility to inventory and maintain a database of all human-made water conveyance systems that carry five cubic feet per second or more of water. Part of that responsibility is to ensure that each ditch or canal operator has prepared the management plan required under Section 73-10-33 of the Utah Code. This plan requires operators of water conveyance facilities to map their locations, identify any areas of potential slope instability, show proof of adequate liability insurance coverage in the event of a breach, adopt a maintenance and improvement plan, adopt an emergency response plan, identify sources of financing for maintenance and improvements and determine the effects of potential storm water flows into the ditch or canal.

Policies:

1. Duchesne County supports the efforts of ditch and canal operators to provide water to their customers and shareholders.

2. The County supports the efforts of the State Engineer to ensure that such water conveyances are operated and maintained in a safe manner.

3. Duchesne County supports efforts of ditch and canal operators to map their systems and provide such mapping to the county for use in making land use decisions.

Section 13. Flood Plains & River Terraces

Findings: According to the Federal Emergency Management Agency (FEMA), flooding is an ever present threat; it can happen at any time and in virtually any location. While certain areas may be more prone to flooding – especially those in coastal areas or riverine environments – history has shown that almost no place is immune to flooding. Flooding can have many causes: a quick heavy rainfall or rapid snowmelt can cause flash flooding, a blocked culvert or storm sewer drain can create flooding in a city neighborhood, or prolonged wet weather can swell streams and rivers. Even dry conditions can pose a threat, as minimal rainfall in wildfire burn areas or drought stricken regions can create flash flooding when soils are unable absorb even slight precipitation.

Flood events in Duchesne County usually result from snowmelt associated with above-average snow packs, rain-on-snow events, and summer storm precipitation events. Flood events are part of a stream's natural hydrograph, and development in active floodplains often results in property damage.

Due to the lack of vegetation in many areas of the county, heavy storm waters can cause flash flooding and erosion, bringing tons of sediment and debris into the rivers and drainages. These events affect watershed health and water quality. Some practices that may help to alleviate this problem include flood structures, dams, catch basins, gully plugs, and reseeding grass ways.

Some floodplain areas have seen an over-growth of vegetation which can increase damage by flooding. Development of homes in floodplain areas is a concern. Historically, some homes have been constructed in floodplains and some have experienced damage during high runoff conditions.

Duchesne County has not been mapped for flood zones, in spite of formally requesting such mapping since 2005. The only jurisdictions in the County with official flood hazard zone maps are Duchesne City and Myton City. Federal funding limitations have resulted in more populated counties being mapped ahead of Duchesne County. The County passed flood zone regulations in its zoning ordinance in 2005, which were scheduled to become effective once flood zone locations are mapped. However, in 2016, the County was informed that it would need to participate in the National Flood Insurance Program (NFIP) before mapping would occur. A modified flood zone ordinance was approved on November 14, 2016 and became effective December 7, 2016. Participation in the NFIP began on March 30, 2017.

Policy: It is the policy of Duchesne County to continue its efforts to participate in the National Flood Insurance Program and have flood zones mapped so that property owners can be more aware of flood hazards and be eligible to obtain flood insurance at reasonable rates.

One potential source of flooding is from a failure of one of the 40 inventoried dams in Duchesne County (there are many smaller dams that are not inventoried – see Map #33). According to the Utah Division of Water Rights, Dam Safety Program, of the 40 dams in the county, 12 are rated

as High Hazard, 7 are rated Moderate Hazard and 21 are rated Low Hazard. Among the high hazard dams are the larger dams, including Starvation, Stillwater, Big Sand Wash, Moon Lake, Midview and Red Creek. The Soldier Creek Dam, on the Strawberry River, is located in Wasatch County and is rated high hazard. A failure of that dam would impact lands in Duchesne County.

According to the FEMA National Dam Safety Program Fact Sheet, the area downstream of a dam that would be impacted in the event of a failure or uncontrolled release of water is called the dam failure inundation zone. Map #34 depicts the location of predicted worse case inundation zones in the event of a failure of some of the major reservoirs in the County; however, most of this data (for the Midview, Moon Lake, Soldier Creek, Starvation and Upper Stillwater dams) is not available to the public and does not appear on the map. Map #34 shows no FEMA flood zones in the County (the only FEMA flood zones are currently located within Duchesne City and Myton City).

Objectives

1. Restore floodplain connectivity for threatened and endangered species that rely on these locations in areas outside human habitation while preserving the health and safety of residents.

2. Restore floodplain connectivity for improved flood control in suitable areas.

3. Educate citizens regarding measures they may implement to help protect their property from flood damage, such as the following recommended by FEMA:

    a. Make sure downspouts carry water several feet from your house to a well-drained area. About 2,500 gallons of water will come from a 1,000 square foot roof with one foot of snow depth across the roof. This much water may cause problems if allowed to drain next to the house.

    b. Examine and clean your sump pump if you have one. Test your sump pump by pouring water into the pit. Make sure the discharge hose carries the water several feet away from the house to a well-drained area. Also make sure that the pipe is on sloped ground so it drains to prevent it from freezing.

    c. Remove snow from around rural yards to minimize soft, wet soil conditions. Remember that a 20-foot diameter 10-foot high pile of snow contains about 2,600 gallons of water. Move the snow to well-drained areas.

    d. Anchor any fuel tanks. An unanchored tank in your basement can be torn free by floodwaters and the broken supply line can contaminate your basement. An unanchored tank outside can be swept downstream, where it can damage other houses.

e. Have a licensed electrician raise electric components (switches, sockets, circuit breakers and wiring) at least 12" above your home's projected flood elevation.

f. Place the furnace and water heater on masonry blocks or concrete at least 12" above the projected flood elevation.

g. If your washer and dryer are in the basement, elevate them on masonry or pressure-treated lumber at least 12" above the projected flood elevation.

h. Plan and practice a flood evacuation route with your family.

i. Ask an out-of-state relative or friend to be the "family contact" in case your family is separated during a flood. Make sure everyone in your family knows the name, address, and phone number of this contact person.

Policies:

1. Support Utah Division of Water Rights Dam Safety Program that assesses existing dam condition to prevent dam failure or uncontrolled release of water.

2. Restrict construction of habitable structures and non-essential infrastructure in floodplains.

3. Manage flows from regulated streams and rivers when possible to periodically reestablish floodplain connectivity.

4. Develop floodplain ordinances and overlays as appropriate in an effort to coordinate with FEMA on floodplain mapping.

5. Encourage the use of flood structures, dams, catch basins, gully plugs, and reseeding of grass ways to help reduce erosion during and after storm events.

Section 14. Wetlands

Findings: According to the U.S. Army Corps of Engineers, a wetland is an area that is covered by shallow water or has waterlogged soils for long periods of time during the growing season in most years. Prolonged saturation with water leads to chemical changes in wetland soils, which in turn affect the kinds of plants that can grow in wetlands. Some wetlands are easy to recognize because the water sits on the land surface for much of the year. Other wetlands exist due to saturation of the soil by groundwater and can be difficult to identify. Drawdown of groundwater levels can affect conditions of local wetlands.

The Corps lists the following definition of "Wetlands" in its compilation of regulatory terms (http://www.lrl.usace.army.mil/Portals/64/docs/regulatory/Permitting/Terms.pdf) "Wetlands mean those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, and bogs. For official determination whether or not an area is classified as a wetland contact the Army Corps of Engineers." (33 CFR 328)

Generally, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. Wetlands vary widely because of regional and local differences in soils, topography, climate, hydrology, water chemistry, vegetation, and other factors, including human disturbance.

According to the National Wetlands Priority Conservation Plan (NWPCP) of the USFWS (USFWS 1989), wetlands are considered to be lands in transition zones between aquatic and terrestrial systems where the land is covered by shallow water or the water table is usually near or at the ground surface. The NWPCP was required by Public Law 99-645 and is intended to assist public agencies and the private sector with identifying wetlands warranting priority consideration for protection.

Wetlands are critical components of healthy regional ecosystems and provide a multitude of ecological, economic and social benefits. They provide essential habitat for many species of fish and amphibians, as well as important resting places for migrating birds. Wetlands support many plant and animal species, including the Ute ladies'-tresses (Spiranthes diluvialis), which is on the threatened and endangered species list. Wetlands are nurseries for fish of recreational importance in the County and also provide opportunities for hunting, boating and wildlife viewing. They can also provide and store water, control floods and erosion, purify wastewater and recharge groundwater. Wetlands support downstream aquatic systems by producing food and organic material that is flushed out of wetlands and into streams during high flows.

Wetlands are known by many different names, some of which are specific to particular regions of the country. Wetlands that are dominated by trees and shrubs are commonly called swamps. Wetlands that consist of herbaceous vegetation are known as marshes and include wet meadows,

which are common in certain areas of Duchesne County. Wetlands come in other forms, such as ponds, lake fringes, vegetated playas, bogs, shrub-scrub wetlands, and forested wetlands. Riparian areas are not always wetlands.

Wetlands are federally recognized as special aquatic sites and are regulated as waters of the U.S. under the Clean Water Act.

The Bureau of Land Management and the U.S. Forest Service provide guidance for grazing management in riparian-wetland areas in *Grazing Management for Riparian-Wetland Areas* (Leonard et al. 1997).

The National Wetland Inventory (NWI) program, administered by the U.S. Fish and Wildlife Service, consists of planning-level spatial data illustrating the extent and location of wetlands and other aquatic resources in the United States. Wetland and other aquatic resources are classified using the Cowardin (Cowardin et al. 1979) system. Table WET1 provides estimated acreages for different wetland classes at the county level, based on NWI data, and Map #35 shows the NWI data for Duchesne County. Palustrine emergent wetlands, which include marshes and wet meadows, have the largest area within the county. This class is also commonly affected by irrigation practices, which can reduce (hydrological modifications and construction of ditches) or increase (application of additional water to the landscape) wetland acreage. Wetland mapping for northeastern Utah was completed in federal fiscal year 2010. The National Wetland Inventory maps, now available at http://www.fws.gov/wetlands/ provide County staff and the public with the general location of areas with wetland characteristics.

Table WET1. Acres of National Wetland Inventory Data in Duchesne County

Wetland Classification	Duchesne County
L1: lacustrine limnetic	8,985
L2: Lacustrine littoral	1,296
PAB: palustrine aquatic bed	2,730
PEM: palustrine emergent	34,136
PFO: palustrine forested	616
PSS: palustrine scrub-shrub	6,965
PUB: palustrine unconsolidated bottom	145
PUS: palustrine unconsolidated shore	357
Total	**57,047**

Source U.S. Fish and Wildlife Service (2015).

According to the state's Comprehensive Outdoor Recreation Plan, wetlands account for about 0.2 percent of Utah's land; however, the percentage of Duchesne County land considered wetlands is approximately 2.7 percent.

The Utah Reclamation Mitigation and Conservation Commission (Mitigation Commission), which was established in 1992 by the Central Utah Project Completion Act, administers mitigation projects that "offset the impacts to fish, wildlife and related recreation resources caused by the Central Utah Project and other federal reclamation projects in Utah." The Mitigation Commission has worked with the Bureau of Reclamation and the Ute Tribe to establish a large wetlands mitigation project in Duchesne County, located southeast of Myton City, known as the Lower Duchesne Wetlands Mitigation Project. This project, which was approved despite the objections of the County, involved the acquisition of over 1,500 acres of land between 2010 and 2012, with construction of the wetlands in 2014, 2015 and completion of the entire project by 2018. Mosquito and weed control are major issues associated with this project.

Objectives

1. Identify high priority or ecologically sensitive wetland areas for conservation.

2. Track changes and updates in federal regulations that affect wetland jurisdiction and permitting to avoid overreach by the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers.

3. Support wetland conservation through planning and management.

4. Support the treatment of invasive species, e.g., *Phragmites*, tamarisk, and Russian olive, which can degrade habitat value and impact groundwater levels.

5. Ensure adequate mosquito and weed control measures are enacted in wetland areas.

Policies:

1. It is the policy of the Duchesne County to utilize information from the National Wetland Inventory to determine where potential wetland conditions exist.

2. If wetland conditions exist in the vicinity, it is the policy of the County to require wetland delineations prior to development. Such delineations will determine whether such development will require a permit from the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act. Section 404 requires a permit from the Corps for the placement of fill or dredged material in a wetland, ditching activities, levee, dam or dike construction, mechanized land clearing, land leveling and road construction.

3. Coordinate comments with other stakeholders regarding Clean Water Act rule revisions.

4. Participate in federal, tribal, state, and local wetland conservation planning processes.

5. Identify opportunities for creation, restoration, and enhancement of wetlands to augment the ecosystem services these resources provide.

6. Manage access by livestock, wild horses and burros, and native ungulates to wetlands to prevent overgrazing when appropriate, with the understanding that all have potential to negatively affect these resources when sensitive vegetation, soil, and hydrology conditions exist.

7. Use scientific methodology, e.g., proper functioning condition, to guide management decisions regarding recreation and grazing exclosures in wetlands.

8. Offset road alignments at least 300 feet from riparian areas and wetlands as practicable.

9. Consider release of northern tamarisk beetle (Diorhabda carinulata) as a biological control of tamarisk, an invasive plant species.

10. Cooperate with Natural Resources Conservation Service, Utah State University Extension, and other entities responsible for integrated weed management in wetland areas.

11. Cooperate with other entities to control mosquito populations in wetland areas to protect public health.

Section 15. Riparian Areas

Findings: Quoting from a publication written by Mindy Pratt, Utah State University, entitled "What is a Riparian Area," the term "riparian" is defined as vegetation, habitats, or ecosystems that are associated with bodies of water (streams or lakes) or are dependent on the existence of perennial, intermittent, or ephemeral surface or subsurface water drainage. Put more simply, riparian areas are the green ribbons of trees, shrubs, and grasses growing along water-courses.

Riparian areas occur in a wide range of climatic, hydrologic and ecological environments. Different latitudes and altitudes can support very different riparian communities. This is caused primarily by changes in precipitation and temperature. In Duchesne County, you can find riparian areas everywhere from high elevation montane forests through intermediate-elevation woodlands to low-elevation shrub lands and desert grasslands.

Riparian areas are ecosystems. An ecosystem is a functional system that includes both a biotic part in the organisms, such as the plants and animals, and an abiotic part which factors in their immediate environment such as soil and topography. These organisms interact both with each other and with their environment. Each ecosystem is unique because the organisms and the environment differ significantly from other ecosystems.

Riparian areas are functioning properly when adequate vegetation, landforms, or large woody debris is present to dissipate stream energy, filter sediment, capture bedload, aid floodplain development, improve floodwater retention and groundwater recharge, develop root masses that stabilize streambanks against cutting action, develop diverse ponding and channel characteristics, and support greater biodiversity (Leonard et al. 1997).

The three main characteristics that define riparian area ecosystems are hydrology, soils and vegetation. These reflect the influence of additional moisture compared to the adjacent, drier uplands. Riparian areas are the transition zones, or ecotones, between aquatic (water-based) systems and terrestrial (land-based) systems, and usually have characteristics of both. These characteristics and location make it habitat for a larger number of species of plants and animals.

Because riparian areas are at the margin between water and land, their soil was most likely deposited by water and could be washed away by water. Protecting soil, stream banks or water edges from excess erosion is an important function of riparian plants. Thus, properly functioning riparian areas absorb the water, nutrients, and energy from big events and use them to recover from disturbances while improving water quality. The toughness of riparian plants with dense, strong root systems, stems the flow of flood waters, and adds to riparian stability and habitat diversity.

Some riparian areas, especially those not functioning properly or in high energy - high sediment locations are very dynamic and disturbance-driven. Plant communities may be susceptible to rapid change, if soil and water conditions change dramatically. These changes might include:

a. Flooding or lack of flooding either temporary or more long term, as caused by beavers, or man-made structures;

b. Deposition of sediment on stream banks and across floodplains;

c. Dewatering of a site by a variety of means; and

d. Changes in channel location or elevation.

Riparian areas are found at every elevation and in all landforms, and differ depending on local physical conditions (water, soil, temperature, etc.) and their location (elevation, valleys, canyons, etc.). High mountain riparian areas may be narrow and in deep ravines or canyons, while lowland floodplains in wide valleys may have large meanders. Desert washes may be sandy and only have water for a short time each year. These differences in vegetation, landform, and geology have led to a wide variety of terms used to denote riparian areas. These include riparian buffer zones, cottonwood floodplains, alluvial floodplains, floodplain forests and meadows.

In Duchesne County, with a low precipitation climate, the transition between riparian and upland terrestrial systems is easily identifiable. This distinction is abrupt because the surrounding terrestrial habitat is much drier than the riparian area. Riparian areas in the arid western United States have different plant composition but are also lusher than their adjacent uplands.

Although riparian areas can differ greatly, they all have several things in commons. They are shadier, cooler, and moister than the adjacent upland environments. A wide variety of animals are attracted to these areas including insects, amphibians, reptiles, fish, birds, and mammals. Suitable habitat (food, water, and shelter) is often provided in riparian areas to support these animals which may not occur in surrounding drier areas.

In Duchesne County, riparian areas compromise less than 1 percent of the land area, but they are among the most productive and valuable natural resources, rivaling our best agricultural lands. They are particularly efficient at storing water, dissipating flow energies, improving water quality, trapping sediment and building and maintaining stream banks. Table RIP1 below provides the acreage of native and invasive riparian communities in Duchesne County as determined by the U.S. Geological Survey's (USGS) National Gap Analysis Program. Map #36 shows the location of these riparian communities.

Table RIP1. Acres of Southwestern Regional Gap Analysis Riparian Communities in Duchesne County

Riparian Community	Duchesne County
Invasive Southwest Riparian Woodland and Shrubland	1,126
Rocky Mountain Lower Montane Riparian Woodland and Shrubland	16,795
Rocky Mountain Subalpine-Montane Riparian Shrubland	7,314
Total	**25,235**

Source: USGS (2004).

Riparian Areas and Wildlife

The Utah Division of Wildlife Resources (DWR) considers mountain riparian and lowland riparian areas as key habitats in their *Utah Comprehensive Wildlife Strategy*, effective October 2 2005–2015 (DWR 2005). The *Utah Wildlife Action Plan* references riparian areas under key aquatic habitats and includes policies promoting their protection (Utah Wildlife Action Plan Joint Team 2015). The DWR document *A Handbook of Riparian Restoration and Revegetation for the Conservation of Land Birds in Utah with Emphasis on Habitat Types in Middle and Lower Elevations* indicates the importance the state places on these resources (Gardner et al. 1999).

Riparian Areas on BLM and Forest Service Land

The Utah Bureau of Land Management (BLM) uses a statewide guidance document called *Riparian Management Policy* to manage riparian areas. The policies in this document generally include maintaining or improving riparian areas to proper functioning condition through enhancement, restoration, protection, and preservation in cooperation with interested federal, state, tribal, and local governments as well as private conservation and volunteer groups. The BLM and the U.S. Forest Service (USFS) use the *Riparian Area Management* technical report (Leonard et al. 1997), to provide guidance for grazing management in riparian-wetland areas.

The Ashley National Forest reports the mileage of stream/riparian habitat restored or enhanced in Table RIP2 below.

Table RIP2. Miles of Stream Habitat Restored or Enhanced on the Ashley National Forest

Fiscal Year	Miles
2010	16.0
2011	14.3
2012	29.0
2013	18.0
2014	18.9
2015	23.82
2016	14.89
Total	**134.91**

Source: Ashley National Forest (2017).

Riparian Areas and Timber Harvest

In forested areas, recent science published by the Pacific Northwest Research Station of the USDA Forest Service in "Science Findings, Issue #178, October 2015," recommends that riparian areas be left undisturbed during vegetation management projects, with a minimum 50-foot wide buffer area. This buffer area protects water quality and habitat for aquatic and riparian species. In the November 2016 edition of the US Forest Service, Pacific Northwest Research Station, *Science Findings, Issue #191,* the impacts of timber harvest on streams was explored. The article, entitled "*The Idiosyncrasies of Streams: Local Variability Mitigates Vulnerability of Trout to Changing Conditions,"* noted that it is important to leave buffers along streams, minimize soil disturbance during logging and use BMPs to reduce sediment runoff on forest roads. However, it was also noted that fish are vulnerable to predation; especially during low stream flow periods and that timber harvest can increase summer flows, having a positive effect on fish growth and survival. The study also found that habitat diversity (having adequate stream shading, more places for fish to hide and more pools in the stream) minimizes the effects of climate change and timber harvest. Using this information, land managers can tailor protective measures to specific stream segments where timber harvest is planned.

Riparian area improvement projects in some areas, such as along the Duchesne River, are limited because of endangered species that limit the timing and extent of the projects.

Objectives

1. Inventory and map riparian areas so that appropriate measures can be taken to protect or avoid impacts to them, when possible.

2. Conserve and protect riparian areas through application of best management practices.

3. Support the establishment of riparian buffer areas, which not only protect riparian plant and animal species but also protect aquatic systems and water quality associated with them.

4. Participate in state and local riparian planning opportunities, e.g., Duchesne River Watershed Restoration Plan, as a way to prioritize water quality enhancement and water resource protection projects, and identify funding sources.

5. Support the treatment of invasive species, e.g., *Phragmites*, tamarisk, and Russian olive, which can degrade habitat value and impact groundwater levels.

6. Use naturalized flow management regimes from dams or other impoundments to enhance aquatic and riparian habitat along waterways, where appropriate, and not in conflict with human habitation.

7. Increase cover and extent of native riparian vegetation.

Policies:

1. It is the policy of Duchesne County to encourage private and public land owners/managers to maintain the important functions of riparian areas under their jurisdiction.

2. The County subdivision ordinance shall require identification of riparian areas on subdivision plats so that measures can be taken to protect them.

3. Duchesne County supports the maintenance of such riparian buffer areas and creation of habitat diversity along stream segments to mitigate impacts of timber harvest on riparian resources.

4. Duchesne County supports the use of BMPs to avoid sedimentation impacts to riparian areas from road development. This includes offsetting road alignments at least 300 feet from riparian areas and wetlands and relocating or improving road crossings as practicable.

5. Manage recreation (e.g., camping and OHV use) in riparian areas to conserve the resource while still providing access to streams and rivers.

6. Manage access of livestock, wild horses, and native ungulates to sensitive riparian areas using exclosures when appropriate with the understanding that all have potential to negatively affect these resources from overgrazing.

7. Use guzzlers, reservoirs, wells, and springs to attract livestock and native wildlife away from riparian areas, which can help decrease soil disturbance and impacts to aquatic resources.

8. Use bio-engineering methods that facilitate riparian vegetation growth for bank stabilization in lieu of hardened structures or surfaces.

9. Use scientific methodology, e.g., proper functioning condition or multiple indicator monitoring, to guide management decisions in riparian areas.

10. Use riparian overlays at local levels to guide protection of riparian zones.

11. Consider releasing northern tamarisk beetle (Diorhabda carinulata) as a biological control of tamarisk, an invasive plant species. Follow release with revegetation treatments to re-establish riparian area, stabilize streambanks, and protect water quality. Support for biological control and restoration is available from organizations like the Tamarisk Coalition of Grand Junction, Colorado.

12. Support application of aquatic-approved herbicides to remove undesired vegetation.

13. Conduct riparian vegetation treatments to restore characteristic vegetation and reduce uncharacteristic fuel types and loads.

14. Consider removing or introducing beavers to the landscape where permitted by social and environmental factors.

15. Modify grazing use to avoid overgrazing if appropriate.

Section 16. Fisheries

Findings: In Utah, the Utah Division of Wildlife Resources (DWR) manages the state's fisheries. Fish habitats (that is the state's streams, rivers, lakes, ponds, and reservoirs) are managed by the underlying landowner, which can include state and federal agencies. Over 1000 lakes or ponds and 400 miles streams are located in the Uinta Mountains as well as several lower elevation lakes and rivers, which provide a variety of fishing experiences. Many of these are in Duchesne County.

Important fisheries exist in Utah for a variety of sportfish species, usually grouped into (a) cold water species, which typically include the whitefish, trout, char, and salmon, and (b) warm water/cool water species which include sportfish such as bass, pike, walleye, perch, catfish, bluegill, crappie, and a number of others. Rare fish species and those subject to federal listing under the Endangered Species Act are referenced more fully in the "Threatened, Endangered, and Sensitive Species" section below. For the most part, there is no fishery for imperiled species.

The Economic Value of Fisheries in Utah

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

Fish Stocking

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

Utah's Community Fisheries Program

The DWR is committed to developing and stocking more community fisheries — places one can walk, bike or bus to, and catch a fish or two. Community fisheries provide a fun, easy way to spend quality time with family and friends outdoors, near home. They offer a setting for parents and kids to talk, enhance family interaction, and keep busy Utahans in touch with the natural world surrounding them. Fishing provides families with opportunities to get away from their day-to-day problems and share time together. Unfortunately, there are currently no community fisheries in Duchesne County.

Youth Fishing Clubs

Kids benefit immensely from fishing. It's a sport that builds self-esteem and confidence while enhancing problem-solving and decision-making skills. DWR's Community Fishing Program includes an educational component for urban children (ages six to 13) who have never fished, or haven't fished as much as they'd like. Youth fishing clubs form each spring in various communities to introduce young people to the joys of responsible sport fishing. The clubs are led by adult mentors who teach interested youth about fish, the places they live, and how to catch them. Those interested in volunteering or enrolling children in a youth fishing club can visit DWR’s website to view a list of these clubs. There are currently no youth fishing clubs in Duchesne County; however, the formation of a local club is encouraged by the County.

Seasons, limits, and other wildlife regulations

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

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

Sportfish Management

Angling preferences have evolved over time, and DWR has adapted its management of fisheries to these changing preferences. Within the last decade, the UDWR has begun focusing its sportfish management direction more on: 1) protection and enhancement of conservation

sportfish species (i.e., cutthroat trout), 2) quality and trophy fishing opportunities, 3) recruiting and retaining new anglers through development of community fisheries, and 4) biological control of undesirable species through the stocking of predators like "wipers" (white bass/striped bass hybrids) and tiger muskie, and management of multi-story fisheries .

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

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

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

Regardless of the management concept or species selected, the protection of native aquatic species is a principal concern for fisheries managers. Stocking and management practices that would be detrimental or cause the decline of native species are typically avoided.

Species stocked in lakes and ponds

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

Stream Fisheries

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

challenges, making the use of rainbow trout impractical.

Protecting native aquatic species and avoiding the spread of undesirable non-native species and aquatic diseases (e.g., whirling disease) are principal concerns for fisheries managers. Undesirable non-native species and aquatic diseases are easily and inadvertently spread by the recreating public.

Planning

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

Duchesne County

Fishing has long been a favorite recreational activity for Duchesne County residents and visitors. A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 24) that 92.2% of residents surveyed in the Daggett-Duchesne-Uintah County region felt that opportunities to fish in area lakes, streams and rivers are moderately important (23.6%) or very important (68.6%) to the overall quality of life in the community. Of these same respondents, only 7.2% had moderate (4.1%) or strong (3.1%) opposition to public land managers increasing the extent to which protection of important fish and wildlife habitat occurs on Utah's public lands (see Table 38 of the report).

Fishing also provides economic benefits and employment opportunities for local residents through the operation of outfitter and guide businesses and destination hunting and fishing resorts. The County boasts destination fishing resorts at Falcon's Ledge (the Orvis 2001 and 2012 fly-fishing lodge of the year), the LC Ranch, Hidden Springs Ranch and the Six Lakes Resort. Falcon's Ledge offers many different angling experiences for brown trout, rainbow trout, wild cutthroats and brook trout in nearby Uinta Mountain streams, at the Lake Fork River Ranch or their resort lakes. LC Ranch, located east of Altamont, is operated as an exclusive membership only private fly fishing club. The Ranch offers a unique, relaxed, unpressured trophy trout fly fishing experience on over 20 different lakes and ponds for its members. In order to preserve the resource and provide an uncrowded fishing experience, a limited number of annual memberships are offered and fishing is only allowed for members and invited guests. Hidden Springs Ranch, located northeast of Altamont, offers guided fly fishing trips or fly fishing lessons with expert fly fishing guides on their ponds or on area streams Six Lakes Resort, located adjacent to Big Sand Wash Reservoir, offers guests one of the top trout fisheries in Utah and perhaps one of the best lake fisheries in the West. These lakes are home to several trout species and varieties including Rainbow, Brown, Brook, and Tiger trout.

Starvation Reservoir State Park is a popular destination for fishermen seeking rainbow trout, bass and walleye.

The Big Sand Wash Reservoir produces good fishing for rainbow trout, bass, brown trout and yellow perch.

The Moon Lake area, which has a popular national forest campground and the Moon Lake Resort, offers fishing for Rainbow Trout, Splake, Kokanee Salmon, Brook Trout, Cutthroat Trout, Tiger Trout, Mountain Whitefish and Arctic Greyling (see: http://www.moonlakeresort.com/faqs.html#fishes).

According to the 2016 Utah Fishing Guide, the daily catch limits are 4 trout (or 8 if at least 4 are Brook Trout), 6 Largemouth or Smallmouth Bass, 10 Walleye (but only one can be over 24 inches long) and 50 Yellow Perch. There is no limit for Striped Bass.

Blue Ribbon Fisheries

The Utah Division of Wildlife Resources lists several Blue Ribbon fishing opportunities in lakes and streams in the County (see Map #37). Blue Ribbon fisheries are waters that provide highly-satisfying fishing and outdoor experiences for diverse groups of anglers and enthusiasts. Blue Ribbon status indicates that a water feature has been reviewed by Utah Division of Wildlife Resources biologists and the Blue Ribbon Fisheries Advisory Council and is found to have: fishing quality, a quality outdoor experience, quality fish habitat and economic benefits. Criteria such as water quality and quantity, water accessibility, natural reproduction capacity, angling pressure and specific species are factored into the designation.

The Blue Ribbon Fisheries Advisory Council was created by Executive Order of Governor Mike Leavitt and charged with identifying Blue Ribbon fisheries in Utah, recommending enhancements to Blue Ribbon waters, recommending protections for Blue Ribbon fisheries and promoting Blue Ribbon fisheries. The Council's mission statement is "To identify, enhance and protect those Utah waters and their watersheds that provide, or have the potential to provide, Blue Ribbon quality public angling experiences for the purpose of preserving and enhancing these economically valuable natural resources." The Council is composed of thirteen members; two representing cold water anglers, two representing warm water anglers, one representing commercial interests, five representing each of the Utah Division of Wildlife Resources Divisions, three at-large members and one UDWR representative.

The Council allocates funds, generated by the sale of fishing licenses, on an annual basis to projects that benefit Blue Ribbon fisheries. In the Northeast Region of the UDWR, these funds have been used in the past to acquire land around Lake Canyon Lake, build a fish barrier on the West Fork of the Duchesne River and enhance fish habitat on the Duchesne River near Tabiona. The Strawberry River (from Starvation Reservoir downstream to the confluence with the Duchesne River) is a Blue Ribbon fishery where Brown and rainbow trout provide most of the angling action. This section of the river also supports a large, healthy, whitefish population. The

Strawberry River, from just above its confluence with Red Creek to the Soldier Creek Dam in Wasatch County, is frequently referred to as the "Wild Strawberry." This section of the Strawberry River is considered a Blue Ribbon fishery for Brown Trout, Brook Trout and Colorado River cutthroat trout.

The section of the Duchesne River located along SR 35, from Hanna upstream to the confluence of the North Fork is considered a Blue Ribbon fishery for mountain whitefish; brown, cutthroat and rainbow trout. The West Fork of the Duchesne River is a productive Blue Ribbon stream that maintains a population of native Colorado River cutthroat trout as well as a naturally reproducing population of brown trout.

Lake Canyon Lake is a fairly remote, small lake that is also a Blue Ribbon fishery providing anglers with good fishing opportunities, in a beautiful setting, for Colorado River cutthroat trout and Tiger trout. Lake Canyon Lake is utilized by the UDWR as a brood stock lake for Colorado River cutthroat trout.

Blue Ribbon fisheries in Utah draw visitors from across the United States and around the world. In 2010, over 120,000 non-resident fishing licenses were sold; which constituted 23% of all fishing licenses sold. The economic impact of fishing is significant to the state and to our region.

Policy: It is the policy of Duchesne County that public land management agencies shall make every effort to provide and maintain sufficient opportunities for fishing on public lands in the County.

Water Considerations

Healthy fisheries require good water quality and high quality fish habitat. The Utah Department of Environmental Quality, Water Quality Division, monitors water quality in Duchesne County. Fish habitat is managed by the landowner or the public land management agency.

The Ashley National Forest reports the following accomplishments to restore or enhance lake habitat, which provides better water quality and habitat for fish (see Table FIS1).

Table FIS1. Ashley National Forest Lake Habitat Restoration/Enhancement (2010 – 2015)

Fiscal Year	Acres of Lake Habitat Restored or Enhanced
2010	70.0
2011	8.0
2012	160.0
2013	142.0
2014	-
2015	11.0
Total	**321.0**

Source: Ashley National Forest (2017).

Fish are important in a healthy diet. They are a lean, low-calorie source of protein. However, some fish from specific areas in Utah may contain chemicals that could pose health risks. When contaminant levels are unsafe, Utah Public Health Officials issue fish consumption advisories. These advisories outline recommendations for limiting intake of specific fish at specific locations.

Fish advisories have been issued in Utah due to elevated levels of arsenic, mercury, selenium, and PCBs. Some of these contaminants occur naturally, whereas others are from anthropogenic sources. Four such advisories have been issued for Duchesne County.

In the Big Sand Wash Reservoir, elevated levels of mercury in Smallmouth Bass, Walleye and Yellow Perch lead to recommended limits of consumption of no servings for pregnant women and children under 6 years of age and 8 ounces per month for women of childbearing age and children 6-16 years of age. For adult women past child bearing age and men over 16 years of age, Smallmouth Bass consumption is advised not to exceed three 8-ounce servings per month, while Walleye and Yellow Perch consumption is advised not to exceed five 8-ounce servings per month.

In the Duchesne River, near Tabiona, elevated levels of mercury in Brown Trout make it advisable for adult women past child bearing age and men over 16 years of age to eat no more than six 8-ounce servings per month. Pregnant women and children under 6 years of age are advised not to consume more than one 4-ounce serving per month. Women of child bearing age and children aged 6-16 are advised to consume no more than two 8-ounce servings per month.

In Rock Creek, below the Upper Stillwater Reservoir, elevated levels of mercury in Brown Trout make it advisable for adult women past child bearing age and men over 16 years of age to eat no

more than nine 8-ounce servings per month. Pregnant women and children under 6 years of age are advised not to consume more than one 4-ounce serving per month. Women of child bearing age and children aged 6-16 are advised to consume no more than three 8-ounce servings per month.

In the Starvation Reservoir, elevated levels of mercury in large Walleye (over 12 inches long) make it advisable for adult women past child bearing age and men over 16 years of age to eat no more than three 8-ounce servings per month. Pregnant women and children under 6 years of age are advised not to consume this fish. Women of child bearing age and children aged 6-16 are advised to consume no more than one 8-ounce servings per month.

Objectives:

1. Maintain, enhance, and expand sport fishing opportunities.

2. Protect and preserve water quality and fish habitat while balancing the needs of other water users, including those holding water rights.

3. Enhance public access to fishing opportunities.

4. Prevent spread of invasive species or diseases that negatively affect fish populations.

5. Support economic development associated with fishing, including private businesses and facilities.

Policies:

1. Support and encourage public land management agencies to provide and maintain sufficient opportunities for fishing on public lands.

2. Support DWR's efforts to work with landowners to voluntarily acquire public fishing access through the Walk-in-Access program.

3. Support DWR's efforts to educate the recreating public about preventing the spread of aquatic invasive species and diseases.

4. Support efforts to protect water quality and the quality of the associated fisheries.

5. Support efforts to improve fish habitats while balancing the rights of adjacent landowners and holders of water rights.

6. Coordinate and communicate with DWR to ensure that public fishing opportunities are maintained and enhanced, including appropriate stocking levels.

7. Support tourism and associated businesses and commercial enterprises that are supported by local fisheries such as destination resorts and guide services.

8. Promote land uses that are compatible with maintaining healthy fisheries on lands adjacent to fish bearing streams, lakes, and reservoirs.

9. Continue coordination between the county and federal land management agencies on treatments, such as rotenone.

Section 17. Wild & Scenic Rivers

Findings: The Wild and Scenic Rivers Act was passed by Congress in 1968. Congress declared that "certain selected rivers of the Nation, which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." Congress also declared "that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes." Section 5(d)(1) of the act directs federal agencies to consider the potential for national wild, scenic, and recreational river areas in all planning for the use and development of water and related resources. The Act provides standards for determining whether certain rivers should be classified, designated and administered as wild, scenic or recreational rivers.

The act is notable for safeguarding the special character of these rivers while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection. The act purposefully strives to balance dam and other construction at appropriate sections of rivers with permanent protection for some of the country's most outstanding free-flowing rivers. To accomplish this, it prohibits federal support for actions such as the construction of dams or other instream activities that would harm the river's free-flowing condition, water quality, or outstanding resource values. However, designation does not affect existing water rights or the existing jurisdiction of states and the federal government over waters as determined by established principles of law.

Under the Wild and Scenic Rivers Act, rivers may be designated by U.S. Congress or, if certain requirements are met, by the Secretary of the Interior. Each river is administered by either a federal or state agency. Designated segments need not include the entire river and may include tributaries. For federally administered rivers, the designated boundaries generally average 0.25 mile on either bank in the lower 48 states in order to protect river-related values.

Under the Wild and Scenic Rivers Act, rivers are classified as wild, scenic, or recreational. Wild River Areas are those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America. Scenic River Areas are those rivers or sections of rivers that are free of impoundments, have shorelines or watersheds still largely primitive and shorelines largely undeveloped, but are accessible in places by roads. Recreational River Areas are those rivers or sections of rivers that are readily accessible by road or railroad, may have some development along their shorelines, and may have undergone some impoundment or diversion in the past.

About thirty percent of the lands in Duchesne County are administered and managed by the Bureau of Land Management and the Forest Service. Section 5(d) (1) of the Wild and Scenic Rivers Act directs federal agencies to identify potential additions to the National Wild and Scenic Rivers System through federal agency plans. Under these provisions, federal agencies study the suitability of river sections they manage for designation under the Wild and Scenic Rivers Act. Sections that are determined to be suitable can be managed to preserve their suitability by an agency land management plan while awaiting congressional designation.

Four federal land management agencies [the U.S. Forest Service (USFS), the Bureau of Land Management (BLM), the U.S. Fish and Wildlife Service, and the National Park Service (NPS)] administer the Wild and Scenic Rivers Act. This includes managing rivers that have been designated by U.S. Congress and managing rivers that have been studied and determined to be suitable for designation and that are awaiting congressional action.

