- Allotment has a potential for medium to high vegetation production, but production is low to moderate.
- Resource conflicts/controversy with livestock grazing are evident.
- There is potential for positive economic return on public investment.

3.8.2.3 CATEGORY C – CUSTODIAL MANAGEMENT

- Present ecological condition is not in a declining trend.
- Allotment has a low vegetation production potential and is producing near this level.
- There may be limited conflicts between livestock grazing and other resources.
- Present management is satisfactory or is the only logical management under existing conditions.
- Opportunities for positive economic return on public investments do not exist.

3.9 MINERALS AND ENERGY RESOURCES

3.9.1 OIL AND GAS

Oil and gas development are major resource development activities within the Uinta Basin, and intense oil and gas exploration and development are expected on BLM-administered lands within the VPA over the planning period of the Proposed RMP. These resources are located in an EPCA focus area. At present, approximately 2,800 oil and gas wells are active within the VPA. The Geologic and Engineering Team in the BLM Vernal Field Office has estimated the relative potential for oil and gas resources, including CBNG, in six exploration and development areas within the VPA. These areas, from north to south, are: Manila-Clay Basin, Tabiona-Ashley Valley, Altamont-Bluebell, Monument Butte-Red Wash, West Tavaputs Plateau, and East Tavaputs Plateau (See Figure 19 in the Maps section).

The number of current leases (wells, developments, and explorations) existing within the VPA changes rapidly and frequently. As such, presenting such information would be without merit, since said information would be outdated immediately upon issuance of the document.

Seismic surveys, both three-dimensional (3D) and two-dimensional (2D), are expected to increase during the planning period, particularly in the East Tavaputs Plateau exploration and development area. Forty-five (45) to 75 Notices of Intent (NOIs) to perform surveys are anticipated, and the Geologic and Engineering Team has estimated that approximately 2,055 new oil wells, 4,345 new gas wells, and 130 new CBNG wells would be drilled during the planning period. The majority of the oil and gas development activity is anticipated to occur in the Monument Butte-Red Wash exploration and development area. Most CBNG activity is expected to occur in the East and West Tavaputs Plateau areas.

3.9.1.1 OIL AND GAS LEASING, AND LOCATABLE AND SALEABLE MINERALS CATEGORIES

The exploration and development of oil and gas resources is accomplished in several stages of activity. The first stage (land categorization) involves determining which public domain lands

should be leased and under what conditions. The second stage is leasing. The third stage includes exploration, development, and production operations.

The BLM has designated four categories that describe the conditions placed upon public domain lands in regard to their availability for fluid hydrocarbon leasing, and the entire VPA has been assigned one of the following leasing categories for oil and gas development:

- Standard Stipulations
- Timing and Controlled Surface Use
- No Surface Occupancy
- Closed to Leasing

Standard Stipulations – This lease category identifies areas, which are open to exploration and development, subject to the terms and conditions of the standard lease form.

Timing and Controlled Surface Use – This category identifies areas that are open to exploration and development, subject to relatively minor constraints such as seasonal restrictions. These areas possess other land uses and/or resource values such as critical big game wildlife range or special status plant and wildlife species, which might conflict with fluid hydrocarbon exploration and development and, therefore, moderately restrictive lease stipulations may be required to mitigate these impacts. The stipulations are utilized where there are resource values, which may require specific protection, but the conflicts with fluid hydrocarbon exploration and development would not be of sufficient magnitude so as to preclude surface occupancy.

No Surface Occupancy – This minerals lease category identifies areas that are open to exploration and development subject to highly restrictive lease stipulations, which includes no surface occupancy (NSO). These areas possess special resource values or land uses such as camping or picnic areas, scenic areas, Recreation and Public Purpose (R&PP) patents and leases, important historical and/or archaeological areas, and buffer zones along the boundaries of special use areas such as wild and scenic river corridors. This category is used for those areas where a number of seasonal or other minor constraints would severely restrict exploration and development.

Closed to Leasing – This lease category identifies areas that are closed to leasing either by discretionary or non-discretionary decisions. These areas have other land uses or resource values, which cannot be adequately protected, even with the most restrictive lease stipulations. Closing these areas to leasing is the only way to ensure their appropriate protection. Discretionary closures involve lands where the BLM has determined that energy and/or mineral leasing, entry, or disposal, even with the most restrictive stipulations or conditions, would not be in the public interest. Non-discretionary closures involve lands that are specifically closed to energy and/or mineral leasing, entry, or disposal by law, regulation, Secretarial decision, or Executive Order. All WSAs are closed to leasing by law.

Locatable and salable minerals areas are generally classified as either Open or Closed. Locatable minerals are usually the base and precious metal ores, ferrous metal ores, and certain classes of

industrial minerals where acquisition is by staking a mining claim (location) over the deposit and then acquiring the necessary permits to explore or mine. Salable minerals are defined as mineral commodities sold by sales contract from the federal government. Salable minerals are generally common varieties of construction materials and aggregates, such as sand, gravel, cinders, roadbed, and ballast material.

3.9.1.1.1 EPCA

The Vernal Field Office Planning Area is located within the western portion of the Uinta/Piceance Basin area which covers a large amount of northeast Utah and northwest Colorado (approximately 18,945,000) acres and is known to have significant occurrences of oil and gas resources which have been depicted in a variety of studies. Based on the known quantities of oil and natural gas resources within the VPA, the Uinta Basin has been designated as an EPCA focus area for oil and gas exploration and development. Most recently, in 2003, a multi-agency effort produced a "Scientific Inventory of Onshore Federal Lands' Oil and Gas Resources and Reserves and the Extent and Nature of Restrictions or Impediments to their Development." It is BLM policy to consider this information in its planning process. The information, commonly referred to as the EPCA data, portrays two kinds of basic energy related information relevant to the Unita/Piceance Basin, volumetric data and accessibility data (EPCA 2003).

The volumetric data on oil reserve estimates for the entire basin is predicted between 61–296 million barrels of oil with a mean estimate of 149 million barrels of oil (EPCA 2003).

Volumetric data on gas reserve estimates for the entire basin is predicted between 12-35 trillion cubic feet with a mean estimate of 22 trillion cubic feet. Most of the undiscovered natural gas is found widely dispersed in continuous deposits rather than distinct structural traps (EPCA 2003).

Among the five study areas that were subject to the EPCA study, the Uinta/Piceance Basin has the highest percentage of oil (85%) available under standard lease terms (EPCA 2003).

