

**3.14.3.2.3 MINERAL RESOURCES**

The Department of the Interior's Mineral Management Service identifies gas and oil as mineral resources in Duchesne County. Fluid mineral resource activities include oil production, natural gas exploration, and related mineral exploration. The highest revenue-generator in the county of the resources is oil, generating over 2.8 million in federal royalties in 2001. Both oil and natural gas combined for 90% of the federal Royalty Values generated by Duchesne County in 2001. The following table shows the federal royalty values generated for 1998 and 2001 in Duchesne County. Note that numbers in parenthesis may represent prior fiscal year adjustments, or deductions from net receipts sharing. See Figure 3.14.2 for production amounts of oil and gas development in Duchesne County. The amount of royalty revenue redistributed to Duchesne County in 2001 was approximately \$2 million (BLM, 2005).

**Table 3.14.9. Federal Royalty Values Generated, 1998 and 2001**

	<b>1998</b>	<b>2001</b>
Bonus	\$196,264.25	\$51,899.50
Gas	890,672.63	1,290,578.68
Oil	2,040,988.31	2,863,660.72
Other Revenues	(34,556.54)	46,386.40
Rent	193,291.90	323,018.46
Total	3,288,834.46	4,575,543.76

Source: Minerals Management Revenue Service, 2001

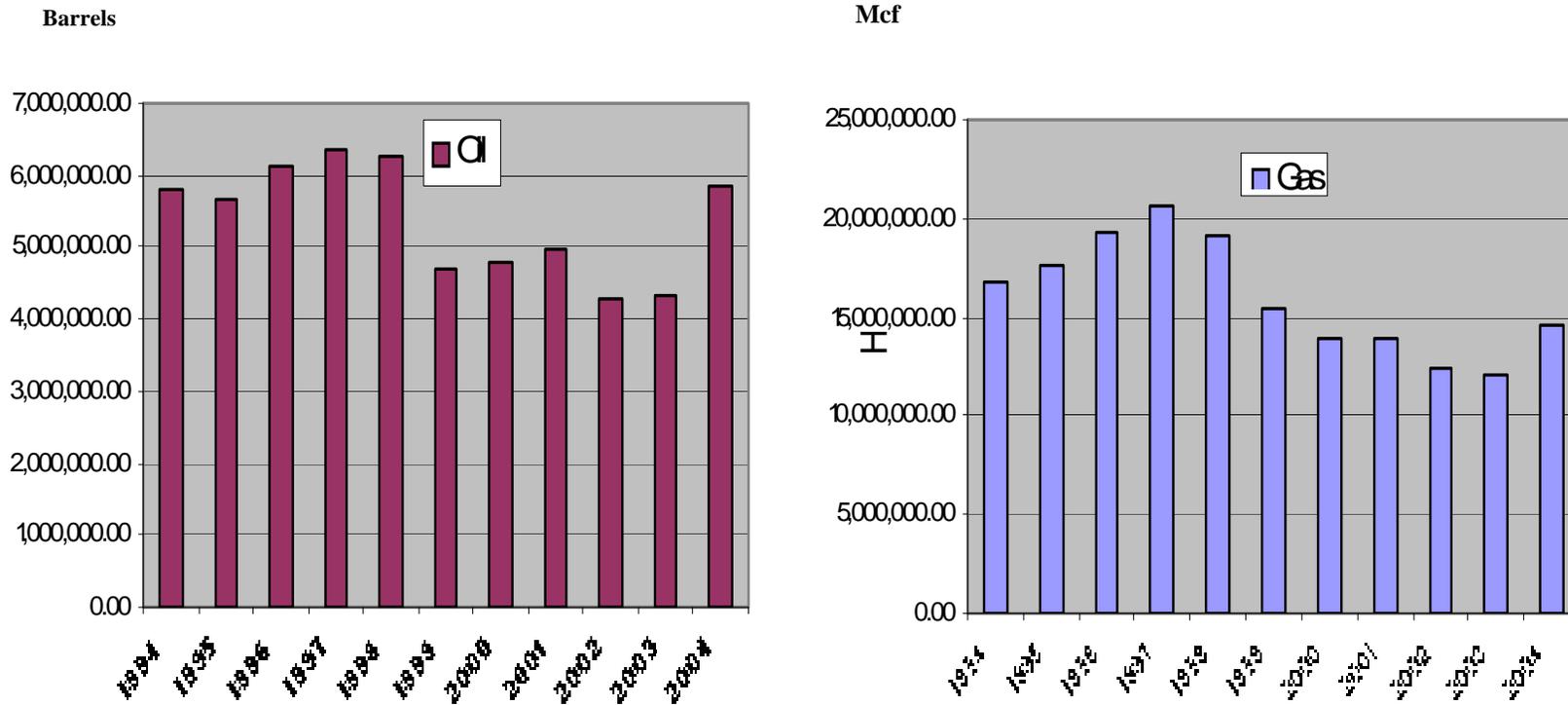


Figure 3.14.2 Duchesne County Oil and Gas Production 1994-2004. Source: Utah State Division of Oil, Gas and Mining, Department of Natural Resources 2004.

Oil and gas production in the state of Utah is impacted by the U.S. and world prices of oil and gas. As those prices rise and fall, oil and gas production in Utah also rises and falls. According to the Energy Information Administration, the average wellhead price for gas in Utah was approximately \$7.28 per MCF (thousand cubic feet). The average wellhead price for oil was \$60.78 per barrel (Energy Information Administration 2006). In 2001, wells in Duchesne County produced approximately 5 million barrels of oil and approximately 14 million MCF (cubic thousand feet) of gas. These numbers were lower than in 1990, when approximately 7 million barrels of oil and 20 million MCF of gas were produced. Oil and gas production in 2001 represented 32.65% and 4.60% of the state totals, respectively.

#### **3.14.3.2.4 TOURISM AND RECREATION**

Recreation is an important component in the quality of life for Uinta Basin residents. In addition to providing recreation opportunity in close proximity to their homes, these residents enjoy a healthy tax base drawn from tourism. Visitors to the Uinta Basin participate in a variety of recreational opportunities including sightseeing, camping, hiking, hunting, mountain biking, fishing, boating, and OHV use. While some of these activities can be engaged in year-round, the busiest months for recreation in the Uinta Basin are the summer months.

Several indicators help detect and explain the impact of the tourism and recreation industries on the local area: job base provided by the tourism industry, traveler spending, and regional visitation. According to the Utah Division of Travel Development, travel and tourism related jobs in Duchesne County decreased 3.1% in 2003 down from 717 in 2002 to 695. Traveler spending in Duchesne County was estimated to be \$21.8 million per in 2003; a 0.9% decrease from 2002 (Table 3.14.10). Traveler spending has grown steadily since the early 1990s to 2000 where it peaked at \$26.3. Dollars spent by travelers in the County has since decreased to \$21.8 in 2003. In 2003, Duchesne County ranked 19th in the state for travel related spending and contributed 0.5% to statewide tourism spending.

Estimated local tax revenues from traveler spending decreased slightly in 2003. Duchesne County experienced a 1.1% decrease in local tax revenues from traveler spending in comparison to 2002, down from \$461,400 to \$456,200. In 2003, Duchesne County also ranked 19th in the state from local tax revenues from traveler spending. The State of Utah saw a 19.4% increase in state and local tax revenues from traveler spending at \$444 million up from \$372 million in 2002. However, local tax revenues decreased 1.0% in 2003. Spending by travelers for the State of Utah was \$4.6 billion, down 1.3% from 2002 (Utah Division of Travel Development 2004).

Although not traditionally an indicator of overall traveler spending, data on restaurant sales have been gathered for purposes of understanding cumulative effects of tourism spending. Restaurant sales are estimated at \$6.0 million per year in Duchesne County.

**Table 3.14.10. Duchesne County Travel-related Spending in 2003**

	<b>Traveler Spending</b>	<b>% Change from 2002</b>	<b>Tax Revenue in Traveler Spending</b>	<b>% Change from 2002</b>
Duchesne County	\$21,800,000	-0.9	\$456,200	-1.1
State of Utah	\$4,631,000,000	-1.3	\$444,000,000*	19.4

\*Represents state and local tax revenues from the entire state

Source: Utah Division of Travel Development 2004

Traveler spending includes all visits to the area, whether for recreation, business, or other purposes. While it is a valuable measure for visitation to Daggett County, it does not only reflect tourism visits. It should be noted that a portion of the tourism related tax dollars, such as transient room tax and restaurant tax, could come from oil and gas development related services (lodging, food, and other services for mining sector employees). While it is nearly impossible to extract whether a tourist dollar was generated from a tourist or a temporary mining employee, both are beneficial to the retail and service sectors of the local economy. A decrease in temporary oil and gas-related jobs may lead to a decrease in "tourism-related" revenue for the county. On the other hand, a decrease in oil and gas-related jobs could lead to an increase in actual tourism-related revenue.

While travel related employment, spending, and local tax revenue do bring increased revenue to Duchesne County, the county has indicated additional stress on infrastructure because of growing travelers. Visitors to the area may recreate on BLM property but also depend on the cities and counties for the provision of basic services, such as law enforcement and emergency fire and health services. The county has stated that the burden of infrastructure improvements should be shared with the BLM.

### 3.14.3.3 GOVERNMENT SETTING

The majority of revenue for Duchesne County comes from charges for services (26%), property taxes (21%) and intergovernmental agreements (18%). The remainder comes from federal and state grants (11%), general sales (9%), fee in lieu (7%), and interest (5%). Duchesne County spends the majority of its income on public safety (35%), streets and highways (22%), and general government (15%). Other expenses include land purchases (9%), community development (6%), and parks, recreation, and culture (3%). The total PILT payment to Duchesne County in 2000 was \$425,557. This number rose to approximately \$750,000 in 2003 ([www.blm.gov/PILT](http://www.blm.gov/PILT)).

## 3.14.4 DAGGETT COUNTY

### 3.14.4.1 SOCIAL CHARACTERISTICS

Daggett County is the third smallest county in the state of Utah, with a land area of 698 square miles, or 459,553 acres. Of this land area, 88.8% is owned and managed by the federal and state governments.