The US Forest Service and the Bureau of Land Management will continue to assess river and stream segments in Duchesne County to determine whether or not they are suitable for inclusion in the national Wild and Scenic River system. In most cases, these agencies are identifying numerous segments that they deem suitable and will begin to manage such segments in order to maintain the identified values in the event that Congress or the Secretary of Interior chooses to designate them as Wild and Scenic Rivers. Even in the event that an "eligible and suitable" stream segment is not officially designated, it can continue to be managed as though it were.

Wild and Scenic River designation will have a lasting effect, for better or worse, on the designated stream segment and the surrounding area. Federal land management agencies should carefully select Wild and Scenic Rivers based on their regional and national significance, rather than local significance. These selections should be supported by data that clearly show such selection will not negatively impact the ability of agriculture and other industry to access the water it needs and of Duchesne County communities to develop water supplies and other resources to meet future needs. Where such impacts are unavoidable, a plan to mitigate such impacts should be presented.

There are many questions associated with Wild and Scenic River designations, such as:

a. How would Wild, Scenic, or Recreational designations affect future water management and development?

b. Are there planned or potential projects that would be adversely affected by Wild, Scenic, or Recreational designations?

c. Are there stream segments, particularly in upper watersheds, that could be designated without harm to water users and which might be of benefit locally?

d. Are there any possible benefits associated with the designation (i.e. tourism)?

Designation of river segments as Wild, Scenic, or Recreational would restrict many activities related to the stream and other uses within ¼ mile of it, and in some cases could be detrimental to Duchesne County's ability to develop and manage water resources necessary to meet future growth needs. The ability to get approval of water right change applications on, or upstream of, designated streams by existing water users may also be limited. Similarly, federal permits cannot be issued for uses on a stream segment that would be in conflict with the Wild and Scenic designation.

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

Since the passage of the Act and subsequent amendments, there has been much speculation regarding the costs and benefits of wild and scenic river designation. A December 2008 report prepared by Utah State University for the Governor's Public Lands Policy Coordination Office, entitled "Impacts of Wild and Scenic River Designation," helped answer that speculation. This report found no scientific evidence that wild and scenic river designation led to increased recreational use of such rivers and no scientific evidence that the economic benefits of designation would offset potential economic losses from decreased timber production, grazing, mining and water development.

The USFS completed a statewide *Wild and Scenic River Suitability Study for National Forest System Lands in Utah* in 2008 (USFS 2008), and BLM completed the *Bureau of Land Management Vernal Field Office Record of Decision and Approved Resource Management Plan* (BLM Vernal ROD/RMP) in 2008. Both evaluate and recommend suitability of river segments on USFS and BLM-administered lands. A wild and scenic river study and environmental impact statement was published in 1980 for NPS-administered lands in Dinosaur National Monument.

From USFS scoping comments and 17 public meetings held around the State of Utah, six key issues emerged as a concern with wild and scenic river designation.

1. Designation of river segments into the National Wild and Scenic River System may affect existing and future water resource project developments.

2. Uses and activities may be precluded, limited or enhanced if the river segment and its corridor were included in the Wild and Scenic Rivers System.

3. Designation of a Wild and Scenic River could change the economy of a community.

4. Designation offers long-term protection of resource values.

5. Consistency with wild and scenic river studies conducted by the BLM and NPS.

6. Consistency with state, county, and local government laws and plans.

The Forest Service completed its suitability analysis of Wild and Scenic Rivers in Utah in November 2008. The Forest Service's record of decision concludes that a suitable determination is made for 10 river segments in Utah, totaling approximately 108 miles (74 miles classified as Wild, 22 miles classified as Scenic, and 12 miles classified as Recreational). Based upon the effects of the alternatives, the responsible officials will decide which, if any, of the eligible river segments under consideration should be recommended to the Congress of the United States for inclusion in the National Wild and Scenic Rivers System.

During the Forest Service suitability process, the following river segments in Duchesne County were designated as Wild: 40 miles of the Upper Uinta River, including Gilbert Creek, Center Fork and Painter Draw, covering about 12,758 acres of land within the High Uintas Wilderness area (see Table WSR1 and Map #38). The designation was based on the outstanding remarkable Geologic, Hydrologic and Wildlife values along these streams.

In the 2008 BLM Vernal Field Office RMP, no Wild and Scenic River designations were made in Duchesne County. The closest BLM designation is along the Lower Green River in Uintah County.

Table WSR1. Recommended Wild and Scenic Rivers in Duchesne County

Agency	Duchesne County
BLM	–
USFS	Upper Uinta River, including Gilbert Creek, Center Fork, and Painter Draw (40 miles) – Suitable, wild
NPS –	–

Sources: BLM (2008); USFS (2008).

There is minimal public support for Wild and Scenic river designations in the Uintah Basin. A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 44) that only 20.5% of the survey respondents in the Daggett-Duchesne-Uintah County area believed that public land managers should moderately (15.4%) or substantially (5.1%) increase the extent to which wild and scenic rivers designations occur on Utah's public lands. The majority (48.2%) that wild and scenic river designations should stay the same as present. Twenty one percent felt that such designations should have moderate or major reductions.

Objectives

1. Avoid designating rivers as wild and scenic if the designation would adversely affect the economic interests of the county, including enjoyment of private property rights, mineral extraction, timber harvest, agriculture, water rights, water storage, or water delivery.

2. Manage rivers and river corridors not designated as wild and scenic by U.S. Congress but deemed suitable based on the multiple-use and sustained-yield management standard prescribed in Federal Land Policy and Management Act of 1976.

3. Ensure that any designation of rivers as wild and scenic supports the economic interests of the county.

Policies:

1. The county will be actively involved in all studies or plans that may consider or evaluate eligibility or may recommend inclusion of rivers in the National Wild and Scenic River System.

2. The county will be actively involved in all legislation that could result in designation of wild or scenic rivers within the boundaries of the county.

3. Potential reservoir sites should be protected from designation as wild and scenic rivers.

4. Any instream water right created by the designation of wild and scenic rivers is junior to all absolute and conditional water rights existing before the special designation is finalized.

5. Wild and scenic rivers should be identified based on their regional and national significance rather than on their local significance. These selections should be supported by data that clearly show such selection will not negatively impact the ability of agriculture and other industry to access the water it needs and the county to develop water supplies and other resources to meet future needs. Where such impacts are unavoidable, a plan to mitigate such impacts should be presented.

6. In accordance with Section 63J-4-401 of the Utah Code, it is the policy of Duchesne County that county support for the addition of a river segment to the Wild and Scenic Rivers System shall be withheld until:

    a. It is clearly demonstrated that water is present and flowing at all times. Dry washes or stream segments below dams and other controls, and other stream segments that have been physically altered by human activity should not be considered, even in the eligibility stage.

b. It is clearly demonstrated that the required water-related value is considered outstandingly remarkable within a region of comparison consisting of one of the three physiographic provinces in the state. The rationale and justification for the conclusions shall be disclosed;

c. It is clearly demonstrated that the inclusion of each river segment is consistent with the plans and policies of the state and the county or counties where the river segment is located as those plans and policies are developed according to Subsection (3) of Section 63J-4-401 of the Utah Code;

d. The effects of the addition on the local and state economies, private property rights, agricultural and industrial operations and interests, tourism, water rights, water quality, water resource planning, and access to and across river corridors in both upstream and downstream directions from the proposed river segment have been evaluated in detail by the relevant federal agency;

e. It is clearly demonstrated that the provisions and terms of the process for review of potential additions have been applied in a consistent manner by all federal agencies;

f. The rationale and justification for the proposed addition, including a comparison with protections offered by other management tools, is clearly analyzed within the multiple-use mandate, and the results disclosed. All valid existing rights, including grazing leases and permits shall not be affected;

g. It is clearly demonstrated that the federal agency with management authority over the river segment, and which is proposing the segment for inclusion in the National Wild and Scenic River System will not use the actual or proposed designation as a basis to impose management standards outside of the federal land management plan;

h. It is clearly demonstrated that the terms and conditions of the federal land and resource management plan containing a recommendation for inclusion in the National Wild and Scenic River System:

    1. Evaluates all eligible river segments in the resource planning area completely and fully for suitability for inclusion in the National Wild and Scenic River System;

    2. Does not suspend or terminate any studies for inclusion in the National Wild and Scenic River System at the eligibility phase;

    3. Fully disclaims any interest in water rights for the recommended segment as a result of the adoption of the plan; and

4. Fully disclaims the use of the recommendation for inclusion in the National Wild and Scenic River System as a reason or rationale for an evaluation of impacts by proposals for projects upstream, downstream, or within the recommended segment;

i. It is clearly demonstrated that the agency with management authority over the river segment commits not to use an actual or proposed designation as a basis to impose Visual Resource Management Class I or II management prescriptions that do not comply with the provisions of Subsection (8)(t) of Section 63J-4-401 of the Utah Code; and

j. It is clearly demonstrated that including the river segment and the terms and conditions for managing the river segment as part of the National Wild and Scenic River System will not prevent, reduce, impair, or otherwise interfere with:

1. The state and its citizens' enjoyment of complete and exclusive water rights in and to the rivers of the state as determined by the laws of the state; or

2. Local, state, regional, or interstate water compacts to which the state or any county is a party;

k. The conclusions of all studies related to potential additions to the National Wild and Scenic River System, 16 U.S.C. Sec. 1271 et seq., shall be submitted to the state for review and action by the Legislature and governor, and the results, in support of or in opposition to, shall be included in any planning documents or other proposals for addition and such documentation shall be forwarded to the United States Congress.

l. A time limit is set for Congress to act on recommended wild and scenic rivers.

Section 18. Recreation & Tourism

Findings: Duchesne County has identified the recreation and tourism industries as part of its economy and tax base. These industries have a stabilizing effect on the economic cycles of agriculture and the oil and gas industry. Public lands are a critical component of tourism and recreation in Northeastern Utah.

Federal, state, county, and even private lands offer a broad range of recreational opportunities, including camping, hiking, fishing, hunting, horseback riding, biking, nature appreciation, interpretive trips, wildlife watching, boating, and other tourism-related activities. Public lands also support businesses that offer such opportunities to the public, including outfitters and guides, whitewater rafting, outdoor camps, wilderness/survival schools, and dude ranches.

A variety of recreational opportunities and experiences are available for residents and visitors alike to enjoy in Duchesne County. The Uinta Mountains have more than 1,000 natural lakes and small streams, over half of which support populations of game fish. These mountains contain Utah's largest designated wilderness area and highest peak (Kings Peak). Many of the trailheads in this beautiful backcountry are within a 90-minute drive from Salt Lake City (State of Utah, 2013). High desert landscapes provide unparalleled vistas and opportunities for OHV use, hunting, and other recreational pursuits.

Public lands in Duchesne County provide many landscapes, resources, and unique features for recreation. These lands include a myriad of opportunities for hunting, hiking, and wildlife watching. Some of these areas, such as Nine Mile Canyon, have been included as part of larger special recreation management areas designated in the *Bureau of Land Management Vernal Field Office Record of Decision and Approved Resource Management Plan* (Bureau of Land Management [BLM] 2008).

Duchesne County offers a variety of recreational opportunities and experiences. Residents and visitors alike enjoy the mountains, forests, and water resources. While the majority of recreational activities center on fishing, hunting, hiking, camping, and site seeing; other "non-traditional" activities such as mountain biking, cross-country skiing, and Off Highway Vehicle use are on the rise.

One of the major attractions in Duchesne County is Starvation State Park, which reported 55,382 visitors during the first nine months of FY 2015, which was up 17% from the same period during FY 2014 (2015 Utah Travel & Tourism Profile for Duchesne County). Water-based recreation opportunities (e.g., boating, rafting, and fishing) in Duchesne County has relatively fewer managerial concerns than the other regions throughout the state. Starvation Reservoir has the mandate to increase use and subsequently increase revenue (UDPR 2010). Fishing is a tremendously popular recreation activity in the Uintah Basin (UDPR 2013).

There is overwhelming public support for increased recreation facilities on public lands. A December 2008 report published by Utah State University entitled "Public Lands and Utah

Communities: A Statewide Survey of Utah Residents," found (in Table 52) that only 13.1% of the survey respondents in the Daggett-Duchesne-Uintah County area believed that public land managers should moderately (6.4%) or substantially (6.7%) reduce their emphasis on developing visitor facilities to increase tourism when making decisions about how to manage public lands in Utah.

The Ashley National Forest (North and South Units) provide a vast recreational "backyard" area for residents of Duchesne County and the Uinta Basin. The forest struggles to keep up with maintenance on trails and other recreation facilities as demonstrated by Tables REC1 and REC2 below.

Table REC1. Ashley National Forest Trail System (2010 – 2014)

Fiscal Year	Trail Miles	Trail Miles Meeting Standards
2010	1,035.4	160.0
2011	1,077.7	396.8
2012	1,095.5	432.0
2013	1,106.7	114.1
2014	1,108.4	154.2

Source: Ashley National Forest (2017).

Table REC2. Ashley National Forest Recreation Sites (2010 – 2014)

Fiscal Year	Recreation Sites	Recreation Sites Meeting Standards
2010	154	110
2011	153	111
2012	150	108
2013	159	122
2014	158	117

Source: Ashley National Forest (2017).

According to The Policy Institute of the University of Utah, in their Utah Travel & Tourism Profile for Duchesne County, published in July 2015, Duchesne County ranks dead last (29th) among Utah counties for tourism, based on the share of private leisure and hospitality jobs to total private jobs. This study revealed that tourism-related tax revenues were only $112,509 in

the 2013 fiscal year, with a 6.2% increase to $119,513 in fiscal year 2014. During that same time period; however, leisure and hospitality jobs in Duchesne County decreased from 450 to 444 and tourism-related taxable sales decreased 13.9% from $5.73 million to $4.93 million. Leisure and hospitality wages stayed constant between 2013 and 2014 at $5.3 million dollars.

According to the Profile of Industries that Include Travel & Tourism, found in the Headwaters Economics Economic Profile System (EPS), Duchesne County, as of 2013, had only 9.3% of its total jobs in the travel and tourism industry, compared to 15.5% nationwide. This percentage decreased to 8.0% in 2014 (compared to 13.3% nationwide). This study also noted that the average annual wage for a tourism job in Duchesne County in 2014 was $14,432. The average annual wage for non-tourism jobs was $58,863. It is apparent that travel and tourism jobs are not adequate to support a family, but can be a valuable second income for a household.

Currently, Duchesne County is considered a "pass through" area for many recreationists traveling to other sites in the region. The County views these visitors as opportunities for additional economic development and is interested in better understanding area tourism trends and forecasts. Through an ongoing partnership with the Chamber of Commerce, Duchesne County will explore strategies targeted to "capture" this market.

Adjacent counties capture many overnight stays from Duchesne County destination marketing. Many lodging opportunities are located just outside of the county boundaries in nearby Ballard (Uintah County). Many Duchesne County events and activities increase spending and tax revenue in adjacent counties while the cost of organizing the event falls primarily on Duchesne County organizers.

In 2011, Duchesne County opened a Welcome Center in the new Duchesne City building. With a convenient location on Highway 40, signage and strong promotion has resulted in brisk walk-in traffic to the Welcome Center, which allows staff to encourage visitors to spend additional time in the County. Duchesne County promotional information is readily available at no cost to travelers; including maps and travel guides. Duchesne County also builds partnerships with adjacent counties to cross-promote by making available travel guides and promotional information from other areas of the state. Duchesne County has its travel guides available at many visitor centers. Local businesses have observed increased customer traffic because of the guidance the welcome center gives to the traveling public. Additional information centers, which include a stationary brochure rack, have been added to several locations in the county including hotels, eateries and convenience stores. They are maintained weekly and are utilized fully by the traveling public which adds to their desire to spend additional time in Duchesne County.

Duchesne County participates through the Duchesne County Chamber of Commerce on various committees and working groups in the State of Utah including the Utah Travel Council sub-committees, Utah Travel Industry Coalition and the State Scenic Byway Committee. Duchesne County recently completed the Duchesne County Centennial Event Center in Duchesne City at the county fairgrounds, which will allow for destination promotion of Duchesne County for a variety of uses including trade shows, conferences, meetings, and family reunions. Equally

important is the adjoining arena which allows for equestrian, sporting and consumer trade show opportunities. The goal is to increase overnight stays and spending in Duchesne County.

Duchesne County has embraced the digital age in the promotion of the county in a multi-prong approach to destination marketing. These methods are proving very valuable as visitors are researching travel choices on-line prior to their visits. Duchesne County has secured contracts with a professional studio and advertising company to highlight Duchesne County's many destinations for outdoor enthusiasts. Duchesne County receives multiple opportunities to have professional filming of destinations and events which are later viewed on several platforms including primetime television viewing. Also, VTV, a subsidiary of Strata Networks, regularly films events and currently is working with several large community events including Uintah Basin in Celebration (UBIC) and the Duchesne County Fair to film and simulcast on large screens throughout the venues as well as re-post on their website and You Tube. Also, the Duchesne County Chamber of Commerce has an in-house photographer and videographer who regularly generates volumes of material which is later shared with news outlets, magazines and film crews. Regular videos of Duchesne County are posted on You Tube and on various websites. Additional promotion is done through websites and Facebook.

Duchesne County is home to over 10 privately-owned destination resorts & areas for family gatherings. These venues range from rustic to "3 Star" accommodations. These travel favorites have become an annual tradition to thousands of visitors. Strong partnerships need to be maintained with these valuable partners to ensure their continued success.

Duchesne County Chamber of Commerce has developed a strong working relationship with organizers of dozens of county events, meetings and activities. Outreach during these events has become a great way to encourage an expanded trip or return visit to Duchesne County. Conference bags and or gift baskets filled with promotional information, coupons and incentives have dramatically increased visitors to our private businesses. This value-added component has elevated the experience enjoyed by visitors and has been successful in achieving additional commerce to local businesses. The number of these unique opportunities has tripled in recent years.

Every five years, the State of Utah, through its State Parks Division, develops a State Comprehensive Outdoor Recreation Plan (SCORP), which enables the state to qualify for funding under the federal Land & Water Conservation Fund. The most recent SCORP was completed in September, 2013.

The SCORP planning process includes a survey of Utah residents to assess their perception of needed recreation facilities in the state. Duchesne County residents were surveyed as part of the Uintah Basin Planning District. Survey results show that over 60% of the basin residents felt that opportunities for outdoor recreation are extremely important. Over 50% of the survey respondents stated they are willing to travel over 25 miles to participate in outdoor recreation.

SCORP survey respondents indicated that they frequently participate in camping-picnicking, fishing, swimming, OHV riding, horseback riding, hunting, hiking, motorized water sports, wildlife viewing and birdwatching. Field-based sports, court-based sports, walking, running and golf were also popular. Those surveyed saw a need for more swimming pools, paved trails, OHV riding areas, camping areas and parks. A new swimming pool completed in Roosevelt in 2016 will help address that need. Surveys of municipalities in the basin showed that new community or recreation centers were high priority needs, followed by new ball fields and walking trails. The new Centennial Event Center in Duchesne, completed in 2015, will help address the need for community centers in Duchesne County.

According To the SCORP survey, the percentage of Uintah Basin respondents who participated in camping over the previous 12 months was 85.9%; the highest of any planning district in the state. Among the planning districts, the Uintah Basin also had the overall highest proportion of fishing participants at 76%. There were also relatively high proportions of participants in OHV riding, horseback riding, hunting, and wildlife viewing or birdwatching. Basin respondents placed high importance on OHV riding areas, but commented on low area availability (12%). This indicates that people in the basin are extremely engaged in outdoor recreation pursuits and that these activities are often resource based (Utah Division of Parks and Recreation, 2013).

Statewide, Utah residents make up approximately 45% of visitors to Utah national and state parks. After transportation costs, non-resident visitors spend more of their total expenditures on lodging and dining out; whereas resident travelers spent larger shares of their total spending on groceries, shopping, and entertainment (Leaver 2016). Non-resident visitor spending is significant because it augments and adds outside dollars to Utah's economy. Resident spending recirculates dollars already present in the state's economy; however, Utah resident visits do contribute non-local dollars and spend their money outside of their county of origin (BEBR 2014). Regarding spending in the Uintah Basin, anecdotal information suggests that because Duchesne County is close to the Wasatch Front, which comprises most of Utah's population, Utah resident visits may involve more day trips and; subsequently, such visitors do not spend as much locally before returning home.

While tourism and recreation are an important part of Duchesne County's economic base, that industry provides a minimal contribution in comparison to the mining, energy, government, utility and health care sectors. Moving forward, Duchesne County should be cautious about advocating tourism to be a larger part of the economic base. A 1996 study prepared by researchers at the Utah State University Department of Economics, entitled *"Recreation as an Economic Development Strategy: Some Evidence from Utah"* found that the economies of tourism-dependent counties are subject to annual variances which are relatively large and appear to be increasing in absolute value. This kind of employment cycle may be difficult to deal with from an annual planning perspective. In contrast, counties whose economic bases are less dependent on the tourism industry appear to have less short-run variation, even though long-run variability may exist. This study concluded that tourism has clearly added to the long-term growth of rural communities in Utah, and particularly in those rural communities which are associated with high levels of visitation (skiing and national parks). However, it is also clear that

communities dependent upon tourism alone must expect seasonal employment changes rivaling the relative size of the long-run cycles of traditional extractive industries.

Alternative paths to less volatile long-term growth appear to lay in the direction of long-term manufacturing, utilities, in diversified economies which reduce reliance on extractive industries, or in attracting a permanent population base such as retirees. The study suggests that those individuals responsible for community and regional development must be cautious about advocating tourism as an economic base. The relatively low salaries in retail trade and service sectors may exacerbate the problems associated with a tourism-based economy, in that communities must provide services for significant increases in population as employment grows but may have limited fiscal resources available from that population.

Policies:

1. Duchesne County encourages private sector development of recreational facilities and services and may offer development incentives as doing so becomes feasible.

2. The County supports cultivating recreation facility development and maintenance "partnerships" with other entities, agencies, and special interest groups.

3. The County desires to expand and improve recreational opportunities, facilities, and services for County residents. The County has identified youth and family oriented activities**,** such as family reunions, as priorities.

4. When evaluating recreational developments and investments Duchesne County will consider:

    a. The County's ability to provide essential services (law enforcement, emergency services, water and waste management, search and rescue);

    b. Impacts on traditional recreational uses, e.g. Off Highway Vehicle (OHV) trail development at the expense of traditional hiking or riding trials; and

    c. Anticipated economic costs and returns.

The following objectives were identified as the Duchesne County Recreation and Tourism priorities.

Objectives:

1. Continue to build an inventory of digital material including video, photos and drone footage which presents Duchesne County in a positive light and shows the diversity of landscapes and opportunities.

2. Continue to encourage private industry to build traveler-friendly services such as boat and ATV rentals, additional lodging and restaurants and additional guides and outfitters to enhance travelers' experiences.

3. Work closely with public land agencies to designate additional trails for OHV, ATV, mountain bikes and hiking which can be promoted through all channels.

4. Conduct a farm/ranch recreational opportunity feasibility study.

5. Include Duchesne County trails and related facilities in all **tourism** brochures.

6. Develop an outdoor field institute or nature center.

7. Form a Nine-Mile Canyon partnership with Carbon County. This would include upgrading access and facilities.

8. Cultivate recreation and tourism facility development and maintenance "partnerships" with agencies and special interest groups.

9. Develop a museum and/or visitor information center.

Policy: The County, in cooperation with the Duchesne County Chamber of Commerce and regional tourism organizations, will actively support and pursue these objectives.

Off Highway Vehicles (OHV)

OHV's have become an important segment of the County's recreation industry. A December 2008 study of Recreational Off-Highway Vehicle Use on Public Lands in Utah, prepared by a research team from the Institute for Outdoor Recreation and Tourism at Utah State University, found that the number of registered OHV's in Utah more than tripled from 1998 to 2006; from 51,686 to 172,231 units. A companion study of the Economic Impacts of Land Use Restrictions on OHV Recreation in Utah found that some 44 million people participated in OHV recreation in 2007 nationwide and that participation rates in this form of recreation in Utah are about 32% (well above the national average). The OHV use study found that the nearly half of the OHV owners surveyed use their vehicles one to five times per year; so while the number of OHV's is increasing, the number of trips taken per year by these owners is decreasing. The economic study found that the average OHV owner took 10.5 trips per year to recreate. The study also found that proposed changes in OHV management in the Vernal BLM resource management plan would have a negligible impact on the economies of Duchesne, Daggett and Uintah counties.

A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Figure 10) that 44.2% of residents surveyed in the Daggett-Duchesne-Uintah County region reported participating in ATV/OHV riding on public lands. This same study showed substantial public support for

development of more ATV/OHV trails in the region. Only 20.6% of the survey respondents (see Table 48 of the report) believed that public land managers should moderately (10.9%) or substantially (9.7%) reduce their emphasis on developing trails for off-highway motorized recreation when making decisions about how to manage public lands in Utah. There was also strong support for the development of more trails for non-motorized use and for motorized vehicles to stay on designated routes.

Duchesne County projects that the number of OHV registrations will continue to increase as the statewide population increases. The challenge facing the county and public land agencies is to provide for more trails and routes for OHV users to enjoy this form of recreation in a manner that is environmentally responsible. Partnerships with the Forest Service and the BLM will be important if more routes and loops are to be identified. Providing adequate and easily identifiable signage will help ensure that riders stay on designated routes. Grant programs exist to provide financial assistance to develop or improve recreation trails.

OHV's provide an important tool and mode of transportation for farmers, ranchers, and resource developers. However, because of their ability to travel across rugged landscapes and climb steep hills they are often used to chase livestock and wildlife. These abuses damage vegetation and cause soil damage especially on steep grades. OHV's can reach high speeds and it is a common practice for parents to allow inexperienced and daring youth or adults to drive them, which often result in human accident, or death.

BLM Policies

The Vernal BLM RMP contains the following policies associated with OHV use:

> TMD-1 "Motorized camping vehicles will be allowed to travel off designated routes on a single path up to 300 feet to access an existing disturbed dispersed campsite, except in non-WSA lands with wilderness characteristics and WSA lands."
>
> TMD-8 "OHV use for big game retrieval off designated routes will not be allowed."
>
> RIP-2 "Allow no new surface-disturbing activities within active flood plains, public water reserves, or 100 meters of riparian areas unless:
>
> • There are no practical alternatives, or
> • Impacts will be fully mitigated, or
> • The action is designed to enhance the riparian resources."

Policies: It is the position of Duchesne County that:

1. Public land agencies shall limit OHV's to trails, roads, or areas specifically designated by the agency for that purpose. However, the availability and mileage of such trails should be expanded to meet demand and provide OHV loops that connect communities. Open area riding as well as looped and stacked trail systems should be offered, with a variety of

levels of trail difficulty.

2. Public land agencies shall accommodate livestock permit holders, resource developers and managers who have a legitimate need to enter a specific area on public lands by making OHV licenses available.

3. OHV users should acquaint themselves with federal land management agency rules and travel management maps. OHV users who find such rules and maps to not meet their recreation needs should communicate any issues to local land managers for consideration.

Snowmobiling

A comprehensive study of snowmobiling in Utah was last conducted by the Institute for Outdoor Recreation and Tourism at Utah State University in 2001. In this study, a survey of snowmobilers found that many of their favorite snowmobiling areas are located in or near Duchesne County. Popular locations include the Strawberry Valley, Wasatch Mountains, Mirror Lake, Currant Creek and the Uintah Basin. The study found that about 82% of the trips are one-day trips and that February, March and April are the most popular months. Total annual expenditures for snowmobile trips and snowmobile ownership in the Uintah Basin in 2001 constituted about 1.5% of the expenditures statewide.

Policy: Although the economic impact of snowmobiling in Duchesne County is small, the County supports efforts to make lands available for continuation of this popular wintertime activity in areas where resource damage is unlikely to occur.

Recreation on Federal & State Lands

Objectives:

1. Support outdoor recreation on public lands as part of a balanced plan of economic growth and quality of life.

2. Leverage public land recreation areas, parks, and sites as county-based scenic and recreation economic assets.

3. Cultivate recreation and tourism facility development and maintenance “partnerships” with public land agencies and special interest groups.

4. Identify and preserve locally important recreation resources on public lands for future generations.

5. Support active management of conflicting recreational uses on public lands so that multiple users, e.g., motorized and non-motorized user groups, are accommodated to the greatest extent practicable.

Policies:

It is the policy of Duchesne County that:

1. The BLM or U.S. Forest Service must coordinate and closely consult with county and municipal governments who are conducting inventories related to recreation resources and opportunities or scenic values, and these inventories should reflect a consensus among those governmental agencies.

2. Public land agencies must evaluate proposed plans and actions for impacts on existing recreational resources and activities and potential future activities. This should be coordinated with county and municipal governments.

3. Public land agencies shall plan and manage recreational activities to be compatible with resource development. Resource development, recreation, and tourism are compatible when properly managed.

4. Management plans and decisions must provide opportunities to meet the increased demand for dispersed and developed recreational opportunities.

5. County land use plans and regulations will support expanding recreation opportunities and the protection and enhancement of traditional recreation areas and sites.

6. The BLM or U.S. Forest Service must coordinate and consult closely with county and municipal governments on any proposals for special designations (Special Recreation Management Areas, wilderness, etc.) that may affect current and future recreation use.

7. During land use planning processes, the county will identify potential locations of desired recreational facilities.

8. When possible, development proposals will be sensitive to county outdoor recreation, scenic quality, and open space preservation objectives.

9. County-identified public recreation areas and lands with unique natural features may be preserved through easements or other common open space preservation strategies.

10. Federal and state land management should support recreation and tourism and associated businesses in the county, including the broad range of activities from off-road vehicle use to primitive outdoor adventures.

11. Encourage private sector development of recreational facilities and services using development incentives or other feasible tools as appropriate and in coordination with county commissioners and city councils.

12. Cultivate recreation facilities and services (e.g., trail systems) development and maintenance "partnerships" with other entities, agencies, and special interest groups as appropriate and in coordination with county commissioners, city councils, and recreation special service district boards.

13. Permitting of commercial business enterprises or concessions on federal lands that reflect the custom and culture of the county in terms of recreation and outdoor lifestyles and uses should be encouraged.

14. Management decisions should provide for the continuation or expansion of outfitting and lodge operations. They are an important part of local history and tradition and they contribute substantially to the local economies.

15. Public land managers shall encourage recreation-oriented economic development activities that are consistent with the Uintah Basin's character and lifestyle.

16. Permit or lease terms and conditions (e.g., grazing permits) must allow OHV access and use for needed and legitimate purposes to enter a specific area on public lands.

17. In accordance with Utah Code 63J-8-104(g), federal land management agencies shall achieve and maintain traditional access to outdoor recreational opportunities available on federal lands as follows:

    a. Hunting, trapping, fishing, hiking, camping, rock hounding, OHV travel, biking, geological exploring, pioneering, recreational vehicle camping, and sightseeing are activities that are important to the traditions, customs, and character of the county and should be allowed to continue.

    b. Wildlife hunting, trapping, and fishing should continue at levels determined by the Utah Wildlife Board and the Utah Division of Wildlife Resources. Traditional levels of group camping, group day use, and other traditional forms of outdoor recreation, both motorized and non-motorized, should be allowed to continue.

    c. The broad spectrum of outdoor recreational activities available on the subject lands should be available to citizens for whom a primitive, non-motorized, outdoor experience is not preferred, affordable, or physically achievable.

18. Federal land outdoor recreational access should not discriminate in favor of one particular mode of recreation to the exclusion of others. However, the County recognizes that not all modes of recreation may be accommodated at all locations.

19. Recreation resource protection and management must provide for continued and reasonable access to and development of property rights within the area and provide for full use and enjoyment of these rights.

20. Existing levels of motorized public access to traditional outdoor recreational designations in the county must be continued, including both snow machine and OHV use, in areas where resource damage is unlikely to occur.

21. OHV use should be limited to trails, roads, or areas specifically designated by the agency for that purpose. However, the availability and overall mileage of such trails should be expanded to meet demand. OHV loops should be provided to connect communities with the region. Open area riding as well as looped and stacked trail systems should be offered, with a variety of levels of trail difficulty.

22. Group camping and day use sites and availability must be continued and expanded to meet demand.

23. Duchesne County will continue to support private individuals and companies who hold permits on public lands related to recreation and tourism.

Scenic and Back Country Byways

Duchesne County has one National Scenic Byway within its borders; the Dinosaur Diamond Prehistoric Highway follows U.S. Highway 40/191 between Roosevelt and Duchesne and then heads south on Highway 191 along the state-designated Indian Canyon Scenic Byway from Duchesne toward Carbon County (see Map #39).

Duchesne County has one additional Utah State Scenic Byway within its borders - a five mile section of the Mirror Lake Scenic Byway [State Highway 150] in the very northwest corner of the county (see Map #39).

The Bureau of Land Management has designated one Back Country Byway that is partially within Duchesne County; the Nine Mile Canyon Back Country Byway (see Map #39). The BLM Price Field Office website describes this byway as "an exciting journey into the history of prehistoric cultures, early travelers, and the fast-disappearing Utah rural lifestyle. Magnificent canyon scenery, still home to an array of easily spotted wildlife also awaits your visit."

Policy: Duchesne County supports the continuation of the scenic and back country byway programs for their value in promoting tourism, provided that the county legislative body continues to have the authority to designate certain segments of these roads as non-scenic areas.

"Rourism"

Rural tourism or "rourism" opportunities exist in Duchesne County. The state Office of Tourism has resources to help the County better market itself and capitalize on these opportunities.

Policy: Duchesne County will explore its "Rourism" potential and consider participation in available state programs to help the county promote and market itself for such opportunities.

Energy Considerations

Recreation and Tourism activities sometimes come into conflict with energy development activities, especially for those seeking solitude, non-motorized or primitive recreational experiences. Duchesne County offers a wide range of recreational activities and believes that they can continue to co-exist with energy development activities. Fortunately, many of the energy development areas of the County are not in prime recreational or tourism locations.

Over the past several years, energy development has increasingly moved to private lands. This shift has led to conflicts between surface owners of recreational property and the interests of the underlying mineral owners. The County has appointed an Oil and Gas Liaison to help mediate differences between surface owners and mineral owners.

Water Considerations

Policy: Duchesne County supports efforts to maintain clean water so that the County maintains its position as a desirable place to visit and recreate.

Section 19. Fire Management

Findings: Duchesne County has an emergency management plan that contains a chapter addressing fire management. The purpose of that chapter is "to ensure the safety of life and property within the County during emergency situations." The plan states that existing fire personnel and equipment will be able to cope with most emergency situations through the use of existing mutual aid agreements. When additional support is required, assistance can be obtained from neighboring counties and state agencies."

Each of the five incorporated cities/towns in Duchesne County has a fire department. Altamont has one pumper truck, one tender and one brush truck, manned by 10 volunteers. By agreement with the city, Duchesne County paid Altamont a fee of $27,102.06 in 2014 to offset the cost of providing fire protection in rural areas around Altamont. The fee increases by 2.5 percent each year. Also, the County reimburses the City an agreed amount for the hours that City firefighters work in unincorporated areas. This agreement is in effect until December 31, 2017.

Duchesne has two pumpers, one tender and one brush truck, manned by 17 volunteers. By agreement with the city, Duchesne County paid Duchesne a fee of $38,267.56 in 2014 to offset the cost of providing fire protection in rural areas around Duchesne. The fee increases by 2.5 percent each year. Also, the County reimburses the City an agreed amount for the hours that City firefighters work in unincorporated areas. This agreement is in effect until December 31, 2017.

Myton has two pumpers, one tender and two brush trucks, manned by 17 volunteers. By agreement with the city, Duchesne County paid Myton a fee of $21,396.35 in 2014 to offset the cost of providing fire protection in rural areas around Myton. The fee increases by 2.5 percent each year. Also, the County reimburses the City an agreed amount for the hours that City firefighters work in unincorporated areas. This agreement is in effect until December 31, 2017.

Roosevelt has two pumpers, one tender, three brush trucks and one rescue vehicle, manned by 21 volunteers. By agreement with the city, Duchesne County pays Roosevelt a fee of $47,780.90 to offset the cost of providing fire protection in rural areas around Roosevelt. The fee increases by 2.5 percent each year. Also, the County reimburses the City an agreed amount for the hours that City firefighters work in unincorporated areas. This agreement is in effect until December 31, 2017.

Tabiona has one pumper, one tender and one brush truck, manned by 9 volunteers. By agreement with the City, Duchesne County receives $1,000.00 annually from Tabiona for county assistance in fighting fires within the City. This agreement is in effect until January 2018.

In addition, county fire stations are located in two unincorporated communities. Fruitland has one pumper, one tender and one brush truck (manned by 14 volunteers) and Neola has one pumper, one tender and two brush trucks (manned by 9 volunteers).

Policies:

1. It is the policy of Duchesne County that adequate resources, including trained personnel and equipment, be made available in each community to manage fire events.

2. It is the policy of Duchesne County that mutual aid agreements or fire protection agreements be maintained with each fire department to protect the lives and property of citizens.

Fire Management on Public Lands

Findings:

As stated in local forest plans, fire is an important component of almost every ecosystem, albeit in varying degrees, on the Ashley National Forest. However, wildfire has been suppressed across the Forest, increasing the fire return interval and fuel loads in coniferous forests, and increasing conifer encroachment in shrublands and grasslands. While the Forest is implementing fuel reduction projects, this trend may continue. The degree of departure from historical fire return intervals and the amount of fuel that historically existed within vegetation communities has been assessed across the Forest using the Fire Regime Condition Class (FRCC) protocol. This assessment suggests roughly 67 percent of Forest lands are moderately to highly different than would be expected under a natural disturbance regime. The Watershed Condition Framework captures this important watershed management information. Fire Regime Groups in the county are depicted on Map #40.

Watershed studies and post-fire monitoring in snow-dominated hydrologic systems indicate wildfire can result in increases in annual water yield proportional to that seen from timber harvest (reference the Coon Creek Water Yield Augmentation Project). Wildfire can also change, sometimes significantly, the response to short-duration, high-intensity summer thunderstorms, resulting in considerable soil erosion, sediment delivery, flash floods, higher peak flows, and down cutting of stream channels. High severity fire consumes ground cover and alters the soil surface creating water repellency. The water repellency reduces infiltration rates, resulting in erosion and overland flow to channels. The increased delivery of sediment and streamflow produces debris flows and floods that down cut channels and produce floods. These responses are typically a part of the ecosystem but can result in issues and concerns in the wildland-urban interface. Such responses and associated effects however are usually only seen for the first three to five years after a significant high-severity fire due to vegetative recovery and its ability to assimilate thunderstorm intensity, duration, and volume.