Another kind of data illustrated by EPCA is that of accessibility by industry to the estimated reserves. Accessibility by industry was based on the actual depiction of existing land-use plan stipulations that presently occur in the Vernal Field Office Planning Area. Careful review of this information shows many major inaccuracies of oil and gas stipulations as they presently occur with in the planning area. A more accurate portrayal of existing oil and gas stipulations which affect industry accessibility to oil and gas resources is shown in Chapter 2, Proposed RMP and Alternatives and is located in the Alternative Matrix under Alternative D (No Action) which depicts current leasing stipulations.

In addition to the EPCA data, which is a very large-scale portrayal of energy information, the BLM prepared more site-specific data based on 14 conventional and unconventional oil and gas play areas within the Vernal Field Office. Numerous data sources including USGS, UGS, academic research, UDOGM, industry and government sources, were queried in order to depict specific information that was relevant to the potential for occurrence of oil and gas resources within Duchesne, Uintah and Daggett Counties. This information was then used to compile the

Mineral Potential Report for the Vernal Field Office. The mineral report also depicts the potential for reasonable foreseeable development for six different zones within the VPA. A brief summation of the six oil and gas producing zones is portrayed below.

3.9.1.2 MANILA-CLAY BASIN EXPLORATION AND DEVELOPMENT AREA

Historically, exploration activity for and production of oil and gas in this region have been relatively low, particularly over the last 15 years. All producing wells in the area were drilled prior to 1980. Historic gas well data indicate that only three gas wells have been drilled since 1980, none of which are currently producing wells. New geologic data or an increase in the price of natural gas could create increased interest in this area. It is projected that a maximum of 45 additional gas wells would be drilled in this area in the 5 years following the approval of the ROD for this plan.

3.9.1.3 TABIONA-ASHLEY VALLEY EXPLORATION AND DEVELOPMENT AREA

Past exploration for oil and gas resources in this region has been unproductive. Data indicate that there have been no gas wells and only one oil well drilled in this region since 1980, and that the lone well is not producing. It is projected that no more than 30 oil wells would be drilled within this area in the 5 years following the approval of the ROD for this plan.

3.9.1.4 ALTAMONT-BLUEBELL EXPLORATION AND DEVELOPMENT AREA

This area has had major oil exploration and production in the past, but due to a combination of low oil prices and the depletion of the oil reservoir the number of oil wells drilled annually in this area has decreased since the early 1990s. It is projected that no more than 175 oil wells would be drilled within this area in the 5 years following the approval of the ROD for this plan. Past exploration does not indicate a high potential for gas development, but the presence of deep gas reserves in the southern portion of this area could be explored over the next 15 years.

3.9.1.5 MONUMENT BUTTE-RED WASH EXPLORATION AND DEVELOPMENT AREA

The Monument Butte-Red Wash exploration and development area has been an area of extensive oil and gas development and production in the past. It is projected that the oil and gas development within Monument Butte-Red Wash will continue to be extensive in the 5 years following the approval of the ROD for this plan with 1,700 oil wells and 3,100 gas wells projected to be drilled in this area.

3.9.1.6 WEST TAVAPUTS PLATEAU EXPLORATION AND DEVELOPMENT AREA

This is not to be confused with the West Tavaputs EIS analysis for full field oil and gas development currently being conducted out of the Price Field Office. The area in the VPA has not been extensively developed for oil and gas resources in the past 15 years. However, based on BLM discussions with oil and gas producers, there is major interest in this area for oil and gas exploration and development. The greatest interest is in gas development on the eastern side of

this area. As many as 75 oil wells, 350 gas wells, and 50 CBNG wells could be drilled in the area in the 5 years following the approval of the ROD for this plan.

3.9.1.7 EAST TAVAPUTS PLATEAU EXPLORATION AND DEVELOPMENT AREA

This area has had slightly more oil and gas exploration and development than the West Tavaputs Plateau area that falls in the VPA, and it is anticipated that major development, particularly within natural gas fields, will occur in the 5 years following the approval of the ROD for this plan. Increased seismic exploration is expected in the area, and a potential land exchange with the State of Utah (subject to congressional approval) is expected to lead to increasing additional drilling in the first five years. It is projected that 75 new oil wells, 600 new gas wells, and 80 new CBNG wells could be drilled in this area in the 5 years following the approval of the ROD for this plan.

3.9.2 TAR SAND

Tar sand contains heavy hydrocarbon residues such as bitumen, tar, or degraded oils that have lost their volatile components. Hydrocarbons can be liberated from tar sands by heating and other processes. Tar sand deposits in the VPA are generally located along the margins of the Uinta Basin.

The bituminous substance in the sandstones of the Basin's geologic formations is tarry residuum of petroleum that fills the pore space in coarse sandstones or forms cement in loose unconsolidated sands (Pruitt 1961). The ore retrieved from tar sands is bitumen. Bitumen is a general name for various solid and semi-solid hydrocarbons that are fusible and are soluble in carbon bisulfide. Petroleum, asphalt, natural mineral wax, and asphaltite are all considered bitumen.

In the early 1980s, certain tar sand deposits in the Uinta Basin were divided into seven Special Tar Sand Areas (STSAs) designated by the U.S. Geological Survey (USGS) under direction from Congress pursuant to the Combined Hydrocarbon Leasing Act of 1981. These STSAs are Pariette, Sunnyside, Argyle Canyon - Willow Creek, Asphalt Ridge - Whiterocks, Hill Creek, P.R. Spring, and Raven Ridge - Rim Rock (BLM 2002). Table 3.9.1 quantifies the estimated amount of bitumen that could potentially be recovered from each of the STSAs in the VPA.

Table 3.9.1. Estimated Number of Barrels of Bitumen Contained within Each STSA

STSA	Geologic Formations	Barrels of Bitumen
Argyle Canyon-Willow Creek	Green River Formation	60–90 million
Asphalt Ridge-Whiterocks	Duchesne River/Uinta, Navajo Sandstone, and Mesa Verde Formations	1.2–1.3 billion
Hill Creek	Green River Formation	1.6 billion
Pariette	Uinta Formation	12–15 million
P.R. Spring	Green River Formation	4–4.5 billion
Raven Ridge-Rim Rock	Green River Formation	100–130 million
Sunnyside	Wasatch Formation	3.5–4 billion

Table 3.9.1. Estimated Number of Barrels of Bitumen Contained within Each STSA

STSA	Geologic Formations	Barrels of Bitumen

Source: Blackett 1996

Other minor tar sand deposits have also been delineated within the VPA. These deposits include Chapita Wells (7.5 to 8 million barrels of bitumen), Cow Wash (1 to 1.2 million barrels of bitumen), Upper Kane Hollow (unestimated), Spring Branch (1.5 to 2 million barrels of bitumen), Tabiona (1.3 million barrels of bitumen), Lake Fork (6.5 to 10 million barrels of bitumen), Split Mountain (unestimated), Nine Mile Canyon (unestimated), Minnie Maude Creek (10 to 15 million barrels of bitumen), Little Water Hills (10 to 12 million barrels of bitumen), and Spring Hollow (unestimated; Blackett 1996).