Daggett County is one of the least densely populated counties in the state, at 1.32 people per square mile. The Daggett County population in 2000 was 921. This is an increase of 231 persons over the 1990 population of 690 (or a 33.5% increase). Daggett County's population has fluctuated over the years but has shown overall growth from the time it was organized in a split from Uintah County in 1918. Its population varied from 400 in 1920 to a peak of 1,164 in 1960 (related to dam construction). From 1970 to 1990 it was stable, at 600-700 persons. Although population spiked by 33% in 2000 due to construction, moderate growth is anticipated to continue into the next decade, as Daggett County adds approximately 170 new residents by 2020. Births have generally equaled deaths in the county, and all historic growth has come from net immigration (U.S. Census 2000).

Manila, the county seat and the only incorporated community in the county, has a residential population of 308 persons (or 33% of the county's population). The balance, well over half of all the residents of Daggett County, live on farms and ranches or in unincorporated communities. The 2000 Decennial Census divided Daggett County into two census districts, east and west. The East Census District had a residential population of 149 persons, including the recreational areas around Flaming Gorge and the newly privatized community of Dutch John (U.S. Census 2000). The West Census District, which includes Manila and its surrounds, had a residential population of 722.

Seventy% of the households in Daggett County are family households, but only 27% have children younger than 18 years of age. Average household size in Daggett County, at 2.48 persons per household (less than the state of Utah average of 3.13 persons and less than Wyoming and Colorado) is small and getting smaller. This means that fewer families are having children in Daggett County that will need to be educated and will be seeking jobs. It may also mean that more secondary wage earners will be or are entering the labor market.

An unusually high number of Daggett County residents (60%) are in one- or two-person households. In the state of Utah, only 46.7% of households have two or fewer persons. In this respect, Daggett County households are more similar to Colorado and Wyoming households, at 60.4% and 62.1%, respectively (U.S. Census 2000).

The 2000 Census provides the following information about housing in Daggett County. Unlike Uintah and Duchesne Counties, in which 70-80% of housing units are occupied, only 31.4% of Daggett County's housing units are occupied. One explanation for this difference is that almost two-thirds (63.8%) of the housing stock in Daggett County is for seasonal, recreational, or occasional use, which means that the property owner's primary residence is elsewhere. Approximately 71% of the occupied housing units in Daggett County are owner-occupied (U.S. Census 2000).

With a total of 150 students, the Daggett County School District is the smallest in the state. Enrollment is declining, which is consistent with the declining population and small average household size. The county's three schools include Manila Elementary, Flaming Gorge Elementary and Manila Junior-Senior High School. These schools also serve students from McKinnon and Washam, Wyoming, areas north of the state line.

The residents of Daggett County value the rural character and quiet lifestyle that comprises their communities. The historical land-use practices including farming, ranching, and timber harvesting that shaped the culture of the area serve as the foundation for today's rural community. Today, County citizens identify with the rural, small town sense-of-place that has been ever-present throughout the area. While residents of the County support growth and development, it must complement the current quality of life and values held by the citizens.

#### 3.14.4.2 ECONOMIC CHARACTERISTICS

Daggett County has experienced significant changes in its employment base in the past 50 years (Table 3.14.11). Initially, agriculture-related activities, such as ranching and farming, dominated the economy. The construction of the huge, hydroelectric, Flaming Gorge Dam and Reservoir in the 1960s, as well as the construction of an all-weather highway through the county, changed the local economy forever. Now, the Daggett County economy is dominated by government services associated with the operation of the dam and management of the National Recreation Area and Ashley National Forest. Service-based employment also has become a major contributor to economic vitality, as a result of the growth of tourism and recreational activities. Government services, primarily associated with the operation of Flaming Gorge and Ashley National Forest, provide 47% of Daggett County jobs (UDWS 2001).

**Table 3.14.11. Daggett County Labor Force Statistics**

	2000	2001	2002	2003
Construction	46	17	14	16
Government	213	223	244	253
Labor Force	474	439	467	470
Leisure Hospitality	164	148	151	136
Mining	0	0	0	0
Non-farm Jobs	467	427	461	445
Trade/Trans/Utilities	30	25	22	25

In 1995, the unemployment rate in Daggett County was significantly higher than the state's, but since then, the county's rates have closely mirrored those of the state. The 2003 unemployment rate in Daggett County was 5.0%, one of the lowest rates in the state. Almost 50% of Daggett County employees receive government subsidy (U.S. Census 2000). From 2000 to 2003, the per capita annual income in Daggett County has grown from \$15,201 to \$18,161 (UDWFS 2003). Median household income in 2000 was \$30,833 (U.S. Census 2000).

Approximately 11.7% of the population of Daggett County is below the poverty level (annual household income being less than \$14,269), which compares to the national rate of 11.3% (U.S. Census 2000). Daggett County's poverty rate is the sixth highest in the state, and among the counties without significant tribal populations, Daggett County's rate is the second highest in the state (second to Carbon County).

#### **3.14.4.2.1 AGRICULTURE**

The Utah Department of Agriculture reports 28 farms in Daggett County in 2003., Livestock and the related ranch operations are the county's largest source of cash receipts, with a contribution of \$1.6 million for livestock and livestock products and \$500,000 for crops. Daggett County has 3,979 acres of harvested cropland and 8,182 acres of irrigated land, which produce 12,000 tons of hay and alfalfa (Utah Agricultural Statistics 2001).

#### **3.14.4.2.2 MINERAL RESOURCES**

Oil and gas production in Daggett County is not a significant contributor to the local economy. Oil and gas production in 2001 represented 0.01% and 0.4% of the state totals, respectively (Utah Division of Oil, Gas and Mining 2002).

#### **3.14.4.2.3 TOURISM AND RECREATION**

Recreation is an important component in the quality of life for Uinta Basin residents. In addition to providing recreation opportunity in close proximity to their homes, these residents enjoy a healthy tax base drawn from tourism. Visitors to the Uinta Basin participate in a variety of recreational opportunities including sightseeing, camping, hiking, hunting, mountain biking, fishing, boating, and OHV use. While some of these activities can be engaged in year-round, the busiest months for recreation in the Uinta Basin are the summer months.

Several indicators help detect and explain the impact of the tourism and recreation industries on the local area: job base provided by the tourism industry, traveler spending, and regional visitation. According to the Utah Division of Travel Development, travel and tourism related jobs in Daggett County decreased 0.4% in 2003 down from 258 in 2002 to 257. Daggett County ranks number one in the state for percent of total employment dependant on tourism related jobs. With a total of 443 non-agricultural related jobs reported in 2003, 257 jobs or 58% of total jobs are related to recreation and tourism. Traveler spending in Daggett County was estimated to be \$5.1 million per in 2003; a 23.9% decrease from \$6.7 million in 2002 (Table 3.14.12). Traveler spending remained fairly steady throughout the 1990s and peaked at \$11.7 million in 2000. Traveler spending a decreased continuously since 2000.

The Flaming Gorge National Recreational Area (NRA) is the sixth most popular Utah tourist attraction, generating over one million visitors each year. Flaming Gorge NRA was the only one of Utah's national monuments or recreation areas not to report visitor declines during 2000. Despite these visitation rates and the significance of the recreation economy to Daggett County, the county's tourism represents only 0.1% of traveler spending in the state of Utah and ranks twenty-eighth among counties in Utah. Tourism spending in Daggett County has been growing at less than one half the rate of the state.

Estimated local tax revenues from traveler spending also decreased in 2003. Daggett County experienced a 23.6% decrease in local tax revenues from traveler spending in comparison to 2002, down from \$136,600 to \$106,700. In 2003, Daggett County also ranked 28th in the state from local tax revenues from traveler spending. The State of Utah saw a 19.4% increase in state

and local tax revenues from traveler spending at \$444 million up from \$372 million in 2002. However, local tax revenues decreased 1.0% in 2003. Spending by travelers for the State of Utah was \$4.6 billion, down 1.3% from 2002.

In contrast to Uintah and Duchesne County where some of the "traveler spending" can be attributed to oil and gas development, it is unlikely that this is the case in Daggett County since less than 0.05% of the State's mineral development occurs here. In Daggett County it is safer to assume that "traveler spending" actually comes from tourists to the area.

**Table 3.14.12. Daggett County Travel-related Spending in 2003**

	Traveler Spending	% Change from 2002	Tax Revenue from Traveler Spending	% Change from 2002
Daggett County	\$5,100,000	-23.9	\$106,700	-23.6
State of Utah	\$4,631,000,000	-1.3	\$444,000,000	19.4

\*Represents state and local tax revenues from the entire state  
Source: Utah Division of Travel Development 2004

### 3.14.4.3 GOVERNMENT SETTING

The government setting in Daggett County is different than in Uintah or Duchesne Counties. Parts of the county, specifically Dutch John and the surrounding area, were formerly federal lands associated with Flaming Gorge NRA. Some of those lands have recently been incorporated into the town of Dutch John, and others have been designated as county land.

Charges for public services are an unusually large revenue item in Daggett County, partially due to the large public safety facility in Manila and the county's contracts to house state, federal, and county inmates there. The majority of Daggett County revenues come from charges for services (43%) and sale of property (25%). Federal and state grants, intergovernmental arrangements, transient room taxes, general sales and use, and fee in lieu generate the remainder of the income for the county. The total PILT payment to Daggett County in 2000 was \$38,074.

The same public services that generate revenue for the county are also apparently a high expenditure in Daggett County (53%). Other expenditures include general government (12%), streets and highways (10%), and community development (9%).

Another unique characteristic of Daggett County government is the special service districts of the county. The Daggett County Road and Transportation Special Services District is a primary recipient of mineral lease monies administered through the Permanent Community Impact Fund. During 1999, it received \$425,000 in mineral lease monies and an additional \$166,349 from other state sources, for a total of \$591,349. Approximately \$373,240 of this was spent for construction, \$8,316 was spent on salaries, and \$12,750 was spent on debt reduction and interest on that debt. The Daggett County Mosquito Abatement District (MAD) received \$18,217 in property taxes or in-lieu fees. Of this, \$14,489 was spent on salaries, and \$1,126 was spent on an

intergovernmental transfer. Finally, the district called Daggett County Service Area #1 had \$1,720 in revenues, \$1,000 from property taxes. The only expenses were \$136 for salaries.