According to the 2016 *Utah Forest Health Highlights* report, in 2016 there were 1,072 wildland fires in the state, which burned 101,328 acres (Utah Forestry Fire and State Lands 2016). Multiple fires burned close to 5,000 acres each. Similarly, according to the National Interagency Coordination Center (2016a), in 2016, there were 1,078 wildland fires in Utah that consumed 101,096 acres (a large increase from the 10,203 acres burned in 2015). However; nation-wide,

fire acreage decreased from 10,125,149 acres in 2015 to 5,509,995 acres in 2016 (National Interagency Coordination Center 2016b). The year 2015 saw the largest federal fire suppression costs ($2,130,543,000) over the past 30 years (National Interagency Coordination Center, 2016c). Since 2000, only four years have had federal suppression costs under $1 billion dollars. Forest management policies need to change in order to reduce the acreage consumed by wildfire.

Acres of hazard fuel treatments and burn areas (1980-2016) are illustrated in Table F1 and Map # 41.

Table F1. Acres of Fire/Burn Areas and Hazardous Fuel Treatments in Duchesne County in the Years 1980–2016

	BLM	USFS	DNR	Private	SITLA	Tribal
Fire/burn areas	265	73,899	90	5,357	616	15,759
Insect-disease	–	204	–	–	–	–
Mechanical add (mowed or chipped)	_	15,852	6,224	261	347	41
Mechanical remove (cutting, felling, and gathering)	–	8,781	–	1,835	122	70

*** Data from U.S. Department of Agriculture (2016a) and LANDFIRE (2017).**

Fire management on public lands in the region is coordinated by the Uintah Basin Interagency Fire Center in Vernal. This organization coordinates aviation, equipment and ground resources and provides logistical support for anticipated and ongoing wildfire activity on lands managed by the Uintah and Ouray Agency of the BIA, Ashley National Forest, Ouray National Wildlife Refuge, Green River District of the Bureau of Land Management, Utah Division of Forestry, Fire and State Lands and Dinosaur National Monument.

The Uintah Basin Interagency Fire Center maintains a database of the types of incidents they are deployed to. These include wildfires, structure fires, vehicle fires, smoke checks, medical aid, emergency standby, public assist, law enforcement, traffic collision, prescribed fires, aircraft down, hazmat response, search and rescue, natural disasters and miscellaneous. For the first half of 2015, the center provided services for 55 incidents in the area.

The Chepeta Wildland Fire Module is a ten-person crew based in Vernal that provides fire containment or suppression services. The King's Peak Wildland Fire Module (another ten-person crew) is stationed in Duchesne. These crews generally work on prescribed burns, stand thinning, project monitoring and fuels planning in the Spring and Fall and work during the summer on fire containment or suppression assignments across the country. They specialize in observing and collecting information about a fire, such as weather, fire behavior and smoke data. This helps fire managers predict wildfire spread, map fire growth and document fire effects.

Duchesne County maintains a cooperative agreement with the Utah Division of Forestry, Fire and State Lands for wildland fire protection. To participate in this agreement, the County adopted the Wildland Urban Interface (WUI) Code, meets agreed standards for wildland fire

training, certifications and equipment and budgets an amount of funding for fire suppression costs as required by the State. The County and State split the costs of employing a District Fire Warden and an Assistant District Fire Warden to administer wildland fire programs and services in the County. The State helps the County pay for wildland fire suppression costs through its Wildland Fire Suppression Fund.

According to the Profile of Development and the Wildland-Urban Interface, found in the Headwaters Economics Economic Profile System (EPS), Duchesne County, as of 2010, has 148 homes located in a wildland-urban interface area, of which 144 are vacation or secondary homes. This represents 1.6% of the total housing stock. The same report indicates that the average lot size of these WUI residences is 1.1 acres, with a total of 166 acres of residential land in WUI residential acres. The report ranks Duchesne County 16th of the 29 Utah counties for existing wildland-urban interface risk and 4th in terms of potential risk.

The County believes that the number of WUI homes and acres has increased since 2010; however, the WUI code has required that measures (such as defensible space, non-combustible roofs and driveways constructed to support fire trucks) be taken to help protect these homes from wildfire.

The Utah Division of Forestry, Fire and State Lands published a list of communities at risk of wildland fire in 2016 (http://www.ffsl.utah.gov/images/Fire/wui/2016CARsListFFSL 2016.pdf). Various communities in the wildland urban interface were ranked with overall scores of zero to 12, with higher scores indicating more severe fire danger (0-3 points are assigned based on ratings in the categories of fire occurrence, fuel hazard levels, values protected and fire protection capability). In Duchesne County, the Currant Creek Mountain, Fruitland, Golden Eagle, Orange Mountain, Pinion Ridge, Rabbit Gulch and West Sundance areas scored 12 for high fire danger. Several other areas of the county scored an 11, which are also high risk areas: Argyle Canyon, Bandanna Ranch, Clark Estates and the Pin Willies area. These high risk areas are on private lands; however, fire could start on and spread from public lands and put these private lands in danger if proper forest and vegetation management does not occur on public lands. Another look at fire risk in Duchesne County is provided by the LANDFIRE database, which is depicted on Map #42.

Duchesne County adopted and began enforcing the Wildland Urban Interface Code in 2006 to reduce fire risk on private lands and efforts to reduce fuel loads and fire hazards are ongoing.

A September 2016 *Science Findings* report from the Pacific Northwest Research Station, US Forest Service entitled *"Polishing the Prism: Improving Wildfire Mitigation Planning by Coupling Landscape and Social Dimensions,"* contained some interesting findings associated with fire in the Wildland Urban Interface, which is defined as a landscape on which structures and flammable vegetation potentially merge in a wildfire-prone environment. It is estimated that the Wildland Urban Interface has grown at the rate of about 2 million acres per year across the country as housing developments expand into fire-prone wildlands as a result of population growth, exurban development, and Internet access, which allows people more choice in where

they work. The study noted that more than 34,000 homes were destroyed by wildfire in the United States between 2003 and 2012 and that among people living in fire-prone areas, there is wide variation both in awareness of wildfire risk and the capacity to reduce it. Some communities are aware of the high wildfire risk in their area, but don't have the resources or money to do anything about it. Many of the high hazard areas of Duchesne County fall into this category. Other communities may have the resources but are in denial as wildfires are a relatively rare event for individual communities, which contributes to poor risk perception.

The researchers found that the area of wildfire exposure around communities is often more than 50 times larger than the community itself. In some cases, these areas include federal lands where mechanical fuel treatments are prohibited or highly restricted—as in federally designated wilderness or roadless areas, which encompass 43 percent of the area of 82 western U.S. national forests. Federal budgets and environmental restrictions will not allow for the level of forest management necessary to eliminate wildfire risk and researchers found that groups that focus on forest restoration and those that focus on fire protection don't interact nearly as much as they should.

The study noted several land management implications:

- Wildfire risk management opportunities can be identified by examining the juxtaposition of wildfire risk transmission and the capacity and likelihood that landowners will conduct mitigation activities. Biophysical-social assessments within firesheds are a key step in identifying localized comparative advantages in mitigation.

- Wildfire mitigation planning could partition wildfire risk within firesheds among major land ownerships according to mitigation capability. Locations where wildfire risk transmission and risk mitigation potential coincide would indicate places where the most significant opportunities exist for reducing wildfire risk.

- Areas where high risk of wildfire transmission coincides with low mitigation potential by landowners could benefit from targeted policy interventions, such as education and technical assistance, to facilitate efforts among private landowners to reduce wildfire hazards.

In conclusion, the researchers recommended a four step assessment of each fireshed:

- Run simulations to map perimeters of firesheds;

- Describe the connectivity of the landscape within the fireshed, particularly in terms of ownership and management capability (for example, noting if regulations limit what can be done inside wilderness areas);

- Conduct a social network analysis and add to the map locations where property owners are more or less likely to mitigate risk; and

- Consider the social and biophysical information together to assess the problem strategically.

Grazing and Wildfire

The Utah Grazing Improvement Program within the Utah Department of Agriculture and Food has demonstrated that livestock grazing helps control wildfires. Regular grazing will reduce or eliminate fine, grassy fuels, which will help prevent wildfire from spreading across the range.

Policies:

1. It is the policy of Duchesne County to continue participation and cooperation with the Utah Division of Forestry, Fire and State Lands and the Uintah Basin Interagency Fire Center to address wildfire issues in the unincorporated areas of Duchesne County, on private, federal, state and tribal lands.

2. It is the policy of Duchesne County to provide and promote education of communities and property owners in the wildland-urban interface regarding fuels mitigation, creating defensible space and fuel breaks and meeting other standards of the Wildland Urban Interface Code.

3. Good fire management requires active vegetation management that addresses concerns such as the spread of Pinion/Juniper woodlands, cheatgrass proliferation, stand density and fuel build up in forested areas. Mechanical vegetation treatment, grazing and prescribed fire can be effective tools in the quest to establish resilient landscapes. It is the policy of Duchesne County to encourage active vegetation management on public lands, by the use of mechanized vegetation treatments, grazing, prescribed fire and other treatments that will result in resilient landscapes.

State of Utah Catastrophic Wildfire Reduction Strategy

Following a particularly severe fire season in 2012, the State of Utah formed a steering committee to prepare a Catastrophic Wildfire Reduction Strategy. The Steering Committee was chaired by the Director of the Department of Agriculture and Food and included representation from across the state. Committee members represented state and federal land management agencies, conservation and sportsmen's groups, the Governor's Office and county commissioners. Many on the committee had experience in preventing, suppressing and otherwise managing wildland fires in the state for decades. Other committee members had extensive land management expertise.

The committee was asked to advise the State about:

- Measures of success and an approach for adaptive implementation of the state strategy

- Identifying and overcoming barriers to successful strategy development and implementation

- Promoting awareness of existing efforts (e.g., Watershed Restoration Initiative, Utah's "Forest Action Plan," Secure Rural Schools program, National Cohesive Strategy, etc.) that may be leveraged to contribute to the success of the state's strategy

- Facilitating coordination of agency and stakeholder resources, and integration of management

- Developing shared messages and being spokespersons for and champions of the strategy to reduce the risk of catastrophic wildfire.

During the Catastrophic Wildfire Reduction Strategy process, six regional committees were formed to discuss regional issues in more detail and to recommend priority projects to reduce the threat of wildfire. Duchesne County is in the Uintah Basin region, which recommended one high priority wildfire mitigation project in the Dutch John area of Daggett County.

In developing the Utah Catastrophic Wildfire Reduction Strategy, the steering committee sought to understand the current fire management situation in the state. They also reviewed the goals of the National Cohesive Wildfire Management Strategy (to create landscapes that are resilient to fire-related disturbances, to help humans and infrastructure withstand fire without loss of life or property and to assist local jurisdictions in making safe, effective and efficient risk-based wildfire management decisions). Finally, the committee established a number of "guiding principles" as a framework for their deliberations:

- Identifying the gaps between the existing conditions and the desired conditions.

- Exploring alternative solutions to fill the gaps and reach desired conditions.

- Developing recommendations for action-oriented solutions to implement the strategy.

- Protecting health, safety and welfare of residents and visitors and protect key infrastructure.

- Addressing the underlying problem of improving forest, range, watershed and ecosystem health.

- Benefitting local economies and leveraging public dollars to implement the strategy.

- Recognizing regional differences and needs and seeking public support of solutions.

During the process, the Catastrophic Wildfire Reduction Strategy committee identified several issues that need to be addressed in the future:

- Many fires start as a result of weather conditions (lightning) and rugged conditions make their control difficult.

- Air support equipment is aging or being decommissioned.

- Policy impediments, such as insufficient regulation of land use in the wildland-urban interface, inadequate investment in fire prevention and fuel reduction activities, restrictive environmental laws and air quality laws that limit prescribed burns.

- Need to bolster coordination and cooperation with non-traditional land management entities and stakeholders, such as agricultural, recreation and environmental groups.

- Build public support and secure adequate funding for preventative measures, suppression and post-fire rehabilitation.

- Overcoming hurdles to using controlled burns as a tool to prevent catastrophic fire events.

- Landscape level issues such as fuel loads, invasive species, jurisdictional boundaries and insects and disease.

- Common failure to recognize grazing as an important tool to reduce fuels and fire risk.

- The decline of the timber industry has reduced the supply of businesses who could bid on forest treatment projects.

As a result of identifying the issues and constraints, the committee developed the following recommendations:

- Achieve statewide coordination of mitigation resources.

- Establish a Catastrophic Fire Reduction Fund.

- Establish regional collaborative working groups across the state to perform needs assessments and prioritize projects.

- Form a technical committee to respond to specific concerns of statewide importance.

- Adopt key recommendations from the National Cohesive Wildfire Management Strategy.

- Increase public understanding and participation, particularly to build public support for prescribed fire to reduce fuels and help prevent catastrophic fires.

- Implement the strategy and report annually to the Governor and Legislature about actions planned and taken.

Policy: It is the policy of Duchesne County to support the efforts and findings of the Catastrophic Wildfire Reduction Strategy committee and encourage measures locally to reduce fuel loads, regulate development in the wildland urban interface and otherwise protect life, safety and property from the effects of wildfire. This policy is not meant to oppose the use of fire managed for resource benefit (managed wildland fire, prescribed burns and training burns).

House Bill 464

The 2016 Utah Legislature took additional steps to address the issue of potential catastrophic wildfire on public lands in the state. House Bill 464 was passed and became law when signed by the Governor on March 22, 2016. The bill appropriated $200,000.00 for the Conservation Commission within the Utah Department of Agriculture and Food to work with Utah State University and local conservation districts to conduct a study and analysis of the environmental and economic impact of:

a. Potential catastrophic wildfires on public lands within Utah, including the impact to the state and the state's counties, of catastrophic wildfire on the state's watershed and air quality; and

b. Changing rangeland and forest management practices to reduce the probability and severity of wildfires in Utah.

The study and economic analysis funded by the bill is to:

a. Document historical acreage and severity of wildfires in Utah;

b. Assess and document differences in state and federal wildfire preparedness activities;

c. Update and expand upon existing studies of wildfire fuel loads on public lands, including consideration of insect damage, invasive species, grazing management, and timber management;

d. Assess the relative size, probability, and severity of wildfires on public lands in Utah, including consideration of factors that lead to wildfires, including biology and characteristics of land;

e. Identify the most cost-effective wildfire preparedness actions; and

f. Develop a statistical model that would allow public land managers to more efficiently allocate funds between wildfire expenditures and other expenditures.

Policy: It is the policy of Duchesne County to support the efforts associated with House Bill 464 to reduce the potential for resource damage associated with wildfires on public lands.

Fire Management and Sage Grouse

The Western Association of Fish and Wildlife Agencies has a Wildfire and Invasive Species Initiative Working Group that published a report in 2013 entitled *"Fire and Fuels Management Contributions to Sage Grouse Conservation."* This report concluded that "proactive measures in the fire operations and fuels management arenas are crucial to long-term sage-grouse conservation. Approximately 97% of initial attack efforts are successful at keeping fires under 1,000 acres. Site-appropriate measures before and after the fire represent the greatest opportunities to interrupt the invasive plant and wildfire cycle, and potentially augment initial attack effectiveness."

This working group also identified challenges and barriers affecting efficient fire and fuel management at the federal, state and local level. For counties, the following barriers and challenges were identified:

- Firefighter retention and the loss of institutional knowledge of managing wildfire;
- There is insufficient funding for preparedness and response capacity including training, heavy equipment/engines, PPE, radios, and facilities.
- Shortages of qualified wildfire management trainers, programs and inadequate delivery systems in rural areas create operational constraints.
- Inconsistent federal land management policies are negatively impacting the sustainability of multiple land uses on public lands.
- There is a significant need for developing and utilization of integrated and dynamic livestock grazing plans that assist with fuels reduction through targeted grazing and consistent monitoring.
- It is difficult to implement a landscape approach to fuels management because of challenges posed by environmental regulations, the availability of sufficient funding, the lack of qualified contractors and the complicated NEPA permit process.

The Utah Bureau of Land Management office has published data associated with their efforts to manage fuels for the benefit of sage grouse habitat ("*Fuels Management Benefits toward Sage-Grouse Habitat") at:* *https://www.forestsandrangelands.gov/success/stories/2015/documents/UtahBLMFuelsManagementSageGrouse20150128.pdf*. Quoting from this document, the BLM recognizes that one of the greatest single threats to the survival of the Greater Sage-Grouse is fire and invasive plant species.

The Bureau of Land Management (BLM) fuels management program involvement with Sage-Grouse spans all three National Cohesive Wildland Fire Management Strategy goals: Restoring

and Maintaining Fire Resilient Landscapes, Creating Fire Adapted Communities, and Responding to Wildfire.

The BLM Fuels Management Program cooperates extensively with other resource programs and external partners to conserve and maintain Sage-Grouse habitat by removing early to mid-phase pinyon-juniper encroachment, establishing fuel breaks in strategic locations to protect areas with sagebrush where large and destructive wildfires have occurred in the past and treating new non-native weed infestations.

The fuels program, in combination with the Emergency Stabilization and Rehabilitation (ESR) program, places priority on pro-actively working to restore Sage-Grouse habitat by increasing, at a landscape level, sagebrush cover through removal of late-phase pinyon-juniper encroachment, reducing cheatgrass cover and other non-native species cover, and increasing perennial grass/herbaceous, and sagebrush cover.

In the Green River Zone, which includes Duchesne County, Pinyon-juniper encroachment removal by mechanical means has been a major focus, along with the use of prescribed fire to ultimately reduce the size and intensity of wildfires. Between 2003 and 2014, BLM has spent $26,078,909 in Utah treating 334,136 acres of land to accomplish the purposes noted above.

Policy

It is the policy of Duchesne County to work with federal and state agencies, the Ute Tribe and other organizations to address the barriers and challenges associated with fire and fuels management in the interest of wildlife habitat and species conservation.

Water Considerations

Proper and effective fire management will reduce the amount of land scarred by fire. Lands where destruction of vegetation has occurred are more subject to erosion and sedimentation of waterways.

Policies:

1. It is the policy of Duchesne County that fire management shall take into account that healthy vegetation will reduce the chances for damaged water quality associated from erosion of soils in fire scarred areas.

2. It is the policy of Duchesne County that fire-damaged areas shall be re-vegetated with seedings or plantings as soon as possible after the fire event.

Section 20. Land Access

Findings: Duchesne County has a Transportation Plan (currently in draft form) that was prepared by Jones & DeMille Engineering for the Duchesne County Special Service District #2. This plan analyzes existing roadway and traffic conditions, looks at transportation projects needed to accommodate future growth [within a short range and long range transportation improvement plan], establishes management guidelines and policies and addresses access management and corridor preservation. This plan will be a stand-alone document considered for adoption via a public process separate from and following the 2017 general plan update.

While the Duchesne County Transportation Plan focuses on transportation facilities serving the entire county, this section focuses on the transportation system within Duchesne County that crosses federal lands.

RS 2477 Roads are defined as roads built prior to October 21, 1976, on rights-of-way across non-reserved federal lands granted in accordance with the Act of July 26, 1866. Roads are a vital part of the infrastructure of Duchesne County providing access to public lands for development of natural resources, agriculture, recreation, and the preservation of the county's culture and heritage. RS 2477 rights-of-way may include, and are not limited to, horse paths, cattle trails, irrigation canals, waterways, ditches, pipelines or other means of water transmission and their attendant access for maintenance, wagon roads, jeep trails, logging roads, homestead roads, mine to market roads and all other ways established and held consistent with Section 72-5-104 of the Utah Code.

Objective: Protecting Duchesne County citizens' vested rights of access to all publicly owned areas of the County. This is a responsibility of Duchesne County, to be executed through its duly elected board of county commissioners.

Public rights of way established under RS 2477 are not negotiable and cannot be subjugated or taken by any state or federal agency. They are vested property rights duly recognized in federal and state law.

RS 2477 is a property right claim of the public for transportation routes that cannot be given or taken away by any federal agency. Duchesne County acknowledges that in 1866 Congress granted access across federal land not otherwise reserved. The evidence of acceptance of that grant is the Duchesne County Transportation Map, renderings of historic documents, and the public's continued presence on and use of these routes. Duchesne County will continue to legally enforce and litigate for access as it has historically done. Duchesne County will also continue to support any action to legally dismiss the Federal Government from the public domain, and demand the disposal of Federal title to the land.

Title V grants to local county governments or the States are in perpetuity and do not diminish any RS 2477 claim or right of way. Nothing in Title V gives the Secretary of the Interior authority to arbitrarily close a road or a corridor once it is granted except by cooperation and coordination

with the government entity holding the Grant. In applying for a right of way, or other use of lands under Title V of FLPMA consistent with section 72-3-108 of State Statue, Duchesne County does not relinquish its rights to the land, its use or property ownership under RS 2477 or any other law, regulation or Act. Further, a federally sanctioned gating, road use prohibition or any other Federal action taking the public's existing rights to access is not acceptable and constitutes a threat to the health, safety and welfare of Duchesne County citizens and others who travel such routes. Duchesne County will not in any manner exchange or waive any of its public or of its individual citizen's rights for any permission or consent from the Federal Government or any of its agencies.

It is the policy of Duchesne County that:

1. Access to and across public lands, including RS2477 roads and rights-of-way shall remain open. The right of the public to have unrestricted access to all roads granted under R.S. 2477 or FLPMA Title V shall be held inviolate. As a co-holder of R.S. 2477 rights-of-way with the State, Duchesne County supports the recognition by the federal government of the public use of R.S. 2477 rights-of-way and urges the federal government to fully recognize the rights-of-way and their use by the public as expeditiously as possible.

2. All necessary action will be taken to protect access. It is the policy of Duchesne County to use reasonable administrative and legal measures to protect and preserve valid existing rights-of-way granted by Congress under R.S. 2477 and to support and work in conjunction with the State of Utah to redress cases where R.S. 2477 rights-of-way are not recognized or are impaired.

3. The county will identify and inventory roads and participate with federal and state land management agencies in decision-making.

4. Transportation and access routes to and across federal lands, including all rights-of-way vested under R.S. 2477, are vital to the economy and to the quality of life in the County and must provide, at a minimum, a network of roads throughout the resource planning area that provides for:

    a. Movement of people, goods, and services across public lands;

    b. Reasonable access to a broad range of resources and opportunities throughout the resource planning area, including:

        1. Livestock operations and improvements;

        2. Solid, fluid, and gaseous mineral operations;

        3. Recreational opportunities and operations, including motorized and non-

motorized recreation;

4. Search and rescue needs;

5. Public safety needs (including firefighting and EMS); and

6. Access for transportation of wood products to market;

7. Access to federal lands for people with disabilities and the elderly; and

8. Access to state lands and school and institutional trust lands to accomplish the purposes of those lands.

5. Access and transportation needs shall be considered, evaluated and analyzed in the land use planning process. No roads, trails, rights-of-way, easements or other traditional access for the transportation of people, products, recreation, energy or livestock may be closed, abandoned, withdrawn, or have a change of use without full public disclosure and analysis.

6. Future access must be planned and analyzed to determine its disposition at the completion of its intended life. This is to ensure needed access is maintained or that such access is removed and resulting disturbances are reclaimed.

7. Access to all water related facilities such as dams, reservoirs, delivery systems, monitoring facilities, livestock water and handling facilities, etc., must be maintained. This access must be economically feasible with respect to the method and timing of such access.

The County has undertaken efforts over the past several years to identify and plot the location of all Class B and Class D roads that are legitimately part of Duchesne County's transportation system. The County has prepared a map of its current transportation system in areas within the stewardship of the Bureau of Land Management, setting forth all roads claimed by the County as part of its transportation system (see Map #43). The map includes but is not limited to all roads claimed by Duchesne County pursuant to RS-2477. It is expected that the Bureau of Land Management will conform the transportation provisions of the Resource Management Plan to be consistent with this map, as required by FLPMA Section 1712(c)(9). It is also expected that when such mapping is completed for areas under the stewardship of the United States Forest Service, that the Forest Service will conform the transportation provisions of its forest plans to be consistent with such a map.

Roadless Areas

Policies: Duchesne County opposes any additional evaluation of national forest service lands as "roadless" or "un-roaded" beyond the forest service's second roadless area review evaluation and

opposes efforts by agencies to specially manage those areas in a way that:

1. Closes or declassifies existing roads unless multiple side by side roads exist running to the same destination and state and local governments consent to close or declassify the extra roads;

2. Permanently bars travel on existing roads;

3. Excludes or diminishes traditional multiple-use activities, including grazing and proper forest harvesting;

4. Interferes with the enjoyment and use of valid, existing rights, including water rights, local transportation plan rights, R.S. 2477 rights, grazing allotment rights, and mineral leasing rights; or

5. Prohibits development of additional roads reasonably necessary to pursue traditional multiple-use activities.

Duchesne County calls for the re-inventory, boundary adjustment, consolidation or deletion of the Inventoried Roadless Areas within or partially within the County and their suggested future management classifications as set forth in Appendix D of this plan.

Duchesne County supports efforts by the State of Utah to petition the Department of Agriculture and Congress to establish new management provisions for Inventoried Roadless Areas across the state, incorporating the recommendations set forth in Appendix D.

Road Closures

Findings: There is overwhelming public support for the preservation of access routes across public lands. A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 46) that only 8.7% of the survey respondents in the Daggett-Duchesne-Uintah County area believed that public land managers should moderately (6.5%) or substantially (2.2%) reduce their emphasis on providing road access to recreation areas when making decisions about how to manage public lands in Utah.

Policies:

1. All rights of Duchesne County and the State of Utah in and to roads, ways and routes crossing federal may be revoked only in compliance with Utah Code Section 72-5-105 and by formal action of the Board of Duchesne County Commissioners to abandon such route as a public way pursuant to Utah Code Section 72-3-108 and consistent with the principles of due process enshrined in the Constitutions of the United States and the State of Utah.

2. Duchesne County shall continue to enforce its access and travel rights, resist any federal efforts to interfere with or erode those rights, and press all means of litigation to legally redress those rights.

3. In accordance with Section 63J-8-104 (h) of the Utah Code, it is the policy of Duchesne County that federal land management agencies shall:

    a. Keep open to motorized travel, any road in the subject lands that is part of Duchesne County's duly adopted transportation plan;

    b. Provide that R.S. 2477 rights-of-way should be recognized by the BLM;

    c. Provide that a county road may be temporarily closed or permanently abandoned only by statutorily authorized action of the county or state;

    d. Provide that the BLM and the Forest Service must recognize and not unduly interfere with a county's ability to maintain and repair roads and, where reasonably necessary, make improvements to the roads; and

    e. Recognize that additional roads and trails may be needed in the subject lands from time to time to facilitate reasonable access to a broad range of resources and opportunities throughout the subject lands, including livestock operations and improvements, solid, fluid, and gaseous mineral operations, recreational opportunities and operations, search and rescue needs, other public safety needs, access to public lands for people with disabilities and the elderly, and access to Utah school and institutional trust lands for the accomplishment of the purposes of those lands.

Energy Considerations

Findings: Land access is important to allow for development of the vast energy resources existing in Duchesne County.

Policy: It is the policy of Duchesne County to assert the public's right to travel over federal lands under the RS 2477 statute or by acquisition of Title V rights of way.

Water Considerations

Policy: It is the policy of Duchesne County that land access shall be maintained in a manner, using sound engineering and mitigation practices, that does not degrade water quality.

Section 21. Cultural, Historical, Geological and Paleontological Resources

Findings: The Uintah Basin and its counties have a large quantity and variety of cultural and historical resources.

Cultural History: According to the Utah Division of State History, the history of the Uintah Basin is broken down into five major periods: 1) the Paleo Archaic period (ca. 10,000–6000 B.C.), 2) the Archaic period (ca. 6000–500 B.C.), 3) the Formative period (ca. 500 B.C.–A.D. 1300), 4) the Protohistoric or Historic Ute period (ca. A.D. 1300–1800), and 5) the Historic Euro-American period (ca. 1800–present). Sites from the Formative and Historic Euro-American periods dominate the archaeological and historical record in the Uintah Basin and include resources such as granaries, rock art, villages (as seen in sites found in Nine Mile Canyon), ranches, irrigation systems, and forts (as seen in Fort Duchesne).

Other researchers offer a slightly different view of the Cultural History of the region. The following general chronological description of cultural activities, focusing on the area of the Ashley National Forest (part of which is in Duchesne County), is derived from publications prepared for and published by the USDA Forest Service, authored by Byron Loosle, Clay Johnson and others.

The Paleoindian Period (10,000 BC - 6,500 BC)

The Paleoindian period represents the earliest occupation of the Ashley National Forest (ANF). This period commenced with the arrival of humans in the area around 10,000 BC and concluded around 6,500 BC. The Paleoindian people are generally characterized as highly mobile, following and primarily subsisting on herds of now-extinct megafauna that were killed with spears, and later, with atlatl darts. The Paleoindian period is represented on the Ashley NF by infrequent surface finds.

The Archaic Period (6,500 BC to AD 100)

The Archaic period (6,500 BC – AD 100) was characterized by modern flora and fauna, a broad spectrum of which was utilized by foraging Archaic peoples. Seasonal rounds were timed to exploit peaking plant and animal resources. In mountainous areas, peak availability of some resources varies with elevation; seasonal travel to various elevations could exploit this extended period of availability. Exploitation of various elevations also varied in response to climate change. At least some Archaic groups were seasonally (winter) sedentary in the lowlands. Typical artifacts or features include rock lined storage and thermal features (including slab-lined basins), basketry, nets, snares, groundstone, atlatls and darts, stemmed, comer-notch and side-notch projectile points, scrapers and occasional rock art. Caves and rock shelters were utilized, but ephemeral (brush structure) and more permanent (pit house) habitations were also constructed.

Early Archaic components at Dutch John were activity areas and relatively substantial brush structures with internal hearths and pits, groundstone and large side notch points, bracketed by (I-sigma range) dates of 8005 and 6605 Cal BP (before present). Late summer or fall season occupation appears to have focused on a combination of plant seeds and fauna) (predominantly Artiodactyl) resources. These structures and activity areas may represent a strategy of central place foraging. Later Archaic era components bracketed by (I –sigma range) dates of 4610 and 3290 Cal BP at Dutch John were typically slab-lined basins in open situations, representing a highly mobile strategy focused on late winter or early spring season processing of roots, tubers, and possibly cactus pads. Elko series projectile points replaced large side-notch points during the Late Archaic period. At Dutch John, hearth and roasting pit components in two rock shelters were bracketed by (I-sigma range) dates of 2784-1880 Cal BP. Dramatic changes in mobility and feature type documented at Dutch John supported subdivision of the Archaic era into the Early Archaic period (8000-5000 Cal BP) and the Late Archaic period (5000-2000 Cal BP) in the eastern Uintas.

The Fremont Period (AD 100 to 1350)

Around AD 100, the bow and arrow and cultigens appear in the region. For the following thousand years, a pattern prevails of increased sedentism and cultigen use, with a series of new traits added over time. In northeastern Utah this period and culture is known as the Fremont. Although variable with location and elevation, Fremont sites tend to feature some combination of cultigens, ceramics, architecture, constructed storage facilities, and distinctive rock art. In general, lowland sites tend to have the most evidence of sedentary occupation and the most extensive material inventory. Between AD 1100 and AD 1350, the Fremont pattern of cultigen use and traits including projectile point types, ceramic types, and farming appears to vanish from the region. Decreased sedentism and cultigen reliance thereafter are coupled with reduced storage and changes in occupation type, projectile points, ceramics, rock art and basketry techniques.

Evidence of the Uinta Fremont variant, representing Fremont occupation in northeastern Utah, is most prevalent on the northern edge of the Uinta Basin, along the foot of the Uintas south slope. Introduction of corn and the bow and arrow probably occurred around AD 100 and ceramics by AD 400. Lowland occupation typically occurred as small clusters of pit houses. Large lowland villages have not been securely identified, although occupational density did increase after AD 600. Occupational density as measured by radiometric dates from the Uinta Basin peaks between AD 600 and AD 1100 then declines abruptly. At Dutch John, brush structures and open campsites with hearths and roasting pits indicate short duration camps bracketed by (I-sigma range) dates of 1750 Cal BP and 925 Cal BP. Rose Spring Corner-notch points are indicative of bow and arrow technology. Limestone tempered ceramics, more formal metates and corn occur in brush structures dating late in the period (I-sigma range brackets of 1105-925 Cal BP). Based on the Dutch John excavations and on proxy data from the surrounding areas, the Formative period interval is between AD 100 and AD 1350.

The Late Prehistoric Period (AD 1300 to 1600)

Between AD 1100 and AD 1350 the people in the Uinta Basin and along the Green River abandoned corn horticulture and returned to a strategy of hunting and gathering foods. A lifestyle of hunting and gathering results in greater mobility and a change from sedentary villages to more seasonal hunting camps scattered across the landscape. Mobility also necessitates a reduction in personal materials and saw the abandonment of the Fremont ceramic tradition. Between AD 1300 and AD 1500, the archaeological record is very sparse, but shows that people during the period we call the "Late Prehistoric" used the bow and arrow for hunting (desert side notch and cottonwood triangular points) and gathered available plants and seeds. They used very expeditious thick-walled earthenware ceramics called "Intermountain Brownware," and built temporary shelters of brush and logs. The invasion of European peoples in the Americas commenced multiple changes that were to indirectly change the Ute way of life. European diseases spread across the Americas during the 1500s and changed lifeways and patterns with massive deaths of native peoples. The Late Prehistoric peoples are most likely also the ancestors of the Ute and Shoshone people who were encountered by Euro-American explorers in the 1700 and 1800s.

The Ute (AD 1600 to Present)

The Ute people inhabited much of the Colorado Plateau and are most likely descendants of the people living in the area during the "Late Prehistoric" period. The Ute hunted and gathered native plants and animals with highly mobile family groups. The introduction of the horse, especially after the pueblo revolt in 1680 changed the Ute lifestyle more dramatically than almost any other event. The introduction of European trade goods, such as metal axes and knives, metal arrowheads, and firearms forever changed the native inhabitants of the area. The Ute people maintained many cultural traditions and practices, but the influence of European animals, plants, diseases, and materials were forces of change that are not completely understood.

European Contact (AD 1536 to 1847)

The year 1492 commenced a period of massive changes across the American continent as European peoples began to exploit available resources and claim lands inhabited by indigenous peoples. From 1536 to 1821, most of the western United States, including the plan area, was claimed by the kingdom of Spain. Locally, the Ute and Eastern Shoshone Indians were not directly affected by the claims of Spain, but were affected by the spread of horses, trade goods, and the spread of European diseases.

Native Americans in northeastern Utah and surrounding areas were Numic-speaking Ute, Shoshone, and (possibly) Comanche, many of whom practiced a mobile foraging lifeway over large areas, often using horse transportation. Little or no written evidence survives from 1776 to 1821, when the area was under Spanish rule. The few Spanish trade routes or exploration parties (such as Escalante and Dominquez in 1776) were closely controlled by the Spanish government. The area was closed to exploration by people of other nationalities during that period.

In 1821, Mexico (including what is now Utah) gained independence from Spain. Mexican control of trade was very lax and the Rocky Mountains experienced an influx of Euro-American fur trappers hoping to take advantage of the abundance of fur bearing animals in an area, now void of Spanish rule. Americans, French and British fur trappers quickly began to explore Mexico's northern territory. Trade with the American Indians was enhanced by the establishment of trading posts along the Green River. Henrys Fork, Little Hole and Dutch John Flat, and Browns Hole provided somewhat temperate microclimates where winter months were a little easier. During the fur trapping era, Browns Hole (later in the century to be known as Browns Park) was occupied by Shoshone and Ute Indians, with the Shoshone also occupying the Henrys Fork area. In 1827, Fort Davy Crockett, a fur trading post in Browns Hole, was established.

By the mid-1840s the region's fur bearing animals had been over-exploited and the demand for lucrative beaver pelts had declined because of fashion changes in Europe. Trade relationships with the Utes and other tribes soured when Euro-American trappers were no longer willing to pay for pelts brought by the native people. Euro-American trading posts and forts, such as Fort Robidoux near Whiterocks, were burned by disillusioned Utes and the trade networks were essentially dissolved.

Euro-American Settlement and the Displacement of the American Indian (1847 to 1882)

The arrival of thousands of Euro-American Mormon settlers along the Wasatch Front beginning in 1847 set off a series of conflicts between the new arrivals and the Ute bands already living in the Utah and Salt Lake Valleys. Utah and the surrounding areas were ceded to the United States from Mexico in 1848 and westward expansion, settlement, and development by Euro-American Immigrants began with a fury.

In order to solve the land conflicts between the Ute bands and the newly arrived Euro-Americans, the U.S. Government set aside much of the Uinta Basin as a reservation for the Utes. The Uinta Basin had been previously surveyed by Mormon settlers and deemed undesirable for Euro-American settlement. By 1865, all Utes along the Wasatch Front were being moved to the Uinta Valley Reservation. In a similar way, Ute Bands in Colorado were also moved onto two Reservations, one on the White River and one near the Uncompahgre River.

Captain Parson Dodds, the first Indian agent on the newly created Uintah Valley Indian Reservation, arrived in late 1868 with seven other employees at Whiterocks, known originally as Uintah Valley. Whiterocks was the Indian agency's permanent headquarters and, by the following year, it was Uintah County's first Euro-American settlement. Dodds, recognizing the agricultural potential of the area, chose to settle near the reservation in 1873 after completing his term as Indian agent. Other Euro-American immigrants followed Dodds to Ashley Valley soon thereafter and started the Ashley settlement.

In Colorado, at the White River Agency headquarters, the Ute bands became upset with Agent Nathan Meeker's attempts to reform them into an agricultural society. In September of 1879, when Meeker plowed under their favorite pasture used for horse racing, one of the chiefs didn't

appreciate his heavy handedness and walked into the agency headquarters and gave Mr. Meeker a terrific beating. Meeker called for military protection and Major Thomas Thornburgh and four cavalry companies (about 140 men) were dispatched from Fort Steel, Wyoming to protect Meeker. When the White River Utes learned that troops were being sent to the reservation, they immediately began to prepare to defend their land. When the military column arrived, Thornburgh and his men were met by over 700 mounted Utes. Sixteen soldiers died, including Thornburgh, and 43 were wounded. At the same time, Meeker and 10 employees were killed at the Agency.

Colorado settlers in the area immediately declared that the Utes were in open rebellion and called for their removal. By 1882, additional lands were added to the Uintah Valley Reservation and the Utes on the White River Reservation were forced to leave their homelands and move to the Uintah Basin. Euro-American settlers in Colorado and the Colorado State Governor also insisted that the Utes on the Uncompahgre Reservation, led by Chief Ouray and his wife Chipeta, also be moved to the Uinta Basin, even though they had not been involved with the Meeker incident nor had they been uncooperative with reservation administrators. After the Utes from the reservation in Colorado were moved to the Uinta Basin, their reservation lands in Colorado were opened up for Euro-American settlement.