Because tar sand development associated with a combined hydrocarbon lease could be more disruptive to environmental resources than oil and gas development, all combined hydrocarbon leases issued in STSAs are regulated by an amended leasing category system.

- Open to leasing, with standard stipulations
- Open to leasing, with standard and special stipulations
- Open to leasing, with no right of surface occupancy
- Closed to leasing

As of October 2001, there were four permitted tar sand surface mining operations in the VPA, all located in Uintah County. The potential for development of this resource, other than for asphalt paving, is anticipated to remain low over the next 15 years.

3.9.3 GILSONITE

Gilsonite is the purest solid bitumen found in nature. Gilsonite is the trade name for Uintaite, which is a black, pitch-like substance that occurs in pure form in vein-type deposits in the Tertiary sediments of the Uinta Basin of northeastern Utah. It is a petroleum substance of uniform composition and texture with a distinctive conchoidal fracture. In gilsonite, the surfaces exposed along fractures typically have a bright sheen and reflect bright light, in notable contrast to the jet-black color. A number of important uses for gilsonite have been found since its discovery in the late nineteenth century. These uses include high-grade varnishes, lacquers, paints, acid proofing, insulating plastics, inks, and mastic (Crawford 1960). For commercial purposes, it is graded and marketed by producers into "Selects" and "Standard." There is also a very high-grade variety with high luster and deep black color known as "Jet Black" (Stern 1960).

Gilsonite is allocated by non-competitive and competitive leasing only. Leasing actions may be initiated by public interest or by the BLM. Allocation methods vary to suit different situations.

There is high to moderate potential for gilsonite occurrence within the VPA. It is likely that there will be continued exploration and development of this resource within the next 15 years.

3.9.4 OIL SHALE

Oil shale is a popular term for sedimentary rock (e.g., marlstone) from the Tertiary Green River Formation that contains kerogen. Kerogen is a fossilized organic material that can be converted to conventional oil via retorting or destructive distillation processes (Cashion 1967) characterizes oil shale as a marlstone that, when distilled, will yield 15 gallons or more of oil per ton of rock.

Oil shale occurs within the lower part of the Parachute Creek Member of the Green River Formation. The Mahogany Oil Shale Zone of the Parachute Creek Member is the most notable kerogen-bearing unit of the Green River Formation (Trudell et al. 1983). It outcrops in the southern part of the VPA and dips north towards the synclinal axis of the Uinta Basin. The Mahogany Zone varies in thickness throughout the Uinta Basin, generally thickening and becoming less defined from east to west (Cashion 1967).

There is a high to moderate potential for occurrence of oil shale within the VPA. It is expected that a total of one or two small-scale projects may be active over the next 15 years.

3.9.5 PHOSPHATE

Phosphate deposits exist in the Uinta Basin within the Meade Peak Member of the Permian Park City Formation. Phosphate ore is present in the form of P2O5 (Schillie 2002). Extensive, relatively high-grade deposits occur at or near the surface in the VPA, making phosphate mining in the VPA economical because the ore can be cheaply strip-mined. Deposits in the Flaming Gorge/Manila Field area are less economically attractive because of the area's more complex geologic setting.

There is high to moderate potential for the occurrence of phosphate deposits within the VPA. Phosphate mining on private land is expected to continue over the next 15 years. There is some potential for exploration on BLM lands over the next 15 years.

3.9.6 MINERAL MATERIALS

Other mineral materials include fine sand, gravel, and building stone. Fine sand deposits can be found on the northern edge of Ashley Valley, the portion of the Uinta Basin lying between Asphalt Ridge and the Utah-Colorado state line, Moon Lake Reservoir, and Yellowstone Reservoir. Moon Lake Reservoir and Yellowstone Reservoir are both on U.S. Forest Service (USFS) land in the Uinta Mountains.

Coarse sand and gravel deposits are found along the northern margin of the Uinta Basin, where it abuts the southern flank of the Uinta Mountains. More specifically, these deposits occur in the upper sandstone units of the Tertiary Duchesne River Formation, in the Uinta Piedmont, and in Quaternary terrace/alluvial deposits in streams draining the Uinta Mountains. Green River terrace deposits are a source of sand and gravel, and the Mississippian Madison Limestone that crops out along the south flank of the Uinta Mountains can be crushed and used as an aggregate.

Building stone resources exist in the Parachute Creek Member of the Tertiary Green River Formation. More specifically, the resource occurs as loose rock that has been eroded from outcrops along the south side of Duchesne County through southern Uintah County.

There is a high to moderate potential for the occurrence of mineral materials, including sand, gravel, and building stone in the VPA. It is likely that exploration and development of these resources will continue to occur over the next 15 years.

3.9.7 LOCATABLE MATERIALS

Minor deposits of locatable materials that are associated with hydrothermal alteration and secondary mineral precipitation (e.g., base metals, gold, gypsum, and uranium) are known to exist within the VPA (Johnson 1973). The Precambrian Red Creek Quartzite has yielded some lead, gold, copper, silver, iron, and barium between Mountain Home and the Owiyukuts Plateau. The Mississippian carbonate rocks along the south flank of the Uinta Mountains contain some small iron deposits (Pruitt 1961). The terrace deposits of the Green River also contain some fine-grained placer gold (Pruitt 1961). Uranium is known to exist in some sections of the carboniferous units of the Mesa Verde and Uinta Formations (Chenoweth 1992). Gypsum is known to occur as an evaporative salt in the Jurassic Carmel and Triassic Moenkopi Formations. When mined for chemical-use purposes (e.g., for carbonate scrubber material), the Mississippian Madison Limestone that outcrops along the flanks of the Uinta Mountains may be subject to mining claim locatable mineral regulations, and may be removed pursuant to the Forest Service 36 CFR 228 (A) or the BLM 43 CFR 3715, 3802, and 3809 mining regulations, as appropriate.