### 3.14.5 REGION-WIDE CONCLUSIONS

This study has discussed the social, economic, and governmental settings of the three counties that compose the VPA. In addition to the statistics that help describe each county, conclusions can be drawn about the region's history, geography, and economics.

The first conclusion drawn is that, due to the history and geography of the Uinta Basin, much of the population has a common lifestyle and identity. The fact that each of these counties is at least two hours from any major city sustains a rural/small town lifestyle.

The second regional commonality among the counties is their economic dependency on physical resources within the VPA. From municipality to municipality in the region, lower-than-average wages and higher-than-average poverty rates are common. The economy of the region is based on agriculture, oil and gas exploration, and tourism. Major changes in the management of the land in any one of these sectors of the economy will have an effect on the socioeconomics of the individual counties and the region overall.

## 3.15 SOIL AND WATER RESOURCES

### 3.15.1 REGIONAL OVERVIEW

The VPA lies within portions of nine catalogued USGS 8-Digit Hydrologic Unit Code (HUC) watersheds located within the Upper Colorado hydrologic region (Region 14). The majority of the VPA is contained within seven watersheds in the Lower Green River drainage, although portions also are associated with the Upper Green River and the Lower White River drainage. Watershed acreages are described in Table 3.15.1.

**Table 3.15.1. Watersheds Associated with the VPA**

8-Digit HUC	Watershed Name	Acres within VPA
14040106	Upper Green-Flaming Gorge Reservoir	543,564
14060001	Lower Green-Diamond	566,835
14060002	Lower Green-Ashley-Brush	420,697
14060003	Lower Green-Duchesne	1,649,897
14060004	Lower Green-Strawberry	394,405
14060005	Lower Green-Desolation Canyon	645,365
14060007	Lower Green-Price	22,542
14060006	Lower Green-Willow	461,197
14050007	Lower White	797,137

Two municipal watersheds, Ashley Creek and Red Fleet, are also located within the VPA. The Ashley Creek municipal watershed occurs almost entirely upon lands administered by the USFS - Ashley National Forest; however, the BLM administers 670 acres, including Ashley Spring, the access point for the municipal supply. The Red Fleet municipal watershed contains 18,660 acres administered by the BLM, including lands surrounding Red Fleet Reservoir, which is the access point for the municipal supply.

### **3.15.2 TOPOGRAPHY**

The topography of the VPA is primarily defined along its northern portion by the Uinta Mountains. The Uinta Mountains are broad and massive and extend approximately 150 miles east to west. The Uinta Mountains consist of extensively glaciated, sedimentary and metamorphic rocks. Glacial deposition features have created numerous natural dams and small lakes on the slopes of the range. A portion of the VPA lies north of the Uinta Mountains and drains to the Green River below Flaming Gorge Reservoir. The Green River exits the VPA approximately 30 miles downstream of Flaming Gorge at the Utah/Colorado state boundary and reenters the VPA near Diamond Mountain, again along the Utah/Colorado state boundary. Portions of the south side of the Uinta Mountains drain to the Green River below Diamond Mountain through major tributaries such as Ashley Creek, Big Brush Creek, and the Whiterocks River.

The western side of the VPA is drained by the Duchesne River and its major tributary, the Strawberry River. The Duchesne River drains a topographic basin composed of Mesozoic and Tertiary sedimentary rocks characterized by a gently rolling, dissected plateau with deeply cut ravines and alluvial valleys. The Duchesne River enters the Green River near Ouray, in the central part of the VPA.

The eastern and southern part of the VPA, primarily consisting of the Book Cliffs portion of the VPA, is drained by Hill Creek, Bitter Creek, Evacuation Creek, Willow Creek, and the White River; these drainages also enter the Green River near Ouray. This area is part of the Tavaputs Plateau, composed of Tertiary sedimentary rocks and characterized by rugged terrain and deeply incised canyons (UDWaR 1999).

### **3.15.3 SOIL RESOURCES**

Soils in the VPA have developed from bedrock, from rocks/minerals deposited by rivers and glacial activity, and from windblown silt and sand. They were derived primarily from the sedimentary, metamorphic quartzite and volcanic rocks of the Uinta Mountains, Diamond Mountain Plateau, Avintaquin Mountains, East Tavaputs Plateau, West Tavaputs Plateau, Roan Cliffs, and Book Cliffs, which form the boundaries of the Uinta Basin and Browns Park.

Soils in the VPA are composed of a wide variety of soil types and characteristics. Certain soil types have chemical features that limit restoration and make reclamation difficult; these include sodium, soluble salts, carbonates, and gypsum. Physical soil characteristics that may limit reclamation include sandy soils, clayey soils, large coarse fragments (e.g., stones and boulders), shallow depth to parent material, and low organic matter content. A shallow depth to

groundwater limits reclamation in hydric soils. Soils in the VPA are composed of a wide variety of soil types and characteristics. Certain soil types have chemical features that limit restoration and make reclamation difficult; these include sodium, soluble salts, carbonates, and gypsum. Physical soil characteristics that may limit activities or reclamation include: low available water holding capacity, excessive drainage, hardpans, high amounts of rock fragments or large stones and boulders, shallow depth to parent material, high water table, and low organic matter content. Soils with these features are referred to as “limiting soils” in this document.

### **3.15.3.1 NATURAL RESOURCE CONSERVATION SERVICE (NRCS) SOIL SURVEYS**

The Natural Resource Conservation Service (NRCS) has conducted three soil surveys throughout the VPA, with second and third order delineation. The Uintah Area, Utah soil survey includes parts of Daggett, Grand, and Uintah Counties. Portions of Daggett County are also included in the Henrys Fork Area, Utah-Wyoming soil survey. The Duchesne County part of the VPA is covered by the Duchesne Area, Utah soil survey.

#### **3.15.3.1.1 HENRYS FORK AREA, UTAH-WYOMING SOIL SURVEY (USDA 1990)**

This soil survey covers the northern parts of Daggett County, as well as parts of Summit County, Utah and parts of Uinta and Sweetwater Counties in Wyoming. The survey, correlated in October 1990, is complete and available in digital and hardcopy formats. Information on soil features and use ratings can be obtained by using either the NRCS Soil Data Viewer or Microsoft Access software. Soil spatial data is available for use with standard GIS software.

#### **3.15.3.1.2 UINTAH AREA, UTAH SOIL SURVEY (USDA 1999)**

This soil survey covers Uintah County, part of northern Grand County, and the southern part of Daggett County. The survey, correlated in June 1999, is complete and available in digital format. Information on soil features and use ratings can be obtained by using either the NRCS Soil Data Viewer or Microsoft Access software. Soil spatial data is available for use with standard GIS software.

This soil survey covers the largest portion of the VPA, with 2,477,734 acres of soils surveyed. It ranges from the Diamond Mountain area in the north to the Book Cliffs in the south and from the Duchesne County line in the west to the Colorado state line in the east.

Taxonomic classifications of VPA soils within the boundaries of this survey include a wide variety of soil types. Diagnostic soil features include cryic soils, argillic horizons, mollic epipedons, calcic horizons, petrocalcics, gypsic horizons, psamments, and fluvents. Thirty taxonomic great groups and 151 soil series have been identified in the Uintah Area soil survey.

#### **3.15.3.1.3 DUCHESNE AREA, UTAH SOIL SURVEY**

This soil survey includes VPA lands in southeastern Duchesne County, Utah. Most of the fieldwork has been completed for this survey, but final correlation has not been completed. Correlation and final publication of the soil survey data by the NRCS began in late 2005 and

expected to be complete by 2010. Draft spatial soil data has been digitized and can be accessed with standard GIS software. Available information on soil features and use ratings can be obtained from official soil series descriptions and interpretation tables or local NRCS offices. Until final correlation and publication, this data is considered draft and is less accessible to the public than the published survey data from either the Henrys Fork or the Uintah Area soil surveys. Draft data is available by contacting the local NRCS office or BLM office.

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### **3.15.3.2 SOIL CHARACTERISTICS OF GREATEST MANAGEMENT CONCERN**

#### **3.15.3.2.1 PRESENCE OF BIOLOGICAL CRUSTS**

The presence of biological crusts in arid and semi-arid lands have a very significant influence on reducing soil erosion by both wind and water, fixing atmospheric nitrogen, retaining soil moisture, and providing a living organic surface mulch. "These crusts are a complex mosaic of cyanobacteria, green algae, lichens, mosses, microfungi, and other bacteria" (BLM 2001:1). They can be used as an indicator of rangelands' ecological health. Development of biological crusts is strongly influenced by soil texture, soil chemistry, and successional colonization by crustal organisms. The type and abundance of biological crust can be used by a land manager to determine the ecological history and condition of a site. Biological crusts are generally found where there are openings in the vascular plant cover and protect open areas from wind and water erosion.

Limited data exists for biological crusts specific to the VPA. However there is some baseline information for parts of the VPA from the early 1970's and more recent information being collected as part of a National Science Foundation-funded project by Brigham Young University (personal communication, Diana Whittington, FWS – or better yet put in the correct and full citations.) There is also a growing body of literature and data, much of it based on the Colorado Plateau region that would be applicable to the soils and ecosystems of the VPA.

#### **3.15.3.2.2 SALINITY**

Soil salinity can have significant impacts on soil erosion and reclamation potential. Erosion of saline soils can also have significant impacts on the water quality of downstream watersheds. Soils with electrical conductivity levels of 8 dS/m (deciSeimens/meter) or greater were considered saline in all soil surveys. Saline soils occur in more than 365,851 acres, or

approximately 20% of the BLM-administered lands in the VPA. Add soils data for salinity and other soils features are taken from the SSURGO database.