Starting In 1894, congress passed several bills that allotted a specified number of acres to each adult male Ute Indian, and then opened up the rest of the Uintah Valley reservation for Euro-American settlement. In 1934, congress passed the Indian Self Determination Act which allowed American Indian Tribes to develop their own constitution and be relatively self-governing. All remaining un-allotted (public) lands within the original Uintah Valley treaty boundary were recognized as tribal property.

Cultural and Historic Resources

Cultural and historical resources are defined as the physical evidence or place of past human activity, such as a site, an object, a landscape, or a structure. Archaeological sites and historic built environments (such as buildings) are two of the most common types of cultural and historical resources.

Cultural and historical resources can be further defined as non-archaeological sites and non-structural sites (such as waterways, viewsheds, and resource procurement areas) that have been identified as important for traditional and/or ideological reasons by either Native American groups or other organizations with ancestral and/or present ties to an area.

Federal laws, procedures, and policies affecting the treatment of cultural resources include the Antiquities Act of 1906, Public Law 59-209, Executive Order 11593, Section 106 of the National Historic Preservation Act (NHPA) of 1966 (Public Law 91-190), the Federal Land Policy Management Act (Public Law 94-579), and 36 Code of Federal Regulations (CFR) 60 and 36 CFR 800. The American Indian Religious Freedom Act (42 United States Code [USC] 1996) has also been established to protect religious practices, ethnic heritage sites, and land uses of

federally recognized Native Americans. The Native American Graves Protection and Repatriation Act applies to human remains found on federal lands.

Duchesne County is blessed with a concentration of historic and archaeological resources. These resources are located in towns, cities, and main streets, as individual sites or grouped in historic districts. Others are scattered throughout the County in the form of rock art, archaeological structures, archaeological sites of scientific importance, and historic landscapes or settings. As we know from experience, any great community (or county) is enhanced by looking to its future and new development but also by keeping a steady hand on its past. History can become an enhancer for our quality of life and a stimulator for economic development. Businesses in some industries often look for historic settings in historic buildings in order to provide character, the sense of stability, and a unique marketing angle for their products and services.

This requires a balance and a careful planning approach. All too often, we find ourselves in a situation where we tear down the old in the name of progress, only to realize too late that the old could have been a better economic stimulus than the new. Or we find ourselves so encumbered by the past and that new is not entertained. If we create a balance and dialogue between old and new, we can take advantage of the benefits of both. The new can be given broader character by referring to heritage and tradition, while the old can be reinvigorated by new development. Utah Code 9-8-401 states, “The Legislature determines and declares that the public has a vital interest in all antiquities, historic and prehistoric ruins, and historic sites, buildings, and objects which, when neglected, desecrated, destroyed or diminished in aesthetic value, result in an irreplaceable loss to the people of this state.”

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.

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.

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. Duchesne County was made a CLG in 1986, and Duchesne City received that designation in 1993. While both of these organizations have not been active recently, a CLG designation with an ordinance and a commission allows these communities to apply for grants

through UDSH to conduct historic preservation activities such as building rehabilitations, planning, and others.

In historic preservation, there are many issues and trade-offs to consider. Does the historic resource add to the quality of life of the county? Are these historic sites, settings and landscapes an important factor in the quality of life and why people want to live/move here? Are there ways to include new with old, where the new is compatible and yet functional? Does the old prevent us from needed new development, or can new development and old development exist together with creative design? Do the historic resources and archaeological sites add value to an economic development plan?

Energy development may need to be designed in a way that considers the past and archaeology in particular. The co-existence of archaeology and energy development can create conflicts, which with advanced planning can be minimized or removed.

New business development needs resources and careful planning in order to keep as much of the old as possible when it has been determined it is important, so that old and new complement each other.

The full range of choices should be examined with respect to historic and archaeological resources because they are finite and can be lost without careful planning. The County needs to explore all options for keeping and enhancing its historic and archaeological heritage while providing for growth and new development. Options may include locating new development in areas without significant resources, or designing new projects so that historic resources are maintained and enhanced. National Register resources do not limit property right or development options, but should be taken into account because of the historic value they add to a community.

As found in a recent study promoted by the Utah Heritage Foundation and the Utah Division of State History, entitled "Profits through Preservation" (found at utahheritagefoundation.org) the economic benefits of historic preservation and tourism are significant. In this study, the researchers found that there 7.2 million visitors to Utah's heritage sites and events with over $717 million in direct and indirect expenditures. Unfortunately, most of this heritage tourism is centered in communities outside Duchesne County.

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.

Duchesne County recognizes the need to preserve its cultural heritage and foster the economic potential tied to heritage tourism. Culture refers to the integrated pattern of human knowledge, belief, and behavior that depends upon man's capacity to learn and transmit knowledge to succeeding generations.

Once land is settled and subsequent generations come and go, the ensuing culture becomes attached to the land. Such ties transcend the physical or tangible relationship wherein man walks, tills and otherwise works the land; thus becoming implicit in the soul of people to make up the patina that colors and gives character to their heritage. It is these "intangible" elements that place significance upon environmental features and attendant life ways. Indeed, the lay of the land, its plants and animals, and even its unrelenting weather patterns, serve as metaphorical images to guide the people. As born out in vernacular phrases such as "Times back then were tough," it is important to keep alive the tacit understanding of what it means to belong to a certain area such as Duchesne County.

Duchesne County recognizes that County culture is among its most valued and important assets. It is the intent of the County to protect and enhance its natural environment, identify, preserve, protect and enhance its historic buildings, structures, sites, objects, and districts, and to guard and foster traditional ways of life rising out of the history attached thereto and forming the basis upon which its heritage rests.

Natural landforms and wildlife species often serve as touchstones to community life and values. Livestock grazing, farming, mining and other mineral extraction, along with other endeavors have left an imprint on the landscapes of the west and form the core of an old and enduring economic and cultural heritage for residents of Duchesne County. Detachment to the land creates a phenomenon known as "extinction of experience," and brings about a great cultural loss of stories and meanings tied to the land and nature. Once these reservoirs of folklore and cultural understanding have been dissipated, it is increasingly hard to replenish them.

Structural objects are crafted from the materials of nature and the local environment and display cultural and individual distinctiveness that often serve as symbols of personal, occupational, and regional identity. Many sites represent a unique settlement history that is closely related to prehistoric Indians and early homesteaders. Camp sites, pit houses, artifacts, trails, ceremonial and religious sites, burials, out-buildings, hay derricks, canals, sheds, fence forms, and other contrivances of man fall within the realm of cultural heritage and should be preserved.

The NHPA is the basis for cultural and historical preservation and defines the responsibility of federal agencies for protection and preservation of cultural and heritage resources. The standards and guidelines established by the Bureau of Land Management (BLM) take this into consideration and are used to assist with inventorying and evaluating cultural and historical resources (BLM 2004).

The National Register of Historic Places (NRHP) lists properties that have been found eligible through the Section 106 process.

Table CHP1 provides the following information for the 37 NRHP listed properties in Duchesne County:

- The name of the property (if applicable)
- The date the property was constructed (if known)
- A brief description of its original use (if known)
- The city that the property is located in
- The Utah Division of State History Record ID number
- The property's NRHP register number
- The property's current NRHP status

Table CHP1. NRHP-Listed Properties in Duchesne County

Property Name or ID Number	Construction Date	Original Use	City	UDSH Property Record ID	NRHP Register Number	NRHP Status
Centennial House	–	Archeology Site	Nine Mile Canyon	–	09001042	Listed
Fool's Pinnacle	–	Archeology Site	Nine Mile Canyon	–	09001041	Listed
Indian Canyon Guard Station	1914	Institution housing	N/A	46325	N/A	Listed
Karen's Cist	–	Archeology Site	Nine Mile Canyon	–	09001043	Listed
Maxie's Pad	–	Archeology Site	Nine Mile Canyon	–	09001044	Listed
Nordell's Fort	–	Archeology Site	Nine Mile Canyon	–	09001045	Listed
Redman Village	–	Archeology Site	Nine Mile Canyon	–	09001047	Listed
Simmons Ranch	1913/1920	Agriculture storage	N/A	55192	92000463	Listed
Stockmore Ranger Station	1914	Institution housing	Stockmore	70858	99001293	Listed
Sunstone Village	–	Archeology Site	Nine Mile Canyon	–	09001046	Listed

Table CHP1. NRHP-Listed Properties in Duchesne County

Property Name or ID Number	Construction Date	Original Use	City	UDSH Property Record ID	NRHP Register Number	NRHP Status
Taylor's City	–	Archeology Site	Nine Mile Canyon	–	09001048	Listed
42DC306	–	Archeology Site	Nine Mile Canyon	–	09001040	Listed
42DC331	–	Archeology Site	Nine Mile Canyon	–	12000772	Listed
42DC530	–	Archeology Site	Nine Mile Canyon	–	12000773	Listed
42DC638	–	Archeology Site	Nine Mile Canyon	–	09001039	Listed
42DC645	–	Archeology Site	Nine Mile Canyon	–	12000774	Listed
42DC682	–	Archeology Site	Nine Mile Canyon	–	09001026	Listed
42DC683	–	Archeology Site	Nine Mile Canyon	–	09001027	Listed
42DC684	–	Archeology Site	Nine Mile Canyon	–	09001038	Listed
42DC685	–	Archeology Site	Nine Mile Canyon	–	09001037	Listed
42DC686	–	Archeology Site	Nine Mile Canyon	–	09001036	Listed
42DC687	–	Archeology Site	Nine Mile Canyon	–	09001035	Listed
42DC688	–	Archeology Site	Nine Mile Canyon	–	09001034	Listed
42DC696	–	Archeology Site	Nine Mile Canyon	–	09001025	Listed
42DC700	–	Archeology Site	Nine Mile Canyon	–	09001025	Listed
42DC702	–	Archeology Site	Nine Mile Canyon	–	09001033	Listed
42DC703	–	Archeology Site	Nine Mile Canyon	–	09001031	Listed
42DC704	–	Archeology Site	Nine Mile Canyon	–	09001030	Listed
42DC705	–	Archeology Site	Nine Mile Canyon	–	09001023	Listed
42DC708	–	Archeology Site	Nine Mile Canyon	–	09001029	Listed
42DC709	–	Archeology Site	Nine Mile Canyon	–	09001028	Listed

Table CHP1. NRHP-Listed Properties in Duchesne County

Property Name or ID Number	Construction Date	Original Use	City	UDSH Property Record ID	NRHP Register Number	NRHP Status
42DC710	–	Archeology Site	Nine Mile Canyon	–	09001029	Listed
42DC712	–	Archeology Site	Nine Mile Canyon	–	09001032	Listed
42DC1302	–	Archeology Site	Nine Mile Canyon	–	12000775	Listed
42DC1618	–	Archeology Site	Nine Mile Canyon	–	12000776	Listed
42DC1619	–	Archeology Site	Nine Mile Canyon	–	12000758	Listed
42DC1620	–	Archeology Site	Nine Mile Canyon	–	12000837	Listed

Occasionally, resources managed by agencies are not included in the most up-to-date NRHP listing. This is usually the result of batch nominations, that is, properties submitted to the SHPO in groups (usually as multiple properties listings) for the SHPO's review and evaluation. These batches are usually only submitted to the SHPO on an "as-needed basis.

The Bureau of Land Management (BLM)'s Vernal Field Office recently submitted such a batch nomination to the SHPO for properties associated with the West Tavaputs Programmatic Agreement (PA). The work conducted for this PA identified 445 NRHP-evaluated properties within the Nine-Mile Canyon Area that have been recommended eligible for the NRHP. Although they may not be included in the most up-to-date NRHP listing, their NRHP status should be considered "pending".

The preservation of historic properties and cultural landscapes has the potential to add economic value to an economy by balancing preservation and need. A county that is a certified local government (CLG) with a historic preservation committee can apply for federal grants and gain the tools and resources needed to integrate historic buildings into the community's social and economic fabric. Supporting information and a model Historic Preservation Ordinance are found on the Utah Division of State History website.

Geological and Paleontological Resources

Findings: Fossils are the remains or traces of organisms preserved in the earth's crust, and paleontology is the study of these fossils. Through scientific study of carefully collected and preserved fossils, we gain a better understanding of the history of life on earth.

Human development of the earth's surface can be detrimental to fossils if the development includes surface-disturbing activities in areas containing important fossils. Paleontological

issues include: (1) avoiding destruction of scientifically important fossils, (2) identifying areas having scientifically important fossils, (3) collecting (removing) and preserving scientifically important fossils, and (4) allowing and maintaining access to scientific study of important fossils.

Both the Federal Government and State Government have laws and rules regarding the collection, preservation, and curation of fossils, while allowing for personal, professional and academic study and research. In general, personal hobby collecting of invertebrate and plant fossils (for example, clams and leaves) is legal on many State and Federal lands, but collection of vertebrate fossils (for example, dinosaurs) requires that a detailed permit be issued by the land's governing agency. Destruction of vertebrate fossils originating on state and federal lands in Utah is illegal. State and federal fossil resource laws do not pertain to private lands. The state law does apply, at least in part to county-owned lands as well.

Utah State Code (63-73-11 through 63-73-19) states that paleontological resources are important and requires the preservation of critical fossil resources on State lands. The Code mandates that those removing or excavating critical fossils on State lands be qualified and permitted under joint jurisdictional cooperation from: the Utah Geological Survey (UGS), Utah Museum of Natural History, and the School and Institutional Trust Lands Administration. State Code (53B-17-603) also requires that important extracted fossils be curated by an approved and qualified institution. The BLM and Forest Service have similar laws concerning the collection of vertebrate fossils on federal lands.

Federal laws, policies, and guidelines affecting fossil resources include the Paleontological Resources Preservation Act (PRPA) of 2009. The PRPA is codified in Title VI of the Omnibus Public Lands Management Act of 2009 (Public Law 11- 011, Title VI, Subtitle D), which defines paleontological resources, resource-use permit criteria, requirements for curation, and the criminal and civil penalties. In addition, the Federal Land Management and Policy Act of 1976 (Public Law 94-579; 90 Stat. 2743; USC 1701–1782), the National Environmental Policy Act (Public Law 91-190; 31 Stat. 852; 42 USC 4321–4327), and general procedural guidelines for management are provided in the BLM's Instructional Memorandum (IM) 2008-009 (2007), Manual H-8270-1 (BLM 1998), and IM 2009-011 (BLM 2008), which define management, preservation, and protection of paleontological resources.

The Bureau of Land Management has classification and assessment & mitigation guidelines in their Handbook for Paleontological Resource Management, which is currently under revision. The Society of Vertebrate Paleontology has also adopted Standard Guidelines for the Assessment and Mitigation of Paleontological Resources.

The 2008 Resource Management Plan for the Vernal BLM Field office and BLM Instruction Memorandum #2016-124 provide details on the Potential Fossil Yield Classification (PFYC) system that is used to classify paleontological (fossil) resource potential on BLM lands in Duchesne County and elsewhere. The system establishes levels of potential as follows:

Class 1 – Very Low. Geologic units that are not likely to contain recognizable paleontological resources. Units assigned to Class 1 typically have one or more of the following characteristics:

1. Geologic units are igneous or metamorphic, excluding air-fall and reworked volcanic ash units.

2. Geologic Units are Precambrian in age.

Management concerns for paleontological resources in Class 1 units are usually negligible or not applicable. Paleontological mitigation is unlikely to be necessary except in very rare or isolated circumstances that result in the unanticipated presence of paleontological resources, such as unmapped geology contained within a mapped geologic unit. For example, young fissure-fill deposits often contain fossils but are too limited in extent to be represented on a geological map; a lava flow that preserves evidence of past life, or caves that contain important paleontological resources. Such exceptions are the reason that no geologic unit is assigned a Class 0.

Overall, the probability of impacting significant paleontological resources is very low and further assessment of paleontological resources is usually unnecessary. An assignment of Class 1 normally does not trigger further analysis unless paleontological resources are known or found to exist. However, standard stipulations should be put in place prior to authorizing any land use action in order to accommodate an unanticipated discovery.

Class 2 – Low. Geologic units that are not likely to contain paleontological resources. Units assigned to Class 2 typically have one or more of the following characteristics:

1. Field surveys have verified that significant paleontological resources are not present or are very rare.

2. Units are generally younger than 10,000 years before present.

3. Recent Aeolian deposits.

4. Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely.

Except where paleontological resources are known or found to exist, management concerns for paleontological resources are generally low and further assessment is usually unnecessary except in occasional or isolated circumstances. Paleontological mitigation is only necessary where paleontological resources are known or found to exist.

The probability of impacting significant paleontological resources is low. Localities containing important paleontological resources may exist, but are occasional and should be managed on a case-by-case basis. An assignment of Class 2 may not trigger further analysis unless

paleontological resources are known or found to exist. However, standard stipulations should be put in place prior to authorizing any land use action in order to accommodate unanticipated discoveries.

Class 3 – Moderate. Sedimentary geologic units where fossil content varies in significance, abundance, and predictable occurrence. Units assigned to Class 3 have some of the following characteristics:

1. Marine in origin with sporadic known occurrences of paleontological resources.

2. Paleontological resources may occur intermittently, but abundance is known to be low.

3. Units may contain significant paleontological resources, but these occurrences are widely scattered.

4. The potential for an authorized land use to impact a significant paleontological resource is known to be low-to-moderate.

Management concerns for paleontological resources are moderate because the existence of significant paleontological resources is known to be low. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for casual collecting. Paleontological mitigation strategies will be proposed based on the nature of the proposed activity.

This classification includes units of moderate or infrequent occurrence of paleontological resources. Management considerations cover a broad range of options that may include record searches, pre-disturbance surveys, monitoring, mitigation, or avoidance. Surface-disturbing activities may require assessment by a qualified paleontologist to determine whether significant paleontological resources occur in the area of a proposed action, and whether the action could affect the paleontological resources.

Class 4 – High. Geologic units that are known to contain a high occurrence of paleontological resources. Units assigned to Class 4 typically have the following characteristics:

1. Significant paleontological resources have been documented, but may vary in occurrence and predictability.

2. Surface disturbing activities may adversely affect paleontological resources.

3. Rare or uncommon fossils, including non-vertebrate (such as soft body preservation) or unusual plant fossils, may be present.

4. Illegal collecting activities may impact some areas.

Management concerns for paleontological resources in Class 4 are moderate to high, depending on the proposed action. Paleontological mitigation strategies will depend on the nature of the proposed activity, but field assessment by a qualified paleontologist is normally needed to assess local conditions.

The probability for impacting significant paleontological resources is moderate to high, and is dependent on the proposed action. Mitigation plans must consider the nature of the proposed disturbance, such as removal or penetration of protective surface alluvium or soils, potential for future accelerated erosion, or increased ease of access that could result in looting. Detailed field assessment is normally required and on-site monitoring or spot-checking may be necessary during land disturbing activities. In some cases avoidance of known paleontological resources may be necessary.

Class 5 – Very High. Highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Units assigned to Class 5 have some or all of the following characteristics:

1. Significant paleontological resources have been documented and occur consistently.

2. Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities.

3. Unit is frequently the focus of illegal collecting activities.

Management concerns for paleontological resources in Class 5 areas are high to very high. A field survey by a qualified paleontologist is almost always needed. Paleontological mitigation may be necessary before or during surface disturbing activities.

The probability for impacting significant paleontological resources is high. The area should be assessed prior to land tenure adjustments. Pre-work surveys are usually needed and on-site monitoring may be necessary during land use activities. Avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered.

Class U – Unknown Potential. Geologic units that cannot receive an informed PFYC assignment. Characteristics of Class U may include:

1. Geological units may exhibit features or preservational conditions that suggest significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known.

2. Geological units represented on a map are based on lithologic character or basis of origin, but have not been studied in detail.

3. Scientific literature does not exist or does not reveal the nature of paleontological resources.

4. Reports of paleontological resources are anecdotal or have not been verified.

5. Area or geologic unit is poorly or under-studied.

6. BLM staff has not yet been able to assess the nature of the geologic unit.

Until a provisional assignment is made, geologic units that have an unknown potential have medium to high management concerns. Lacking other information, field surveys are normally necessary, especially prior to authorizing a ground-disturbing activity. An assignment of "Unknown" may indicate the unit or area is poorly studied, and field surveys are needed to verify the presence or absence of paleontological resources. Literature searches or consultation with professional colleagues may allow an unknown unit to be provisionally assigned to another Class, but the geological unit should be formally assigned to a Class after adequate survey and research is performed to make an informed determination.

Class W – Water. Includes any surface area that is mapped as water. Most bodies of water do not normally contain paleontological resources. However, shorelines should be carefully considered for uncovered or transported paleontological resources. Reservoirs are a special concern because important paleontological resources are often exposed during low water intervals. In karst areas sinkholes and cenotes may trap animals and contain paleontological resources. Dredging river systems may result in the disturbance of sediments that contain paleontological resources.

Class I – Ice. Includes any area that is mapped as ice or snow. Receding glaciers, including exposed lateral and terminal moraines should be considered for their potential to reveal recently exposed paleontological resources. Other considerations include melting snow fields that may contain paleontological resources with possible soft-tissue preservation.

According to the Instruction Memorandum, the PFYC system is utilized for land use planning efforts and for the preliminary assessment of potential impacts and proper mitigation needs for specific projects. It is intended to provide a tool to assess potential occurrences of significant paleontological resources. It is meant to be applied in broad approach for planning efforts, and as an intermediate step in evaluating specific projects. Map #44 shows the Potential Fossil Yield Classifications identified for lands in Duchesne County. Table CHP 2 shows the percentage of land area in each of the PFYC categories.

Table CHP2. Duchesne County Acreage of Potential Fossil Yield Classifications

Classification	Acres
Class 1 (Very Low)	289,875.9
Class 2 (Low)	199,269.6
Class 3 (Moderate)	472,790.4
Class 4 (High)	0
Class 5 (Very High)	1,109,934.8
Class W (Water)	6,934.8
Total	2,078,805.5

Source: Bureau of Land Management

Remnants of early life forms, geological history and cultures have evolved as an important segment of the local economy and have become the signature of the local tourist trade. Considerable investment has been made in museums and visitors centers to promote these important resources.

When considering undertaking ground-disturbing development, or when evaluating such potential development by others, questions to keep in mind are:

a. Is the developing entity aware of (or does it intend to determine) what areas within the project site may contain important fossil resources?

b. Does the developing entity have a mitigation plan that spells out how fossil resources will be handled? (For example, pre-disturbance paleontological survey, real-time onsite evaluation of fossils during excavation activities, etc.)

c. Does the developing entity allow access for qualified individuals/institutions to collect (remove) important fossils that may otherwise be lost to scientific study if merely left in the near-surface to decompose?

d. If a major and important fossil discovery is made, does the County want a say in where the materials are ultimately housed or displayed (degree of involvement)?

Potential conflict issues regarding paleontological resources are:

a. Limiting road or trail access (land preservation) to important fossil sites.

b. Allowing extractive industries to operate in areas of high paleontological sensitivity.

This is not an "all-or-nothing" issue; there can be a range of management options that vary depending on the paleontological sensitivity of the geologic formations exposed in a specific study area. The paleontological resources of each Utah county range from almost non-existent to highly significant, so paleontological resource management plans for each county will be equally diverse.

Geologic Hazards

Unlike areas along the Wasatch Front, where urban development has crept up hillsides into geologically unstable areas, Duchesne County has been relatively free of landslides in privately owned areas. The Utah Geological Survey has a database of landslide history in Utah from 1850 to 1978. This database was compiled from archived newspapers and other sources. Of the 356 documented landslides in Utah during that time period, only four were located in Duchesne County. The latest one occurred somewhere in the Indian Canyon area south of Duchesne in 1958. Another landslide occurred in the Moon Lake area in 1935. A landslide was reported "five miles above Tabiona" in 1916. The same year had a report of a landslide in Roosevelt at the "electric light plant."

Energy Considerations

Findings: In the development of energy resources, Cultural, Historical, Geological and Paleontological Resources shall be protected in accordance with state and federal laws. However, the presence of Cultural, Historical, Geological and Paleontological Resources should not, by themselves, prevent the development of energy resources. Surface disturbance associated with energy development may expose Cultural, Historical, Geological and Paleontological Resources that add to the body of scientific knowledge.

Objectives

1. Preserve the cultural, historical, and paleontological heritage of the Uintah Basin.

2. Support the protection, study, and excavation of unique cultural and historical resources that occur within the Uintah Basin, including the responsible stewardship of these resources through balancing resource protection with visitor values.

3. Provide for the protection of cultural, historical, and paleontological resources through management decisions that are based on the quality and significance of each individual resource.

4. Allow for public education, visitation opportunities, and site protection for cultural, historical, and paleontological resources (where appropriate).

5. Preserve and perpetuate the heritage and culture of the Uintah Basin for both the Native American community and other communities.

6. Mitigate to the furthest extent possible all adverse effects to cultural, historical, and paleontological resources.

Polices

1. Ensure that the county has appropriate opportunities to participate in all management decisions regarding cultural, historical, and paleontological resources.

2. Where significant prehistoric and historic sites and scientifically important resources can be protected, consider developing them for education and tourism (where appropriate).

3. Manage potential adverse effects to significant and scientifically important cultural, historical, and paleontological resources to the extent possible through avoidance before other protections are considered (such as removal/excavation and mitigation).

4. All federal undertakings that could affect significant cultural values require, under NHPA, an archaeological review and inventory before they are implemented. Historic and cultural sites inventoried will be evaluated for significance by a qualified archaeologist in cooperation with the state historic preservation officer.

5. Additionally, state legislation such as Utah Code 9-8-401 states that "The Legislature determines and declares that the public has a vital interest in all antiquities, historic and prehistoric ruins, and historic sites, buildings, and objects which, when neglected, desecrated, destroyed or diminished in aesthetic value, result in an irreplaceable loss to the people of this state." Cultural and historical resources that have been evaluated and determined to be significant (such as those listed on the NRHP) will have special consideration.

6. In accordance with Utah Code 63J-8-104 (i) regarding state land use planning and management, federal lands shall be managed "so as to protect prehistoric rock art, three-dimensional structures, and other artifacts and sites recognized as culturally important and significant by the state historic preservation officer or each respective county by imposing reasonable and effective stipulations and conditions reached by agreement between the federal agency and the state authorized officer pursuant to the authority granted by the National Historic Preservation Act, 16 USC 470 et seq."

7. Federal and state agencies must not jeopardize private property rights or existing land uses, such as oil and gas exploration, mining, logging and harvesting of forest products, road maintenance, and grazing, through the protection of cultural and archaeological sites. This can be accomplished by carefully assessing the sensitivity and importance of the site relative to the economic and cultural impacts associated with land management decisions based around cultural and archaeological sites in the Uintah Basin.

8. Consider a historic preservation committee for the purpose of protecting cultural resources.

9. Establish a county register of cultural and heritage resources to discover and describe the nature of cultural resources. Assess and rank resources according to need relevant to preservation and enhancement.

10. Give priority to the retention and display of locally collected artifacts within the Uintah Basin.

11. In the case of natural and built forms upon the land, and in accordance with the protocols and rankings set forth above, measures to stabilize and enhance historic sites and objects shall be an ongoing objective of the county and its historic preservation committee.

12. Many of the cultural and historical sites in the Uintah Basin represent a unique culture and are closely related to early settlements of the area. They continue to have historical significance and are held by many residents as reverent or consecrated sites. Preserve these sites and keep them accessible.

13. Any alteration of landforms, waterways, closure of roads, and other such matters shall be carried out only after full consideration of each county's prehistoric and historical cultural heritage.

14. Develop mitigation measures and treatment options when it has been determined that a project will have an adverse effect on significant cultural and historical resources. Mitigation measures can range from preservation through avoidance to analysis and research through scientific study, although they should be project specific and tailored in such a way that each resource is specifically analyzed and dealt with.

15. Although 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.

16. Preserve all remnants of prehistoric lifeforms, geological traces, and cultural elements in accordance with existing laws, and ensure that they remain within the county, either in appropriate museums or in the Utah State University Uintah Basin Special Collections Archive. These items shall be made available to the public in an appropriate setting of discovery and study.

17. Utah Code Sections 63-73-11 through 63-73-19 state that paleontological resources are important and require the preservation of scientifically significant fossil resources on state lands. These sections mandate that those removing or excavating critical fossils on state

lands must be qualified and permitted under joint jurisdictional cooperation from the Utah Geological Survey, the Utah Museum of Natural History, and the State School and Institutional Trust Lands Administration. Additional state codes (Utah Code 53B-17-603, Utah Administrative Code R807-1) also require that important extracted fossils be curated by an approved and qualified institution. These mandates will be followed.

18. All scientifically important fossils found in the area should remain in each particular county. The County recognizes that vertebrate fossils may be collected from BLM–administered lands under a permit issued to qualified individuals and that such fossils remain the property of the federal government and must be placed in a suitable repository (such as a museum or university) identified at the time of permit issuance. Additionally, the County recognizes that all scientifically significant fossils collected on Utah state lands must be curated with the Natural History Museum of Utah. Recreational collectors may collect and retain reasonable amounts of common invertebrate and plant fossils for personal, non-commercial use. No vertebrate fossils or associated trace fossils such as tracks, eggs, etc. may be collected without a permit. Any fossils collected on non-federal lands belong to the landowner.

19. Management plans must provide the opportunity for amateur collectors and students of natural resource–related sciences to study, explore, and collect related items as provided by law.

20. Public land management agencies should promote these resources with educational material, signage, and information centers where appropriate.

21. When designating locations for sites, trails and other public use spaces, consider the following for cultural, historical, and paleontological resources: physical location and non-tangible elements (such as its sense of place or historical value).

Section 22. Threatened, endangered & sensitive species

Findings: A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 39) that only 24.8% of the respondents in the Daggett-Duchesne-Uintah County area wanted moderate (14.1%) or major (10.7%) increases in the extent to which protection of endangered species occurs on public lands in Utah.

Federally Listed Species

Findings: Once a species of plant or animal becomes federally listed as threatened or endangered, the range of options for managing lands and waters where that species occur substantially narrows. A common approach by federal agencies following listing is to follow the prescriptions outlined in recovery plans or habitat conservation plans developed by the U.S. Fish and Wildlife Service, which are expensive to develop and challenging to implement. Duchesne County will seek opportunities to influence how these plans are developed once a listing occurs, but the freedom to manage species in a way that best suits a the county has been lost once an affirmative listing decision has been issued.

Impacts of New Threatened or Endangered Species Listings

Findings: A threatened species is any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. An endangered species is any species that is presently in danger of extinction throughout all or a significant portion of its range. The Endangered Species Act (ESA) requires stringent review and management protocols for lands and waters occupied by threatened and endangered species, dramatically reducing the flexibility to address land and resource management decisions at a local or regional level. Listings often impact management regardless of land ownership, although plant listings may not impact private lands as stringently.

A sensitive species is a species facing one or more threats to its population or habitats, which needs special management attention to reduce the likelihood of a future threatened or endangered status. No one seeks the loss of rare native plants or sensitive wildlife species, but most would prefer not to have to deal with the procedural difficulties, diminished flexibility, and increased costs inherent to new listings of species under the ESA.

Better Methods Needed for Conserving Sensitive Species

Findings: ESA listings may occur in certain instances as a last step to prevent the ultimate loss of distinct populations of native plants or sensitive wildlife species. A far more desirable approach than regulation under ESA, however, would be to systematically evaluate which species may be facing trouble, and then to take logical steps to reverse declines in populations or important habitats. The right system would help focus actions where they could do the most good, so that higher priorities would get the necessary attention to generate preferred outcomes.

This was part of the intent behind Utah's Wildlife Action Plan for 2015-2025. UDWR worked with other agencies, stakeholders, and organizations to identify the wildlife species (not plants) most in need of conservation attention, and to determine which key habitats were essential for their survival. County-by-county lists of threatened, endangered, and sensitive species known to occur within a given county are provided via the link given for the plan. Known locational occurrences (by quadrangle map) of threatened, endangered, and sensitive wildlife species are available as Geographic Information System (GIS) data at: http://dwrcdc.nr.utah.gov/ucdc/downloadgis/disclaim.htm.

Threats, limiting factors, crucial data gaps and conservation actions have also been identified within the Wildlife Action Plan. The Wildlife Action Plan provides strong, clear guidance for developing creative, solution-based partnership actions to manage threats, reduce limiting factors, and resolve critical data gaps. The plan includes provisions for gaining feedback: periodic status assessment and effectiveness monitoring to permit informed adjustments to management actions.

Policy: Duchesne County calls for effective implementation of the recommendations from the *Utah Wildlife Action Plan 2015–2025* (DWR 2015b). DWR worked with other agencies, stakeholders, and organizations to identify the wildlife species (not plants) most in need of conservation attention, and to determine which key habitats were essential for their survival. The wildlife action plan provides strong, clear guidance for developing creative, solution-based partnership actions to manage threats, reduce limiting factors, and resolve critical data gaps. The plan includes provisions for gaining feedback, including periodic status assessments and effectiveness monitoring to allow for informed adjustments to management actions. If effectively implemented, the plan would result in healthier habitats and more secure wildlife populations, therefore reducing the likelihood of new listings under the ESA.

T&E Species in Duchesne County

Findings: Introduced, reintroduced, sensitive, threatened and endangered species; recovery plans; experimental populations; and related guidelines and protocols are addressed in this section. The County supports the Endangered Species Act of 1973, which is administered by the United States Fish and Wildlife Service, and recognizes that it is intended to prevent the extinction of threatened and endangered plant and animal species by preserving the ecosystems upon which these species depend. The County also realizes that various species play an important role in the natural environment and may have important future values that are presently unknown.

According to the U.S. Fish and Wildlife Service, the following threatened or endangered birds are known to or are believed to occupy habitat in Duchesne County:

- Yellow-billed Cuckoo (Coccyzus americanus) (Threatened)
- Mexican spotted owl (Strix occidentalis lucida) (Threatened)

Critical Habitat for the Yellow-billed Cuckoo has been proposed by the U.S. Fish and Wildlife Service in Duchesne County (see Map #45).

The Mexican Spotted Owl Recovery Plan, First Revision, was approved by the Southwest Region of the US Fish and Wildlife Service on September 5, 2012. Figure II.2 of that plan shows the location of Mexican Spotted Owl sites within the Colorado Plateau Ecological Management Unit, which includes the southern portions of Duchesne County. Map #45 shows no Mexican Spotted Owl sites within Duchesne County, with the closest sites being southeast of the county, along the Green River, on the west side of the Hill Creek Extension of the Ute Indian Reservation.

According to the U.S. Fish and Wildlife Service, the following threatened or endangered fish are known to or are believed to occupy habitat in Duchesne County:

- Humpback chub (Gila cypha) (Endangered)
- Colorado pikeminnow (squawfish) (Ptychocheilus lucius) (Endangered)
- Bonytail chub (Gila elegans) (Endangered)
- Razorback sucker (Xyrauchen texanus) (Endangered)

According to the U.S. Fish and Wildlife Service, the following threatened or endangered flowering plants are known to or are believed to occupy habitat in Duchesne County:

- Shrubby reed-mustard (Schoenocrambe suffrutescens) (Endangered)
- Barneby ridge-cress (Lepidium barnebyanum) (Endangered)
- Ute ladies'-tresses (Spiranthes diluvialis) (Threatened)
- Pariette cactus (Sclerocactus brevispinus) (Threatened)
- Uinta Basin hookless cactus (Sclerocactus wetlandicus) (Threatened)

According to the U.S. Fish and Wildlife Service, the following threatened or endangered mammal is known to or is believed to occupy habitat in Duchesne County:

- Canada Lynx

Sensitive Species

Findings: The Utah Sensitive Species List is prepared pursuant to the Utah Division of Wildlife Resources' Administrative Rule R657-48. By rule, wildlife species that are federally-listed candidates for federal listing, or for which a conservation agreement is in place, automatically qualify for the list. The additional species on the Utah Sensitive Species List, "wildlife species of concern," are those species for which there is credible scientific evidence to substantiate a threat to continued population viability. It is anticipated that wildlife species of concern designations will act as an "early warning" system to identify species for which conservation actions are needed, and that timely and appropriate conservation actions can then be implemented on their behalf, precluding the need to list these species under the provisions of the federal

Endangered Species Act. This is important because when a species is federally-listed, there are restrictions on land use within the species' habitat. These restrictions, which may have significant negative economic impacts, can be avoided if appropriate measures are taken before federal-listing becomes necessary. State-listed species are not protected by any special regulations.

The Sensitive Species list maintained by the Utah Division of Wildlife Resources, for Duchesne County, contains the following species:

- American Three-toed Woodpecker (Picoides dorsalis)
- Bald Eagle (Haliaeetus leucocephalus)
- Black Swift (Cypseloides niger)
- Black-footed Ferret (Mustela nigripes)
- Bluehead Sucker (Catostomus discobolus)
- Bonneville Cutthroat Trout (Oncorhynchus clarkii Utah)
- Brown (Grizzly) Bear (Ursus arctos)
- Burrowing Owl (Athene cunicularia)
- Colorado River Cutthroat Trout (Oncorhynchus clarkii pleuriticus)
- Eureka Mountainsnail (Oreohelix eurekensis)
- Ferruginous Hawk (Buteo regalis)
- Flannelmouth Sucker (Catostomus latipinnis)
- Fringed Myotis (Myotis thysanodes)
- Gray Wolf (Canis lupus)
- Greater Sage-grouse (Centrocercus urophasianus)
- Kit Fox (Vulpes macrotis)
- Lewis's Woodpecker (Melanerpes lewis)
- Long-billed Curlew (Numenius americanus)
- Mountain Plover (Charadrius montanus)
- Northern Goshawk (Accipiter gentilis)
- Roundtail Chub (Gila robusta)
- Short-eared Owl (Asio flammeus)
- Smooth Greensnake (Opheodrys vernalis)
- Spotted Bat (Euderma maculatum)
- Townsend's Big-eared Bat (Corynorhinus townsendii)
- Western Toad (Bufo boreas)
- White-tailed Prairie-dog (Cynomys leucurus)

The purpose of state wildlife species of concern designations is to preclude the need for future listings under the Endangered Species Act. The Utah Sensitive Species List allows the Utah Division of Wildlife Resources, land management agencies, local governments, and others to prioritize their efforts so that those species in the most need will benefit from conservation actions. Meaningful long-term mitigation for impacts to sensitive species is essential for maintaining healthy populations of those species. Common conservation actions for sensitive

species include: 1) habitat conservation/restoration, 2) research to learn more about the species and the causes for its decline, and 3) minimizing/mitigating impacts from development.

BLM Sensitive Species

The BLM identifies a list of sensitive species on BLM-administered lands. State directors designate species within their respective states as BLM sensitive using the following criteria:

a. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or

b. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk.

BLM sensitive wildlife and plant species in the BLM Vernal Field Office are listed in Table TES1 below. Not all of these species occur in Duchesne County.