There is moderate potential for the occurrence of locatable minerals within the VPA. Very little development activity for locatable minerals is anticipated over the next 15 years.

3.9.8 COAL

Coal mining has not occurred on public lands in the VPA due to lack of demand and the poor quality of the deposits. However, coal of commercial value exists in the coal unit of the Cretaceous Frontier Sandstone and the Mesa Verde Group Formations (Pruitt 1961). The Frontier Sandstone is the most important coal-bearing unit in the VPA. The quality of these coal beds improves in an easterly direction (Doelling and Graham 1972).

There is a moderate potential for the occurrence of economically valuable coal deposits within the VPA, but it is unlikely that coal exploration or development will occur over the next 15 years because of the generally low-grade quality of the coal.

3.10 NON-WSA LANDS WITH WILDERNESS CHARACTERISTICS

3.10.1 OVERVIEW

Since wilderness study areas (WSAs) were established in the 1980s, designation of wilderness in Utah has become a prominent national issue. For more than 20 years, the public has debated which lands have wilderness characteristics and should be considered by Congress for wilderness

designation. As a result of the debate (and a significant passage of time since the BLM's original inventories), in 1996 the Secretary of the Interior directed the BLM to take another look at some of the lands in question. In response to the direction of the Secretary, the BLM inventoried these lands, and approximately 2.6 million acres of public land statewide (outside of existing WSAs) were found to have wilderness characteristics (1999 Utah Wilderness Inventory).

Non-WSA lands with wilderness characteristics are areas having 5,000 acres, or areas less than 5,000 acres that are contiguous to designated wilderness, WSAs, or other lands administratively endorsed for wilderness; or in accordance with the Wilderness Act's language, areas "of sufficient size as to make practicable it preservation and use in an unimpaired condition". These are areas in a natural or undisturbed condition and provide outstanding opportunities for solitude or primitive forms of recreation (non-motorized and non-mechanized activities in undeveloped settings). The BLM used the same criteria for determining wilderness characteristics as in the 1979 wilderness inventory. The 5,000 acre value was helpful to the BLM in making preliminary judgments, but it was not considered a limiting factor. Refer to the definition of *Wilderness Characteristics* in the glossary in the Draft RMP/Draft EIS.

In April 2003 the BLM and the State of Utah, the Utah School and Institutional Trust Land Administration (SITLA), and the Utah Association of Counties (collectively "Utah") reached an agreement negotiated to settle a lawsuit originally brought in 1996 by Utah, challenging the BLM's authority to conduct new wilderness inventories. The settlement stipulated that the BLM's authority to designate new WSAs expired no later than October 21, 1993. The BLM, however, does have the authority to conduct inventories for characteristics associated with the concept of wilderness (FLPMA Section 201; 43 U.S.C. §1711) and to consider management of these values in its land-use planning process (FLPMA Section 202; 43 U.S.C. §1712). The BLM's land-use Planning Handbook (H-1601-1) states that decisions on whether or not to protect areas with wilderness characteristics are to be considered during planning.

3.10.2 PLANNING AREA PROFILE

There are nine areas in the VPA (approximately 102,938 acres) outside of existing WSAs that were determined by the BLM in the 1999 inventory to have the wilderness characteristics of size, naturalness, and outstanding opportunities for solitude or primitive recreation. In addition to the lands found to have wilderness characteristics in the 1999 inventory, other lands in the VPA have been proposed for wilderness as a part of legislation before Congress (America's Red Rocks Wilderness Act). A BLM interdisciplinary team evaluated a variety of sources of information, including information provided by the public about these areas, their on-the-ground knowledge of these areas, information in case files and field notes/files, master title plats, aerial photos, GIS data layers, and field inspections, and the team determined that all or parts of these areas have wilderness characteristics. Of the 34 areas evaluated, a total of 25 areas outside of existing WSAs totaling about 277,596 acres were found to have wilderness characteristics. These areas are identified in the table below (Table 3.10.1; See Figure 26 in the Maps section). These non-WSA lands with wilderness characteristics have been carried through the land-use planning process to assess the impacts of management options on these lands and to determine how their wilderness characteristics will be managed. Many of the inventoried lands were found to lack

wilderness characteristics, and these are also identified in the table below (Table 3.10.1; see Figure 26 in the Maps section).

Detailed information about non-WSA lands with wilderness characteristics is part of the administrative record for the Draft RMP/Draft EIS. The following records are available for public review at the Vernal Field Office: (1) 1999 Utah Wilderness Inventory; (2) 1999 Utah Wilderness Inventory Revision Document for the Vernal Field Office; (3) 1999 Utah Wilderness Inventory case files for the Vernal Field Office; (4) Reasonable Probability Determinations for the Vernal Field Office; and (5) Documentation of Wilderness Characteristics Review for the Vernal Field Office.

Table 3.10.1 Non-WSA Lands with Wilderness Characteristics in the VPA

Name	Acres with Wilderness Characteristics (WC)	Acres with No Wilderness Characteristics (NWC)	Contiguous Lands with Wilderness Characteristics
Beach Draw	898	9	Beach Draw is contiguous to Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
Bitter Creek	33,488	8,816	No contiguous lands with wilderness characteristics.
Bourdette Draw	13,335	2,174	No contiguous lands with wilderness characteristics.
Bull Canyon	2,483	32	Bull Canyon is contiguous to the BLM's Bull Canyon WSA, located in Utah and Colorado.
Cliff Dweller Canyon	0	14,604	No contiguous lands with wilderness characteristics.
Cold Spring Mountain	8,764	4,412	Cold Spring Mountain is contiguous to the BLM's West Cold Spring WSA, located in Utah and Colorado.
Cripple Cowboy	13,603	0	Cripple Cowboy is contiguous to the BLM's 400-acre Book Cliffs Mountain Browse ISA.
Daniels Canyon	3,045	0	Daniels Canyon is contiguous to the BLM's Daniels Canyon WSA and Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
Dead Horse Pass	6,994	1,124	No contiguous lands with wilderness characteristics.