Saline sediments that originate in the VPA eventually flow into the Colorado River. Salinity levels in the Colorado River are a regional, national, and international issue. Control of sediment discharged from public lands is mandated by the Colorado River Basin Salinity Control Act of 1974. Proper land use is the BLM's preferred method of achieving salinity control, with the planning process being the principal mechanism for implementation. Impacts are to be minimized in areas with saline soils, and revegetation of previously disturbed saline soils is to be promoted to the extent possible.

#### **3.15.3.2.3 SODIUM ABSORPTION RATIOS**

Soils with sodium absorption ratios (ratio of sodium salts to other soluble salts) of 13 or greater are considered sodic. Infiltration of precipitation into these soils is reduced by the dispersion of soil particles caused by the higher levels of sodium. Reduced infiltration rates result in greater surface runoff rates and increased soil erosion and sediment yields. Many sodic soils have a thin layer of suitable soil above the sodic horizon, but when this layer is disturbed or removed, the resulting impact can be irreversible. Sodic soils occur in approximately 161,344 acres, or approximately 9% of the BLM-administered lands within the VPA. Management of sodic soils should include minimizing the impacts of grazing and other surface disturbances, such as road construction.

#### **3.15.3.2.4 GYPSUM LEVELS**

Soils with gypsum levels equal to or greater than 10% are highly susceptible to water erosion and are difficult to reclaim. Gypsum is very soluble in water, which results in piping and other severe erosion features. Gypsic soils occur in approximately 132,706 acres, or 7% of the BLM administered lands within the VPA. The number of soil map units in the VPA with gypsic soils is relatively small, but nonetheless, these units require careful management to minimize impacts that may cause irreversible damage. Construction of roads and other facilities is difficult in these soils.

#### **3.15.3.2.5 RESPONSE TO DISTURBANCE**

Decisions regarding management of a particular soil resource is dependent on the particular soil type's ability to recover from specific disturbances. Gypsum content, salinity level, and sodium content are soil characteristics that can severely limit recovery from a disturbance. Road construction and operation of OHVs commonly impact the soils in the VPA. Additionally, the presence of surface water or groundwater has an influence on the severity of a disturbance and on when the activity may be allowed. Surface disturbances can cause compaction and increased soil erosion by either wind or water.

Use ratings and soil characteristics listed in the soil surveys are intended to be used as general guidelines for land-use planning, but site-specific investigations should be done to determine the suitability of soils at specific locations.

### **3.15.3.2.6 EROSION**

#### ***Water Erosion***

There is significant potential for severe soil erosion by water at several locations within the VPA. Erosion potential ratings were not available in the NRCS soil surveys at the time this analysis was conducted. The VPA area has determined the approximate locations of soils with potential for severe erosion by evaluating the k-factor, T factor, percent slope, and hydrologic group rating for each soil map unit. These are designations given to soils by the NRCS, which show the relative erodibility of each soil unit. Site specific and map unit specific determinations for erosion hazard ratings will continue to be developed and utilized within the VPA. Additionally, soil surface texture and the presence of surface or ground water have an influence on the severity of a disturbance and on when the activity may be allowed. Surface disturbances can cause compaction and increased soil erosion by either wind or water.

In the interim, for preliminary delineation of water erodible soils, soil mapping units with a k-factor of 0.32 or greater and slopes greater than 10% were considered susceptible to water erosion. Using these factors, water erodible soils were determined to cover 232,042 acres, or approximately 13% of the VPA. Current management activities are designed to minimize impacts so that erosion and sediment yield are not accelerated. Additional mitigation measures are to be taken, as necessary, to minimize impacts on soils determined to have severe erosion hazard potential.

#### ***Wind Erosion***

Many of the soils in the VPA are coarse-textured and very susceptible to wind erosion when the vegetative community is disturbed. The NRCS soil surveys classify each soil series into wind erodibility groups (1, 2, 3, 4L, 4, 5, 6, 7, and 8). Soils that are in wind erodibility groups 1, 2, 3, or 4L have erosion potentials ranging from extremely erodible to erodible, respectively. Wind erosion increases when the vegetative community is disturbed by intense grazing, fire, road construction, and other events that reduce the amount of vegetative cover. Disturbance of biological crusts on coarse-textured soils will also increase the potential for wind erosion. Wind-erodible soils cover 1,361,645 acres, or 79% of the VPA. To preserve soil resources in these areas, disturbance of the vegetative community and biological crusts are managed and minimized.

#### ***Reclamation of Drastically Disturbed Areas***

Many of the soils within the VPA have limiting features that make reclamation and revegetation very difficult. These limiting features include salinity, sodium content, clayey and sandy textures, drought conditions, alkalinity, low organic matter content, shallow depth to bedrock, stones and cobbles, and wind erosion. Sometimes the soil limitations are so severe that areas cannot be reclaimed from disturbance. Preventing disturbance to such limited soil resources is the most effective way to reduce impacts of road construction, grazing, fire, and other activities that drastically disturb the soil surface. Whenever impacts are deemed necessary in an area,

salvaging and stockpiling soil materials to replace the disturbed, limited soils is the most effective management decision regarding soils.

### **Road Construction and Maintenance**

Construction and maintenance of roads within the VPA will continue to be a prominent aspect of management. Soil properties that are limiting to construction of roads within the VPA include soils with high sodium content, high gypsum content, high soluble salts, low strength, shrink-swell potential, and frost action. A soil's large-stone content, its depth to hard bedrock, and its slope are also important physical features that must be considered when determining a soil's suitability for road construction.

Suitability ratings for construction of local roads assume that the roads will have an all-weather surface (commonly of asphalt or concrete) and are expected to carry automobile traffic year-round. Since the majority of roads constructed and maintained within the VPA do not have an all-weather surface, it should be assumed that site-specific evaluations would need to be conducted prior to construction of any new roads. Roads are graded to shed water, and conventional drainage measures are installed properly. With the exception of hard surface all-weather roads, most of roads in the VPA are constructed from the local soils, which may or may not be suitable for road construction.

## **3.15.4 WATER RESOURCES**

### **3.15.4.1 SURFACE WATER SUPPLY AND USE**

Surface water in the VPA is used for agricultural, municipal, industrial, power generation, and recreational purposes. Surface water is stored in several large and small reservoirs, both natural and human-made. The largest use of surface water is for agricultural irrigation, with almost 800,000 acre-feet of water per year being diverted to irrigate more than 200,000 acres of land (UDWaR 1999). Water diversions for municipal and industrial purposes (including residential water use, industrial water use, power production, and irrigation of parks, golf courses, and other outdoor areas) average approximately 14,000 acre-feet per year (UDWaR 1999). The Diamond Mountain portion of the VPA also has 15 hydropower site withdrawals covering approximately 93,900 acres along the Green River (BLM 1993).

The hydrology of the VPA is primarily dominated by spring runoff and from brief, intense storms that generally occur in late summer. The several large reservoirs that have been constructed on the Green and Strawberry Rivers have altered the natural hydrology of these major rivers by reducing the annual spring peak and providing higher minimum flows during the summer and winter months. Water diversions for agricultural, municipal, and industrial uses have also altered the natural hydrology of the VPA by reducing instream flows below diversion points.

Surface water flow supports riparian vegetation along the floodplains of the rivers and streams in the VPA. Approximately 92,226 acres of the VPA occur within the 100-year floodplains of the major drainages in the VPA. While the preliminary status of the functioning condition of riparian

vegetation along major waterways has been documented in preparation for this RMP, the condition of the floodplain and the stability of stream banks have not yet been determined for all areas (Strong 2002b). Surface water flow also supports riparian vegetation associated with other water features such as Stewart Lake, Pelican Lake, and the Pariette Wetlands.

#### 3.15.4.2 GROUNDWATER SUPPLY AND USE

The primary use of groundwater in the VPA is for municipal and industrial purposes. Unconsolidated or alluvial aquifers are relatively limited within the VPA, with major use only in the Duchesne-Myton-Pleasant Valley area and east of Neola. Consolidated or bedrock aquifers form a major component of the groundwater system in the VPA. Major consolidated aquifers include sandstone beds within the Uinta Formation and the Bird's Nest and Douglass Creek aquifers within the Green River Formation. Total water withdrawal from all aquifers for municipal and industrial use is approximately 21,000 acre-feet, which is relatively minor compared to the estimated 350,000 acre-feet naturally discharged to streams and springs and the nearly 250,000 acre-feet lost to evapotranspiration (UDWaR 1999).

#### 3.15.4.3 WATER QUALITY

Surface water quality problems are detailed in Utah's 303(d) list of impaired waters, required under the Clean Water Act (Table 3.15.2). Lower Ashley Creek was listed due to total dissolved solids (TDS) and selenium concentrations, likely the result of irrigation return flows. Portions of the Duchesne River and tributaries were listed primarily due to TDS concentrations, also attributable to irrigation return flows. Several reservoirs within the VPA were also listed, mostly for phosphorous levels, dissolved oxygen (DO) levels, and high temperatures.

Water bodies on Utah's 303(d) List of Impaired Waters are listed below in Table 3.15.2.

**Table 3.15.2. Water Bodies on Utah's 303(d) List of Impaired Waters, 2000**

HUC Code	Name	Stressor
	Calder Reservoir	DO, Total Phosphorous
14060001	Brough Reservoir	DO, Temperature
14060002	Lower Ashley Creek	TDS, Selenium
	Red Fleet Reservoir	DO, Temperature
	Steinaker Reservoir	Temperature
14060003	Antelope Creek	TDS
	Deep Creek	TDS
	Duchesne River from confluence with Green River to Randlett	TDS
	Duchesne River from Randlett to Myton	TDS
14060005	Pariette Draw	TDS, Boron
	Willow Creek from confluence with Green River to confluence with Meadow Creek	TDS

Source: UDEQ 2002

Excess salinity, the major surface water quality problem in the VPA, is of regional significance under the Colorado River Basin Salinity Control Act of 1974. Salinity contributions come from naturally occurring groundwater during low flow periods and from erosion of saline soils. A large part of the saline soil contribution is attributable to poor road construction practices and management (Strong 2002a). Other factors in water quality are salt-loading from irrigated agriculture, water and land contamination due to oil/gas well drilling, and elevated levels of total phosphorous and TDS in several basin streams (UDEQ 2003). Watersheds of particular concern include the Pariette, Red Creek, and Buckskin Hills watersheds.