Table TES1. BLM Sensitive Wildlife and Plant Species in the Vernal Field Office

Common Name	Scientific Name
Birds	
Northern goshawk	*Accipiter gentilis*
Grasshopper sparrow	*Ammodramus savannarum*
Burrowing owl	*Athene cunicularia*
Ferruginous hawk	*Buteo regalis*
Greater sage-grouse	*Centrocercus urophasianus*
Yellow-billed cuckoo	*Coccyzus americanus*
Bobolink	*Dolichonyx oryzivorus*
Bald eagle	*Haliaeetus leucocephalus*
Lewis's woodpecker	*Melanerpes lewis*
Long-billed curlew	*Numenius americanus*
American white pelican	*Pelecanus erythrorhynchos*
Three-toed woodpecker	*Picoides tridactylus*
Fish	
Blue head sucker	*Catostomus discobolus*

Table TES1. BLM Sensitive Wildlife and Plant Species in the Vernal Field Office

Common Name	Scientific Name
Flannel mouth sucker	*Catostomus latipinnis*
Round tail chub	*Gila robusta*
Colorado River cutthroat trout	*Oncorhynchus clarki pleuriticus*
Mammals	
Townsend's big-eared bat	*Corynorhinus townsendii*
White-tailed prairie dog	*Cynomys leucurus*
Reptiles	
Smooth green snake	*Opheodrys vernalis*
Plants	
Atwood's columbine	*Aquilegia atwoodii*
Goodrich's columbine	*Aquilegia scopulorum* var. *goodrichii*
Park rockcress	*Arabis vivariensis*
Horseshoe milkvetch	*Astragalus equisolensis*
Hamilton milkvetch	*Astragalus hamiltonii*
Goodrich stinkweed	*Cleomella palmeriana* var. *goodrichii*
Oilshale cryptantha	*Cryptantha barnebyi*
Fragrant cryptantha	*Cryptantha grahamii*
Untermann daisy	*Erigeron untermannii untermanii*
Ackerman's green gentian	*Frasera ackermaniae*
Rock hymenoxys	*Hymenoxys lapidicola*
Huber's pepperweed	*Lepidium huberi*
Goodrich blazingstar	*Mentzelia goodrichii*
Stemless penstemon	*Penstemon acaulis* var. *acaulis*
Gibbens penstemon (Gibbens beardtongue)	*Penstemon gibbensii*
Goodrich penstemon (Goodrich beardtongue)	*Penstemon goodrichii*
Graham's beardtongue	*Penstemon grahamii*

Table TES1. BLM Sensitive Wildlife and Plant Species in the Vernal Field Office

Common Name	Scientific Name
White River beardtongue	*Penstemon scariosus* var. *albifluvis*
Argyle Canyon phacelia	*Phacelia argylensis*
Uinta greenthread	*Thelesperma caespitosa*
Hairy Townsend daisy	*Townsendia strigose* var. *prolixa*
Sterila yucca	*Yucca sterilis*

U.S. Forest Service Sensitive Species

The USFS identifies a list of sensitive species on USFS-administered lands. The list of USFS sensitive species includes plant and animal species identified by a regional forester and for which population viability is a concern, as evidenced by the following:

a. Significant current or predicted downward trends in population numbers or density.

b. Significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution.

The USFS defines policies and objectives for USFS sensitive species in Chapter 2670 of Forest Service Manual 2600 (USFS 2005).

Sensitive wildlife and plant species in the Ashley National Forest are presented in Table TES2 (USFS 2016). An update of this list is currently underway as part of the upcoming forest plan revision. Not all of these species occur in Duchesne County.

Table TES2. Sensitive Wildlife and Plant Species in the Ashley National Forest

Common Name	Scientific Name
Birds	
Northern goshawk	*Accipiter gentilis*
Boreal owl	*Aegolius funereus*
Greater sage-grouse	*Centrocercus urophasianus*
Peregrine falcon	*Falco peregrinus*

Table TES2. Sensitive Wildlife and Plant Species in the Ashley National Forest

Common Name	Scientific Name
Bald eagle	*Haliaeetus leucocephalus*
American three-toed woodpecker	*Picoides dorsalis*
Flammulated owl	*Psiloscops flammeolus*
Great gray owl	*Strix nebulosa*
Fish	
Colorado river cutthroat trout	*Oncorhynchus clarkii pleuriticus*
Mammals	
Townsend's western big-eared bat	*Corynorhinus townsendii*
Spotted bat	*Euderma maculatum*
Bighorn sheep	*Ovis canadensis*
Amphibians	
Boreal toad	*Bufo boreas*
Columbia spotted frog	*Rana luteiventris*
Plants	
Graham columbine	*Aquilegia grahamii*
Petiolate wormwood	*Artemisia campestris* ssp. *borealis* var. *petiolata*
Dainty moonwort	*Botrychium crenulatum*
Slender moonwort	*Botrychium lineare*
Brownie ladyslipper	*Cypripedium fasciculatum*
Rockcress draba	*Draba globosa*
Untermann daisy	*Erigeron untermannii untermanii*
Goodrich stickleaf	*Mentzelia goodrichii*
Arctic poppy	*Papaver radicatum* var. *pygmaeum*
Stemless beardtongue	*Penstemon acaulis* var. *acaulis*
Caespitose greenthread	*Thelesperma caespitosum*

Source: USFS (2016).

U.S. Forest Service Management Indicator Species (MIS)

In addition to sensitive species, the USFS also identifies management indicator species (MIS). MIS are defined as certain vertebrate and invertebrate species selected because their population changes are believed to indicate the effects of management activities (36 Code of Federal Regulations 219.19(a) (1)). Population trends of MIS are monitored and relationships to habitat changes are determined to assess the effects of management activities. Important characteristics of a MIS are that they have narrow habitat associations, respond to the effects of management, and can be effectively monitored.

MIS for the Ashley National Forest are presented in Table TES3 (U.S. Department of Agriculture 1986). Some of these species may not occur in Duchesne County.

Table TES3. Management Indicator Species in the Ashley National Forest

Common Name (habitat relationship)	Scientific Name
Birds	
Northern goshawk (forest)	*Accipiter gentilis*
Golden eagle (other)	*Aquila chrysaetos*
Greater sage-grouse (sagebrush)	*Centrocercus urophasianus*
White-tailed ptarmigan (other)	*Lagopus leucura*
Lincoln's sparrow (riparian)	*Melospiza lincolnii*
Song sparrow (riparian)	*Melospiza melodia*
Red-naped sapsucker (aspen)	*Sphyrapicus nuchalis*
Warbling vireo (aspen)	*Vireo gilvus*
Fish	
Cutthroat trout (aquatic)	*Oncorhynchus clarkii*
Mammals	
Rocky Mountain elk (other)	*Cervus canadensis nelsoni*
Mule deer (other)	*Odocoileus hemionus*
Other	
Macroinvertebrates (aquatic)	Various

Source: U.S. Department of Agriculture (1986).

U.S. Forest Service Species of Conservation Concern (SCC)

The U.S. Forest Service 2012 planning rule requires that the Ashley National Forest analyze Species of Conservation Concern, which are defined as a species, other than federally recognized as threatened, endangered, proposed or candidate species, that is known to occur in the planning area and for which the regional forester has determined that the best available scientific information indicates substantial concern about the species' capability to persist over the long term in the planning area.

In August of 2016, the Ashley National Forest conducted a *Species at Risk Assessment*. The assessment initially identified 96 animal and 81 plant species as potential Species of Conservation Concern. The list was narrowed to the following:

<u>Animals</u>

- Greater Sage-Grouse
- Peregrine Falcon
- Black Rosy-Finch
- Pygmy Rabbit
- Fringed Myotis (bat)
- Colorado River Cutthroat Trout

Of the animals listed above, all have habitat in Duchesne County, except for the Pygmy Rabbit, which is found only in the Wyoming section of Flaming Gorge National Recreation Area.

<u>Plants</u>

- Handsome Pussytoes
- Graham's Columbine
- Ownbey's Thistle
- Evert's Wafer Parsnip
- Clustered Lady's Slipper
- Wasatch Draba
- Rockcress Draba
- Tundra Draba
- Untermann's Daisy
- Compound Kobresia
- Huber's Pepperplant
- Goodrich's Blazingstar
- Maybell Locoweed
- Alpine Poppy
- Stemless Beardtongue
- Desert Phacelia

- Silvery Primrose
- Marsh Cinquefoil

Of the plants listed above, all appear to have habitat in Duchesne County, with the exception of Graham's Columbine and Evert's Wafer Parsnip [habitat is in Uintah County] Ownbey's Thistle and Desert Phacelia [habitat is in the Flaming Gorge area of Wyoming].

Greater Sage Grouse

Findings: On February 14, 2013, the State of Utah adopted an updated conservation plan for Greater Sage Grouse. Utah's Conservation Plan for Greater Sage-grouse is designed to protect high-quality habitat, enhance impaired habitat and restore converted habitat to support, in Utah, a portion of the range-wide population of greater sage-grouse (Centrocercus urophasianus) necessary to eliminate threats to the species and negate the need for the listing of the species under the provisions of the federal Endangered Species Act (ESA). The plan is designed to eliminate the threats facing the sage-grouse while balancing the economic and social needs of the residents of Utah through a coordinated program which provides for incentive-based programs for private, local government and School and Institutional Trust Lands Administration (SITLA) lands and reasonable and cooperative regulatory programs on other state and federally managed lands. Implementation of the Plan requires a cooperative effort among local, state and federal agencies, working in concert with private interests.

The biological pillars of sage-grouse conservation include protection of habitat which provides for the year-round life-cycle needs of the species, perpetuation of conditions necessary to ensure recruitment of a continuing population within the aggregate state population, and enhancement or improvement of sage-grouse habitat that has been impaired or altered through restoration or rehabilitation activities.

Sustaining the best-of-the-best existing sage-grouse populations and increasing populations through habitat restoration and rehabilitation are the basis of the state plan. Currently, Utah supports about 4-5% of the total range-wide population of greater sage-grouse. Utah's current distribution of sage-grouse is dictated by the discontinuous nature of habitat which reflects the rugged and incised topography in the eastern and southern parts of the state, previous human-caused habitat modifications, natural events (such as wildfire), and the connection of habitat with habitat occupied by birds in Nevada and Idaho, and physical and genetic connections to larger populations in the Wyoming Basins, Great Basin in the northern and western parts of the state, and to populations in northwest Colorado. Duchesne County contains a minor amount of the state's sage grouse population within the Carbon and Strawberry sage grouse management areas (See Map #15).

The state sage grouse plan establishes objectives that will be tracked on a statewide basis through the Public Lands Policy Coordination Office (PLPCO), with support from the Division of Wildlife Resources (DWR), the BLM, the U.S. Forest Service, the U.S. Fish and Wildlife Service and local governments. Habitat enhancement, improvement and restoration will be

implemented and coordinated on a statewide basis through programs such as the Watershed Restoration Initiative (WRI), Utah Partners for Conservation and Development (UPCD), the Natural Resources Conservation Service's (NRCS) Sage-grouse Initiative (SGI), the Grazing Improvement Program (GIP) and others.

The State of Utah has hired Stag Consulting to provide written progress reports to the legislature regarding the efforts being made to enhance sage grouse populations and habitat, use legal strategies, educate members of Congress and engage the public in the process of preventing ESA listing of the bird. The latest annual report was submitted on August 18, 2015. Stag Consulting concludes that "state-based, common sense solutions are demonstrating a clear commitment to maintain Sage-grouse populations in a manner expressly designed, to not only avoid the threat of extinction…but also maintain robust numbers of birds in areas where Sage-grouse can be successful."

This report indicates that Utah has spent $5 million annually on sage grouse conservation, restored 1.2 million acres of habitat since 2006 and has protected 94% of the sage grouse population on 7.4 million acres of habitat. The report also concludes that sage grouse populations in Utah have been increasing over the last 15 years, with a 40% increase in 2014 and increases also being documented for 2015.

The 2015 Stag Consulting report finds that projected new development by 2030 is not expected to be a threat to long term sage grouse survival in any of the state sage grouse management areas. The report also concludes that oil and gas development is not a major threat to sage grouse in Utah as 7.29 million of the 7.4 million acres of habitat protected by the state plan are located outside of oil and gas fields or units. Only 6% of Utah's sage grouse population is located within oil and gas development areas; which properly balances responsible energy development with long term conservation of the Greater Sage-grouse.

Stag Consulting concludes that "diverse interests are working together to implement science-based solutions to meet agreed upon conservation objectives and to ensure conservation of Greater Sage-grouse in ways that also ensure a bright future for jobs, local communities and Western economies."

A July 2015 report prepared by researchers at Utah State University gives an excellent summary of Greater Sage-grouse research in Utah from 1996 to 2015. This study, entitled "*Sage Grouse Conservation and Management Through Science, The Utah Experience,"* notes that the Utah Conservation Plan for Greater Sage-grouse was based on a database for sage-grouse that is the most comprehensive source for local population occurrences of its kind. The Utah Plan synthesized Utah Division of Wildlife Resources sage-grouse lek location data and seasonal movement information, obtained by two decades of research to delineate eleven sage grouse management areas. This approach, based on the best available research and data, recognized and accepted current land uses and identified potential future uses which may conflict with species conservation. As a result, Utah's sage grouse management areas encompass over 90 percent of Utah breeding populations, seasonal movements, and the landscapes that provide the greatest

potential to increase sage-grouse usable space through habitat protection and enhancements. The BLM and U.S. Forest Service failed to use this best available science when they adopted land use plan amendments for federal lands in Utah.

The Utah plan recognizes that half of Utah's greater sage-grouse populations occur on private lands and that successful conservation depends upon gaining broad support from local communities and private landowners. For this reason, ten Local Working Groups consisting of private and public stakeholders have been operating in specific regions of the state to enhance sage grouse populations and habitat.

The Uintah Basin Adaptive Resource Management (UBARM) sage-grouse local working group covers parts of Duchesne, Uintah, and Daggett counties. In March, 2016, the Utah Community-Based Conservation Program, based in the Jack H. Berryman Institute, Department of Wildland Resources, and the Utah State University Extension Service, filed a 2014-15 annual report with the State of Utah. The report addressed the activities of all of the local working groups. The report noted that the UBARM group, which functions in close partnership with the Uintah Basin Utah Partners and Conservation Development, has developed multiple habitat improvement projects for sage-grouse, including a large number of conifer-removal projects across the basin. Recently, the Ute Tribe has become more involved in project discussions and planning, sharing knowledge and ideas with others in the group. The NRCS Sage-Grouse Initiative has increased its impact on the area as well, working with private landowners, often those near existing or planned projects on public lands.

The UDWR, Forest Service, and BLM, in addition to wildlife partners in Colorado, have been working together on increased monitoring of sage-grouse in areas where bird movements were previously unknown or only anecdotal. Many collars, including GPS-enabled transmitters, have been placed around the basin, including on Blue Mountain, the three corners area, Little Mountain, and other areas. The information provided is helping provide a more complete picture of bird movements and habitat use in the area.

The UBARM group has also been actively engaged in state plan implementation work, such as conifer removal strategy assistance, and painstaking review of the disturbance map baseline layers.

The Utah sage grouse plan has placed emphasis on increasing usable space for sage-grouse in naturally fragmented habitat as a means of increasing both production and connectivity. The reduction and removal of juniper and pinyon pine encroachment in sage grouse management areas where the sagebrush and herbaceous understory is relatively intact is thought to provide the greatest potential to create and enhance sage-grouse habitat in Utah. According to the Stag Consulting report, Utah is spending $5 million per year on sage grouse habitat conservation, with over 75,000 acres of habitat restored annually and approximately 1.2 million acres of habitat restored since 2006.

In addition to habitat restoration, there have been efforts to translocate sage grouse to Duchesne County; particularly in the Anthro Mountain area. The USU study mentioned above concluded that successful sage-grouse translocations require suitable contiguous sagebrush habitats enveloped by geomorphic barriers, a residual resident population, pre-nesting releases, and active mammalian predator management.

Predators are a major reason for sage grouse mortality in Duchesne County and many other areas of Utah. Ravens, eagles, fox, skunks, coyotes and raccoons are among the common predators who feast on sage grouse eggs or chicks. A 2011 study in Wyoming by the USDA's Wildlife Services, published in the Billings Gazette, used radio collars and cameras near nesting sites to monitor grouse and predator activities. These devices were used in areas where predator control was active and areas with no predator control. The study found that predation accounted for 81% of chick mortality and that sage grouse were seven times more likely to survive in areas where predator control is being implemented. This same study also found that sage grouse may move toward human development, as the activity tends to drive predators away.

A Uinta Basin sage grouse conservation plan was prepared by the local working group in January 2007. This plan found that:

- There is little empirical evidence available regarding the direct or indirect impacts of home and cabin development, powerlines, fences and tall structures, energy development and roads on sage grouse populations in the Uinta Basin.

- Sage-grouse population declines in some areas have been linked to years of low precipitation. Severe winter conditions can be a factor in reducing grouse survival. Good winters followed by relatively wet springs promote good insect and forb production, which help sage grouse thrive.

- Because sage grouse have the lowest reproductive potential of the upland game birds, small populations are highly vulnerable and hunting harvest rates should not exceed 10% of the fall population.

- After wildfire occurs, it is important to implement a post-burn rehabilitation plan to seed and establish beneficial vegetation rather than allow invasive or noxious species to emerge in the area.

- Livestock grazing is an important use of sagebrush rangelands in the Resource Area. Although some incompatible grazing likely occurs within the Resource Area, the majority of livestock operations appear to be coexisting with sage-grouse and sage-grouse populations are stable to increasing. Evidence exists that indicates that sheep grazing can enhance and maintain sagebrush communities that are used by sage-grouse. Livestock grazing may be a useful tool in the Resource Area to manipulate, maintain, or enhance sagebrush habitats. No empirical studies have been conducted in the Resource Area to address the issue of grazing impacts on sage-grouse and this is a topic that may warrant

future research.

- OHV recreation is relatively common in the Resource Area; however, specific impacts to sage grouse populations are unknown and are potentially increasing as people increasingly move into areas where sage-grouse exist. Little information is available on how OHV recreation impacts sage-grouse populations, behavior, and habitat use; this issue may warrant additional research.

- West Nile Virus is the disease with greatest potential to impact sage grouse populations in the Resource Area. Sage-grouse deaths associated with the virus have occurred in the Uinta Basin. Parts of Colorado and Wyoming have also detected infected birds. There is potential for disease persistence from transmission between these areas.

- Predation is the end result for the vast majority of sage-grouse throughout their range, both historically and presently. Documented nest predators include weasel, badger, elk, coyote, common raven, crow, red fox, striped skunk, black-billed magpie and various snakes. Documented predators of sage grouse chicks and adults include American kestrels, merlin, Northern harrier, common raven, weasel, golden eagle, Cooper's hawk, ferruginous hawk, re-tailed hawk, Swainson's hawks, Northern goshawks, coyote, red fox and bobcat. In the Strawberry sage grouse management area, red fox and ravens were the most common predators. In artificial nest studies conducted in Strawberry Valley, remote cameras caught ravens depredating 98% of artificial nests within 48 hours of their placement. Past reductions in the use of poisons have allowed raven populations to increase by roughly 300% since 1968. It is no coincidence that sage grouse populations have decreased at a time when predator populations have increased.

As stated earlier, in September 2015, the BLM and Forest Service signed a Sage Grouse EIS that establishes new guidance for sage grouse habitat management on federal lands in the West. The RMP Amendments for managing Greater Sage-Grouse in Utah can be found at: https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=99423.

Policy: Duchesne County encourages the use of predator control to maintain or increase sage grouse populations.

The Utah sage grouse plan also found that habitat loss due to fire and replacement of (burned) native vegetation by invasive plants is the single greatest threat to sage-grouse that inhabit sage grouse management areas in Utah's Great Basin region. The wildland fire threat is great in Duchesne County and is addressed in Section 19 of this plan.

Policy: Duchesne County supports the protection of sage grouse habitat from the effects of wildfire and the restoration of burned habitat with plant species that will benefit sage grouse populations.

The July 2015 USU study noted that, in 2010, there were no peer-reviewed, experimental studies reported in the scientific literature that specifically documented increased avoidance or predation on sage-grouse because of the construction, operation, and maintenance of tall structures. A review of the scientific literature regarding sage-grouse since 2010 produced no new published information, but recent unpublished reports have begun to address the issue. Until better information is available, the Utah Plan recommends siting new electrical transmission lines in existing corridors, or at a minimum, in concert with existing linear features in sage-grouse habitat. Siting linear features accordingly is deemed to be mitigation for the siting of that linear feature.

Policy: Duchesne County will not support the concept of buffers or setbacks from tall structures unless new science answers the following questions:

- Do sage-grouse avoid tall structures and in particular what are they avoiding?
- If sage-grouse avoid tall structures, what are the individual and population impacts, and when would the impacts be manifested?
- Will the effects be permanent?
- Will the effects be limited to the area of disturbance?
- What measures (BMPs) can be implemented to mitigate impacts and alleviate the negative impacts?
- Will these BMPs be universally effective?

The Duchesne County Commissioners adopted Resolution #13-09 on May 6, 2013. This resolution established the Utah Conservation Plan for Greater Sage-grouse as the County's sage grouse management plan.

Objectives

Achieve consistency between federal, state and local efforts to manage greater sage grouse populations in Duchesne County.

Overall T&E Species Objectives

1. Avoid listings of species as threatened or endangered or designation of critical habitats under the ESA.

2. Delist special-status species and designated critical habitats that were erroneously listed (e.g., listed based on incorrect data or assumptions) and/or that are no longer threatened and endangered species or sensitive based on criteria established by BLM, USFS, or the State of Utah. Based on their observed local abundance, the county believes that the following species may have been erroneously listed under the ESA:

    a. Pariette cactus (*Sclerocactus brevispinus*)

b. Ute ladies'-tresses (*Spiranthes diluvialis*)

3. Reduce the impacts of endangered and sensitive species listings on private and public lands. Listings typically include land use restrictions and hamper multiple use of public lands.

4. Avoid special management of lands and associated land use restrictions associated with reintroduction of large predators that are listed as threatened or endangered (e.g., gray wolf *(Canis lupis)*, grizzly bear *(Ursus arctos)*, and Canada lynx (*Lynx canadensis*).

5. Minimize the land use restrictions associated with any reintroduction of large predators that are listed as threatened or endangered.

6. Ensure federal agencies accurately inventory threatened, endangered, and sensitive species across all state, federal, and tribal lands.

Overall T&E Species Policies:

1. Do not support actions to list any species as a threatened or endangered species under the ESA or actions to add any species to the State of Utah's sensitive species list until verifiable scientific data have been available to the public that demonstrate:

    a. The need for the designation;

    b. That protections cannot be provided by other methods, and

    c. That the area in question is truly unique compared to other area lands.

2. No species shall be proposed for listing in Duchesne County until verifiable scientific data has been available to the public that there is a need for the designation; that protections cannot be provided by other methods, and the area in question is truly unique compared to other area lands. Such data shall include species populations on all lands within the county, regardless of jurisdiction.

3. Support alternatives to listing under the ESA, including conservation plans, initiatives, or agreements to address threats to species and their habitats. Examples of successful collaborative conservation agreements include the Conservation Agreement and Strategy for Graham's beardtongue (Penstemon grahamii) and White River beardtongue (P. scariosus var. albifluvis) (SWCA 2014) and the State of Utah's Conservation Plan for Greater Sage-Grouse in Utah (DWR 2013).

4. Support efforts to update and modernize the ESA, such as those undertaken by the Western Governors' Association, to address issues that affect local governments, including the difficulty of delisting species, even once recovery objectives are met and the

use of the ESA by special interest groups in efforts to influence land use decisions by petitioning USFWS to list large groups of species as threatened or endangered.

5. Do not support buffer zones for the protection of threatened and endangered species unless such buffers are demonstrated to be necessary to protect the species pursuant to the best available science.

6. When developing recovery plans for species listed as threatened or endangered, it is typically not necessary to restore a species to all habitats once occupied by the species to achieve a population that is not at risk of extinction. Recovery plans should establish objectives that restore and preserve only the amount of habitat and population size needed to protect the species from extinction.

7. The USFWS shall exclude areas from critical habitat designation if the economic damage is considered too great.

8. The USFWS shall involve local and county government representatives in their assessment of the economic impact of critical habitat designations.

9. Designation of critical habitats for threatened and endangered species or reintroductions must not be allowed to grow beyond the originally intended physical boundaries and scope resulting in detrimental effects on the economy, life styles, culture, and heritage.

10. Designation or reintroduction plans, guidelines, and protocols must not be developed or implemented without full County involvement and public disclosure.

11. Any analysis of proposed designations or reintroductions must be inclusive and analyze needed actions associated with the proposal to prevent growth beyond the scope and boundaries.

12. Recovery plans, reintroduction plans, guidelines, and protocols for species listed as threatened or endangered under the ESA should be developed with full public disclosure and in coordination with private property owners and local governments that will be affected by the recovery plan. Recovery plans must contain indicators of effectiveness and recovery progression, identifiers of recovery completion, self-terminating provisions upon successful recovery, and management provisions after the plan is terminated.

13. Recovery plans for species listed as threatened or endangered should clearly identify the parties responsible for collecting data to monitor species recovery and how that data will be collected. Funding adequate to collect the data required to monitor progress toward recovery should be appropriated by federal agencies at the time of listing.

14. Such designations shall provide access for reservoirs, maintenance of irrigation facilities, fire, noxious weed and pest control.

15. Devaluation of private property by the Endangered Species Act is a "taking" under the 5th Amendment of the U.S. Constitution and compensation must be paid.

16. On BLM, National Forest, Utah Reclamation, Mitigation and Conservation Commission and Utah Division of Wildlife Resources lands within the Strawberry and Carbon Greater Sage Grouse Management Areas in Duchesne County, the Greater Sage-grouse shall be managed in accordance with the 2013 State of Utah Conservation Plan for Greater Sage Grouse in Utah and any subsequent amendments thereto. On private, local government and SITLA lands within the sage grouse management areas, compliance with this plan is strictly voluntary.

17. Portions of the Endangered Species Act that are in conflict with the above policies should be amended to become consistent with these policies.

18. Focus necessary conservation efforts on species identified on the State of Utah's sensitive species list. This list identifies "wildlife species of concern," which are those species for which there is credible scientific evidence to substantiate a threat to continued population viability. Conservation efforts could include the following:

    a. Avoiding impacts to sensitive species and their habitats when possible.

    b. When avoidance is not possible, taking reasonable steps to minimize the effects of development on sensitive species and their habitats.

    c. When high levels of impact on sensitive species are unavoidable, meaningful long-term mitigation may be necessary. Depending upon the species in question, meaningful long-term mitigation could include habitat conservation/restoration (e.g., rangeland restoration, wetland enhancement, noxious weed control, pinyon-juniper removal, or other actions that provide new or enhanced wildlife habitats) or research to learn more about the species and the causes for its decline.

19. Any species identified as sensitive by the State of Utah that either no longer exists in Duchesne County or were introduced experimentally are not appropriate for the State of Utah sensitive species list.

20. Support mitigation banking programs as a way to offset impacts to threatened and endangered species, species at risk of becoming threatened or endangered, and their habitats.

21. Do not support the creation or expansion of grizzly bear, gray wolf, wolverine and Canada lynx populations or the protection of their habitats, ranges, or migration corridors within the county.

Energy Considerations

Findings: Energy development provides a major economic stimulus for Duchesne County and the State of Utah. However, energy development and transmission also may cause impacts to rare plants or sensitive wildlife species. Typical impacts include loss, damage, or fragmentation of important habitats, increased disturbance, reduced water quality, and the faster spread of invasive species. These kinds of impacts should be mitigated to promote a balance among competing uses of the natural resources occurring within a given county.

One-size-fits-all efforts by the federal government to conserve species shall be resisted as such efforts can reduce the feasibility of energy development in the County.

Policy: It is the policy of Duchesne County to support efforts to preserve threatened and endangered species, using incentives and cooperative agreements agreed to by property owners, land lessees and the agencies with jurisdiction.

Water Considerations

Findings: Water is important to all life, and it is limited across many areas of the West including much of Duchesne County. The supply of this critical resource may be further reduced by projected growth in our human population. Water management becomes relevant in the conservation of listed or sensitive species whenever they depend on aquatic systems such as healthy streams, rivers, wetlands, or riparian habitats. Management issues include water supply, water quality (e.g., temperature, sediment load, or nutrient content), and the timing or duration of flows in streams and spring-fed aquatic systems. Extraction and consumption of water and the accompanying alteration of aquatic habitats generate the single most significant source of stress to Utah's sensitive wildlife species and their habitats. Water management demands our best attention, if we hope to be able to meet municipal and industrial needs, while preserving traditional agricultural uses, and ensuring persistence of sufficient plant and animal diversity in our aquatic systems. Water is a fundamental requirement for healthy landscapes which support our quality of life.

Policy: Duchesne County supports the careful evaluation of all plans which guide the use or management of water.

Section 23. Wilderness

Findings: The Department of Interior, National Park Service, provides a summary of the meaning of wilderness as follows:

The Wilderness Act of 1964 created the National Wilderness Preservation System and recognized wilderness as “an area where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain.” The Act further defined wilderness as "an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions...” (16 USC 1131).

Designated wilderness is the highest level of conservation protection for federal lands. Only Congress may designate wilderness or change the status of wilderness areas. Wilderness areas are designated within existing federal public land. Congress has directed four federal land management agencies—U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and National Park Service—to manage wilderness areas so as to preserve and, where possible, to restore their wilderness character.

The Wilderness Act requires management of human-caused impacts and protection of the area's wilderness character to ensure that it is "unimpaired for the future use and enjoyment as wilderness" (16 USC 1131). To comply with this standard, wilderness areas generally do not allow motorized equipment, motor vehicles, mechanical transport, temporary roads, permanent structures, or installations. Motorized equipment and equipment used for mechanical transport may be allowed in certain circumstances such as search and rescue. This includes the use of motor vehicles, motorboats, motorized equipment, bicycles, hang gliders, wagons, carts, portage wheels, and the landing of aircraft including helicopters, unless provided for in specific legislation. The Wilderness Act also prohibits permanent roads and commercial enterprises, except commercial services that may provide for recreational or other purposes of the Wilderness Act. Livestock grazing is allowed in wilderness areas. Wilderness areas are to be primarily affected by the forces of nature, though the Wilderness Act does acknowledge the need to provide for human health and safety, protect private property, control insect infestations, and fight fires.

The Wilderness Act protects designated wilderness areas by law "for the permanent good of the whole people." With the Wilderness Act, Congress secures "for the American people of present and future generations the benefits of an enduring resource of wilderness."

Through the Wilderness Act, Congress recognized the intrinsic value of wild lands. Some of the tangible and intangible values mentioned in the Wilderness Act include "solitude or a primitive and unconfined type of recreation," as well as “ecological, geological, or other features of scientific, educational, scenic, or historical value." Wilderness areas provide habitat for wildlife and plants, including endangered and threatened species.

Wilderness protects open space, watersheds, natural soundscapes, diverse ecosystems and biodiversity. The literature of wilderness experience frequently cites the inspirational and spiritual values of wilderness, including opportunities to reflect on the community of life and the human place on Earth. Wilderness provides a sense of wildness, which can be valuable to people whether or not those individuals actually visit wilderness.

In 1976, the U.S. Congress directed BLM through Section 603(a) of Federal Land Policy and Management Act (FLPMA) to inventory and respond to Congress within 15 years "… those roadless areas of five thousand acres or more and roadless islands of the public lands, identified during the inventory required by section 201(a) of this Act as having wilderness characteristics described in the Wilderness Act of September 3, 1964 and shall from time to time report to the President his recommendation as the suitability or non-suitability of each such area or island for preservation as wilderness …" (43 USC 35).

The wilderness characteristics that were used in the inventory as described in the 1964 Wilderness Act were as follows:

1. Generally appears to have been affected primarily by the forces of nature, with the imprint of humankind's work substantially unnoticeable.

2. Has at least 5,000 acres of land or is of sufficient size as to make practicable its preservation and use in an unimpaired condition.

3. Has outstanding opportunities for solitude, or a primitive or unconfined type of recreation in at least part of the area.

4. May also contain ecological, geological, other features of scientific, scenic, or historical value.

Congress has now designated more than 106 million acres of federal public lands as wilderness: 44 million of these acres are in 47 national parks and total 53 percent of National Park System lands. Additional national park areas are managed as "recommended" or "proposed" wilderness until Congress acts on their status.

Duchesne County is host to one federally designated wilderness (the High Uintas Wilderness Area, see Map #46), which comprises 13.8% percent of the county's land area. Land features include vistas of high barren peaks, dense lodge pole forests, rugged canyon lands, lakes and streams, and significant watershed areas. The County has previously made a disproportionate contribution to the nation's wilderness system. The Bureau of Land Management and the National Park Service have no designated wilderness in Duchesne County.

The High Uintas Wilderness is the largest wilderness area in the state of Utah and is over three and half times larger than Utah's second largest wilderness area. The Ashley National Forest manages 60% of the wilderness, with the remainder managed by the Uinta-Wasatch-Cache

National Forest. Management of the wilderness is coordinated between the Ashley and the Uinta-Wasatch-Cache, but the Ashley is the lead forest for the management of the High Uintas Wilderness. The recreational opportunities available are horse and foot trails to lakes and other natural features, fishing, hunting and climbing. The size of the High Uintas Wilderness allows for extended backpacking or horse packing trips not possible in other Utah wilderness areas.

Wilderness.net has produced a fact sheet for the High Uintas Wilderness which states that:

The United States Congress designated the High Uintas Wilderness in 1984 and it now has a total of 456,705 acres (of which 289,311 acres are in Duchesne County). All of the wilderness is within Utah and is managed by the Forest Service.

The Uinta Mountains were named for the Uintaat Indians, early relatives of the modern Ute Tribe. The High Uintas Wilderness envelops the wild core of this massive mountain range. Characterized by the highest peaks in Utah, countless lakes, and a unique alpine ecosystem, it is among the nation's most outstanding wilderness areas. The High Uintas Wilderness is administered jointly by the Ashley and Wasatch-Cache National Forests.

The Uinta Mountains were carved by glaciers from an immense uplift of Precambrian rock. Some of this rock is exposed as colorful quartzite and shales. The main crest of the Uinta Mountains runs west to east for more than 60 miles, rising over 6,000 feet above the Wyoming and Uinta Basins to the north and south. Massive secondary ridges extend north and south from the crest of the range, framing glacial basins and canyons far below. This rugged expanse of peaks and flat-top mountains is the largest alpine area in the Intermountain West and is the setting for Kings Peak, the highest peak in Utah. Hundreds of picturesque lakes, streams, and meadows lie within sculpted basins. Cold, clear rivers plunge from the basins into deep canyons that form the headwaters of Utah's major rivers.

The Uinta Mountains rise from 7,500 to 13,528 feet at the summit of Kings Peak, offering diverse habitat for a wide variety of flora and fauna. Above tree line, tundra plant communities thrive in the harsh climate of the highest altitudes. Thick forests of Engelmann spruce, subalpine fir, and Lodge pole pine blanket the land below tree line. These forests are interrupted by park-like meadows and lush wetlands. In the lower elevations, aspen groves and countless mixed species offer contrast to the scene. The Uinta Mountains are home to: elk, mule deer, moose, mountain goat, coyote, black bear, bighorn sheep, ptarmigan, river otter, pine marten, cougar, and 75 percent of Utah's bird species, among many others.

The High Uintas Wilderness boasts 545 miles of trail, which may be accessed from a number of trailheads surrounding the wilderness near the gateway communities of Duchesne, Roosevelt, and Kamas, UT and Evanston and Mountain View, WY. This extensive network of trails leads visitors deep into the wilderness, through thick forests, past rushing streams and placid lakes, to sweeping alpine vistas below majestic peaks. Opportunities for exploration are endless.

Motorized equipment and equipment used for mechanical transport is generally prohibited on all federal lands designated as wilderness. This includes the use of motor vehicles, motorboats, motorized equipment, bicycles, hang gliders, wagons, carts, portage wheels, and the landing of aircraft including helicopters, unless provided for in specific legislation. These prohibitions make maintenance of historic water facilities very difficult and costly.

These general prohibitions have been implemented for all national forest wildernesses in order to implement the provisions of the Wilderness Act of 1964. The Wilderness Act requires management of human-caused impacts and protection of the area's wilderness character to insure that it is "unimpaired for the future use and enjoyment as wilderness." Use of the equipment listed as prohibited in wilderness is inconsistent with the provision in the Wilderness Act which mandates opportunities for solitude or primitive recreation and that wilderness is a place that is in contrast with areas where people and their works are dominant.

Wilderness managers often need to take action to limit the impacts caused by visitor activities in order to protect the natural conditions of wilderness as required by the Wilderness Act of 1964. Managers typically implement 'indirect' types of actions such as information and education measures before selecting more restrictive measures. When regulations are necessary, they are implemented with the specific intent of balancing the need to preserve the character of the wilderness while providing for the use and enjoyment of wilderness.

The following prohibitions are in effect in the High Uintas Wilderness area:

a. Groups exceeding 14 persons and/or 15 head of stock. Groups exceeding this size must divide into separate parties and remain at least one mile apart.

b. Camping with 200 feet of any occupied campsite, designated trail, or water source.

c. Failing to properly dispose of all garbage (pack it out) and leaving human waste in an exposed or unsanitary manner.

d. Building a campfire or using a wood stove within 1/4 mile of a location closed to these activities.

e. Restraining a saddle or pack animal for longer than one hour within 200 feet of a water source or tying an animal directly to a tree for more than one hour. Animals must be moved sooner if damage to the tree, soil, or vegetation is occurring.

f. Short-cutting a switchback in a trail.

g. Damaging any natural feature, including, but not limited to: falling or damaging trees, trenching and vandalism.

h. Constructing any structure or improvement, including, but not limited to hitch rails, furniture, shelters and rafts.

Although Duchesne County acknowledges the values of the High Uintas Wilderness Area, use is highly restricted and does not provide the desired wilderness experience for citizens and groups unable to see the area due to age, physical, economic or other limitations. In addition, the prohibition on mechanical equipment makes trail maintenance difficult. Trees falling across trails create barriers to human and horse travel and can result in hazardous conditions and new surface disturbance.

Designating an area as a wilderness area is often not an appropriate, effective, efficient, economic, or wise use of land. Lands can often be adequately protected with other management options. Wilderness designation, due to highly restrictive management prescriptions, is inconsistent with the philosophy of multiple use and sustained yield and adversely affects the County's economy in terms of the grazing, tourism, and timber industries and water resources. Management for wilderness characteristics also negatively affects forest health, water quality, watershed health, and increases catastrophic fire risk.