Table 3.10.1 Non-WSA Lands with Wilderness Characteristics in the VPA

Name	Acres with Wilderness Characteristics (WC)	Acres with No Wilderness Characteristics (NWC)	Contiguous Lands with Wilderness Characteristics
Desolation Canyon	63,118	6,993	Desolation Canyon is contiguous to the BLM's Desolation Canyon WSA. The non-WSA lands with wilderness characteristics are located in the BLM's Vernal, Price, and Moab Field Offices. This is the acreage with wilderness characteristics in the Vernal Field Office portion of the area. Total acreage of the non-WSA lands with wilderness characteristics covering all three field offices is 154,767.
Diamond Breaks	4,539	186	Diamond Breaks is contiguous to the BLM's Diamond Breaks WSA, located in Utah and Colorado.
Diamond Mountain	27,238	25	Diamond Mountain is contiguous to Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
Dragon Canyon	0	19,899	No contiguous lands with wilderness characteristics.
Goslin Mountain	0	6,084	No contiguous lands with wilderness characteristics.
Hells Hole Canyon	2,709	0	Hells Hole Canyon includes 7,000 acres in Colorado.
Hideout Canyon	1,113	0	Hideout Canyon includes 11,607 acres of lands with wilderness characteristics in the Moab Field Office.
Lower Bitter Creek	11,417	2,682	No contiguous lands with wilderness characteristics.
Lower Flaming Gorge	17,810	3,360	No contiguous lands with wilderness characteristics.
Mexico Point	1,277	79	Mexico Point includes 12,837 acres of lands with wilderness characteristics in the Moab Field Office.
Moonshine Draw	4,513	0	Moonshine Draw is contiguous to Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
Mountain Home	7,083	2,201	No contiguous lands with wilderness characteristics.

Table 3.10.1 Non-WSA Lands with Wilderness Characteristics in the VPA

Name	Acres with Wilderness Characteristics (WC)	Acres with No Wilderness Characteristics (NWC)	Contiguous Lands with Wilderness Characteristics
Rat Hole Ridge	11,367	0	Rat Hole Ridge includes 1,200 acres of lands with wilderness characteristics in Colorado.
Red Creek Badlands	0	4,656	No contiguous lands with wilderness characteristics.
Seep Canyon	0	20,802	No contiguous lands with wilderness characteristics.
Split Mountain Benches	0	2,164	No contiguous lands with wilderness characteristics.
Split Mountain Benches South	0	355	No contiguous lands with wilderness characteristics.
Stone Bridge Draw	0	3,638	No contiguous lands with wilderness characteristics.
Stuntz Draw	1,992	0	Stuntz Draw is contiguous to Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
Sunday School Canyon	0	18,069	No contiguous lands with wilderness characteristics.
Sweetwater Canyon	6,994	0	No contiguous lands with wilderness characteristics.
Vivas Cake Hill	277	0	Vivas Cake Hill is contiguous to Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
White River	21,210	8,564	No contiguous lands with wilderness characteristics.
Wild Mountain	527	31	Wild Mountain is contiguous to Dinosaur National Monument lands recommended by the Park Service for wilderness designation.
Wolf Point	11,802	2,764	No contiguous lands with wilderness characteristics.
Total (34 areas)	**277,596**	**133,723**	No contiguous lands with wilderness characteristics.

Non-WSA lands with wilderness characteristics analyzed in this document include 277,596 acres of BLM-administered public land. In addition to the acreage currently being managed to protect and preserve their wilderness characteristics, the BLM Utah is considering management options for 2,759,400 (5.3% of lands in Utah) additional acres of non-WSA lands with wilderness characteristics in six ongoing land-use planning efforts. This includes the 277,596 acres in the VPA. There are other federal lands with wilderness characteristics in Utah not administered by

the BLM that are currently being managed to protect those values. These are identified in Table 3.10.2.

Table 3.10.2. Federal Lands with Wilderness Characteristics in Utah that are Currently Being Managed to Protect Those Values

Land Administrator	Administrative Unit	Acres	Percent of Land in Utah*
BLM	Designated Wilderness	127,700	0.24
BLM	Wilderness Study Areas	3,214,740	6.10
National Park Service	Recommended Wilderness	1,467,082	2.79
U.S. Forest Service	Designated Wilderness	773,124	1.47
U.S. Forest Service	Recommended Wilderness	83,390	0.16
Total		**5,666,036**	**10.76**

*The percentage figures shown in this table are based on a total land area of 52,541,440 acres in Utah.

3.11 PALEONTOLOGY

Fossils are the remains, traces, or imprints of ancient organisms preserved in or on the earth's crust that provide information about the history of life on earth. Paleontological resources do not include any materials associated with an archeological resource, which consist of material remains of past human life or activities that are over 100 years old (as defined in section 3(1) of the Archeological Resources Protection Act of 1979, as amended (16 U.S.C. 470bb[1]).

3.11.1 REGIONAL OVERVIEW

At approximately 125 miles in length, the Uinta Mountains are the largest east-west-trending mountain range in the western hemisphere (Hansen 1969). The Uinta Basin is an asymmetrical elongate basin. The Uinta Mountains flank the northern length of the basin and the Book Cliffs/Tavaputs Plateau flank the southern margin. The Uinta Basin, Uinta Mountains, and Book Cliffs/Tavaputs Plateau are the dominant physiographic provinces of northeastern Utah. The Uinta Mountains rise to elevations greater than 13,000 ft (nearly 4000 m). This mountain range includes many of the highest peaks in Utah.

The Uinta Basin is situated in the central portion of the VPA. It has a geologic history of several orogenies (mountain building events) and a series sea level changes evidenced in the various rock formations and in the fossil record. The rock outcrops in the VPA are primarily sedimentary and span more than 2.8 billion years (Ga) of geologic history. These sedimentary deposits include Precambrian marine clastics, Paleozoic shelf deposits, Mesozoic terrestrial deposits, Tertiary basin fill and lake deposits, and Late Tertiary and Quaternary basin fill, glacial deposits, and alluvium (Diamond Mountain RMP 1990). In other words, the sedimentary rocks within the VPA formed and deposited in a variety of ancient environments more than 65 million years ago.

3.11.2 EVALUATION OF PALEONTOLOGICAL RESOURCE AND CONDITIONS

The BLM has identified four objectives for the management of fossil resources on lands it administers. They are: 1) locating, evaluating, managing, and protecting fossil resources; 2) facilitating appropriate scientific, educational and recreational uses of fossils; 3) ensuring that proposed land uses do not inadvertently damage or destroy important fossil resources; and 4) fostering public awareness of the Nation's rich paleontological heritage (BLM 1998:01). The BLM considers vertebrate fossils, as a group, to be scientifically significant; invertebrate and plant fossils may be determined to be significant on a case-by-case basis. Petrified wood is treated as a mineral material and may be collected or purchased under the Material Sales Act of 1947 (as amended), but cannot be obtained under the General Mining Law of 1872.