The groundwater hydrology in the VPA is primarily dependent on rock structure. Concentrations of dissolved solids range from 19 to 112,000 mg/L and depend on changes in rock type and physical environments.

Locally, the groundwater salinity in the VPA is caused by natural geologic sources. The Tertiary Green River, Wasatch, and Uinta Formations and the Mesozoic Mancos Shale range from very saline to briny at depth (>500 ft.) and generally less saline at shallow depths (<500 ft.). High selenium and boron concentrations are of particular concern and have been studied at Stewart Lake, Lower Ashley Creek, and the Pariette Wetlands. The salinity of water produced in oil, gas, and CBNG development may change significantly within a few months or years particularly if vertical movement of water in faults and fractures is induced by the production of hydrocarbons and water from oil and gas wells (USGS 1987).

## **3.16 SPECIAL DESIGNATIONS**

### **3.16.1 AREAS OF CRITICAL ENVIRONMENTAL CONCERN (ACEC)**

#### **3.16.1.1 CURRENTLY DESIGNATED ACECS**

The VFO manages seven ACECs (165,944 total acres) that were designated in 1994 in the record of decision (ROD) for the Diamond Mountain RMP (BLM 1994a). They are, in order of decreasing size, Browns Park, Nine Mile Canyon, Red Mountain-Dry Fork, Red Creek Watershed, Pariette Wetlands, Lower Green River Corridor, and Lears Canyon. Existing ACECs are subject to reconsideration when RMPs are revised. Based on a current analysis of the areas, the present designations have been effective in protecting the relevant values they exhibit, and these will, again, be considered as ACECs in the Vernal RMP.

Table 3.16.1 provides a summary of the relevance and importance criteria for each currently designated ACEC. The management prescriptions for these areas are detailed in Chapter 3 of Diamond Mountain RMP and ROD (BLM 1994a).

**Table 3.16.1. Relevance and Importance Criteria of Currently Designated ACECs**

Relevance	Importance
<p><b>Browns Park</b> (52,721 acres) Significant diversity and density of cultural and historical sites, a nationally recognized Class I fishery; has special status plant and animal species habitat, cultural values, crucial deer winter habitat, high quality scenic values.</p>	<p>Has qualities that make it fragile, sensitive, rare, irreplaceable, unique, endangered, and threatened.</p>
<p><b>Lears Canyon</b> (1,375 acres) Contains a natural system, specifically relict plant and plant communities, serves as a scientific reference area.</p>	<p>Has qualities that make it fragile, sensitive, rare, irreplaceable, unique, endangered, and threatened. Has been recognized as warranting protection in order to carry out the mandates of the Federal Land Policy and Management Act.</p>
<p><b>Lower Green River Corridor</b> (8,470 acres – lower) Riparian habitat, special status animal species habitat, and high-quality scenic values.</p>	<p>Has more than locally significant qualities, which give it special worth, and distinctiveness.</p>
<p><b>Nine Mile Canyon</b> (44,181 acres) Nationally significant Fremont, Ute, and Archaic rock art and structures; regionally significant populations of special status plant species, and high quality scenery.</p>	<p>Has more than locally significant qualities, which give it special worth, and distinctiveness.</p>
<p><b>Pariette Wetlands</b> (10,437 acres) Special status bird and plant species habitat, a wetlands ecosystem, significant population of the federally threatened plant species <i>Sclerocactus glaucus</i>.</p>	<p>Has qualities that make it fragile, sensitive, rare, irreplaceable, unique, endangered, and threatened.</p>
<p><b>Red Creek Watershed</b> (24,475 acres) Regionally significant critical watershed; part of Green River drainage system and its Class I fishery values.</p>	<p>Has more than locally significant qualities, which give it special worth, and distinctiveness.</p>
<p><b>Red Mountain-Dry Fork</b> (24,285 acres) Significant diversity and density of cultural sites, quality paleontological finds, and two relic vegetation communities.</p>	<p>Has qualities that make it fragile, sensitive, rare, irreplaceable, unique and distinctive.</p>

### 3.16.1.2 POTENTIAL ACECs

The eight potential ACECs and the expansion of two existing ACECs being considered for possible ACEC designation through this planning process are discussed below. Only those nominated areas determined to meet specific relevance and importance criteria are identified as potential ACECs. The following descriptions generally define the maximum acreage proposed in the alternatives although in some instances variations in the size and location of the proposed ACECs are described for clarification. See Table 4.16.1 in Chapter 4 for a description of the various acreage proposals, Figures 29–32 (in the Maps section) for geographic locations, and Appendix G for more information on ACEC evaluations.

**Table 3.16.2. Relevance and Importance Criteria of Potential ACECs**

Relevance	Importance
<p><b>Bitter Creek</b> (68,384 acres) Existence of an old growth forest, significant cultural and historic resources, important watershed, and critical ecosystem for wildlife and migratory birds.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. Ancient (over 1,200 years) pinyon forest; irreplaceable. Ancestral home of the Northern Ute Tribe after relocation in the late 1800s. Many features, including graves, but specific locations are not known. The most extensive wetland in the multi-state Book Cliffs due to uniquely perched water table; a critical ecosystem for migratory birds and a wide variety of wildlife.</p>
<p><b>Bitter Creek-P.R. Springs</b> (147,425 acres) Same as Bitter Creek.</p>	<p>Same as Bitter Creek.</p>
<p><b>Coyote Basin ACEC</b> (87,743 acres) Important white-tailed prairie dog complex. Essential habitat for maintaining species diversity and includes one of the largest populations of white-tailed prairie dogs. The white-tailed prairie dog is essential to the survival of the endangered black-footed ferret in this area.</p>	<p>A critical ecosystem for the white-tailed prairie dog, one of 25 complexes nominated for ACEC status in the western states. Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. This species occupies only an estimated 8% of the area it once occupied, and most of this is on public lands. The white-tailed prairie dog is particularly vulnerable to adverse change from a variety of current causes. The U.S. Fish and Wildlife Service has been petitioned to list species.</p>
<p><b>Coyote Basin Complex</b> (124,161 acres) Same as Coyote Basin.</p>	<p>Same as Coyote Basin.</p>
<p><b>Four Mile Wash</b> (50,280 acres) Existence of high value scenery, important riparian ecosystem, and special status fish.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. Spectacular scenery viewed by increasing numbers of visitors from many states and countries. Lush riparian vegetation is rare in this desert ecosystem.</p> <p>Critical habitat for four endangered fish - Colorado pikeminnow (<i>Ptychocheilus lucius</i>), Bonytail (<i>Gila elegans</i>), Humpbacked chub (<i>Gila cypha</i>), and the Razorback sucker (<i>Xyrauchen texanus</i>).</p>
<p><b>Lower Green River Expansion</b> (1,700 acres) Existence of significant riparian habitat and outstanding scenic values.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. An extension of the Lower Green River Corridor ACEC, where the significance of these important resources has been recognized. See Table 3.16.1 above.</p>

**Table 3.16.2. Relevance and Importance Criteria of Potential ACECs**

Relevance	Importance
<p><b>Main Canyon</b> (100,915 acres) Existence of important cultural and historic resources, and natural systems.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. Numerous sites associated with the historic Northern Ute migration route along Main Canyon. Historic inscription from early French fur trade era. Focus of past proposals to manage for exemplary natural systems. Part of the cooperative BLM/Utah Division of Wildlife Resources Book Cliffs Conservation Initiative. Most of ACEC within the Winter Ridge WSA.</p>
<p><b>Middle Green</b> (6,768 acres) Existence of an important riparian ecosystem and high value scenery.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. River and adjacent landscape provide spectacular scenery, viewed by increasing numbers of visitors from many states and countries. Lush riparian vegetation rare in this desert ecosystem.</p>
<p><b>Nine Mile Canyon Expansion</b> (36,987 acres) Existence of significant cultural resources, special status plant species, and high quality scenery.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. An extension of the existing Nine Mile Canyon ACEC, where the significance of these important resources has been recognized. See Table 3.16.1 above.</p>
<p><b>White River</b> (47,130 acres) Existence of unique geological formations, high value scenery, significant historical events, and riparian ecosystem.</p>	<p>Has significance due to qualities that make it fragile, sensitive, rare, irreplaceable, exemplary, and unique. Unique, spectacular rock spires, named "Goblin City" by the John Wesley Powell 1869 expedition. A popular cottonwood grove campsite; place where the Powell Expedition camped and explored the nearby geological formations. Spectacular scenery viewed by increasing numbers of visitors from several states. Lush riparian vegetation is rare in this desert ecosystem.</p>

### 3.16.2 WILD AND SCENIC RIVERS

#### 3.16.2.1 REGIONAL OVERVIEW

The Wild and Scenic Rivers Act established a National Wild and Scenic Rivers System (NWSRS) to protect and preserve designated rivers throughout the nation in their free-flowing condition, as well as their immediate environments. It contains policy for managing designated rivers and created processes for designating additional rivers into the NWSRS. Section 5(d) 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 land resources. Wild and scenic river considerations are being made in the Vernal RMP revision.

To determine eligibility, the VFO inventoried all potentially eligible rivers. All rivers nominated during scoping or that appeared on national river lists were automatically considered. In addition, all rivers within the VPA were mapped and reviewed by agency and non-agency subject matter specialists and members of the interested public to identify any additional rivers that could be potentially eligible.

All rivers determined to be eligible for congressional designation into the NWSRS are considered further for suitability in the planning process. Those determined suitable for congressional designation into the NWSRS are recommended to Congress for such designation.

The Upper Green and Lower Green segments of the Green River were found suitable for congressional designation in the ROD for the Diamond Mountain RMP, and are currently managed to protect their free-flowing nature, outstandingly remarkable values, and tentative classifications.