A December 2008 report published by Utah State University entitled "Public Lands and Utah Communities: A Statewide Survey of Utah Residents," found (in Table 36) that the majority of Utah residents prefer that public lands managers maintain the same amount of wilderness or decrease the amount. Only residents of the Summit-Morgan-Wasatch County area supported increases in wilderness acreage. In the Daggett-Duchesne-Uintah County area, 70.5 percent of the residents surveyed supported major reductions in wilderness (11.5%), moderate reductions in wilderness (18.5%) or for the acreage to stay about the same (40.5%). Only 19.4% of residents in the Uintah Basin region supported moderate (16.2%) or major (3.2%) increases in wilderness.

Wilderness Study Areas (WSAs)

The federal agencies that manage wilderness areas also inventory other lands under their jurisdiction to assess the presence of wilderness characteristics. The agencies may manage areas, such as BLM lands with wilderness characteristics and natural areas that have not been designated as wilderness by U.S. Congress in various fashions that preserve their wilderness values while awaiting congressional action.

Section 201 of FLPMA requires the BLM to maintain an inventory of all public lands and their resources and other values, including wilderness characteristics. It also provides that the preparation and maintenance of the inventory shall not, in and of itself, change or prevent change of the management or use of public lands. BLM Instruction Memorandum 2011-154, 2013-106, and Manuals 6310 and 6320 set out the BLM's approach inventorying and managing wilderness characteristics on the public lands (BLM 2011, 2013, 2012b, 2012c).

Each inventory is a snapshot of the existing character of the landscape at a particular time; therefore, BLM will continue to update the inventories as inventoried conditions on the ground

change over time in response to both human activities and natural environmental changes.

For an area to qualify as lands with wilderness characteristics, the area must possess sufficient size, naturalness, and outstanding opportunities for either solitude or primitive and unconfined recreation. In addition, it may also possess supplemental values.

a. Size: The area must be over 5,000 acres of roadless, contiguous BLM-managed lands. Areas smaller than 5,000 acres may qualify if it is practical to preserve and use them without damaging their current condition. In addition, roadless areas less than 5,000 acres that are contiguous with lands that have been formally determined to have wilderness or potential wilderness values, or any federal lands already managed for the protection of wilderness characteristics (e.g., wilderness areas or WSAs), may also qualify.

b. Naturalness: Must appear to have been affected primarily by the forces of nature, and any work of human beings in the area must be substantially unnoticeable. Minor human impacts such as a water trough or fences may often be considered substantially unnoticeable.

c. Outstanding Opportunities for Solitude or Primitive, Unconfined Recreation: The area must offer a visitor the chance to avoid evidence of other people or provide for outstanding opportunities for primitive and an unconfined type of recreation activity like hiking, fishing, etc. Solitude or outstanding primitive recreation opportunities do not have to be available in all portions of the area. An area may possess outstanding opportunities through either the diversity of possible recreation opportunities in the area or the outstanding quality of one opportunity.

d. Supplemental Values: If size, naturalness, and outstanding opportunities criteria are met, then ecological, geological, or other features of scientific, educational, scenic, or historical values may be noted, but are not required to qualify as lands with wilderness characteristics.

After an area is inventoried and found to possess wilderness characteristics, the BLM must then make a decision as to whether the area will be managed for those characteristics or for other priority multiple uses. This analysis and management decision is made through a public land use planning process.

The BLM completed an initial inventory and identification of WSAs in Utah in 1980, identifying 3.2 million acres of WSAs statewide. On October 18, 1991, BLM submitted a report to the U.S. Congress recommending which WSAs in Utah should be designated as Wilderness and which should be released for other purposes. This recommendation included 1.9 million acres of Wilderness from the 3.2 million acres of WSAs. Congress has received BLM's Wilderness recommendation from the Secretary of the Interior and the President. However, the full 3.2 million acres continue to be managed so as not to impair wilderness character pending congressional action.

In 1996, then-Secretary of Interior Babbitt initiated a "re-inventory" of public lands in Utah under Section 201 of FLPMA and identified 2.6 million acres of federal land as wilderness inventory areas (WIAs). This re-inventory process was not subject to public comment or environmental analysis under the National Environmental Policy Act (NEPA) and was challenged by the State of Utah and the Utah Association of Counties. The federal district court initially enjoined the re-inventory; however, this injunction was overturned by the Tenth Circuit, allowing the re-inventory to proceed. The re-inventory was completed in 1999. This controversial wilderness re-inventory was a key scoping issue in BLM's land use plan revisions for the Vernal resource management plan, initiated in 2001. WIAs proposed for designation as "new" WSAs through the planning process were to be protected pending congressional review for possible wilderness designation pursuant to BLM's *H-8550-1 - Interim Management Policy for Lands Under Wilderness Review* (BLM 2007). In March 2003, the State of Utah revived its lawsuit challenging the wilderness inventory. The Department of the Interior and the State of Utah settled the case in April 2003, which nullified the re-inventory but retained 3.2 million acres as WSAs under BLM's 1991 wilderness recommendations. BLM also rescinded, as inconsistent with the settlement, the wilderness handbook, adopted in January, 2001, entitled *Wilderness Inventory and Study Procedures* H-6310-1 (BLM 2001).

BLM's 1980 WSA inventory and the 2008 Vernal BLM RMP identified no WSAs in Duchesne County.

Section 603(c) of FLPMA provides direction to BLM on the management of wilderness study areas (WSAs) and states that with some exceptions "During the period of review of such areas and until the U.S. Congress has determined otherwise, the Secretary shall continue to manage such lands according to his authority under this act and other applicable law in a manner so as not to impair the suitability of such areas for preservation as wilderness" (43 USC 35). BLM manuals refer to this language as the "non-impairment" mandate. BLM developed a non-impairment standard to meet this mandate. In general, Section 603(c) of FLPMA requires BLM to maintain the wilderness characteristics of each WSA until U.S. Congress decides whether it should either be designated as a Wilderness or should be released for other purposes.

BLM's management of WSAs is guided by BLM Manual 6330 – Management of Wildness Study Areas, which was published on June 13, 2012 (BLM 2012a). This manual describes BLM's non-impairment standard to meet the mandates for managing WSAs described in FLPMA. Valid existing rights are recognized, and grandfathered uses such as grazing and mineral uses are allowed but restricted to the same manner and degree as on the date FLPMA was approved. Although many activities are allowed within WSAs, some have specific restrictions.

The only legal designations of WSAs are those designated under the Wilderness Act of 1964 and under Section 603 of FLPMA, or WSAs subsequently designated by U.S. Congress. On BLM-administered lands, the opportunity to create additional wilderness ended in 1991 except as authorized by U.S. Congress.

Some or all of the area WSA designations pending before U.S. Congress are legally and/or technically flawed. The counties will pursue that position when the WSAs go before U.S. Congress for approval.

Similar to wilderness areas, use of WSAs is highly restricted and does not provide the desired wilderness experience for most citizens and groups.

Similar to Wilderness designation, BLM's management of WSAs is inconsistent with the multiple-use mandate. Managing public lands for "wilderness characteristics" circumvents the statutory wilderness process and is inconsistent with the multiple-use and sustained-yield management standard that applies to all BLM and USFS lands that are not wilderness areas or WSAs and adversely affects the counties' economy in terms of the grazing, tourism, oil and gas extraction, mining, timber industries, and water resource development.

The BLM lacks congressional authority to manage lands, other than WSAs, as if they are or may become wilderness, as follows:

a. BLM lacks authority to designate geographic areas as lands with wilderness characteristics or designate management prescriptions for such areas other than to use specific geographic-based tools and prescriptions expressly identified in FLPMA.

b. BLM lacks authority to manage the lands in any manner other than to prevent unnecessary or undue degradation, unless BLM uses geographic tools expressly identified in FLPMA and does so pursuant to a duly adopted provision of a resource management plan adopted under FLPMA, 43 USC 1712.

BLM's *Conducting Wilderness Characteristics Inventory on BLM Lands* Manual (MS-6310) is legally and technically flawed (BLM 2012b).

USFS Inventoried Roadless Areas

The 2001 Roadless Area Conservation Rule generally prohibits road building and commercial logging in 58.5 million acres of national forest roadless areas across the United States. The 2001 Roadless Area Conservation Rule, unlike the establishment of wilderness areas, permits a wide range of activities in roadless areas. Permitted activities include timber harvesting for limited purposes, livestock grazing, off-highway vehicle use, and oil and gas development that do not require new roads in roadless areas. Timber harvest in inventoried roadless areas is limited to clearly defined, limited purposes; when incidental to the implementation of an activity not otherwise prohibited by this rule; for personal and administrative uses; or where roadless characteristics have been substantially altered in a portion of an inventoried roadless area due to the construction of a classified road and subsequent timber harvest.

The 2001 Roadless Area Conservation Rule established extensive roadless areas on USFS-administered lands in Duchesne County (see Table WLD1 and Map #46).

Table WLD1. Acres of Inventoried Roadless Areas in Duchesne County

National Forest	Duchesne County
Ashley National Forest	355,737
Wasatch-Cache National Forest	7,940
Total	**363,677**

The Ashley National Forest is updating its forest plan and additional wilderness and roadless areas will be considered. Duchesne County opposes any new designations.

Duchesne County calls for the re-inventory, boundary adjustment, consolidation or deletion of the Inventoried Roadless Areas within or partially within the County and their suggested future management classifications as set forth in Appendix D of this plan.

Duchesne County supports efforts by the State of Utah to petition the Department of Agriculture and Congress to establish new management provisions for Inventoried Roadless Areas across the state, incorporating the recommendations set forth in Appendix D.

Objectives

1. Avoid designation of additional areas within the county as federally designated wilderness, wilderness study areas or roadless areas.

2. Release WSAs not recommended for designation as wilderness by U.S. Congress for uses other than preservation of wilderness character and multiple-use sustained yield management.

3. Avoid management of any additional federal lands within the county as non-WSA lands with wilderness characteristics, natural areas, inventoried roadless areas, or similarly intentioned management regimes.

4. Remove management provisions from federal lands that promote their management for wilderness characteristics and roadless qualities over other uses consistent with the multiple-use and sustained-yield management standard.

5. Actively manage forests to promote forest and watershed health.

6. Manage lands not designated as wilderness or WSAs by U.S. Congress based on the

multiple-use and sustained-yield management standard prescribed in FLPMA and National Forest Management Act of 1976.

Policies: It is the position of Duchesne County that:

1. The county's support for any recommendations made under a statutory requirement to examine the wilderness option during the revision of land and resource management plans or other methods will be withheld until the following are clearly demonstrated that:
    a. The adopted transportation plans of the state and county or counties within the federal land management agency's planning area (National Forest or BLM land) are fully and completely incorporated into the baseline inventory or information from which plan provisions are derived.

    b. Valid state or local roads and rights-of-way are recognized and not impaired in any way by the recommendations.

    c. The possibility of future development of mineral resources by underground mining or oil and gas extraction by directional or horizontal drilling or other non-surface disturbing methods are not affected by the recommendations.

    d. The need for additional administrative or public roads necessary for the full utility of the various multiple uses, including recreation, mineral exploration and development, forest health activities, operation and maintenance of water facilities, and grazing operations on adjacent land, or on subject lands for grand-fathered uses, are not unduly affected by the recommendations.

    e. Analysis and full disclosure are made concerning the balance of multiple-use management in the proposed areas.

    f. The analysis compares the full benefit of multiple-use management to the recreational, forest health, and economic needs of the state and the county to the benefits of the requirements of wilderness management.

    g. The conclusion of all studies related to the requirement to examine the wilderness option are submitted to the county for review and action, and the results in support of or in opposition to, are included in any planning documents or other proposals that are forwarded to the United States U.S. Congress.

    h. Areas must merit the suitability requirements contained in the Wilderness Act of 1964 unless requirements are changed by U.S. Congress.

2. Public lands that were determined to lack wilderness character during previous wilderness review processes cannot be managed as if they were wilderness based on new or revised views of wilderness character. These areas were studied and released and must remain

subject to the full range of multiple uses.

3. Any proposed wilderness designations in the county forwarded to U.S. Congress for consideration must be based on a collaborative process in which support for the wilderness designation is unanimous among federal, state, and county officials.

4. All WSAs awaiting congressional action, which were not recommended for wilderness designation by the Secretary of Interior or are released by U.S. Congress, shall be released and managed for multiple use and sustained yield. The management plans must be amended in a timely manner to reflect change in status. The county defines a "timely manner" as not to exceed 2 years.

5. All wilderness management plans must provide for access for the elderly and physically disabled individuals to the fullest extent possible provided by law.

6. Wilderness management must provide for continued and reasonable access to and development of valid, existing property rights within the area and provide for full use and enjoyment of these rights.

7. BLM inventories for the presence of wilderness characteristics must be closely coordinated with inventories for those characteristics conducted by state and local governments, and they should reflect a consensus among those governmental agencies about the existence of wilderness characteristics, as follows:

    a. Any inventory of wilderness characteristics should reflect all of the criteria identified in the Wilderness Act of 1964, including a size of 5,000 acres or more, containing no visible roads and the presence of naturalness, the opportunity for primitive and unconfined recreation, and the opportunity for solitude.

    b. Geographic areas found to contain the presence of naturalness must appear pristine to the average viewer and must not contain any of the implements, artifacts, or effects of human presence (including visible roads, whether maintained or not) and must not contain human-made features such as vehicle bridges, fire breaks, fisheries, enhancement facilities, fire rings, historic mining, and other properties, including tailings piles, commercial radio and communication repeater sites, fencing, spring developments, linear disturbances, stock ponds, visible drill pads, pipeline and transmission line rights-of-way, and other similar features.

    c. Factors, such as the following, though not necessarily conclusive, should weigh against a determination that a land area has the presence of naturalness, the area is or once was the subject of mining and drilling activities, mineral and hard rock mining leases exist in the area, and the area is in a grazing district with active grazing allotments and visible range improvements.

d. Geographic areas found to contain the presence of solitude should convey the sense of solitude within the entire geographic area identified; otherwise boundary adjustments should be performed.

e. Geographic areas found to contain the presence of an opportunity for primitive and unconfined recreation must find these features within the entire area and provide analysis about the effect of the number of visitors to the geographic area upon the presence of primitive or unconfined recreation; otherwise boundary adjustments should be performed.

f. In addition to the actions required by the review for roads pursuant to the definitions of roads contained in BLM Manual H 6301, or any similar authority, BLM should, pursuant to its authority to inventory, identify and list all roads or routes identified as part of a local or state governmental transportation system, and consider those routes or roads as qualifying as roads within the definition of the Wilderness Act of 1964.

g. BLM should adjust the boundaries for a geographic area to exclude areas that do not meet the criteria of lacking roads, offering solitude, and offering primitive and unconfined recreation, and the boundaries should be redrawn to reflect an area that clearly meets the criteria above, and which does not employ minor adjustments to simply exclude small areas with human intrusions; specifically, the boundaries of a proposed geographic area containing lands with wilderness characteristics should not be drawn around roads, rights-of-way, and intrusions; and lands located between individual human impacts that do not meet the requirements for lands with wilderness characteristics should be excluded.

8. In accordance with Utah Code 63J-8-104 (b) and (c), it is the policy of the county that federal land management agencies shall:

a. Not designate, establish, manage, or treat any of the subject lands as an area with management prescriptions that parallel, duplicate, or resemble the management prescriptions established for wilderness areas or WSAs, including the non-impairment standard applicable to WSAs or anything that parallels, duplicates, or resembles that non-impairment standard.

b. Recognize, follow, and apply the wilderness settlement agreement between the State of Utah and the U.S. Department of the Interior.

c. Revoke and revise BLM Manuals H 6310, 6320, and 6330.

d. Recognize that BLM lacks congressional authority to manage subject lands, other than WSAs, as if they are or may become wilderness.

e. Recognize that even if BLM were to properly inventory an area for the presence of wilderness characteristics, BLM still lacks authority to make or alter project level decisions to automatically avoid impairment of any wilderness characteristics without express congressional authority to do so.

9. The only legal designations of WSAs are those designated under the Wilderness Act of 1964 and under Section 603 of FLPMA, or WSAs subsequently designated by U.S. Congress. On BLM-administered lands, the opportunity to create additional wilderness ended in 1991 except as authorized by U.S. Congress.

10. Some or all of the area WSA designations pending before U.S. Congress are legally and/or technically flawed. The counties will pursue that position when the WSAs go before U.S. Congress for approval.

11. Similar to wilderness areas, use of WSAs is highly restricted and does not provide the desired wilderness experience for most citizens and groups.

12. Similar to Wilderness designation, BLM's management of WSAs is inconsistent with the multiple-use mandate. Managing public lands for "wilderness characteristics" circumvents the statutory wilderness process and is inconsistent with the multiple-use and sustained-yield management standard that applies to all BLM and USFS lands that are not wilderness areas or WSAs and adversely affects the counties' economy in terms of the grazing, tourism, oil and gas extraction, mining, timber industries, and water resource development.

13. Management of WSAs must provide for continued and reasonable access to and development of property rights within the area and provide for full use and enjoyment of these rights.

14. Designation of additional roadless areas shall be opposed.

Energy Considerations

Findings: Duchesne County finds that wilderness designations could be used inappropriately to make energy rich lands unavailable for development.

Policy: It is the policy of Duchesne County that no lands within the Uintah Basin Energy zone shall be designated as wilderness.

Water Considerations

Findings: Duchesne County finds that there are positive and negative impacts on water from wilderness designations. Designating land for wilderness will make it impossible to use motorized recreation or develop natural resources, which would tend to improve water quality.

However, designating land for wilderness also means that active land management does not take place and natural systems, such as wildland fire, are not suppressed. Failure to suppress wildfire results in barren areas subject to erosion during precipitation events. Such events can produce mudflows, landslides and sedimentation of streams to a degree that can easily rival or exceed that produced by multiple uses in undesignated areas. Failure to actively manage wilderness areas also reduces the potential water yield from that drainage basin, which means less water for agricultural, residential and business use.

Section 24. Law Enforcement

Findings: The Duchesne County Sheriff's Office provides law enforcement services to all areas of Duchesne County and contract cities, as well as co-operative support services to local, state and federal law enforcement agencies and organizations.

The mission of the Sheriff's Office is to protect the lives, property, and rights of all people, to maintain order, and to enforce the law. This mission is achieved through the efforts of experienced and well trained officers and staff of the Duchesne County Sheriff's Office who strive to improve and maintain the quality of life enjoyed in the County and make it a safe place to live, work, and visit.

The stated vision of the Sheriff's Office is:

a. To set goals and objectives to meet the high standards of law enforcement services in accordance with our mission.

b. To exemplify our core values in accordance with our Code of Ethics.

c. To operate in a fiscally responsible manner.

d. To uphold the Constitution of the United States of America by enforcing the rights guaranteed to the citizens of the County through lawful deterrents to crime.

Duchesne County's powers as a political subdivision of the State of Utah derive from the United States and Utah Constitutions, the Utah Code, the common law, and Duchesne County ordinances and resolutions.

The State of Utah, of which Duchesne County is a part, has general powers of jurisdiction unless expressly assigned to the government of the United States in the United States Constitution.

The government of the United States, on the other hand, has only those powers expressly delegated to it in the United States Constitution, as expressly exercised by the Congress of the United States.

Planning and zoning authority for all lands within its borders is a prerogative of Duchesne County as expressed through its duly appointed planning and zoning commission and elected board of county commissioners.

Law enforcement authority for all lands within its borders is a prerogative of Duchesne County as expressed through its duly elected Sheriff and duly hired and appointed and contracted deputy law enforcement agents.

Law enforcement officials and other officials of federal land management agencies such as the BLM and the US Forest Service, have no authority, right or permission to enforce state and local criminal and civil laws except as authorized by and consistent with the Federal Assimilative Crimes Act.

The Federal Assimilative Crimes Act permits federal officers to enforce state and local laws by reference (assimilation) only on federal lands that are under either exclusive U.S. jurisdiction or concurrent U.S/State jurisdiction.

On federal lands under federal proprietary jurisdiction, which is virtually all BLM and Forest Service lands in Utah, federal agents may not rely on the Federal Assimilative Crimes Act as a basis to enforce state or local laws.

In Duchesne County, all BLM and Forest Service lands are proprietary jurisdiction lands, not concurrent or exclusive jurisdiction lands. Therefore, federal agents are NOT permitted by the Federal Assimilative Crimes Act to enforce state and local laws on those lands.

Policies:

1. It is the policy of Duchesne County, in the interest of the health, safety and welfare of its citizens, to not recognize any attempt by a federal official to try to enforce state or local criminal or civil laws on any lands in Duchesne County, including any BLM and Forest Service lands in Duchesne County, and to declare that all criminal and civil state and local laws shall be enforced in Duchesne County only by the Sheriff and Board of County Commissioners. This applies to all land within the boundaries of Duchesne County, including federal lands whether mandated for disposal or not, and whether such duty for disposal has been fulfilled or not.

2. Duchesne County serves notice of full reliance upon and integrity with House Bills 67, 147, 149 and 225, 2014 Utah General Legislative Session as codified in Utah Code Sections 11-51-102 through 104, 63-13-106, 63-13-106.1 through 106.10, and 17-22-31.

3. It is the policy of Duchesne County that the right of the Duchesne County Sheriff to exclusively and primarily exercise all law enforcement powers to police and enforce all state and local criminal and civil laws upon any lands within Duchesne County, federally owned or otherwise (with the exception of tribal lands and lands within cities or towns with their own law enforcement agency), shall be held inviolate. Any such attempted exercise of law enforcement powers by an official of a federal land management agency is not recognized by Duchesne County, and shall be deemed an imminent threat to the health, safety and welfare of the citizens of Duchesne County, unless properly exercised under an exception codified under Utah Code 53-13-101.1 through 106.10.

4. It is the policy of Duchesne County that any official of any federal land management agency who is situated within Duchesne County who intends to exercise any law

enforcement powers of any kind against any person or entity which may result in the deprivation of property or personal liberty, regardless of whether the action may take place on federal lands or otherwise, and any such official not already within Duchesne County who intends to enter into Duchesne County for such purpose, shall first declare his presence and intended action to the Sheriff of Duchesne County and seek permission from the Sheriff to pursue such intended action.

5. It is the policy of Duchesne County shall continue to support any and all actions to legally relieve the Federal Government of ownership, control and jurisdiction over public lands in Duchesne County, and demand the Federal Government dispose and convey all right, title and interest thereto to the State of Utah. This transfer of land to the State will resolve the law enforcement jurisdiction issues stated above.

6. Duchesne County encourages law enforcement agencies in the region to enter into Memorandums of Agreement that clearly establish lines of authority, first responder protocols and mutual aid agreements.

Section 25. Economic Considerations

Findings: Duchesne County enjoys a strong economic base and employment profile. However, recent reports show that a relatively small number of industries, especially the energy industry, generate the majority of economic returns. To illustrate, in 2016, during a slump in the energy industry, the unemployment rate in Duchesne County increased to over 11 percent. This rate is about 8 percent higher than during energy boom periods, when unemployment can drop below 3 percent.

The Duchesne County Economic Profile, published by the Economic Development Corporation of Utah, in 2015, shows that the top non-farm job producers in Duchesne County in 2014 were Mining (2,493 jobs), Trade-Transportation-Utilities (2,225 jobs) and Government (2,065 jobs). These three sectors produced 71.4 percent of the non-farm jobs in the county.

Duchesne County is very dependent on the energy industry. The Utah Department of Workforce Services (UDWS), in 2014, ranked Duchesne County as having the least diverse economy in the state, followed by Uintah County and Emery County (see "Utah Insights," Summer 2014 edition). UDWS publishes "Economic Snapshots" of Utah counties; and, in the January 26, 2017 update, found that Duchesne County lost 542 non-farm jobs between September 2015 and September 2016 (7% of the county's total non-farm jobs).

According to the *Profile of Mining, Including Oil & Gas*, found in the Headwaters Economics Economic Profile System (EPS), Duchesne County mining jobs generated annual average wages in 2014 of $77,832 compared to $41,936 for non-mining jobs and $33,710 for government jobs. These figures do not include the value of benefits and do not include earnings from those self-employed.

According to the *Profile of Government Employment*, found in the Headwaters Economics Economic Profile System (EPS), of the government jobs in Duchesne County, as of 2014, 90.9% were local government employees, 5.7% were state employees and the remainder is federal employees. This study counted 2,130 government jobs in the county, slightly higher than the Economic Development Corporation of Utah estimate. This was a 187% increase over the 742 government jobs in Duchesne County in 1970. The 2,130 government jobs in Duchesne County are about 15.2% of the total employment and produce about 14.8% of the total labor earnings.

According to the *Profile of Service Sectors*, found in the Headwaters Economics Economic Profile System (EPS), Duchesne County has 61.2% of its employment in Service Sectors as compared to 85.1% nationwide. The top four service sectors in Duchesne County are Health Care and Social Assistance, Transportation and Warehousing, Retail Trade and Accommodation and Food Services, with 12.8%, 12.7%, 10.4% and 6.8% of the service sector employment respectively. From 1998 to 2014, service sector employment in Duchesne County grew by 117 percent, but lagged behind non-service sector employment, which grew by 336 percent. Average annual wages in service sector jobs in 2015 was $38,935. This compares to $67,008 in non-service sector jobs and $74,138 in Natural Resource and Mining jobs. The relatively lower

wages in service sector jobs highlights the need to maintain and expand jobs in the traditional resource-based economy of the County and to find ways to attract other non-service jobs to the County.

According to the *Profile of Federal Land Payments*, found in the Headwaters Economics Economic Profile System (EPS), the federal lands in Duchesne County generated over $2.49 million in federal payments to local governments in FY 2015. Forest Service land generated 80.5% of the payments and BLM lands 16.7%. The bulk of these payments were associated with the Payment in Lieu of Taxes (PILT) program, which constituted over $1.92 million in that fiscal year. This was a substantial increase from the $882,980 PILT payment received in FY 2007. County government received 88.4% of the federal land payments in 2015, with school districts receiving 9.5% of the total. A small percentage of these federal funds had restrictions on their use (12.5%). The study also found that, in FY 2012, that federal land payments represented 10.4% of the total general government revenue in Duchesne County. Federal land payments represent a significant revenue source to Duchesne County; but the amount received in PILT payments is substantially less than what the county would receive if the lands were taxable and PILT payments are made at the whim of Congress and must uncertainty exists from year to year. This uncertainty makes it difficult for counties to make revenue forecasts.

The county also receives PILT revenue from the state, based on formulas set forth in Section 59-21 of the Utah Code. Currently, the amount is 52 cents per acre of land owned by SITLA, the Division of Parks and Recreation and Division of Wildlife Resources. There are about 151,280 acres of such lands in the county, which results in an annual payment of just under $79,000.00.

According to the *Profile of Non-Labor Income*, found in the Headwaters Economics Economic Profile System (EPS), 26.7% of personal income in the county comes from non-labor sources. This is 9.1% below the national figure of 35.8% (showing less dependence on non-labor income sources in the County). About half of non-labor income is generated from dividends, interest and rent earnings and about half from transfer payments; including Social Security, Medicare, Welfare, Unemployment, Worker's Compensation and Veteran's benefits and education and training assistance. Non-labor sources generated over $215.5 million in income in Duchesne County in 2014.

A study released in July 2013, entitled "*The Equality of Opportunity Project*," found that the Duchesne County area, along with other areas of the West affected by the energy boom, had high levels of upward mobility. The study found that areas with economic growth and strong family structure fared better in upward mobility. A strong family structure was typified by two-parent families with religious values, which is a common family structure in the County.

During 2012, according to the Utah State Tax Commission, the average adjusted gross household income in Duchesne County was the third highest in Utah, at $60,640 (behind only Summit and Morgan counties). By 2014, according to the Profile of Demographics, found in the Headwaters Economics Economic Profile System (EPS), the median household income was $60,700, compared to $53,482 nationwide. This high income rate can be attributed to energy industry

jobs. The total per capita personal income in Duchesne County was $39,574 in 2014, according to the Bureau of Economic Analysis. This income level ranked Duchesne County 6th out of 29 counties in Utah. In FY 2016, the Utah State Tax Commission reported that Duchesne County taxpayers had an Average Adjusted Gross Income of $64,520, which was the 3rd highest in the state (behind only Summit and Morgan Counties) and that the average federal tax paid was $9,863 (4th highest in the state).

In spite of the higher income levels, taxable purchases in Duchesne County have decreased substantially from the "boom" years of 2012-2014 to the "bust" year of 2015. According to the Utah State Tax Commission FY 2016 annual report, taxable purchases in Duchesne County were over $830 million in 2012, over $876 million in 2013 and $895 million in 2014. However, with the job losses that occurred in 2015, taxable purchases dipped to just over $443 million (a drop of about 50%, which was the largest percentage drop in the state). The amount of sales tax revenue received by the county and cities dropped by 30.5% from FY 2015 to FY 2016.

During periods of an active energy industry in Duchesne County, the population grows. According to the *Profile of Demographics*, Duchesne County, Utah," Headwaters Economics Economic Profile System (EPS), the population of the County increased from 14,371 (2000 Census) to 19,378 by 2014 (which is lower than the July 2014 population of 20,380 estimated by the state). This 34.8% population change was faster than nationwide growth of 11.6%. The State of Utah reports that Duchesne County added 1,977 residents between 2010 and 2014, of which 423 came from net migration into the county and 1,554 from natural increase (births minus deaths). That growth trend was short-lived due to the downturn in the energy industry in 2015 and 2016.

Of the estimated 19,378 residents in 2014, 86.1% were White, 4.8% were Native American and 7.2% were Hispanic. Duchesne County has a younger population than the nation, with a median age of 30.2 years in 2014 compared to 37.4 years nationwide. The percentage of males in Duchesne County is 50.6% compared to 49.2% nationwide.

The largest cities in Duchesne County, according to the *2016 Economic Report to the Governor*, had the following estimated populations as of 2014: Roosevelt (6,777), Duchesne (1,801), Myton (619), Altamont (251) and Tabiona (186).

The *Profile of Demographics* also reveals that 10.1% of the population and 8.6% of the families in Duchesne County live below the poverty level established by the federal government. These percentages are below the national rate of 15.6% of people and 11.5% of families living in poverty.

Objective: In an effort to decrease "single industry dependence", the County will continue to support the economic diversification strategies of the Duchesne County Chamber of Commerce. These efforts include, but are not limited to, economic growth and development in the following areas: business retention and expansion, business recruitment, value-added agriculture, and tourism and recreation.

County residents enjoy a quality of life unique in today's society. This lifestyle and rural environment also attracts businesses to the area. Residents and local leaders desire economic development, but feel that this growth should complement, rather than detract from the County's character. Residents feel that responsible natural resource use and development should be included as part of this priority.

Objective: Continue participation in the Seven County Infrastructure Coalition. The Coalition is currently comprised of seven counties in eastern Utah: Carbon, Daggett, Duchesne, Emery, San Juan, Sevier, and Uintah. The coalition was formed in 2014 in an effort to promote cooperative regional planning, increase economic opportunities and to implement sustainable infrastructure projects in these rural counties.

The Coalition Board meets monthly to discuss major projects that would benefit the region. The Board has established the following strategies as they seek to carry out their mission to improve the quality of life in the region:

- Continue Coordination and Public Outreach
- Coordinate planning, needs, and infrastructure corridors with adjacent counties, both inside and outside Utah
- See meaningful, productive relationships with public entities and individuals
- Develop actionable directives at monthly board meetings
- Maintain current meaningful content on the Coalition website
- Update the List of Priority Projects
- Evaluate additional potential projects as they arise or as conditions change
- Create project momentum and interest for priority projects and corridors
- Identify, prioritize, and conduct project-specific plans and studies
- Develop relationships with potential project-funding partners
- Maintain GIS database
- Seek funding solutions from Federal, State, Local and Private sources
- Execute projects

Among the Coalition projects with the most direct benefit to Duchesne County are a proposed oil pipeline between Duchesne County and the rail facilities in Carbon County and the Pariette Road extension. Many other road, pipeline and power line projects proposed by the Coalition would have significant indirect benefits to the county.

Objective: The County will also continue to work with the Tribe and federal and state agencies to identify mutual economic objectives. Partnerships with these entities will be formed when applicable and feasible.

With the assistance of the Duchesne County Chamber of Commerce and the Duchesne County Economic Development Board, the County will continue to implement and pursue the following policies and objectives:

Business Recruitment, Expansion, and Retention

Objective: The County feels that the majority of economic development efforts should focus on assisting existing businesses.

Policies:

1. The County, with the assistance of government agencies, institutions of higher learning, and private interests, will continue to assess current conditions and identify opportunities to maintain and expand existing in-county businesses and markets. The County currently contributes to, and participates in, a number of business assistance programs. The County will also continue these efforts.

2. Duchesne County recognizes that the State is pursuing business recruitment for rural Utah. The County will continue to participate in these activities to identify appropriate business opportunities compatible with the area and its lifestyle.

3. Mineral resource use and development continues to serve the County economically. Additional opportunities will be pursued as they become available and/or as new technology allows.

Small Business Assistance

Objective: The County supports the Small Business Development Center and other ongoing small business assistance efforts.

Findings: Several small business assistance strategies have been implemented. Many of the County's "smaller" businesses have survived and expanded due to this assistance.

The County also recognizes the Small Business Center at USU Uintah Basin as a valuable resource and will continue to support its efforts.

County entrepreneurs also have several other resources available for assistance including the Chamber, the Uintah Basin Applied Technology Center, Dinosaurland Resource Conservation and Development, Utah State University, and the State of Utah Department of Community and Economic Development.

Natural Resource Use and Development

Objective: Responsible natural resource use and development.

Findings: Duchesne County enjoys an abundance of natural resources including hydrocarbons, minerals, timber, water, wildlife and recreation. Historically, these resources have contributed significantly to the County's economic growth and development. Today, the County continues to depend on these resources for economic stability. The County will pursue further development of these resources as they become available and/or as new technology allows.

Policy: Since much of the natural resource base of the County is located on federal lands, in accordance with Section 63J-8-104 (2) of the Utah Code, it is the policy of Duchesne County that all BLM and Forest Service decision documents should include an analysis of the social and economic impact of the decision. Such analysis should:

a. Consider all facets of the decision in light of valuation techniques for the potential costs and benefits of the decision;

b. Clarify whether the costs and benefits employ monetized or non-monetized techniques;

c. Compare the accuracy, completeness, and viability of monetized and non-monetized valuation techniques used as part of the analysis, including all caveats on use of the techniques; and

d. Compare the valuation techniques employed in the analysis to the federal standards for valuation employed by the U.S. Department of Justice in court actions.

Objective: The County feels that resource use or development on private, public, or tribal lands should be sensitive to Tribal interests and the County's rural lifestyle, quality of life, and scenic environment.

Specific County interests to protect, maintain, and expand natural resource use and development include:

a. Maintaining multiple-use management of public lands,

b. Preserving public access, and

c. Identifying existing and potential areas of development.

County and Community Image

Objective: Support community and county sponsored beautification and cleanup efforts.

Policies: Duchesne County feels that "well kept" and "orderly" communities not only attract new businesses, but improve the business of existing establishments as well. With this philosophy in mind, the County will provide the following:

a. Assistance, as feasible, to prepare grant applications and locate matching funds for "community enhancement" projects,

b. Support for strategic renovation and revitalization of community-centered businesses,

c. Incentive programs to encourage individual property owners to take responsibility and pride in their personal properties,

d. Expansion of existing community-based/sponsored cleanup and beautification activities to County-wide/sponsored cleanup and beautification activities,

e. Support for communities to become involved in the Highway Enhancement Program, and

f. Increased enforcement of County "nuisance" ordinances.

Tourism

The Utah State Tax Commission collects tourism taxes, such as the transient room tax on motel rooms and other accommodations. The Tax Commission's annual report for fiscal year 2016 revealed that about $103,000 of transient room tax revenue was generated in Duchesne County in FY 2014 and 2015; however, the amount of revenue dipped to just over $65,000 in FY 2016. The revenue was the third lowest in the state, exceeding that of only Morgan and Piute Counties. This decrease can likely be attributed to fewer rooms being occupied by oilfield workers.

Objective: Diversify the economy by strengthening the tourism sector of the economy.

Policy: It is the policy of Duchesne County to promote economic development by supporting efforts to increase tourism in the county.

Broadband Infrastructure

Findings: As high speed Internet connections become an increasingly critical asset for economic development, education, healthcare, public safety, and general quality of life, it is essential that future management plans address the development of broadband infrastructure throughout the county. The need for reliable and redundant broadband is growing as rapidly as the tech industry, and governments must work with broadband providers collaboratively to prepare for the growing

need. Broadband infrastructure needs to be deployed with the capacity to adapt for evolving technologies.

The Utah Broadband Outreach Center works with providers to assess the levels of broadband services available throughout the State. Currently in Duchesne County, 92.39% of addressed properties have broadband service of 10 Mbps or higher and 41% of properties have access to speeds of 25 Mbps. Broadband service in the county (see Map #47) has been continually increasing in Duchesne County since the Broadband Outreach Center began tracking services. For example, in 2012, only 85% of households had access above 10 Mbps and few areas had services above 25 Mbps. These changes indicate significant provider investment during this time period. By working together with local providers, we anticipate that speeds will continue to increase in Duchesne County.

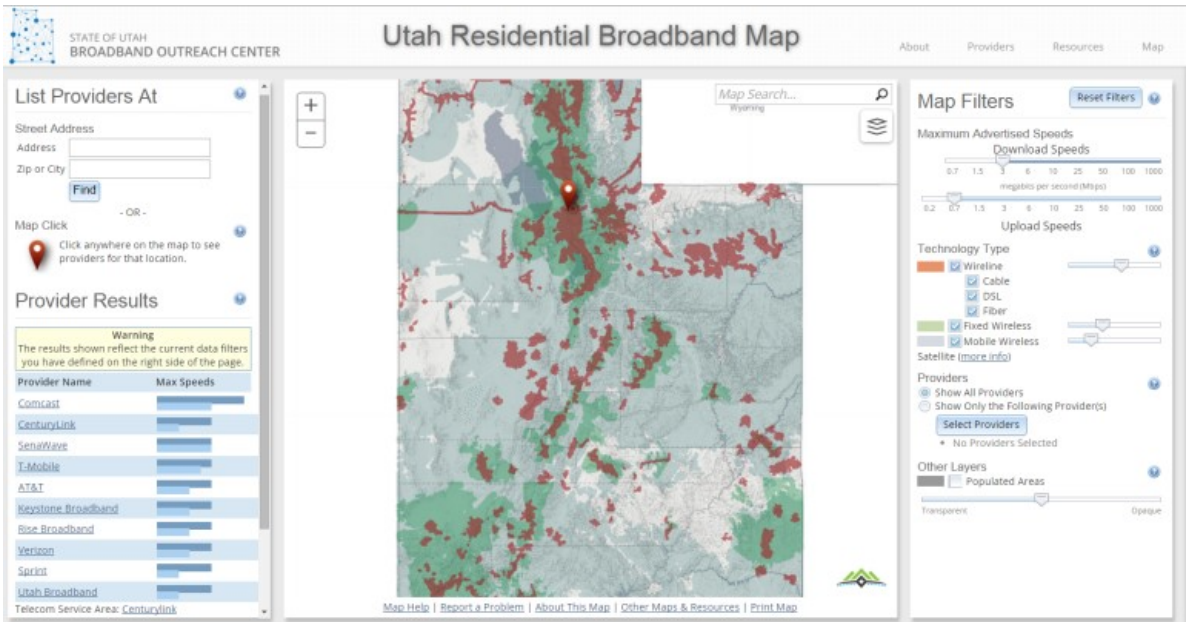
County Recommendations

Local communities play an important role in whether or not broadband networks get built. Counties can encourage development by following a few best practices to help streamline the process and create a business-friendly environment for broadband providers to help improve access for citizens.