In 1998, the BLM released H-8270-1, General Procedural Guidance for Paleontological Resource Management. This handbook established a simple tri-level classification system (Condition I, II, and III) for the "ranking of [geographic] areas according to their potential to contain vertebrate fossils, or noteworthy occurrences of invertebrate or plant fossils" (BLM 1998:II-3).

On October 15, 2007, the BLM Washington Office (WO) IM 2008-009 (BLM 2007) replaced the tri-level classification system with the Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands, and H-8270-1 was revised to include this new classification system. The new classification system is meant to provide baseline guidance for predicting, assessing, and mitigating paleontological resources. Table 3.11.1 below (from Attachment 2-2 of the IM) provides a correlation for the old and new classification systems.

Table 3.11.1. Correlation between Condition and PFYC Classification Systems for Paleontological Resources

Condition Classes	PFYC Classes
Condition 1 – Areas known to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. (Note: this refers to known localities or groups of localities)	PFYC Class 4 (High) or Class 5 (Very High), based on geologic unit.
Condition 2 – Areas with exposures of geologic units or settings that have high potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.	PFYC Class 3 (Moderate), Class 4 (High), or Class 5 (Very High), based on geologic unit.
Condition 3 – Areas are very unlikely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.	PFYC Class 1 (Very Low) or Class 2 (Low)

The descriptions for the classes below are written to serve as guidelines rather than as strict definitions:

***Class 1* – Very Low.** Geologic units that are not likely to contain recognizable fossil remains.

- Units that are igneous or metamorphic, excluding reworked volcanic ash units.

- Units that are Precambrian in age or older.

The probability for impacting any fossils is negligible.

***Class 2* – Low.** Sedimentary geologic units that are not likely to contain vertebrate fossils or scientifically significant non-vertebrate fossils.

- Vertebrate or significant invertebrate or plant fossils not present or very rare.
- Units that are generally younger than 10,000 years before present.
- Recent aeolian (wind-blown) deposits.
- Sediments that exhibit significant physical and chemical changes (i.e., diagenetic alteration).

***Class 3* – Moderate or Unknown.** Fossiliferous sedimentary geologic units where the fossil content varies in significance, abundance, and predictable occurrence; or sedimentary units of unknown fossil potential.

- Often marine in origin with sporadic known occurrences of vertebrate fossils.
- Vertebrate fossils and scientifically significant invertebrate or plant fossils known to occur intermittently; predictability known to be low.
- Poorly studied and/or poorly documented. Potential yield cannot be assigned without ground reconnaissance.

***Class 3a* – Moderate Potential.** Units are known to contain vertebrate fossils or scientifically significant non-vertebrate fossils, but these occurrences are widely scattered. Common invertebrate or plant fossils may be found in the area, and opportunities may exist for hobby collecting. The potential for a project to be sited on or impact a significant fossil locality is low, but is somewhat higher for common fossils.

***Class 3b* – Unknown Potential.** Units exhibit geologic features and preservational conditions that suggest significant fossils could be present, but little information about the paleontological resources of the unit or the area is known. This may indicate the unit or area is poorly studied, and field surveys may uncover significant finds. The units in this Class may eventually be placed in another Class when sufficient survey and research is performed. The unknown potential of the units in this Class should be carefully considered when developing any mitigation or management actions.

***Class 4* – High.** Geologic units containing a high occurrence of significant fossils. Vertebrate fossils or scientifically significant invertebrate or plant fossils are known to occur and have been documented, but may vary in occurrence and predictability. Surface-disturbing activities may adversely affect paleontological resources in many cases.

***Class 4a* –** Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two acres. Paleontological resources may be susceptible to adverse impacts from surface-disturbing actions. Illegal collecting activities may impact some areas.

Class 4b – These are areas underlain by geologic units with high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.
- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

Class 4 and Class 5 units may be combined as Class 5 for broad applications, such as planning efforts or preliminary assessments, when geologic mapping at an appropriate scale is not available.

Class 5 – **Very High.** Highly fossiliferous geologic units that consistently and predictably produce vertebrate fossils or scientifically significant invertebrate or plant fossils, and that are at risk of human-caused adverse impacts or natural degradation.

Class 5a – Unit is exposed with little or no soil or vegetative cover. Outcrop areas are extensive with exposed bedrock areas often larger than two contiguous acres. Paleontological resources are highly susceptible to adverse impacts from surface-disturbing actions. Unit is frequently the focus of illegal collecting activities.

Class 5b – These are areas underlain by geologic units with very high potential but have lowered risks of human-caused adverse impacts and/or lowered risk of natural degradation due to moderating circumstances. The bedrock unit has very high potential, but a protective layer of soil, thin alluvial material, or other conditions may lessen or prevent potential impacts to the bedrock resulting from the activity.

- Extensive soil or vegetative cover; bedrock exposures are limited or not expected to be impacted.
- Areas of exposed outcrop are smaller than two contiguous acres.
- Outcrops form cliffs of sufficient height and slope so that impacts are minimized by topographic conditions.
- Other characteristics are present that lower the vulnerability of both known and unidentified paleontological resources.

Using data gathered from the Utah Geological Survey, this section identifies areas according to their potential to contain vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils.

3.11.2.1 CLASS 4 AND 5 AREAS

For the purpose of this management plan, all vertebrate fossil localities were identified as to section, township, and range. Any section that contained one or more (maximum of 36) vertebrate fossil localities was identified as a Class 4 and 5 area. The total area (the sum of all sections containing one or more vertebrate or trace fossil locality) for Class 4 and 5 areas is approximately 147,062 acres. Fossil localities that lack specific geographic information were not considered.

3.11.2.2 CLASS 3 AREAS

Areas where geological units that yield vertebrate fossils or significant invertebrate or plant fossils elsewhere are identified as Class 3 areas for the purposes of this management plan. Outcrops of units such as the Morrison, Mesa Verde, Mancos, Moenkopi, Green River, Uintah, Wasatch, Chinle, and Navajo/Nugget Formations should be considered as Class 3 areas in the VPA. All of these units contain vertebrate fossils in other locations and may require further assessment where they are exposed in the VPA. Areas where these units are covered or obscured are not Class 3 areas. The total acreage included in sections in which vertebrate or other scientifically significant fossils may be expected to occur is approximately 1,173,741 acres. Although significant fossils have not yet been found in these areas, there is a high potential for their discovery. Fossil localities that lack specific geographic information were not considered.