### 3.16.2.2 RIVER SEGMENTS DETERMINED ELIGIBLE FOR WILD AND SCENIC RIVER DESIGNATION

Of the 89 streams segments identified by the VFO as potentially eligible and inventoried, 11 segments involving approximately 112 BLM shoreline miles and 216 total river miles were determined to be eligible for Congressional designation into the NWSRS (Table 3.16.3). Appendix C provides additional information regarding the eligibility review. It is BLM policy (8351 Manual, Section .32C) to manage eligible segments to protect their free-flowing nature, outstandingly remarkable values, and tentative classifications to the extent that the BLM has the authority to do so through FLPMA, the Wild and Scenic Rivers Act, and BLM policy. It should be noted that the BLM does not manage all lands through which the proposed wild and scenic river stretches pass, and thus cannot impose restrictions on other land owners and land managers in these areas. Until the ROD for the Vernal RMP is signed, such protection involves case-by-case review and mitigation of any actions proposed that might affect the eligible river. Protective management will continue for any segments determined suitable in the ROD for the Vernal RMP. For each suitable river, the ROD will identify specific management conditions that are in keeping with a suitability decision. Management that would apply, should any rivers be designated by Congress, is identified in the BLM's 8351 Manual, Section .51.

**Table 3.16.3. Summary Information for Eligible Rivers in the VPA**

Segment Name	Segment Description	Outstandingly Remarkable Values	Tentative Classification	BLM Shoreline Miles	Total Miles
Argyle Creek	Headwaters to Carbon County line	Scenic	Recreational	4.0	22.0

**Table 3.16.3. Summary Information for Eligible Rivers in the VPA**

<b>Segment Name</b>	<b>Segment Description</b>	<b>Outstandingly Remarkable Values</b>	<b>Tentative Classification</b>	<b>BLM Shoreline Miles</b>	<b>Total Miles</b>
Bitter Creek	Utah state line to where it enters private property	Fish, Wildlife/habitat, Cultural, Historic, Recreational	Scenic	7.0	22.0
Evacuation Creek	Utah state line to confluence with White River	Historic	Recreational	7.0	21.0
Lower Green River	Between public land boundary south of Ouray and the Carbon County line	Recreational, Fish	Scenic	27.0	30.0
Middle Green River	Between Dinosaur National Monument and the public land boundary north of Ouray	Fish	Recreational	20.0	36.0
Nine Mile Creek (A)	Within Duchesne County between the Carbon County line and the confluence with Gate Canyon	Scenic, Cultural	Recreational	7.0	13.0
Nine Mile Creek (B)	Within Duchesne County between Gate Canyon and the Green River	Scenic, Cultural	Scenic	0.0	6.0
Upper Green River	Between Little Hole and Utah state line	Scenic, Recreational, Fish, Wildlife/habitat, Cultural	Scenic	12.0	22.0
White River (A)	Between the Colorado state line and its confluence with Asphalt Wash	Scenic, Fish, Wildlife/habitat Recreational, Historic	Scenic	8.0	24.0
White River (B)	Between Asphalt Wash to where the river leaves Section 18, T10S. R23 E., SLBM	Scenic, Fish, Wildlife/habitat Recreational, Historic	Wild	10.0	10.0

**Table 3.16.3. Summary Information for Eligible Rivers in the VPA**

Segment Name	Segment Description	Outstandingly Remarkable Values	Tentative Classification	BLM Shoreline Miles	Total Miles
White River (C)	From where the river leaves Section 18, T10S. R23 E., SLBM to the Indian Trust Land boundary	Scenic, Fish, Wildlife/habitat Recreational, Historic	Scenic	10.0	10.0

Note: River mileage is approximate.

### 3.16.3 WILDERNESS STUDY AREAS

#### 3.16.3.1 OVERVIEW

In 1964, Congress passed the Wilderness Act, establishing a national system of lands for the purpose of preserving a representative sample of ecosystems in their natural condition for benefit of future generations. The Forest Service, National Park Service, and Fish and Wildlife Service managed most of the land designated as wilderness prior to 1976. With the passage of the Federal Land Policy and Management Act (FLPMA) in 1976, Congress directed the BLM to inventory, study, and recommend which public lands under its administration should be designated wilderness.

In 1979, the BLM began a wilderness inventory of 22 million acres of public land in Utah. By 1985, the BLM established 95 wilderness study areas (WSAs), totaling about 3.3 million acres, which have wilderness character. For the next several years, these areas were studied to determine which would be recommended to Congress for designation as wilderness. In October 1991, the Secretary of the Interior provided the BLM's recommendation to the President. The President recommended that 69 areas, totaling approximately 1.9 million acres in Utah, be designated as part of the National Wilderness Preservation System by Congress. To date, with few exceptions, Congress has not acted on that recommendation.

There is no designated wilderness on public lands in the VFO.

#### 3.16.3.2 PLANNING AREA PROFILE

WSAs are roadless, natural, provide outstanding opportunities for solitude or primitive and unconfined recreation, and may have supplemental values (such as ecological, geological, or other features of scientific, educational, scenic, or historical value).

There are six WSAs in the VFO (Table 3.16.4) (Figure 29 in the Maps section). The WSAs, established and protected under the authority of Section 603 of FLPMA, are managed according to the *Interim Management Policy and Guidelines for Lands under Wilderness Review* (IMP, BLM Manual Handbook H-8550-1), to preserve their wilderness values until Congress either designates them wilderness or releases them for other uses. Only Congress can designate a WSA

as wilderness or release it from the protective mandate of FLPMA. The status of WSAs will not change as a result of this resource management planning process. In October 1991, the Secretary of Interior provided BLM's recommendations to the President. The President recommended that 69 WSAs, totaling approximately 1.9 million acres in Utah be designated as part of the National Wilderness Preservation System by Congress.

**Table 3.16.4. Wilderness Study Areas**

<b>Name</b>	<b>Acreage</b>
Book Cliffs Mountain Browse ISA	400 acres
Bull Canyon	600 acres
Daniels Canyon	2,496 acres
Diamond Breaks	3,900 acres
West Cold Springs	3,200 acres
Winter Ridge	42,462 acres
<b>Total: 6 areas</b>	<b>53,058 acres</b>

## 3.17 SPECIAL STATUS SPECIES

### 3.17.1 REGIONAL OVERVIEW

#### 3.17.1.1 FEDERALLY LISTED SPECIES

Special status species include those plant and animal species federally listed as threatened, endangered, proposed and/or candidate, as well as BLM and State of Utah sensitive plant and animal species. The Federal Endangered Species Act (ESA) of 1973 (Public Law 93 - 205, as amended), provides protection to federally listed threatened, endangered, and candidate species from actions that may jeopardize their existence. This could occur through direct harm, activities resulting in increased stress during critical life history stages such as nesting, migration or wintering, loss or degradation of critical habitat, or loss or degradation of occupied or potential habitat.

Table 3.17.1 identifies all threatened, endangered, and candidate species occurring within the VPA area of influence which includes Daggett, Duchesne, Uintah, and the northern portion of Grand County, Utah as of February 26, 2004.<sup>3</sup> The information regarding the status and habitats of federally listed species in Table 3.17.1 is from data provided by the BLM and FWS status data current as of February 26, 2004. Definitions of terms used in Table 3.17.1 are provided below.

**Endangered Species** – Any species that is in danger of extinction throughout all or a significant portion of its range.

**Threatened Species** – Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

<sup>3</sup> Only those species that have a known occurrence in the small portion of Grand County within the VPA are represented.

**Candidate Species** – Any species for which substantial biological information exists to support the biological appropriateness of proposing to list the species as endangered or threatened.

**Critical Habitat** – Specific areas that contain physical or biological features essential for the conservation of a listed species and that may require special management considerations or protection.

**Experimental Population** – A population that has been reintroduced outside of its current range but within its historical range.

**Recovery Plan** – A plan prepared by the US Fish and Wildlife Service for threatened and endangered species that establishes objectives and methods to ensure the survival of the species and recover it sufficiently so that the species can be delisted or removed from the threatened and endangered species list.

There are 13 listed and 2 candidate species within the VPA. All of these species are both known to occur and have additional potential habitat in the VPA. Of these 15 species, there are 4 wildlife, 4 fish, and 7 plant species. Slightly more than half of the species are upland species, dependent on specific soil or geologic formations for suitable habitat, such as white calcareous shale or steep rocky canyons. These species include the Mexican spotted owl, horseshoe milkvetch, Barneby ridge-crest, White River beardtongue, clay reed-mustard, shrubby reed-mustard, Pariette cactus and Uinta Basin hookless cactus. The black-footed ferret is an upland species that requires large contiguous blocks of active prairie dog colonies. The ferret is an endangered species that has been reintroduced to northeast Utah as an experimental population. The ferret reintroduction site was Coyote Basin, in Uintah County, a BLM-managed area within the VPA, but the FWS considers all of Uintah and Duchesne Counties to be within the experimental population area. The Canada lynx is an upland species that is dependent on a montane coniferous forest link in the Diamond Mountain area between lynx habitat in the Uinta Mountains to that in the Colorado Rockies.

The remaining six listed species are species that rely predominantly on the Green River, its tributaries, and the associated riparian habitats up to 100-year floodplain limit. These species include the yellow-billed cuckoo, bonytail, Colorado pikeminnow, humpback chub, razorback sucker, and the Ute ladies'-tresses.

Draft or final recovery plans have been prepared for all threatened and endangered species except the Canada lynx.

Critical habitat has been designated for the four Colorado River fish species (bonytail, Colorado pikeminnow, humpback chub, razorback sucker) and the Mexican spotted owl. Critical habitat for the Colorado River fish species occurs along portions of the Green River downstream of its junction with the Yampa River to the Colorado River, and including sections of the Green River in the VPA within Uintah and Grand Counties. Critical habitat has also been established along the lower portion of the Duchesne River. The critical habitat designation includes the 100-year floodplain.

Critical habitat for the Mexican Spotted Owl has been designated in portions of Carbon and Grand Counties, immediately adjacent to, but just outside of the VPA. Substantial suitable canyon habitat occurs in the adjacent Books Cliffs area.