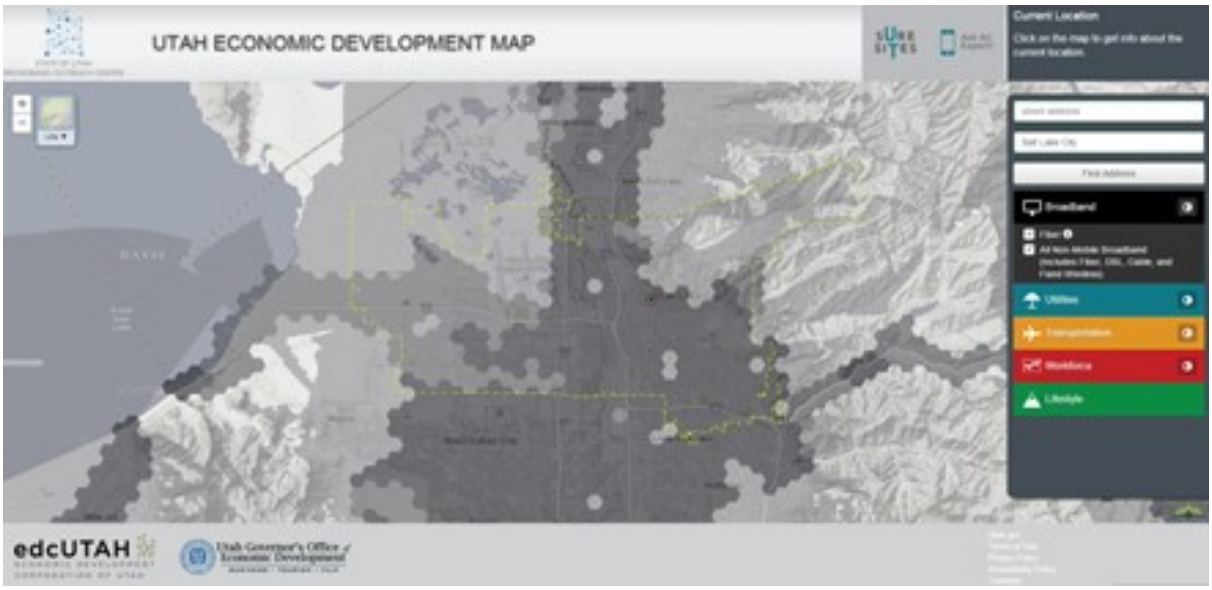
Utilize Current Broadband Data in the Planning Process

The Utah Broadband Outreach Center in the Governor's Office of Economic Development is a state program focused on mapping available broadband services and promoting the development of additional infrastructure in Utah. The county can work with the Utah Broadband Outreach Center as a resource for planning assistance. The Center can provide supporting informational data and resources to implement favorable policies into practice and can assist with planning activities. The Outreach Center maintains two interactive broadband maps that show the current state of broadband availability:

- The Utah Residential Broadband Map (broadband.utah.gov/map) displays residential broadband speeds throughout Utah. The Residential Broadband Map indicates where coverage is offered by service providers, and can be filtered by:
    - Individual provider
    - Speed
    - Technology type
    - Populated areas



- The Broadband Outreach Center also maintains an Economic Development Map (locate.utah.gov) that allows users to explore the state in detail. Businesses can use this map to scout for locations using interactive data on:
    - Broadband availability
    - Utility information (natural gas, electricity, culinary water)
    - Transportation (rail lines, airports, major roads)
    - Workforce (higher education institutions)
    - Recreation (state and national parks, ski areas, golf courses)
    - Health Care Facilities



Both maps can be used as a resource in planning efforts, particularly for expanding coverage in underserved areas. Data for these maps is provided by broadband providers and updated by the Broadband Outreach Center every six months. Additionally, the Outreach Center can work with county stakeholders to fulfill custom mapping requests.

Policy: Implement County Best Practices that Encourage Broadband Investment

Duchesne County will coordinate with other jurisdictions and broadband providers and encourage use of the following best practices to facilitate timely and cost-efficient broadband deployment:

- Use the residential and economic development maps available through the Utah Broadband Outreach Center to help assess community wide access and identify areas of need.

- Set goals to prioritize communities with the lowest business and residential average speeds and work with broadband providers in those areas to determine strategies to improve services. These areas should be evaluated in terms of wired (cable, DSL, fiber), fixed wireless and mobile broadband coverage (see Map #48).

- Implement best practices to save time and money, such as:

    - Identify which existing poles and conduits are owned by local governments and which existing poles and conduits have other owners and make them easily available to providers when possible.

    - Ensure broadband providers access to existing publically owned infrastructure.

    - Work with broadband providers to coordinate fiber installation with regular utility and road maintenance by informing them of opportunities where they can install services.

- Identify likely corridors to connect underserved areas and powered cellular communications sites to expand mobile service and create a streamlined process to allow providers to install services.

- Coordinate with key stakeholders on infrastructure deployment, which can be achieved using the following strategies:

    - Form a Joint Utility Committee (JUC) where county and city officials, developers and other utilities meet with broadband providers to coordinate planning efforts. For example, providers should be given the opportunity to incorporate broadband infrastructure into future developments as part of the approval process.

    - Designate a broadband development liaison to notify providers of opportunities to install services.

    - Create a permitting or public works department database to track projects and notify providers of opportunities to access poles, open trenches, and conduits.

    - Hold regular meetings with local leaders and telecommunications companies to discuss projects. Public officials should consider asking providers about future areas of development and collaborate on reducing barriers to entry.

    - Maintain open and friendly relationships with providers.

- Create broadband-friendly policies and planning documents, with considerations including:

    - Zoning laws that encourage deployment, with added requirements for broadband consideration during new construction and new developments.

    - Codified collaboration between public agencies, private providers, and end users.

    - Standards of construction that can assist with issues that arise based on unknown variables in the right-of-way.

    - Streamlined local permitting with predictable timelines, reduced regulatory barriers, and centralized communication between local planning offices.

- Less expensive rights-of-way fees in areas lacking sufficient broadband in order to incentivize broadband providers into underserved areas.

Broadband Policies for Federal Lands

Federal land management agencies also play a critical role in successful broadband deployment (see Map #49). It is important for these agencies to approach planning in a methodical and efficient way so that underserved county residents gain access to broadband, public lands are minimally disturbed, and service providers can engage in deploying services that benefit the county. In considering future resource management planning, Duchesne County establishes the following priorities to further the growth of broadband services.

Make Federal Data Relevant to Broadband Planning Projects Readily Available to States, Counties, Local Governments and Broadband Providers

Crossing federal lands can often be expensive and time consuming as service providers try to identify appropriate corridors and areas to install infrastructure. Making data publically accessible, such as the locations of federal assets, tower locations, and areas which have undergone environmental review under the National Environmental Policy Act (NEPA), may assist in this effort. Duchesne County recommends the following actions:

- Federal agencies shall maintain an online inventory and map of federal assets that the county can utilize in broadband planning efforts. This recommendation has been supported by several key stakeholders. Following President Obama's 2012 Executive Order No. 13616, "Accelerating Broadband Infrastructure Deployment," federal coalitions have worked to discuss administrative reforms that would encourage timely infrastructure growth. The Broadband Deployment on Federal Property Working Group, comprised of representatives from 14 federal agencies responsible for managing federal lands, determined that, "although the Federal Government owns or administers nearly 30 percent of all land in the United States and owns thousands of buildings, information about Federal assets and administered lands is not readily available." The Broadband Opportunity Council, created by President Obama's 2014 Presidential Memorandum, "Expanding Broadband Deployment and Adoption by Addressing Regulatory Barriers and Encouraging Investment and Training," recommended executive actions for existing agencies that would increase broadband deployment and encourage competition. In its August 2015 report titled, "Broadband Opportunity Council Report and Recommendations Pursuant to the Presidential Memorandum on Expanding Broadband Deployment and Adoption by Addressing Regulatory Barriers and Encouraging Investment and Training," the Council promoted expanding access to federal assets as one of its overarching recommendations.

- In accordance with NEPA standards, federal land management agencies have already reviewed lands within the county to approve proposed utility infrastructure projects. These same corridors are likely to be targeted for future broadband deployment. A regularly updated and publically available map or a website with downloadable GIS shapefiles showing previously reviewed and cleared locations would prove an extremely useful tool for broadband providers and municipalities. This mapping data would help providers target areas for development that are likely to pass environmental review, and limit the burden on public lands.

- GIS shapefiles of areas that have undergone NEPA environmental review and previously disturbed areas should also be sent to or made available online to state, county, and local GIS departments so they can use this information in planning efforts. These agencies may serve as a repository by creating a local database and map tools of this information for future planning efforts. If land management agencies do not make this data readily available, the county may consider undertaking an effort to identify and inventory assets, communications sites, and corridors that could play a role in expanding broadband.

- Since there are many recreation areas that can track visitation based on fees or permits, Duchesne County recommends visitation rates be used in conjunction with broadband coverage data to prioritize high user areas. Areas where visitors cannot be tracked but are known to have high usage should also be included. These areas may include locations where agriculture, grazing, fishing, hunting, hiking, rock climbing, cycling, ATV use, industry exploration and other activities are known to occur.

While some land management agencies are making progress centralizing this information, providers still lack a complete inventory they can access for planning purposes. Making this data publicly available will allow providers and communities to undertake meaningful broadband planning efforts.

Encourage Utilization of and Access to Federally Designated Communications Sites and Work with Providers to Designate New Sites.

Federally designated communications sites are used to facilitate orderly development of telecommunications to benefit the public's demand. Uses include radio and television transmission, as well as low power uses like two-way radio, microwave, cellular, and broadcast translators. Authorities can also authorize construction of new buildings and towers, including the necessary generators, grounding systems, access ways, and parking areas needed to operate at the site. Sites must be managed based on a current site management plan, and authorities can issue special use authorizations for each site based on the plan. Management plans can indicate priority uses for each communications site.

Chapter 90 of the Forest Service Handbook addresses communications site management. According to the handbook, a plan "should reflect the complexity of the current situation and the anticipated demand for the site," including the goal to, "consider anticipated changes and trends in technology, current demand, and projected future demand for the site in the next five to ten years." Given that broadband demand is expected to increase rapidly in the next five to ten years, we recommend all federal agencies that manage land use adapt and adhere to policies that support broadband deployment. In particular, Duchesne County recommends the following:

- Sites that can potentially be used for telecommunications infrastructure should be mapped and evaluated and land management agencies should work with providers to identify future communications sites.
- Prioritize designated communications sites for development based on need in the area.
- Form collaboration between the county governments, other local governments, and land management agencies to designate broadband corridors that would connect communications sites, communities, cell tower sites, schools, libraries, government facilities and other areas of economic activity.
- Once corridors are established, federal and state agencies should actively collaborate to encourage providers into underserved areas by streamlining, accelerating, and consolidating permitting for designated locations. County leaders, with the help of the State of Utah Broadband Outreach Center, can help recruit providers to build infrastructure in these prioritized areas.

Communications site management, broadband corridor designation, and planning efforts should also consider how to best leverage different existing facilities. Wireless broadband, or "over the top" broadband, in combination with wired connections greatly increase the broadband capacity in any given area. Wireless towers and access points are also a necessary feature for emergency communications on federal lands. Wireless towers must be connected with fiber, so concurrent planning is necessary. The following considerations should be made when planning for wireless broadband on public lands:

- Plan to integrate fiber and wireless broadband by deploying fiber to the edge of wilderness areas to maximize coverage.
- Plan for inconspicuous wireless tower locations that won't intrude on views or add additional intrusion to views.
- Feed fiber to tower locations or future tower locations when deploying fiber for other projects (e.g., highway construction and maintenance, new developments, etc.) to save costs and time.

Streamline Permitting to Encourage Broadband Deployment

There is significant value for quick approvals for fiber and conduit expansion projects within the constructed or disturbed portion of the federal and state highway systems, and along the federal aid-eligible (FAE) local roads and their rights-of-way. All of these highways and FAE roads are, at a minimum, improved road surfaces with significant pre-existing ground disturbance for the roadway itself, and possibly shoulder and drainage features.

President Obama's Executive Order No. 13616 addressed the challenges related to broadband infrastructure deployment. The Working Group assembled to respond to the order recommended changes to ensure coordination and streamlining of procedures, requirements, and policies related to deployment. While progress has been made in some areas, the county recommends continued work that would remove administrative barriers, reduce duplicative studies and documentation, and shorten waiting periods for permitting.

Permitting policies that allow broadband providers access to open conduits will reduce infrastructure costs related to broadband expansion. For policies to be successful, federal land management agencies need to be involved in projects so that rights-of-way can be established in a timely manner. Providers across Utah have expressed concern about extensive waiting periods when working with federal land management agencies. Duchesne County is concerned this will become a barrier and deter providers from expanding into areas that require passage through federal lands.

- The county recommends public landholding agencies identify areas where permitting could be streamlined, particularly easing permitting restrictions in previously disturbed areas. Proposed fiber installation along existing highways should be permitted on an accelerated pace. These disturbed corridors would face only minor temporary impacts. Such corridors often already have underground and overhead utility lines, making fiber deployment even less impactful.

- Allow for state Departments of Transportation to permit the installation of fiber optic lines or empty conduit within the constructed roadway prism (to include the improved surface, shoulder, and immediate constructed drainage) of any federal or state highway, or local road that qualifies and receives maintenance funding under the Federal Highway Administration (FHWA) federal-aid program. These qualifying projects should be exempted from NEPA review or granted categorical exclusions.

- Highway easements across federal lands should be defined to include broadband service providers. Establishing this public-private partnership, with the public partner as the highway owner, would make the Utah Department of Transportation (UDOT) the permitting agency for providers wishing to build or access conduits along the highway. UDOT has already successfully partnered with providers in this way by establishing

internal policies to build conduits that can be used by providers, and by notifying them about upcoming projects. Establishing UDOT as the single point of contact would limit confusion on permitting requirements and fees and would clarify the role of both agencies, resulting in considerable cost and time savings. In the past, these issues have resulted in delays that have sometimes lasted more than a year. Giving this authority to transportation agencies would expedite the process by limiting the time consuming and redundant reviews currently performed by federal land management agencies.

Increase Agency Capacity in Order to Prioritize Telecommunications and Broadband Permitting

In addition to adopting streamlining procedures that could free up the capacity of federal agencies, such as allowing UDOT to assist in permitting, the county also advocates for the hiring of additional staff responsible for telecommunications permitting. Processing times need to be reduced for broadband expansion to take place with reasonable cost and time commitments. Increasing the capacity of the Bureau of Land Management (BLM) should coincide with the establishment of a standard processing time for permitting (less than one month) so providers can schedule construction in a timely manner.

Energy Considerations

Policy: It is the policy of Duchesne County to promote economic development by recruiting businesses that complement the energy industry. However, due to the cyclical nature of the energy industry, it is the policy to also recruit businesses that will enable the economy to become more diversified.

Water Considerations

Policy: It is the policy of Duchesne County that economic development is promoted without sacrificing local water quality and recognizing that water supplies must be found adequate to support such development.

Section 26. Air

Findings: The Clean Air Act, last amended in 1990, requires that U.S. Environmental Protection Agency (EPA) set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. Standards have been set for six criteria pollutants: carbon monoxide (CO), lead, nitrogen dioxide (NO2; also known as nitrogen oxides, oxides of nitrogen, or NOx), ozone (O3), sulfur dioxide (SO2), and particulate matter (PM). Once emitted into the atmosphere, NOx and volatile organic compounds (VOC) emissions react together to form O3. Sunlight provides the energy for the reaction, and extremely reactive gases called radicals serve as catalysts.

The Utah Department of Environmental Quality (UDEQ), Division of Air Quality (DAQ) operates a network of 24 permanent air monitoring stations across the state; one of which is located in Roosevelt City (see Map #50). This station monitors meteorological conditions, Nitrogen Dioxide (NO2), Ozone (O3) and particulate matter (PM 2.5). This monitor shows that Duchesne County has been in compliance with all of the federal air quality standards, with the exception of occasional exceedances of the Ozone standard.

In addition to the air monitoring stations operated by the DAQ in Roosevelt and Vernal, EPA, the Ute Tribe, the Bureau of Land Management (BLM), and the National Park Service (NPS) maintain permanent air monitoring stations in the Uintah Basin. EPA and the Ute Tribe operate stations in Indian Country in Myton, Ouray, Redwash, and Whiterocks. NPS operates a station in Dinosaur National Monument, and BLM operates a station in the community of Fruitland. A semi-permanent air monitoring station at Horsepool has been used as a National Oceanic and Atmospheric Administration research site during winter intensive studies. The locations of the permanent and semi-permanent air monitoring stations located in or near Duchesne County are shown in Map #50. Up to two dozen temporary, portable air monitors are also set up at different locations throughout the Uintah Basin during the winter to measure meteorological conditions, O_3 concentrations, and levels of O_3 precursors. Utah State University has been involved in operating a number of the temporary monitors as well as assisting with permanent monitoring stations.

The 2015 Annual Report ("the Report") on air quality from the Utah Department of Environmental Quality, Air Quality Division (DAQ), provides the most up to date and accurate air quality information available to Duchesne County. Table 4 of the Report contains a Triennial Inventory of the amount of pollutants produced in Utah's 29 counties, in tons per year. Emissions from Duchesne County are summarized in Table A1.

Table A1. 2011 Triennial Emissions Inventory for Duchesne County (tons per year)

Pollutant Type	Duchesne County
CO	19,793
NO_x	11,934
PM_{10}	6,912
$PM_{2.5}$	1,082
SO_x	144
VOC	57,798

Notes: PM_{10} = PM less than 2.5 micrometers in diameter; SO_x = sulfur oxides.

Source: DAQ (2015).

Duchesne County has the 17th highest production of Carbon Monoxide (CO), the 6th highest production of Nitrogen Oxides (NOx) the 11th highest production of Particulate Matter (PM10), the 15th highest production of Particulate Matter (PM 2.5), the 15th highest production of Sulfur Oxides (SOx) and the 3rd highest production of Volatile Organic Compounds (VOC) compared to other counties in Utah.

The Triennial Inventory shows that Duchesne County is near the average in the production of most pollutants, with the exception of Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOC). Unfortunately, the high levels of these pollutants contribute to the formation of Ozone.

The Report contains the following summary of the Uinta Basin Ozone problem, which affects Duchesne County:

Uinta Basin Ozone

Since 2005, the National Park Service has been measuring summertime ozone at the Dinosaur National Monument located near Vernal and, beginning in 2006, at the Colorado National Monument located near Grand Junction, Colorado. In 2009, the EPA began measuring year-round ozone at two sites on the Ute Indian Reservation, located near Redwash and Ouray [in Uintah County]. Data collected from the two tribal sites during the winter of 2010 indicated that high ozone levels are occurring in the Basin during the middle of winter. This finding was unexpected since ozone is normally an air pollutant that is formed during the summertime when there are high temperatures and bright sunshine.

The Uintah Basin is bounded on the north by the Uinta Mountains, on the south by the Tavaputs Plateau, on the west by the Wasatch Mountains, and on the east by elevated terrain that separates it from the Piceance Basin in Colorado. Because the Uintah Basin is surrounded on all four sides

by mountains, it is shaped physically like a basin and tends to trap polluted air and facilitate inversion formation. In recent years, concentrations of wintertime O3 in the Uintah Basin have been elevated and at times exceed the NAAQS. High episodes are typically observed during winter inversion periods when the ground is covered by snow and stagnant air conditions are present.

In the winter of 2010/11, the Uintah Basin Impact Mitigation Special Services District (UBIMSSD) funded a study conducted by Utah State University's Energy Dynamics Lab and the DAQ. Using data collected from 18 permanent and temporary air monitoring stations placed throughout the basin, researchers found elevated wintertime ozone concentrations throughout the basin during temperature inversion events when snow covered the ground. The highest values were found in the central basin area, with many exceeding the ozone national ambient air quality standards (NAAQS).

In the winter of 2011/2012, cooperating agencies, including the BLM, the EPA, Western Energy Alliance, and the UBIMSSD, coordinated by the DAQ, embarked on a multi-winter effort to study and address ozone levels in the Uinta Basin. The first year's study was called the Uinta Basin Winter Ozone Study 2012 (UBWOS 2012). The goal was to understand how ozone is formed in the Basin during wintertime inversion conditions and to implement appropriate and effective strategies for mitigating high ozone levels in order to avoid nonattainment. Researchers from the National Oceanic and Atmospheric Administration (NOAA), several university research groups, the EPA, and the DAQ worked together to study ozone formation in the basin during wintertime inversion conditions. Although no temperature inversion/snow events occurred and ozone levels remained low, much valuable information was collected on emissions, inventories, and sources. The first year's study concluded that:

- Ozone formation is associated with stable meteorological conditions, snow cover, and sunshine.

- Chemical precursors to ozone formation are NOx and VOCs.

- NOx comes from hot combustion sources, and the highest levels are in the oil production areas and population centers. (Oil and gas operations have been found to be responsible for 57 to 61 percent of the NOx emissions).

- VOC comes from oil and gas production with the highest levels in the gas production areas. (Oil and gas operations have been found to be responsible for 98 to 99 percent of the VOC emissions).

- Methanol was measured at concentrations that could significantly enhance ozone formation.

- There is very high year-to-year variation in ozone levels due to variation in meteorological conditions.

- Analysis of historical climatology for meteorological conditions conducive to ozone formation suggests about one in two winters would produce ozone levels higher than the federal standard.

In the winter of 2012/13 ozone concentrations in excess of the current NAAQS were measured in the Uinta Basin during winter inversion periods when the ground was covered by snow. The Uinta Basin Winter Ozone Study 2013 (UBWOS 2013) was conducted and involved the same researchers as the prior year's study, and it concluded the following:

- Maximum 8-hour average ozone concentrations measured at Ouray [in Uintah County] reached 142 ppb during the study, exceeding the NAAQS (75 ppb) by 89%. Monitored values in the major population centers were greater than the NAAQS on a total of 22 days at Vernal, and 29 days at Roosevelt. These observations are in sharp contrast to the 2012 winter study, when 8-hour average ozone levels did not exceed 63 ppb.

- Elevated ozone coincided with elevated levels of VOCs and NOx, which are the primary chemical precursors of ozone formation.

- Reflection of sunlight from the snow surface significantly increases the total solar radiation in the atmosphere and thus, the rate of ozone formation.

- Complex patterns of light winds within the Basin appear to produce an east-west "sloshing" of air that contributes to intra-basin mixing of ozone and ozone precursors.

- Chemical reactions during these winter episodes differ greatly from summer ozone formation in urban areas.

- Aromatic VOCs such as toluene and xylene contribute in secondary formation of wintertime ozone pollution in the Basin; therefore, VOC control measures focused on these types of VOCs will be particularly effective.

In the winter of 2013/14, the DAQ coordinated the Uinta Basin Winter Ozone Study 2014 (UBWOS 2014). The study focused on quantifying the contribution of nitrous acid (HONO) and formaldehyde (HCHO) to the chemical reactions responsible for ozone formation. Prior studies in the basin showed that HONO and HCHO dominate the radical chemistry that drives ozone production. HONO and HCHO are unconventional sources for ozone formation compared to the conventional sources (ozone photolysis) in typical summer urban ozone episodes.

The study confirmed the following:

- HONO, based on an improved suite of measurements, does not appear to be a major source of the chemical radicals needed to form ozone during the winter episodes, as previously suspected.

- HCHO and other aldehydes are the dominant radical sources needed for ozone formation. These compounds are both directly released from various emission sources and form in the atmosphere from directly emitted VOCs such as those contained in oil and raw natural gas. Aromatic VOCs, including toluene and xylene, while less abundant than other VOC species in the basin, are also particularly important sources of radicals.

- New "box model" simulations of ozone formation chemistry, based on data collected at the Horsepool study site [in Uintah County], confirmed earlier analysis indicating that ozone formation at this location is sensitive to VOC reductions (i.e., VOC reductions would result in ozone reductions). The modeling results also suggest that NOx reductions would lead to ozone reductions at Horsepool. These modeling results are pertinent to the Horsepool location and may not be applicable across the basin as a whole.

The winter of 2013-2014 produced the following 8-Hour Average Ozone concentrations in the Uintah Basin (see Table A2).

Table A2. 8-Hour Average Ozone Concentrations in the Uintah Basin, Winter 2013–2014

Uintah Basin Air Monitoring Station	Overall Daily Maximum* (parts per billion)	Overall Exceedances of the NAAQS O_3 Standard of 75 Parts per Billion†
Dinosaur National Monument	80.6	5
Fruitland	58.4	0
Horsepool	96.8	13
Myton	89.3	6
Ouray	92.8	17
Red Wash	89.0	7
Roosevelt	65.5	2
Vernal	73.4	3
Whiterocks	67.3	3

Source: ENVIRON International Corporation (2015).

* Fourth highest daily maximum.

† The NAAQS O_3 standard is now 70 ppb (the final rule became effective on December 28, 2015).

The Fruitland, Myton and Roosevelt stations are within Duchesne County.

The UBWOS work is broadly supported financially by numerous agencies, including the UBIMSSD, Western Energy Alliance, Bureau of Land Management - Utah Office, and NOAA. All of the research organizations have also made significant in-kind equipment contributions to this study.

Further information on the UBWOS and wintertime ozone in the Uinta Basin can be found on the DAQ web site at: http://www.deq.utah.gov/locations/U/uintahbasin/index.htm.

Work on Uinta Basin air quality during 2015 focused on the development of an improved emissions inventory for oil and gas production. A series of stakeholder meetings were conducted with the Western Energy Alliance, oil and gas operators, Ute Tribe, the EPA, and the BLM to agree on an inventory process. The goal is an emissions inventory that is spatially, temporally, and chemically characterized for the entire Basin. This inventory is needed to develop appropriate and effective mitigation strategies for ozone and other air pollutants that can form as a result of the Basin's unique wintertime chemistry. The oil and gas emissions data requests were due by the end of 2015 and the initial inventory compilation was expected in the first quarter of 2016.

In December 2015, EPA lowered the primary and secondary O_3 standard from 0.075 to 0.070 parts per million. According to EPA and DAQ (based on 2012–2014 data), Duchesne and Uintah Counties do not meet the updated standard. Utah submitted the Governor's recommendation for area designation on September 30, 2016. Two areas are recommended for ozone nonattainment designation: the Wasatch Front Area (Salt Lake and Davis counties, and portions of Weber, Tooele, and Utah counties) and the Uinta Basin Area (portions of Uintah and Duchesne counties at and below 6,000 feet of elevation). The Uintah Basin Area excludes a large portion of tribal land; the Ute Indian Tribe will make a separate recommendation to the EPA for area designation on tribal lands. Final ozone area designations would be promulgated by the EPA no later than October 1, 2017. States are required to develop federally-enforceable State Implementation Plans (SIPs) to identify how the primary and secondary NAAQS would be attained in nonattainment areas. The Ute Tribe and EPA would also be required to develop a plan covering Indian Country. Through these plans, the state and the Ute Tribe would design control measures and strategies to reduce pollutant levels in the area, and if appropriate, any emissions of precursor pollutants.

The time period for ozone nonattainment areas to achieve attainment depends on the area's classification as marginal, moderate, serious, severe, or extreme. A higher classification would mean more stringent requirements, but allow for a longer time to reach attainment. Although the classification of the Utah-recommended nonattainment areas is unknown at this time, they are expected to be either marginal (3 years to attainment from date of classification) or moderate (6 years to attainment from date of classification). An attainment SIP is not required for marginal nonattainment areas, but states must implement control mandates such as new source review and emission limitations for major sources. Clean Air Act permitting in Utah is the responsibility of UDEQ. In Indian Country, the permitting authority is EPA. Economic development could be impacted by a nonattainment designation. Consequences of a nonattainment designation could include requiring new facilities wanting to locate in the nonattainment area to install pollution

controls or take stringent operational limits, requiring emission offsets, or requiring the implementation of voluntary measures to reduce emissions. Emissions reductions from existing sources are also likely to be required.

In May 2016, EPA finalized the federal implementation plan to implement the Minor New Source Review Program for oil and gas production and processing segments (EPA 2016). Permit options include the general permit, permit-by-rule, and true minor source registration. The final rule also incorporates emission limits and other requirements from eight federal standards and applies limits for a range of equipment and processes used in oil and natural gas production and natural gas processing (New Source Performance Standards [NSPS] subparts D, Kb, IIII, JJJJ, KKKK, and OOOOa and National Emission Standards for Hazardous Air Pollutants subparts HH, ZZZZ, and DDDDD). NSPS subpart OOOO is the first set of federal air standards to limit VOC emissions at natural gas wells that are hydraulically fractured and to establish requirements for several other oil and gas industry sources of air pollution (e.g., storage tanks, pneumatic controllers, and glycol dehydrators) that were constructed, modified, or reconstructed after August 23, 2011. NSPS subpart OOOOa is an addition to subpart OOOO that limits VOC and methane emissions from affected equipment and processes in the oil and gas industry that were constructed, modified, or reconstructed after September 18, 2015. These new regulations will affect multiple emission sources in Daggett, Duchesne, and Uintah Counties.

UDEQ finalized rules (Utah Administrative Code R307-504) in 2014 that established requirements to ensure that existing oil and gas equipment is maintained and operated as designed, that bottom filling or submerged filling is used when loading a product into tanker trucks, that high-bleed pneumatic controllers are replaced with low-bleed controllers, and that self-igniters are installed on flares. UDEQ also inspects, audits, and enforces actions to ensure facilities are meeting applicable regulatory requirements. In addition, UDEQ compares Utah Division of Oil, Gas and Mining production data with their air permits database to verify that oil and gas facilities have obtained the necessary air permits. These regulations also affect multiple emission sources in Daggett, Duchesne, and Uintah Counties.

O_3 is present in the atmosphere even in the absence of significant, local, human-caused emissions of NO_x and VOC. This background O_3 is a result of natural emissions and of human-caused emissions transported from outside the Uintah Basin or outside the United States. Background O_3 is O_3 that is beyond the ability of local regulators to control (Lyman 2016). Background O_3 is often higher in areas of higher elevation (such as the Uintah Basin) because natural stratospheric O_3 impacts and international transport impacts increase with altitude, whereas O_3 lifetimes are longer (EPA 2014). Some research suggests that increased transport of O_3 and precursors from outside the United States are counteracting domestic emissions reductions in the west (Cooper et. al. 2012 and Lin et. al. 2017). O_3 and precursors from outside the Uintah Basin, combined with wildfires and intrusions of O_3-rich air from the stratosphere, have occasionally led to exceedances of the O_3 NAAQS during the summer in the Uintah Basin. Understanding the mechanics of the Uintah Basin airshed in the winter and summer, including O_3 transport within and from outside the basin, will be important before policies are developed.

A state may request that EPA exclude data showing exceedances or violations of the NAAQS that are related directly to an exceptional event (40 Code of Federal Regulations [CFR] 50.14(a)(1)). An *exceptional event* is defined in 40 CFR 50.1(j) as "an event that affects air quality, is not reasonably controllable or preventable, is an event caused by human activity that is unlikely to recur at a particular location or a natural event, and is determined by the Administrator in accordance with 40 CFR 50.14 to be an exceptional event. It does not include stagnation of air masses or meteorological inversions, a meteorological event involving high temperatures or lack of precipitation, or air pollution relating to source noncompliance." Examples of exceptional events include fireworks and prescribed fire. Daggett, Duchesne, and Uintah Counties support this regulation and agree that exceptional events should not count toward nonattainment status.

Senate Bill 2072 would require EPA to establish a program (Early Action Compact program) under which the EPA administrator would defer the designation of an area as a nonattainment area for purposes of the 8-hour O_3 NAAQS if the area achieves and maintains certain standards under a voluntary early action plan. The bill was introduced in September 2015, and a hearing was held in June 2016. The county supports the passage of this bill because it allows the use of locally crafted solutions to improve air quality and achieve compliance with the NAAQS.

A promising pilot program is being started by the Air Quality Division of the Utah Department of Environmental Quality (DAQ), called the Storage Tank Emissions Pilot Project (STEPP). This project, using a $150,000 appropriation from the 2016 Utah Legislative Session, will establish a partnership between the DAQ, the TriCounty Health Department, the energy companies and the Bingham Entrepreneurship and Research Center to use infrared cameras to assess VOC emissions from "thief hatches" on oil and gas condensate tanks in the Uintah Basin.

The STEPP project notes that there are 14,222 producing and shut-in oil and gas wells in the state, of which 11,400 are in the Uintah Basin. Approximately 2,350 of those wells are regulated by the State (the remaining wells are under the jurisdiction of the Ute Tribe and the EPA). Rather than inspect all 2,350 wells, the STEPP project will focus on 474 facilities that have VOC combustors installed on their storage tanks. It is anticipated that, if significant leaks are found, that these leaks will be relatively easy to remedy. This project will greatly improve emissions estimates that are currently available and should improve local air quality as tank emissions are reduced.

Objectives

1. Maintain or improve air quality to protect the health and well-being of county residents, and maintain or improve the desirability of the county as a place to visit and recreate.

2. Promote economic development without sacrificing local air quality. Air quality should be protected to prevent potential restrictions on future development.

3. Work cooperatively as full partners with other agencies and entities to identify baseline air quality for the Uintah Basin.

4. Assess the extent to which Uintah Basin air is degraded by natural phenomena and by sources outside the Uintah Basin. Work cooperatively as full partners with other agencies to establish an understanding of contributions from non-area emission sources.

5. Promote mass transit options to reduce air pollution associated with commuter traffic.

6. Improve air quality by promoting efforts by the Seven County Infrastructure Coalition, Moon Lake Electric Cooperative and others to extend electric power facilities to underserved oilfield areas.

Policies

1. Comply with all federal, state, and local air quality rules, regulations, and directives.

2. Cooperate with air regulatory authorities to prevent significant adverse effects from air pollution.

3. Participate with regulatory authorities in determining air monitoring needs.

4. Cooperate with the Ute Tribe, EPA, and the State of Utah to create workable agreements to address air quality issues.

5. Continue to encourage and support research and studies to inform the decision-making process for better air quality.

6. Support research and improve knowledge of the wintertime O3 problem in the Uintah Basin, including understanding non-area emission sources.

7. Work cooperatively with other agencies to develop solutions to reduce the O3 problem based on research outcomes.

8. Support the implementation of developed solutions for O3 reductions.

9. Encourage industry to reduce VOCs and NOx to help address the O3 problem.

10. When possible, consider sponsoring air quality forecasting for winter months and sending alerts to companies when impaired air quality is likely to help reduce emissions.

11. Collect and disseminate information about low-emission technologies that could be used by industry, and encourage voluntary adoption of those technologies.

12. Consider offering incentives to industry for the adoption of emission reduction technologies (e.g., awards, an unofficial certification program).

13. Evaluate whether it is possible or economically feasible to restrict non-essential industry activities during winter inversion episodes.

14. Implement county policies to maintain good air quality and to avoid nonattainment (hazardous days).

15. Publish county requirements online for local burning. Encourage all residents to follow the requirements (e.g., the clearing index), especially during winter inversions.

16. Only allow agricultural burning during times of low fire danger and when atmospheric conditions will disperse smoke efficiently.

17. Assist local health departments in enforcing Utah Administrative Code R307-202 (Emission Standards: General Burning), which prohibits open burning at sites used for the disposal of community garbage and other waste, and prohibits a person from burning petroleum wastes, demolition or construction debris, residential rubbish, garbage, vegetation, wood, and other types of waste.

18. Educate county communities about air quality issues and what they can do to help (e.g., reduce idling).

19. Consider implementing incentives to reduce the use of wood-burning stoves.

20. Work with natural gas providers and developers to encourage the wider availability of natural gas so that it can be used to replace more polluting fuels.

21. Work with the local health department to address fugitive dust issues. Implement measures to reduce fugitive dust from roads, gravel pits, etc. Such measures could include water applications, chemical applications such as magnesium chloride, and covering truck loads.

22. Cooperate with regulators to require adequate dust-control measures at mining, mineral resource, and energy resource locations, such as speed limits, watering, and ceasing operations during high winds.

23. Educate the public about fugitive dust and about ways to reduce fugitive dust emissions. Work to prevent degradation from non-area sources, after the sources are better understood.

24. Investigate incentives to encourage industry to reduce greenhouse gas emissions such as methane, carbon dioxide, and NOx (e.g., the use of carbon credits). Reduction of greenhouse gas emissions such as NOx would also help with the O3 problem.

25. Support continued funding of the Basin Transit Association bus system operated by the Uintah Basin Association of Governments.

26. Support efforts to extend electrical power facilities to underserved oilfield areas.

Air Quality and Energy

Findings: The production of energy resources can have impacts on air quality.

Policy: It is the policy of Duchesne County that particulate matter shall be kept within state and federal standards at energy resource locations through adequate dust control measures. It is the policy of Duchesne County that energy development shall be conducted in a manner that minimizes the release of volatile organic compounds and other pollutants that may adversely affect air quality and public health, in accordance with state and federal standards. Energy resources locations are expected to meet federal and state permitting requirements as needed.

Air Quality and Mining

Findings: The production of mining and mineral resources can have impacts on air quality.

Policy: It is the policy of Duchesne County that particulate matter be kept within state and federal standards at mining and mineral resource locations through adequate dust control measures. Mining and mineral resources locations are expected to meet federal and state permitting requirements as needed.

Air Quality and Agriculture

Findings: Agricultural activity can create dust which elevates the level of particulate matter in the air. Tilled croplands have the potential to generate more dust than areas used for pasture. In Duchesne County, of the 1,088,559 acres in farms in 2012, only 78,172 acres was in cropland and only 59,206 of those acres were harvested cropland. The data shows that much of the agricultural land in Duchesne County is less likely to generate dust that would impact particulate matter levels in the air.