3.11.2.3 CLASS 1 AND 2 AREAS

Class 1 and Class 2 areas are not known to contain any paleontological localities and do not appear (at this time) to have geological units likely to produce vertebrate fossils or noteworthy occurrences of invertebrate or plant fossils. Classes1 and 2 areas make up approximately 446,946 acres of the VPA.[2]

3.12 RECREATION

3.12.1 REGIONAL OVERVIEW

The vast and varied landforms within the VPA accommodate many recreational uses. With two major rivers and several small mountain ranges, this area attracts recreational users from the Uinta Basin, as well as from western Colorado, Wyoming, Idaho, and Utah's heavily populated Wasatch Front. The VPA is valued for its wide range of outdoor activities including hunting and fishing, rafting and canoeing, hiking and camping, OHV use, horseback riding and mountain biking, and general recreation. The rise in recreation's popularity has presented challenges to managing outdoor recreation to accommodate demand, while ensuring the health of the resources that are essential to its existence.

The basic units of recreation management are the Special Recreation Management Area (SRMA) and the Extensive Recreation Management Area (ERMA). An SRMA is a designated area where

[2] Calculations for condition areas acreages do not include State, Tribal, or Private lands.

recreation is emphasized. Extensive Recreation Management Areas are areas where recreation is unstructured and dispersed, where minimal recreation-related investments are required, and have minimal regulatory constraints.

3.12.1.1 Special Recreation Management Areas (SRMAs)

3.12.1.1.1 Browns Park SRMA

The Browns Park SRMA encompasses the Green River below Flaming Gorge Dam (from the Ashley National Forest boundary to the Utah-Colorado state line) and is approximately 23 miles in length and one mile wide, with line-of-sight up to one-quarter mile of the river centerline. River recreation, camping, fishing, and sightseeing are the primary recreational opportunities in Browns Park. There is an increasing interest in OHV, hiking, cycling, and equestrian use. The John Jarvie Historic Ranch is located within the Browns Park SRMA and provides a historic recreation resource for the area. The ranch accommodates approximately 15,000 visitors each year and is considered a major attraction within the Diamond Mountain ERMA.

3.12.1.1.2 Pelican Lake SRMA

Unlike many of the more remote recreation resources in the Diamond Mountain ERMA, Pelican Lake is in close proximity to Vernal and is heavily used by the semi-urban population of the Uinta Basin. The most popular activities on Pelican Lake are boating and fishing. Management of the SRMA has become more challenging as the population in Vernal continues to increase, bringing with it greater numbers of users and more conflicts between different recreational activities.

3.12.1.1.3 Red Mountain-Dry Fork

The Red Mountain-Dry Fork SRMA lies approximately 12 miles northwest of Vernal and is open year-round. Access to the area is by paved road. The area is primarily used by OHV recreationists, hunters, campers, mountain bikers, and for general day use. Rock art is also present in the area.

3.12.1.1.4 Nine Mile Canyon

The Nine Mile Canyon SRMA is located at the southwest boundary of the VPA, and is a popular tourist destination. Noted as having the highest concentration of rock art sites in the U.S., services are available, but limited, within the canyon and camping is not allowed. Travel through the canyon is along a narrow, unpaved road suitable for most passenger and small recreational vehicles. Nine Mile Canyon is protected by the Antiquities Act, which prohibits excavations or acts that may injure or destroy any historic or prehistoric ruins, dwellings, or other structures.

3.12.1.2 Extensive Recreation Management (ERMAs)

The ERMAs are areas where dispersed recreation is encouraged and where visitors have recreational freedom-of-choice with minimal regulatory constraint. They are usually areas that

receive very little recreation use. These areas could include developed and primitive recreation sites with minimal facilities. Public recreation issues or management concerns are limited, and minimal management suffices in these areas. Detailed planning is not usually required for these areas. All areas within the VPA that are not part of a SRMA are included within the ERMA.

3.12.2 RECREATION TYPES

3.12.2.1 TRAILS

In November 2001, the Institute of Outdoor Recreation and Tourism at Utah State University (USU) prepared an analysis of public sentiment towards trails with a statewide telephone survey. Results were compiled for the Uinta Basin sub-area. Results of the survey indicated the following:

- Hiking was the most mentioned activity.
- OHV riding was mentioned second.
- Horseback riding was mentioned third.
- Only 47% of trail users indicated they would support the use of additional public funds for motorized trails.
- Over 79% of trail users support the use of additional public funds for non-motorized trails.
- A clear majority of the general population believes that trails provide economic benefit for local communities.

Using the data collected through USU, the Governor's Initiative on Trails established a goal to increase trail facilities throughout Utah. A working group to help establish priority areas for trail development focused on three major trails in the Uinta Basin:

- Dry Fork Flume, a non-motorized trail approximately 19 miles long.
- Outlaw Adventure OHV Trail, a motorized trail approximately 47 miles long.
- Vernal Canals – several non-motorized trails constituting 47 miles of total trail length.

3.12.2.2 OFF-HIGHWAY VEHICLES (OHVS)

The number of OHVs used in the VPA has grown in the last 10 years. According to Utah State Parks and Recreation, the number of statewide permits issued between 1988 and 1998 has grown from 20,000 to 70,000. There has been a 294% increase in registration since 1997, and annually, 30% have been first-time buyers. As identified by the National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands, the growth of OHV use can be attributed to the following:

- Greater public interest in unconfined outdoor recreation opportunities.
- Rising disposable income, fostered by a healthy domestic economy, for use on recreational pursuits.

- Advances in vehicle technology that enabled motorized OHV users to reach previously inaccessible areas.
- The rapid growth of the West's cities and suburbs, whose expansion and population growth has brought Westerners closer to once-remote public lands.
- A population with an increasing median age with changing outdoor recreational interests.

Extensive research has been conducted over the last several years to attempt to designate certain areas as appropriate for OHV use. This process is a long-term, ongoing effort to ensure resource protection while allowing a variety of recreation opportunities.

Areas that receive the most OHV use within the VPA are day-use areas accessible by the Vernal population. Presently, the areas of highest OHV use are: 1) Buckskin Hills, north of the town of Vernal; 2) Jensen Hills; 3) the Raven Ridge area, which is south of the east Highway 40 and east of the old Bonanza Highway; and 4) the Glen Bench ATV area north of Fantasy Canyon (an unofficial designated site, where people are directed to go to minimize intensive use of other more sensitive areas). Major visual, soils/watershed, and vegetation degradation is occurring in some areas.