There are numerous activities (generally referred to as "threats") that have resulted in the listing of these species. These include grazing, oil and gas development, loss of prey bases, habitat fragmentation, agricultural development, forestry practices, changes in natural flow and sediment transport regimes as a result of dam operations, flow depletions from irrigation, loss of riparian and wetland habitat, introduction of non-native species, and loss of habitat within specific soil and geologic formation types. The potential continued threats to these species and how the alternative management strategies for the RMP could change these threats are described in Section 4.17.

## 3.17.1.2 FEDERALLY ENDANGERED, THREATENED, CANDIDATE, AND PROPOSED SPECIES

Table 3.17.1. Federally Listed Threatened, Endangered, and Candidate Species Potentially Occurring in the VPA

Common Name Scientific Name	Protection (Federal/State)	Preferred Habitat	Potential for Occurring on BLM Lands
Black-footed ferret <i>Mustela nigripes</i>	Endangered/ Experimental	Grasslands with active prairie dog towns.	Two hundred and fifteen (215) ferrets have been successfully reintroduced into the Coyote Basin since 1999. All active prairie dog towns, or a complex of towns large enough to support ferrets (at least 100 acres) within Duchesne and Uintah Counties, are considered potential black-footed ferret habitat.
Canada lynx <i>Lynx Canadensis</i>	Threatened	Montane coniferous forest.	The range of the Canada lynx extends from Canada and Alaska south to Maine, the Rocky Mountains, and the Great Lakes region. Although sightings of the Canada lynx in Utah over the past twenty years have been very rare, the Diamond Mountain area provides a linkage area between lynx habitat in the Uinta Mountains to that in the Colorado Rockies.
Mexican Spotted Owl <i>Strix occidentalis lucida</i>	Threatened	Steep rocky canyons; substantial suitable habitat is present, though no critical habitat is present.	The Mexican Spotted Owl (MSO) ranges from southern Utah and Colorado through the mountains of Arizona, New Mexico, and West Texas into the mountains of Central Mexico. They typically prefer old growth mixed conifer ponderosa pine, or evergreen oak forest, and associated deciduous riparian forests. In Utah, MSOs are a permanent resident that nest in the deep, sheer-walled, sandstone or rocky canyons of the Green and Colorado River basins. Forested habitats (old growth mixed conifer ponderosa pine, or evergreen oak forest, and associated deciduous riparian forests) are suitable for foraging and dispersal. There have been two reports of MSOs in the Book Cliffs.
Yellow-billed Cuckoo <i>Coccyzus americanus occidentalis</i>	Candidate (State-listed threatened)	Dense lowland riparian habitat at 2,500 to 6,000 feet elevation; usually found within 300 feet of water.	The Yellow-billed Cuckoo is a neotropical migrant that nests in localized riparian valleys throughout Utah. The Ouray Wildlife Refuge and other locations along the Green River sustain the largest breeding population of Yellow-billed Cuckoo in the State of Utah with an estimated 10 to 20 pairs.

**Table 3.17.1. Federally Listed Threatened, Endangered, and Candidate Species Potentially Occurring in the VPA**

Common Name Scientific Name	Protection (Federal/State)	Preferred Habitat	Potential for Occurring on BLM Lands
Bonytail <i>Gila elegans</i>	Endangered	The habitat requirements of the bonytail are not well known because the species was extirpated from most of its historic range prior to extensive fishery surveys. Critical habitat has been designated along the Green River in Uintah and Grand Counties.	The bonytail was historically common to abundant in warm-water reaches of larger rivers in the Colorado River Basin from Mexico to Wyoming. It is currently a very rare species in the Colorado River Basin, with only a few individuals having been found in the last decade. Very low numbers of bonytail still occur in the Upper Colorado River basin in Gray Canyon of the Green River and at Black Rocks on the Colorado River and at the confluences of the Green and Yampa rivers and the Green and Colorado rivers. The majority of bonytail are being held in culture facilities and reintroduction efforts are under way. Several thousand hatchery-reared bonytails have recently been reintroduced in the Colorado River near Moab and in the Green River at the confluence with the Yampa River.
Colorado pikeminnow <i>Ptychocheilus lucius</i>	Endangered	Adult Colorado pikeminnow use a variety of habitat types, depending on time of year, but primarily use shoreline runs, eddies, backwater habitats, seasonally flooded bottoms, and side canyons. Critical habitat has been designated for Colorado pikeminnow along the Green River in Uintah, Carbon, Emery, and Grand counties. This critical habitat includes the 100-year floodplain.	This species' range is restricted to the Upper Colorado River basin, upstream of Glen Canyon Dam. They are most abundant in the Upper Green River (between the mouth of the Yampa River and head of Desolation Canyon) and Lower Green River (between the Price and San Rafael rivers). Other concentration areas include the Yampa River, the lower 21 miles of the White River, the Ruby and Horsethief Canyon area between Westwater, Utah and Loma, Colorado, and in the San Juan River between Lake Powell and Shiprock, New Mexico.

Table 3.17.1. Federally Listed Threatened, Endangered, and Candidate Species Potentially Occurring in the VPA

Common Name Scientific Name	Protection (Federal/State)	Preferred Habitat	Potential for Occurring on BLM Lands
Humpback chub <i>Gila cypha</i>	Endangered	Suitable habitat for this species is characterized by a wide variety of riverine habitats, especially canyon areas with fast currents, deep pools, and boulder habitat. Adults require eddies and sheltered shoreline habitats maintained by high spring flows. Young require low-velocity shoreline habitats, including eddies and backwaters, that are more prevalent under base-flow conditions.	This species originally inhabited the mainstem of the Colorado River from what is now Lake Mead to the canyon areas of the Green and Yampa River basins. Currently, it appears restricted in the Upper Basin to the Colorado River at Black Rocks and at Westwater and Cataract Canyons, in the Yampa River at Yampa Canyon, and in the Green River at Desolation/Gray Canyons. In the Lower Basin, humpback chub are only found in the mainstem Colorado River in Marble and Grand Canyons and in the Little Colorado River. Critical habitat has been designated along the Green River in Uintah and Grand counties.
Razorback sucker <i>Xyrauchen texanus</i>	Endangered	Habitats required by adults include rivers with deep runs, eddies, backwaters, and flooded off-channel environments in the spring; runs and pools often in shallow water associated with submerged sandbars in summer; and low-velocity runs, pools, and eddies in winter. Young require nursery environments with quiet, warm, shallow water such as tributary mouths, backwaters, or inundated floodplain habitats in rivers, and coves or shorelines in reservoirs. Critical habitat for this species is the same as that of the Colorado pikeminnow.	Historically, the razorback sucker were widely distributed in warm-water reaches of larger rivers of the Colorado River Basin from Mexico to Wyoming, but is currently found in small numbers in the Green River, upper Colorado River, and San Juan River subbasins; lower Colorado River between Lake Havasu and Davis Dam; reservoirs of Lakes Mead and Mohave; in small tributaries of the Gila River Subbasin (Verde River, Salt River, and Fossil Creek); and in local areas under intensive management such as Cibola High Levee Pond, Achii Hanyo Native Fish Facility, and Parker Strip. The largest population of razorback sucker in the Upper Basin is found in the low-gradient, flat-water reaches of the middle Green River between the Duchesne River and Yampa River. Known spawning sites are located in the lower Yampa River and in the Green River near Escalante Ranch between river km 492 and 501.

**Table 3.17.1. Federally Listed Threatened, Endangered, and Candidate Species Potentially Occurring in the VPA**

Common Name Scientific Name	Protection (Federal/State)	Preferred Habitat	Potential for Occurring on BLM Lands
Barneby ridge- cress <i>Lepidium barnebyanum</i>	Endangered/NA	This species requires shallow, fine-textured soils intermixed with rock fragments. The Barneby ridge-cress is found along semi-barren ridges in piñon-juniper woodlands, at elevations ranging from 6,100 ft to 6,550 ft (1,860 m to 1,965 m).	There may be suitable habitat for this species on BLM lands, but there are no known populations (UDWR 2002b). The Barneby ridge-cress is located on the Uintah and Ouray Reservation, Utah. The VPA encompasses the total population, located on either side of Indian Creek south of Starvation Reservoir and the town of Duchesne. Three separate stands make up the total population, ranging across approximately five miles (8 km) (USFWS 1993).
White River beardtongue <i>Penstemon scariosus</i> var. <i>albifluvis</i>	Candidate/ NA	Occurs in pinyon-juniper, desert shrub, and mixed desert shrub communities at elevations ranging 4,600 to 6,800 feet elevation. Found at the lower members of the Green River Formation, growing on sparsely vegetated shale slopes.	White River beardtongue is currently known to occur on surficial outcrops of oil shale on 714 acres in southern Uintah County and southeast Duchesne County, Utah.
Clay reed- mustard <i>Schoenocrambe argillacea</i>	Threatened/ NA	Found on the contact zone between the upper Uinta and lower Green River Formations, typically at elevations ranging from 4,800 to 5,800 feet elevation. It inhabits mixed desert shrub communities of Indian ricegrass and pygmy sagebrush on the shale slopes of the Evacuation Creek Member of the Green River Formation. Plants may be found growing on protected north-facing slopes.	Three clay-reed-mustard populations of fewer than 10,000 individuals each are currently known to occur in the Book Cliffs, Uintah County, Utah. The species is known to occur on steep slopes and cliffs overlooking the Green River, Hill Creek and Willow Creek. Currently known populations occur within a 15 mi x 8 mi area (24 km x 12 km; 1,541 acres) along the Green River from Willow Creek to Sand Wash. Populations may also occur above Sand Wash and Nine Mile Canyon on steep slopes that are problematic for population counts and surveys.
Shrubby reed- mustard <i>Schoenocrambe suffrutescens</i>	Endangered/ NA	Found on the Evacuation Creek Member of the Green River Shale Formation on calcareous shales in pygmy sagebrush, mountain mahogany, juniper, and mixed desert shrub communities (5,400–6,000 feet).	The shrubby reed-mustard is currently known to occur on 3,150 acres in oil shale lenses in the Hill Creek drainage, Willow Creek drainage, and Badland Cliffs.