Air Quality and Wildlife

Findings: Air Quality issues generally are not a major consideration in wildlife management, although dust deposition may affect vegetation which animals use for food, cover, or shelter. It is reasonable to assume that air pollution affects other higher order animals in the same ways that it affects humans, although effects on wildlife are not well documented. Compliance with federal and state air quality standards is expected to provide some level of protection for wildlife. The effects of dust and other particulate forms of air pollution on animal ecology are becoming a more widely recognized subject of interest.

Air Quality and Forest Management

Findings:

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

Air quality conditions deteriorate unnecessarily when inactive forest management results in wildfire. According to the interagency report *Utah Forest Health Report, A Baseline Assessment 1999 - 2001* (Keyes et al. 2003), deteriorated air quality (e.g., increase in ozone) can damage vegetation and predispose plants to other disturbance. Some effects can include a decrease in lichen richness, tree crown thinning, and discolored foliage.

Air Quality and Recreation

Policy: Duchesne County supports efforts to maintain clean air so that the County maintains its position as a desirable place to visit and recreate.

Air Quality and Fire Management

Findings: Proper and effective fire management can reduce the amount of smoke produced by fires and have reduce the negative impacts of fires on air quality.

Policies:

1. It is the policy of Duchesne County that fires, except those deemed by the County to have a beneficial purpose (such as managed wildland fire, prescribed burns or training burns) shall be extinguished as soon as possible to reduce negative impacts on air quality.

2. It is the policy of Duchesne County that solid waste shall not be burned.

3. It is the policy of Duchesne County that agricultural burning shall be allowed only during times of low fire danger and during times when atmospheric conditions will disperse smoke efficiently.

4. It is the policy of Duchesne County that proscribed fires slated for completion should be coordinated with the State Smoke Coordinator prior to ignition and follow the requirements of the State's Enhanced Smoke Management Plan (http://www.deq.utah.gov/Pollutants/R/regionalhaze/rhsip/docs/2006/05May/ESMP081103.pdf).

Land Access and Air Quality

Findings: Duchesne County finds that there are no air considerations associated with Land Access other than dust control.

Policy: It is the policy of Duchesne County to require dust control or dustless surfaces on roads under County jurisdiction where sensitive dust receptors exist nearby.

Air Quality and Threatened or Endangered Species

Findings: Air Quality issues generally are not a major consideration in the management of Threatened, Endangered, or Sensitive Species, although dust deposition may affect vegetation which species use for food, cover, or shelter. It is reasonable to assume that air pollution affects other higher order animals in the same ways that it affects humans, although effects on wildlife are not well documented. The effects of dust and other particulate forms of air pollution on animal ecology are only now becoming a more widely recognized subject of interest.

Air Quality and Wilderness

Findings: Duchesne County finds that there are positive and negative impacts on air quality from wilderness designations. Designating land for wilderness will make it impossible to use motorized recreation or develop natural resources, which would tend to improve air quality. However, designating land for wilderness also means that active land management does not take place and natural systems, such as wildland fire, are not suppressed. Failure to suppress wildfire generates air pollutants that can easily rival or exceed the tonnage of pollutants produced by multiple uses in undesignated areas.

Air Quality and the Economy

Policy: It is the policy of Duchesne County that economic development is promoted without sacrificing local air quality.

Section 27. Vegetation Management

Findings:

National Land Cover Database (NLCD) geospatial data use a 16-class land cover classification scheme at a spatial resolution of 30 meters (Homer et al. 2015). Acres of NLCD land cover types, which are consolidated into more general cover types, predicted to occur in Duchesne County are listed in Table VEG1 and shown on Map #51.

Table VEG1. Acres of National Land Cover Database Land Cover Types Predicted to Occur in Duchesne County

NLCD Land Cover Types	Duchesne County
Barren Land (Rock/Sand/Clay)	154,206.5
Cultivated Crops	1,306.3
Deciduous Forest	77,634.5
Developed, High Intensity	96.0
Developed, Low Intensity	6,221.7
Developed, Medium Intensity	477.0
Developed, Open Space	20,087.9
Emergent Herbaceous Wetlands	1,248.1
Evergreen Forest	764,078.8
Grassland/Herbaceous	50,192.8
Mixed Forest	13,229.6
Open Water	9,678.4
Pasture/Hay	137,543.1
Perennial Ice/Snow	19.7
Shrub/Scrub	826,194.3
Woody Wetlands	14,802.8
Total	**2,077,017.5**

Source: USGS (2011).

LANDFIRE is a vegetation, fire, and fuel characteristic mapping program managed by the U.S. Department of Agriculture Forest Service and the U.S. Department of the Interior. The program represents a nationally consistent collection of spatial resource datasets with an ecological foundation designed to use at a landscape scale. Greater than 65% of the vegetation in Duchesne

County is represented by seven vegetation types (LANDFIRE 2014). Table VEG2 describes the acres of LANDFIRE vegetation types predicted to occur in Duchesne County.

Colorado Plateau Pinyon-Juniper Woodland – 21.2% – This vegetation type occurs in the dry mountains and foothills of the Colorado Plateau region, from the western slope of Colorado to the Wasatch Range in Utah. It is typically found at lower elevations ranging from 1,500 to 2,440 meters (m). This vegetation type occurs on warm, dry sites on mountain slopes, mesas, plateaus, and ridges. *Pinus edulis* and/or *Juniperus osteosperma* dominate the tree canopy.

Inter-Mountain Basins Big Sagebrush Shrubland – 11.4% – This vegetation type occurs throughout much of the western United States typically in broad basins between mountain ranges, plains, and foothills between 1,500 and 2,300 m in elevation. Soils are typically deep, well-drained, and non-saline. This vegetation type is dominated by *Artemisia tridentata* ssp. *tridentata* and/or *Artemisia tridentata* ssp. *wyomingensis*.

Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland – 8.2% – Engelmann spruce and subalpine fir forests comprise a substantial part of the subalpine forests of the Cascades and Rocky Mountains from southern British Columbia east into Alberta, and south into New Mexico and the Intermountain West region, with elevations ranging from 1,275 m in its northern distribution to 3,355 m in the south. These forests often represent the highest elevation forests in an area. Sites within this vegetation type are cold year-round, and precipitation is predominantly in the form of snow, which may persist until late summer. Despite their wide distribution, the tree canopy characteristics are remarkably similar, with *Picea engelmannii* and *Abies lasiocarpa* dominating either mixed or alone.

Barren – 7.5% – This "vegetation type" comprises barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, sand dunes, strip mines, gravel pits, and other accumulations of earthen material. Generally, vegetation accounts for less than 15% of the total cover.

Colorado Plateau Mixed Low Sagebrush Shrubland – 6.6% – This vegetation type occurs in the Colorado Plateau, Tavaputs Plateau, and Uinta Basin in canyons, gravelly draws, hilltops, and dry flats at elevations generally below 1,800 m. Soils are often rocky, shallow, and alkaline. This vegetation type includes open shrublands and steppe dominated by *Artemisia nova* or *Artemisia bigelovii* sometimes with *Artemisia tridentata* ssp. *wyomingensis* codominant. Semi-arid grasses such as *Achnatherum hymenoides*, *Aristida purpurea*, *Bouteloua gracilis*, *Hesperostipa comata*, *Pleuraphis jamesii*, or *Poa fendleriana* are often present and may form a graminoid layer with over 25% cover.

Rocky Mountain Lodgepole Pine Forest – 6.3% – This vegetation type is widespread in upper montane to subalpine elevations of the Rocky Mountains, Intermountain West region, These are subalpine forests where, following stand-replacing fires, *Pinus contorta* will rapidly colonize and develop into dense, even-aged stands. Most forests in this ecological system occur as early- to mid-successional forests, which developed following fires. These forests are dominated by *Pinus*

contorta with shrub, grass, or barren understories.

Inter-Mountain Basins Mixed Salt Desert Scrub – 5.0% – This extensive vegetation type includes open-canopied shrublands of typically saline basins, alluvial slopes, and plains across the Intermountain West. The vegetation is characterized by a typically open to moderately dense shrubland composed of one or more *Atriplex* species, such as *Atriplex confertifolia, Atriplex canescens, Atriplex polycarpa*, or *Atriplex spinifera*.

Table VEG2. LANDFIRE Vegetation Types Predicted to Occur (Duchesne County – Acres)

LANDFIRE Vegetation Type	Duchesne County (Acres)
Abies concolor Forest Alliance	924.6
Arctostaphylos patula Shrubland Alliance	530.6
Artemisia tridentata ssp. *vaseyana* Shrubland Alliance	44,469.7
Barren	155,780.2
Coleogyne ramosissima Shrubland Alliance	659.1
Colorado Plateau Mixed Low Sagebrush Shrubland	136,326.5
Colorado Plateau Pinyon-Juniper Woodland	439,565.5
Developed-High Intensity	66.5
Developed-Low Intensity	2,060.3
Developed-Medium Intensity	506.5
Developed-Roads	18,272.9
Grayia spinosa Shrubland Alliance	735.8
Great Basin Pinyon-Juniper Woodland	24.2
Great Basin Semi-Desert Chaparral	3,547.3
Inter-Mountain Basins Aspen-Mixed Conifer Forest and Woodland	63,440.2
Inter-Mountain Basins Big Sagebrush Shrubland	235,701.8
Inter-Mountain Basins Big Sagebrush Steppe	1,483.0
Inter-Mountain Basins Curl-leaf Mountain Mahogany Woodland	2,231.6
Inter-Mountain Basins Greasewood Flat	9,059.2
Inter-Mountain Basins Mat Saltbush Shrubland	6,318.6
Inter-Mountain Basins Mixed Salt Desert Scrub	102,982.6
Inter-Mountain Basins Montane Riparian Forest and Woodland	6.0
Inter-Mountain Basins Montane Riparian Shrubland	0.2
Inter-Mountain Basins Montane Sagebrush Steppe	28,856.9
Inter-Mountain Basins Semi-Desert Grassland	2,306.4
Inter-Mountain Basins Semi-Desert Shrub-Steppe	1,942.8

Table VEG2. LANDFIRE Vegetation Types Predicted to Occur (Duchesne County – Acres)

LANDFIRE Vegetation Type	Duchesne County (Acres)
Inter-Mountain Basins Sparsely Vegetated Systems	4,383.5
Inter-Mountain Basins Sparsely Vegetated Systems II	10,504.6
Introduced Riparian Forest and Woodland	199.8
Introduced Riparian Shrubland	1,399.3
Introduced Upland Vegetation-Annual Grassland	25,699.6
Mogollon Chaparral	16.4
Mojave Mid-Elevation Mixed Desert Scrub	12.9
North American Warm Desert Sparsely Vegetated Systems II	86.2
Open Water	12,080.0
Quarries-Strip Mines-Gravel Pits	148.2
Quercus gambelii Shrubland Alliance	3,805.8
Rocky Mountain Alpine Dwarf-Shrubland	2,289.3
Rocky Mountain Alpine Turf	647.1
Rocky Mountain Alpine/Montane Sparsely Vegetated Systems	1,157.5
Rocky Mountain Alpine/Montane Sparsely Vegetated Systems II	73,626.1
Rocky Mountain Aspen Forest and Woodland	82,675.3
Rocky Mountain Bigtooth Maple Ravine Woodland	566.9
Rocky Mountain Foothill Limber Pine-Juniper Woodland	45.4
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	14,426.3
Rocky Mountain Lodgepole Pine Forest	130,903.4
Rocky Mountain Lower Montane-Foothill Shrubland	12,706.4
Rocky Mountain Montane Riparian Forest and Woodland	14,900.7
Rocky Mountain Montane Riparian Shrubland	1,504.3
Rocky Mountain Subalpine Dry-Mesic Spruce-Fir Forest and Woodland	171,223.4
Rocky Mountain Subalpine Mesic-Wet Spruce-Fir Forest and Woodland	76.7
Rocky Mountain Subalpine/Upper Montane Riparian Forest and Woodland	22.9
Rocky Mountain Subalpine/Upper Montane Riparian Shrubland	2,368.1
Rocky Mountain Subalpine-Montane Limber-Bristlecone Pine Woodland	31.6
Rocky Mountain Subalpine-Montane Mesic Meadow	25,372.9

Table VEG2. LANDFIRE Vegetation Types Predicted to Occur (Duchesne County – Acres)

LANDFIRE Vegetation Type	Duchesne County (Acres)
Rocky Mountain Wetland-Herbaceous	3,648.9
Snow-Ice	40.4
Southern Colorado Plateau Sand Shrubland	416.9
Southern Rocky Mountain Dry-Mesic Montane Mixed Conifer Forest and Woodland	22,805.2
Southern Rocky Mountain Mesic Montane Mixed Conifer Forest and Woodland	29,300.4
Southern Rocky Mountain Montane-Subalpine Grassland	2,094.8
Southern Rocky Mountain Ponderosa Pine Savanna	4.7
Southern Rocky Mountain Ponderosa Pine Woodland	6,956.0
Western Cool Temperate Close Grown Crop	33,296.9
Western Cool Temperate Developed Ruderal Deciduous Forest	1,239.1
Western Cool Temperate Developed Ruderal Evergreen Forest	3,549.0
Western Cool Temperate Developed Ruderal Grassland	464.4
Western Cool Temperate Developed Ruderal Mixed Forest	0.4
Western Cool Temperate Developed Ruderal Shrubland	18,670.0
Western Cool Temperate Fallow/Idle Cropland	776.8
Western Cool Temperate Orchard	2.0
Western Cool Temperate Pasture and Hayland	91,340.8
Western Cool Temperate Row Crop	3,926.1
Western Cool Temperate Row Crop - Close Grown Crop	0.2
Western Cool Temperate Undeveloped Ruderal Deciduous Forest	11.3
Western Cool Temperate Undeveloped Ruderal Evergreen Forest	30.9
Western Cool Temperate Undeveloped Ruderal Grassland	0.7
Western Cool Temperate Undeveloped Ruderal Shrubland	38.2
Western Cool Temperate Urban Deciduous Forest	303.0
Western Cool Temperate Urban Evergreen Forest	745.4
Western Cool Temperate Urban Herbaceous	2,337.3
Western Cool Temperate Urban Mixed Forest	112.9
Western Cool Temperate Urban Shrubland	3,945.9
Western Cool Temperate Wheat	138.6
Western Warm Temperate Close Grown Crop	6.2
Western Warm Temperate Developed Ruderal Deciduous	0.4

Table VEG2. LANDFIRE Vegetation Types Predicted to Occur (Duchesne County – Acres)

LANDFIRE Vegetation Type	Duchesne County (Acres)
Forest	
Western Warm Temperate Developed Ruderal Evergreen Forest	1.8
Western Warm Temperate Developed Ruderal Grassland	0.2
Western Warm Temperate Developed Ruderal Shrubland	12.9
Western Warm Temperate Fallow/Idle Cropland	0.7
Western Warm Temperate Pasture and Hayland	116.7
Western Warm Temperate Row Crop	2.0
Total	2,077,017.5

Source: LANDFIRE database

According to the 1986 Land and Resource Management Plan for the Ashley National Forest, there are 512,578 acres of commercial timber stands in the Ashley National Forest that are composed of Lodgepole pine, ponderosa pine, Douglas-fir, subalpine fir, Engelmann spruce, and aspen (U.S. Department of Agriculture 1986). Of the 512,578 acres, Lodgepole pine accounts for approximately 240,263 acres. Lodgepole pines and ponderosa pines are highly susceptible to infestation by the mountain pine beetle, which have killed the majority of these two tree species across the forest.

Successful vegetation reclamation following disturbance is difficult in the Uintah Basin because of the presence of noxious and invasive weed species, prolonged drought conditions, and a high percentage of soils with restoration limiting characteristics (BLM 2010).

Vegetation in the Uintah Basin has been affected by surface disturbance from oil and gas development. In 2011, the total estimated existing surface disturbance associated with oil and gas development in the Uintah Basin was 23,811 acres. Estimated foreseeable surface disturbance associated with oil and gas development is 44,219 acres (BLM 2012). Information on reclamation efforts is not available.

Objectives

1. Manage vegetation, specifically forage, to benefit livestock and wildlife and to contribute to the recreation and tourism industry.

2. Reduce or eliminate noxious weed infestations and minimize the establishment of new weed species across jurisdictional boundaries using adaptive management and integrated weed management approaches.

3. Manage the spread of invasive species and the encroachment of native species like sagebrush and juniper, to benefit wildlife, recreation, grazing, and water quality.

4. Revegetate and restore areas where weeds have been controlled by seeding desirable native plant species.

5. Reduce the spread of the mountain pine beetle through forest management practices.

6. Enhance forest health through active forest management (vegetation treatments) to benefit grazing, recreation, water quality, and optimal yield.

Policies

1. Comply with existing state, county, and federal rules, regulations, ordinances, and directives pertaining to noxious weeds.

2. Comply with existing state, county, and federal rules, regulations, and directives pertaining to reclamation and revegetation following surface disturbance.

3. Work cooperatively with other agencies and entities to restore natural vegetation composition to enhance ecosystem function.

Section 28. Resource Management Plan for the Twin Knolls - Wrinkles Road Region of Duchesne County

Subject Lands

This section of the Duchesne County Resource Management Plan applies to those certain areas of land in southeastern Duchesne County, which the United States Bureau of Land Management ("BLM") in its 1999 Wilderness Inventory Report labeled as follows:

Desolation Canyon Unit 1, located in:
Sections 23-27 and 33-36 of Township 11S Range 15E,
Sections 15-16 and 19-36 of Township 11S Range 16E
Sections 2-5, 8-16, 19-23 and 26-35 of Township 11S Range 17E

This plan also applies to all other areas of land located in any townships and ranges of southeastern Duchesne County, which an organization by the name of the Utah Wilderness Coalition ("UWC") has included in its "Citizen's Proposal for Wilderness in Utah" for the Book Cliffs Region, according to the map thereof set forth in the UWC internet web site, address http://www.protectwildutah.org/proposal/index, as it existed on April 15, 2007, including the following areas labeled as follows in the Book Cliffs Region portion of the said UWC internet web site:

Desbrough Canyon, aka Desolation Canyon, located in parts of:
Township 10S Range 17 E
Township 11S Range 15E
Township 11S Range 16E
Township 11S range 17E

For purposes of this plan, all of the above-described lands are collectively referred to herein as the "Twin Knolls/Wrinkles Road Region, and are illustrated more fully in the official map attached to Duchesne County Resolution #07-15 (also attached hereto as Map #52). Any reference hereafter to the term "Twin Knolls/Wrinkles Road Region" shall refer to any and all of the above-described land areas.

Clarification of Ongoing Plans, Policies and Position

It is Duchesne County's intent and purpose to clarify the public land use policies within the Duchesne County General Plan to include this supplement pertaining to the Twin Knolls/Wrinkles Road Region. These policies are intended to supplement the general plan and resource management plan policies that apply countywide. Duchesne County declares its plan for the subject region to be as follows:

Achieve and Maintain a Continuing Yield of Mineral Resources in the Twin Knolls/Wrinkles Road Region at the Highest Reasonably Sustainable Levels

Development of the solid, fluid and gaseous mineral resources in the Twin Knolls/Wrinkles Road Region is an important part of the economy of Duchesne County.

Duchesne County recognizes that it is technically feasible to access mineral and energy resources while preserving non-mineral and non-energy resources.

All solid, fluid and gaseous mineral resources in the Twin Knolls/Wrinkles Road Region that exist in economic quantities and are recoverable with foreseeable technology should be made available for development.

Physical and administrative access to mineral resources must be maintained while providing appropriate protection to other resources and uses. Lands shown to have reasonable mineral potential in the Twin Knolls/Wrinkles Road Region should be open to oil and gas leasing with economically and technically viable stipulations and conditions that will protect the lands against unreasonable and irreparable harm to significant resource values. This should include reasonable and effective mitigation and reclamation measures and bonding for such where necessary.

Fluid and gaseous minerals should be protected against waste and drainage.

Any previous lease restrictions in the Twin Knolls/Wrinkles Road Region that are no longer necessary or effective should be modified, waived or removed.

Restrictions against surface occupancy should be modified, waived or if necessary removed where it is shown that directional drilling is not ecologically necessary, where directional drilling is not feasible from an economic or engineering standpoint, or where it is shown that directional drilling will in effect sterilize the mineral and energy resources beneath the area.

Applications for permission to drill that meet standard qualifications, including (where appropriate) reasonable and effective mitigation and reclamation requirements, should be expeditiously processed and granted.

Any moratorium or withdrawals that may exist against the issuance of additional mining patents and oil and gas leases in the Twin Knolls/Wrinkles Road Region should be carefully evaluated for removal.

Achieve and Maintain Livestock Grazing in the Twin Knolls/Wrinkles Road Region at the Highest Reasonably Sustainable Levels

Domestic livestock and wildlife forage in the Twin Knolls/Wrinkles Road Region are expressed in animal unit months (AUMs), and are allocated as such in the current RMP. Forage allocated to livestock should be no less than the maximum number of animal unit months sustainable by

range conditions in grazing districts and allotments in the Twin Knolls/Wrinkles Road Region, based on an on-the-ground and scientific analysis.

Where once-available grazing forage in the Twin Knolls/Wrinkles Road Region has succeeded to pinion, juniper and other woody vegetation and associated biomass, or where rangeland health in the Twin Knolls/Wrinkles Road Region has suffered for any other reason, a vigorous program of chemical or mechanical treatments such as chaining, logging, seeding, lopping, thinning, burning, range improvements and/or other vegetative treatments should be applied to remove this woody vegetation and biomass and stimulate the return of the grazing forage to its historic levels for the mutual benefit of livestock, wildlife and other agricultural industries in the Twin Knolls/Wrinkles Road Region.

Duchesne County regards the land which comprises the grazing districts and allotments in the Twin Knolls/Wrinkles Road Region, including the Devil's Canyon, Water Canyon No. 2, Bull Canyon, Little Desert and Twin Knolls allotments, as still more valuable for grazing than for any other use which excludes livestock grazing, such as conversion of AUMs to wildlife, wild horses, watersheds or wilderness values. Accordingly, it is Duchesne County's plan that animal unit months in the Twin Knolls/Wrinkles Road Region not be relinquished or retired in favor of conservation, wildlife and other uses.

Duchesne County recognizes that from time to time a bona fide livestock permittee in the Twin Knolls/Wrinkles Road Region, acting in good faith and not to circumvent the intent of the BLM's grazing regulations, may temporarily cease grazing operations without losing his or her permitted AUMs.

BLM imposed suspensions of use or other reductions in domestic livestock animal unit months in the Twin Knolls/Wrinkles Road Region should be temporary and scientifically based on rangeland conditions.

The transfer of grazing animal unit months ("AUMs") to wildlife, wild horses or watersheds for reasons of rangeland health or any other purpose is opposed by Duchesne County as illogical. There is already imputed in each AUM a reasonable amount of forage for the wildlife component.

Any grazing animal unit months that may have been reduced in the Twin Knolls/Wrinkles Road Region due to rangeland health concerns should be restored to livestock when rangeland conditions improve and not converted to wildlife use.

Manage the Watershed in the Twin Knolls/Wrinkles Road Region to Achieve and Maintain Water Resources at the Highest Reasonably Sustainable Levels

All water resources that derive in the Twin Knolls/Wrinkles Road Region are the property of the State of Utah. They are owned exclusively by the State in trust for its citizens.

As a political subdivision of the State, Duchesne County has a legitimate interest in seeing that all reasonable steps are taken to preserve, maintain, enhance and where reasonable develop those water resources.

With increased demands on water resources brought on by population increases in the Colorado River drainage area, and with recent drier precipitation trends which call into question in the minds of some whether the climate of the Colorado River drainage area is changing, it is important now more than ever that management practices be employed in the Twin Knolls/Wrinkles Road Region to restore, maintain and maximize water resources there. This includes restoration, maintenance and enhancement of the watershed in the Twin Knolls/Wrinkles Road Region.

Where water resources in the Twin Knolls/Wrinkles Road Region have diminished because once-existing grasses have succeeded to pinion, juniper and other woody vegetation and associated biomass, a vigorous program of chemical or mechanical treatments should be applied to promptly remove this woody vegetation and biomass, stimulate the return of the grasses to historic levels, and thereby provide a watershed that maximizes water yield and water quality for livestock, wildlife, and human uses.

Duchesne County's strategy and plan for protecting the Twin Knolls/Wrinkles Road Region watershed is to deter unauthorized cross-country OHV use in the Twin Knolls/Wrinkles Road Region. The best way to achieve this is to give OHV users a reasonable system of trails in the Twin Knolls/Wrinkles Road Region on which to legitimately operate their OHVs. Closing the Twin Knolls/Wrinkles Road Region to all OHV use will only spur increased unauthorized cross-country OHV use to the detriment of the Twin Knolls/Wrinkles Road Region watershed.

Achieve and Maintain Traditional Access to Outdoor Recreational Opportunities Available on Public Lands in the Twin Knolls/Wrinkles Road Region

Traditionally, citizens of Duchesne County and visitors have enjoyed many forms of outdoor recreation in the Twin Knolls/Wrinkles Road Region, such as hunting, fishing, hiking, family and group parties, family and group campouts and campfires, rock hounding, OHV travel, geological exploring, pioneering, parking their RV, or sightseeing in their personal vehicles. Accordingly, all trails in the Twin Knolls/Wrinkles Road Region, which historically have been open to OHV use, should remain open.

Public land outdoor recreational access in the Twin Knolls/Wrinkles Road Region should not discriminate in favor of one particular mode of recreation to the exclusion of others.

Traditionally, outdoor recreational opportunities in the Twin Knolls/Wrinkles Road Region have been open and accessible to working class families, to families with small children, to the physically impaired or disabled, to the middle aged and elderly, to persons of different cultures for whom a "primitive solitary hike" or "back-country experience" may not be the preferred form of recreating, and to the economically disadvantaged and underprivileged who lack the money

and ability to take the time off work necessary to get outfitted for a multi-day "primitive hike" to reach those destinations. All of society should not be forced to participate in a "solitude experience" or a "primitive experience" as the one and only mode of outdoor recreation in the Twin Knolls/Wrinkles Road Region.

Any segment of society, for that matter, who want to recreate in the Twin Knolls/Wrinkles Road Region are entitled to motorized access to that recreation if they desire it, and are entitled to all traditional forms of outdoor recreation if they desire it. They should not have to hike into the outdoor recreational destinations in the Twin Knolls/Wrinkles Road Region if they do not want to or are physically unable or cannot afford such an activity.

Hence Duchesne County's plan calls for continued public motorized access to all traditional outdoor recreational destinations in all areas of the Twin Knolls/Wrinkles Road Region for all such segments of the public. Duchesne County specifically opposes restricting outdoor recreation in the Twin Knolls/Wrinkles Road Region to just one form - available for those who have enough time, money and athletic ability to hike into the destinations of the Twin Knolls/Wrinkles Road Region for a "solitude wilderness experience" or the like.

Accordingly, all roads in the Twin Knolls/Wrinkles Road Region that are part of Duchesne County's duly adopted transportation plan should remain open to motorized travel. None of them should be closed, and Duchesne County should have the continued ability to maintain and repair those roads, and where reasonably necessary make improvements thereon. All trails in the Twin Knolls/Wrinkles Road Region that have been open to OHV use should continue to remain open. Traditional levels of wildlife hunting and fishing should continue. Traditional levels of group camping, group day use and all other traditional forms of outdoor recreation (motorized and non-motorized) should continue.

Maintain and Keep Open All Roads on Public Lands in the Twin Knolls/Wrinkles Road Region That Appear on Duchesne County's Most Recent Transportation Map, and Provide for Such Additional Roads, Trails, Easements and Rights of Way as may be Necessary from Time to Time

Duchesne County's transportation plan includes an official countywide transportation map, available to the public for viewing and copying, showing all County B and D roads.

That portion of Duchesne County's official transportation map, which shows all County B and D roads in the Twin Knolls/Wrinkles Road Region, is considered to be part of Duchesne County's plan specifically applicable to the Twin Knolls/Wrinkles Road Region. All such public roads are shown on the map attached to Resolution #07-15 and on Map #43.

Duchesne County plans to keep all such roads in the Twin Knolls/Wrinkles Road Region open to public use, reasonably maintained and in good repair. Duchesne County will consult with the BLM about any required improvements to such roads, reserving the right to request court intervention and relief in the event Duchesne County and BLM cannot reach an agreement on

such proposed improvements after reasonable efforts at consultation.

Additional roads, trails and transportation corridors may be needed in the Twin Knolls/Wrinkles Road Region from time to time to facilitate reasonable access to a broad range of resources and opportunities throughout the Twin Knolls/Wrinkles Road Region, including livestock operations and improvements, solid, fluid and gaseous mineral operations, energy transportation, recreational opportunities and operations, search and rescue needs, other public safety needs, access to public lands for people with disabilities and the elderly, and access to Utah school and institutional trust lands in the Twin Knolls/Wrinkles Road Region to accomplish the purposes of those lands.

Manage the Twin Knolls/Wrinkles Road Region so as to Protect Prehistoric Rock Art, Three Dimensional Structures and Other Artifacts and Sites Recognized as Culturally Important and Significant by the State Historic Preservation Officer

Reasonable mineral development in the Twin Knolls/Wrinkles Road Region can occur while at the same time protecting prehistoric rock art, three-dimensional structures and other artifacts and sites recognized as culturally important and significant by the state historic preservation officer. Existing federal and state regulations adequately protect these resources.

Reasonable and effective stipulations and conditions to protect against damage to the above described cultural resources should accompany decisions to issue mineral leases, permit drilling or permit seismic activities in the Twin Knolls/Wrinkles Road Region. Such drilling and seismic activities should not be disallowed merely because they are in the immediate vicinity of the above-described cultural resources if it is shown to the satisfaction of BLM and Duchesne County that such activities will not damage those resources.

Manage the Twin Knolls/Wrinkles Road Region So As to Not Interfere With the Property Rights of Private Landowners Located in That Region

There are parcels of private fee land located in the Twin Knolls/Wrinkles Road Region, including several in the Nine Mile Canyon area.

Land management policies and standards on BLM land in the Twin Knolls/Wrinkles Road Region should not interfere with the property rights of private landowners in the region to enjoy and engage in traditional uses and activities on their private property, consistent with controlling County zoning and land use laws.

Nor should those landowners and their guests be denied the right of motorized access to their private property consistent with past uses of those private land parcels.

Manage the Twin Knolls/Wrinkles Road Region So As to Not Interfere With the Fiduciary Responsibility of the State School and Institutional Trust Lands Administration ("SITLA") With Respect to Trust Lands Located in That Region

Scattered throughout the Twin Knolls/Wrinkles Road Region are sections of school and institutional trust land owned by the State of Utah and administered by SITLA in trust for the benefit of public schools and other institutions ("school trust lands"), as mandated in Utah's Enabling Act and State Constitution.

As trustee, SITLA has a fiduciary responsibility to manage those school trust lands to generate maximum revenue therefrom, by making them available for sale and private development, and for other multiple use consumptive activities such as mineral development, grazing, recreation, timber, agriculture and the like, all for the financial benefit of Utah's public schools and other institutional beneficiaries.

The BLM Vernal RMP states that the BLM will "grant the State of Utah reasonable access to state lands for economic purposes, on a case-by-case basis, as per the State of Utah v. Andrus October 1, 1979 (Cotter Decision)." Land management policies and standards on BLM land in the Twin Knolls/Wrinkles Road Region should not interfere with SITLA's ability to carry out its fiduciary responsibilities. Nor should SITLA be denied the right of motorized access to those school trust sections to enable SITLA to put those sections to use in order to carry out SITLA's fiduciary responsibilities.

Managing Part or All of the Twin Knolls/Wrinkles Road Region for Wilderness Characteristics Would Violate FLPMA, Contradict the State's Public Land Policy and Contradict the Foregoing Plans of Duchesne County for Managing the Twin Knolls/Wrinkles Road Region

As Utah Code § 63-38d-401(6)(b) indicates, managing the Twin Knolls/Wrinkles Road Region under a "wilderness characteristics" management standard is not the State of Utah's policy for multiple use-sustained yield management on public lands that are not wilderness or wilderness study areas. Nor is it Duchesne County's. A "wilderness characteristics" management standard for the Twin Knolls/Wrinkles Road Region is de facto wilderness management by another name. It is incompatible with and would therefore frustrate and defeat the foregoing plans of Duchesne County for managing the Twin Knolls/Wrinkles Road Region. The Duchesne County plan for public lands as well as written communications by Duchesne County to BLM, specify that additional wilderness designation shall be opposed.

A "wilderness characteristics" management standard for the Twin Knolls/Wrinkles Road Region also would violate FLPMA and the 2003 Utah v. Norton Settlement Agreement ("Agreement") between Utah and Department of Interior.

Managing Post-603 Lands[1] pursuant to the Interim Management Policy of 1979 ("IMP") is inconsistent with BLM authority. (Agreement p. 6 & 13.a.)

[1] As that term is defined in the *Utah v. Norton* settlement agreement of April 11, 2003.

Managing Post-603 Lands to preserve their alleged wilderness character strays from the multiple use mandate in a manner inconsistent with FLPMA § Section 603 limited delegation of authority. (Agreement p. 9 & 17)

The 1999 Utah Wilderness Re-inventory shall not be used to manage public lands "as if" they are or may become Wilderness Study Areas (WSA). (Agreement p. 13 & 4)

DOI/BLM will not establish, manage "or otherwise treat" Post-603 Lands as WSAs or as wilderness pursuant to the Section 202 process absent congressional authorization (Agreement p. 14 & 7).

DOI/BLM will remove from the proposed revised resource management plans in the Vernal, Price, Richfield, Monticello and Moab Districts, any and all references or plans to classify or manage Post-603 BLM lands "as if" they are or may become WSAs. (Agreement p. 14 & 7)

The 2008 Vernal RMP did not designate any WSAs in the Twin Knolls/Wrinkles Road Region and existing management is consistent with this policy.

Imposing Area of Critical Environmental Concern ("ACEC") Designation Would Contradict Duchesne County's Plan for Managing the Twin Knolls/Wrinkles Road Region

It is Duchesne County's policy that no part of the Twin Knolls/Wrinkles Road Region should be designated an ("ACEC") unless it is clearly demonstrated to the satisfaction of the Duchesne County Commission that:

1. The proposed ACEC satisfies all the definitional requirements of the Federal Land Policy and Management Act of 1976, 43 U.S.C. § 1702(a).

2. The proposed ACEC is limited in geographic size and that the proposed management prescriptions are limited in scope to the minimum necessary to specifically protect and prevent irreparable damage to values that are objectively shown to be relevant and important or to protect human life or ensure safety from natural hazards.

3. The proposed ACEC is limited only to areas that are already developed or used or to areas where no development is required.

4. The proposed ACEC designation and protection is necessary to protect not just a change in ground conditions or visual resources that can be reclaimed or reversed eventually (like reclaiming a natural gas well site after pumping operations are complete). Rather, the damage must be shown in all respects to be truly irreparable and justified on short-term and long-term horizons.

5. The proposed ACEC designation and protection will not be applied redundantly over existing protections available under FLPMA multiple use sustained yield management.

6. The proposed ACEC designation is not a substitute for a wilderness suitability determination, nor is it offered as a means to manage a non-WSA for wilderness characteristics.

The foregoing summarizes the ACEC criteria of the State of Utah as well as Duchesne County. See Utah Code § 63-38d-401(8) (c). And the foregoing summarizes the criteria of FLPMA.

Duchesne County is supportive of an ACEC in the Nine Mile Canyon area of the subject region, located in Sections 31, 33, 34 and 35, Township 11 South, Range 17 East, provided that the boundaries do not extend beyond the rims of the canyon visible from the canyon bottom. Extension of an ACEC beyond the rims defined above would be incompatible with and would therefore frustrate and defeat the foregoing plans of Duchesne County for managing the Twin Knolls/Wrinkles Road Region. The 2008 Vernal RMP did not extend ACEC designation beyond the canyon rim as specified above.

Including any River Segment in the Twin Knolls/Wrinkles Road Region in the National Wild and Scenic River System Would Violate the National Wild and Scenic Rivers Act and Related Regulations, Contradict the State's Public Land Policy, and Contradict the Foregoing Plans of Duchesne County for Managing the Twin Knolls/Wrinkles Road Region

It is Duchesne County's policy that no river segment should be included in the National Wild and Scenic River System unless:

1. Water is present and flowing at all times.

2. The water-related value is considered outstandingly remarkable within a region of comparison consisting of one of three physiographic provinces of the state, and that the rationale and justification for the conclusion are disclosed.

3. BLM fully disclaims in writing any interest in water rights with respect to the subject segment.

4. It is clearly demonstrated that including the segment in the NWSR system will not prevent, reduce, impair, or otherwise interfere with the state and its citizen's enjoyment of complete and exclusive water rights in and to rivers of the state as determined by the laws of the state, nor interfere with or impair local, state, regional, or interstate water compacts to which the State or Duchesne County is a party.

5. The rationale and justification for the proposed addition, including a comparison with protections offered by other management tools, is clearly analyzed within the multiple-use mandate, and the results disclosed.

6. It is clearly demonstrated that BLM does not intend to use such a designation to improperly impose Class I or II Visual Resource Management prescriptions.

7. It is clearly demonstrated that the proposed addition will not adversely impact the local economy agricultural and industrial operations, outdoor recreation, water rights, water quality, water resource planning, and access to and across river corridors in both upstream and downstream directions from the proposed river segment.

The foregoing also summarizes the wild and scenic river criteria of the State of Utah, Utah Code § 63-38d-401(8) (a), as well as the criteria of Duchesne County.

There is no part of Nine Mile Creek or any other river segment in the Twin Knolls/Wrinkles Road Region that meets the above criteria. Hence, no river segment in the Twin Knolls/Wrinkles Road Region should be included in the National Wild and Scenic River system. The 2008 Vernal RMP designated no Wild and Scenic Rivers in this area, in compliance with this policy.

A Visual Resource Management Class I or II Rating for Any Part of the Twin Knolls/Wrinkles Road Region Would Contradict the State's Public Land Policy and Contradict Duchesne County's Plan for Managing the Twin Knolls/Wrinkles Road Region

The objectives of BLM Class I and II Visual Resource Management (VRM) are not compatible with, and would therefore frustrate and interfere with, Duchesne County's foregoing plan clarification for the Twin Knolls/Wrinkles Road Region. VRM Class I and II designations may adversely affect existing rights such as mineral leases, livestock grazing, and the ability to develop public lands. VRM inventories must be modified to permit full enjoyment and development of underlying land use authorizations and use potential. VRM classifications shall not be enforced if in conflict with underlying land use or existing oil and gas leases.

Duchesne County's foregoing plan clarification for the Twin Knolls/Wrinkles Road Region is generally consistent with either Class III or Class IV VRM, depending on the precise area. The 2008 Vernal RMP did not designate any Class I or Class II VRM areas in the subject region, except in the Nine Mile Canyon ACEC, below the rim of the canyon, which is in compliance with county policy.