Table 3.17.1. Federally Listed Threatened, Endangered, and Candidate Species Potentially Occurring in the VPA

Common Name Scientific Name	Protection (Federal/State)	Preferred Habitat	Potential for Occurring on BLM Lands
Pariette cactus <i>Sclerocactus brevispinus</i>	Threatened/ NA (USFWS 2007)	Occurs on fine soils forming desert pavement in clay badlands derived from the Uinta Formation in sparse salt desert shrubland from 4,600 to 4,900 feet elevation	Occurs as a single population of approximately 8,000 individuals within a 50 square-mile (18,000 acre) area from the Pariette Drainage south of Myton, Utah to the mouth of Pariette Draw south of Ouray, Utah (USFWS 2006). The total area of potential habitat includes an estimated 15,000 acres of the VFO (USFWS 2007).
Uinta Basin hookless cactus <i>Sclerocactus wetlandicus</i>	Threatened/ NA (USFWS 2007)	Occurs on Quaternary and Tertiary alluvium soils overlain with cobbles and pebbles in cold desert shrub and pinyon-juniper communities on alluvial river terraces, valley slopes, and rolling hills of the Duchesne River, Green River, and Mancos Formations from 4,300 to 6,560 feet elevation.	The current population is estimated at 13,000-26,000 plants that are patchily to densely distributed from the confluence of the Green, White, and Duchesne Rivers near Ouray, Utah south along the Green River to the vicinity of Sand Wash, including concentrations near the mouth of Pariette Draw and along the base of the Badlands Cliffs (USFWS 1990, 2005; SWCA 2006, 2007; Glisson 2007; UDWR 2007).
Ute Ladies'-tresses <i>Spiranthes diluvialis</i>	Threatened/ NA	Wet meadow and other riparian habitats that are subject to fluvial erosion and deposition. May also be found near springs, seeps, and lakeshores where there is sufficient ground water. This plant can be found on various substrates in riparian habitats between 4,265 and 6,800 feet elevation.	Ute ladies'-tresses is found in sporadic locations throughout the interior western United States. Within the Uinta Basin, the Ute ladies'-tresses occurs along the Green River in Brown's Park (UT), Browns' Park (CO), Dinosaur National Monument, and near the confluence with the Yampa River. The species also occurs on Ashley Creek, within Ashley Valley, along Big Brush Creek, the upper Duchesne River, and tributaries to the Duchesne River.

### 3.17.1.3 STATE-LISTED WILDLIFE SPECIES AND BLM-LISTED SENSITIVE PLANT SPECIES

Both the BLM and State of Utah maintain lists of sensitive plant and animal species. The restricted distributions, specialized habitat requirements, and population pressures (human induced and natural) facing special status species contribute to a high potential for federal listing, thus, their populations are of conservation interest. The BLM Manual 6840 specifies that they will manage State-listed plants and animals "to the extent that they are consistent with other Federal laws". BLM policy for BLM-listed sensitive species is to manage the species as if they were candidate species for federal listing so that they do not become listed, while also fulfilling other federal law mandates. The BLM has a policy of entering into conservation agreements and other conservations measures to protect both State- and BLM-listed species.

There are 28 other special status species in the VPA that are listed in Table 3.17.2. This includes 14 wildlife, 4 fish, and 14 plant species. Of the 14 plant species, 13 species are soil endemics, which means that they are restricted to specific soil types. The dependence of these species on locally unique geological formations and soil parent materials make them particularly susceptible to habitat loss.

There are four bird, four fish, and one plant species that are dependent upon streams, rivers and associated wetlands. The remaining species are primarily upland species that have a variety of habitat requirements including grasslands, desert shrub, woodland, mature forest, and caves within forested areas.

Threats to sensitive species that could result in their listing as federally threatened or endangered species are similar to the threats experienced by listed species. These threats include sensitivity to human disturbance, poisoning, changes in flow regimes, loss of riparian wetlands, timber harvesting, restriction to unique soil or geologic formations, competition from non-native species, overgrazing, and habitat degradation or loss due to agricultural practices, oil and gas development, and/or urban encroachment.

Table 3.17.2. State-listed and BLM-listed Special Status Species Potentially Occurring in the VPA.

Common Name Scientific Name	Protection*	Preferred Habitat	Potential for Occurring on BLM Lands
<b>State-listed and BLM-listed Special Status Mammal Species</b>			
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	SP/SD	Forested areas; roosts and hibernates in caves, mines, and buildings.	The Townsend's big-eared bat is found throughout much of western North America including areas in the Uinta Mountains and the Book Cliffs. It is a cave-roosting species that move into man-made caves such as mines and buildings. Unlike many other bats, they are unable to crawl into crevices and usually roost in enclosed areas where they are vulnerable to disturbance. The Townsend's big-eared bat is quite sensitive to human disturbance, and this appears to be the primary cause of population decline for this species. This bat is colonial during the maternity season, when compact clusters of up to 200 individuals might be found. Maternity roosts form in the spring and remain intact during the summer. Site fidelity is high, and if undisturbed, the bats will use the same roost for many generations.
White-tailed prairie dog <i>Cynomys leucurus</i>	SP	Grasslands	White-tailed prairie dogs form colonies in parts of northeastern Utah, Colorado, Wyoming, and Montana. The white-tailed prairie dog is the main food source of the Utah population of the endangered black-footed ferret that were reintroduced to northeastern Utah. Major threats to the white-tailed prairie dog include habitat loss, poisoning, and disease.
<b>State-listed and BLM-listed Special Status Bird Species</b>			
American White Pelican <i>Pelecanus erythrorhynchos</i>	SD	Marshes, lakes, and rivers.	American White Pelicans summer in the interior of North America around major water bodies and winter along the shore of the Gulf Coast and Baja California. The species is extremely sensitive to human disturbance on its nesting grounds and is adversely impacted by loss of foraging habitat, environmental contaminants, and water level fluctuations. As many as 200 American white pelicans can be found between Pariaette, Pelican Lake, and the Ouray National Wildlife Refuge during the spring and summer.

**Table 3.17.2. State-listed and BLM-listed Special Status Species Potentially Occurring in the VPA.**

Common Name Scientific Name	Protection*	Preferred Habitat	Potential for Occurring on BLM Lands
Bald Eagle <i>Haliaeetus leucocephalus</i>	CS	Riparian areas with tall trees.	Migratory Bald Eagles winter throughout the state in riparian, low-elevation forest, and desert habitats. There are several winter roosts along the Duchesne, Green and White Rivers and one nest on the White River a few miles upstream of the Colorado/Utah border. The species is recovering across its range, and it was recently proposed that the species be delisted. However, the number of nesting pairs in Utah has remained extremely low.
Bobolink <i>Dolichonyx oryzivorus</i>	SP/SD	Wet meadow, wet grassland, and irrigated agricultural areas.	The Bobolink was historically common but is now a rare nester in flooded grasslands and wet meadows of northern Utah. It summers in the northern regions of North America and winters in South America. Most of the birds migrate east of the Great Plains. The range of the Bobolink has decreased in Utah and across its entire range, because of habitat loss from drought and agricultural practices such as early season hay cutting, grassland conversion, and overgrazing. Habitat for the Bobolink occurs in the mid elevations of the VPA in the Uinta Mountains and the Book Cliffs and has been observed at the Pariette Wetlands.
Burrowing Owl <i>Athene cunicularia</i>	SP	Open grassland and prairies.	Burrowing Owls are neotropical migrants, nest underground in burrows, and are typically found in open desert grassland and shrubland areas that are level and well drained. They depend on burrowing mammals for nest sites and are often associated with prairie dog colonies. The decline of the owl's population across its range appears to be due primarily to agricultural practices, use of pesticides, and the decline of prairie dog colonies. Habitat for burrowing owls occurs throughout the lower elevations of the Uinta Basin. Many of the areas where Burrowing Owls are nesting have been identified and mapped by VFO personnel.

Table 3.17.2. State-listed and BLM-listed Special Status Species Potentially Occurring in the VPA.

Common Name Scientific Name	Protection*	Preferred Habitat	Potential for Occurring on BLM Lands
Ferruginous Hawk <i>Buteo regalis</i>	Threatened	Grasslands, agriculture lands, sagebrush/saltbush/greasewood shrub lands, and at the periphery of pinyon-juniper forests. Nests in juniper trees, cliffs, buttes, and creek banks.	The Ferruginous Hawk is a neotropical migrant breeding from southwestern Canada to central Arizona, New Mexico, and northern Texas, and wintering in California to northern Mexico. It is a year-round resident from Nevada through western and southern Utah, northern Arizona, and New Mexico, to eastern Colorado and South Dakota. In Utah, the Ferruginous Hawk nests at the edge of juniper habitats and open, desert, and grassland habitats in the western, northeastern, and southeastern portions of the state. Ferruginous Hawks are highly sensitive to human disturbance and are also threatened by habitat loss from oil and gas development, agricultural practices, and urban encroachment. They have experienced a decline across much of their range and have been extirpated from some of their former breeding grounds in Utah. Habitat for Ferruginous Hawk occurs in the lower and mid elevations of the VPA in the Uinta Mountains and the Book Cliffs and many of the active nest sites in the VPA have been identified and mapped. There are 271 known nesting sites in the VPA, 34 of which are currently active. Eighty-eight percent of these active and inactive nest sites have roads and pipelines within the ½-mile buffer established for these nest sites meant to limit surface-disturbing activities in close proximity to these nests.
Grasshopper Sparrow <i>Ammodramus savannarum</i>	SP/SD	Dry grasslands; characterized by short to mid-height clumps of grass with few to no shrubs.	The Grasshopper Sparrow is a neotropical migrant was considered to be historically abundant in the State of Utah; however, there are currently only a few known breeding sites in the grasslands of northern Utah. The Grasshopper Sparrow ranges over most of the United States during the summer and in the south and in Mexico during the winter. Much of this species' former habitat has been lost to agricultural and urban encroachment and overgrazing. These birds nest in semi-colonial groups in dry grasslands, characterized by short to mid-height clumps of grass with few to no shrubs. Habitat for Grasshopper Sparrow occurs in the grasslands of the Uinta Basin although there has been no documented occurrences in the VPA.