3.12.2.3 HUNTING AND WILDLIFE VIEWING

Hunting and wildlife viewing are widespread throughout the VPA. Concentrated areas occur in the Book Cliffs ERMA and Pariette Wetlands . Big game hunting in the Book Cliffs and on Diamond Mountain is generally an extended recreational activity (5-12 days) because of the limited number of tags and the excellent hunting opportunities that the area provides. Public access to the Diamond Mountain public lands is limited because of private ownership.

3.12.2.4 SCENIC DRIVES

Four popular scenic drives, including Scenic Byways and Backways and one Federal Highway Administration National Scenic Byway, are within the VPA, typically promoted by the Dinosaurland Travel Board. The four routes are Nine Mile, Jones Hole, and Browns Park Backways and the Flaming Gorge Drive through the Ages National Scenic Byway. Other scenic routes would include the Dinosaur National Monument Park Highway, the state park roads into both Red Fleet and Steinaker Reservoirs, the Book Cliff Divide Road, and the day-use area accessing the Ashley National Forest up Dry Fork Canyon.

3.12.2.5 RIVER RECREATION

Two major rivers provide the resource for river recreation- the Green River, and the White River. Since the last BLM planning efforts (in 1985 for the Book Cliffs, and 1994 for Diamond Mountain), commercial river recreation clients and river user days have remained relatively constant, while casual use has been increasing by approximately 5% annually.

3.12.2.5.1 THE GREEN RIVER

Along the Green River, the BLM administers and collects fees for all of the commercial river permits in three major river sections: the Flaming Gorge Dam to Little Hole (Section A), Little Hole to Indian Crossing (Section B), and Indian Crossing to the Utah/Colorado state line (Section C). Permits are required for commercial boating, while boating for personal use from the Flaming Gorge Dam to the Dinosaur National Monument at Lodore Canyon does not require a permit. The bulk of commercial use, approximately 75 boats per day, occurs between the Flaming Gorge Dam and Little Hole (all of which is administered by the Ashley National Forest).

The most apparent conflict on the Green is between different recreational activities. It is not uncommon to have commercial and private rafts, single kayaks, and drift boats on the same stretch of river simultaneously floating past shore fisherman. The noise from larger groups on the rafts can interfere with the peace and solitude sought by the fishermen. Use along the shore is primarily by fishermen.

3.12.2.5.2 THE WHITE RIVER

The White River is also a major resource for commercial and non-commercial boating. Approximately 2,000 people visit this stretch of the White River each year. The most popular section of the White River is from the Bonanza Bridge to the Enron take-out, a distance of 32 river miles.

Several visual resources exist in this section of the White River, providing additional recreation opportunities. One of the recreational and visual resources along the river is the Goblin City Overlook, a lookout point approximately 800 feet above the White River. The view is primarily eastward through a series of high ridges, which have features resembling towers, spires, and turrets.

The confluence of the Green River and White River occurs within the boundary of the Uintah and Ouray Indian Reservation. The Reservation requires a permit for river use and for take-out through any of their property.

3.12.2.6 BOATING/SWIMMING

Although most reservoir recreation occurs on the state park facilities of Steinaker and Red Fleet Reservoirs, Pelican Lake also receives heavy use from boaters. Activities on Pelican Lake include motorized and non-motorized boating and picnicking. There is intense fishing for bluegill and bass, especially on spring weekends, and up to 70 boats may use the BLM boat ramp daily. Swimming in Pelican Lake is strongly discouraged due to the threat of bacterial and parasitic skin infections.

3.12.3 MANAGEMENT STRATEGIES

Within the VPA, and nationally, OHV areas are designated as open, limited, or closed. An open designation allows intensive OHV use where there are no compelling resource protection needs, user conflicts, or public safety issues. An area designated as limited restricts OHV use to meet specific resource management objectives. Limitations may occur on number or type of vehicles, time and season of use, or specific roads. An area is designated as closed to protect resources, ensure visitor safety, or reduce user conflicts. Within the VPA there are 787,859 acres open to OHV use, 887,275 acres that are limited, and 50,388 acres that are closed (see Figure 37 in the Maps section).

3.13 RIPARIAN AND WETLAND RESOURCES

Riparian areas and wetlands are considered some of the most diverse and productive portions of the VPA, but on the landscape level riparian areas and wetlands typically compose less than 1% of the total land area. Benefits from these areas are essential to both human and wildlife values. The lifecycles of most mammals, birds, amphibians, and fishes rely partially or wholly on riparian and wetland areas. Sensitive species such as the Ute ladies'-tresses, Bald Eagles, and Western Yellow-billed Cuckoos have their primary habitat in riparian areas. Additionally, these areas provide recreational, scenic, livestock production, and hunting areas for humans. Often, riparian and wetland resources are among the first landscape features to show impacts from management activities and often reflect overall watershed condition.

3.13.1 REGIONAL OVERVIEW

Approximately 16,000 acres of riparian zones are found along the Green and White Rivers and Bitter, Evacuation, Sweetwater, and Willow Creeks in the Book Cliffs portion of the VPA. As of 1982, 470 acres of riparian zones in the Book Cliffs portion of the VPA were identified as being in poor ecological condition (BLM 1984). However, current riparian conditions within the Book Cliffs are being assessed, and riparian conditions could have changed since the 1984 riparian/wetland assessment (see 3.11.2 below). The Diamond Mountain portion of the VPA contains 60,300 acres of riparian lands (2% of the inventoried lands), with 15,650 acres of the 60,300 acres in public lands. There are 540 miles of perennial and intermittent streams in the VPA (BLM 1993b). The BLM manages its riparian zones for multiple uses, including recreation, grazing, wildlife habitat, and other uses.

Wetlands in the study area are primarily adjacent to riparian zones and reservoirs. Additionally, several constructed water impoundments, the Pariette Wetlands, Bitter Creek Marsh, and springs are found in the VPA. The Pariette Wetlands have the largest contiguous area of wetlands in the VPA, and they are the largest waterfowl management area managed by the BLM in Utah. Specifically, the Pariette Wetlands area encompasses approximately 9,033 acres, 2,529 acres of which have riparian-wetland characteristics. The Pariette Wetlands riparian areas are situated along 7 miles of Pariette Draw, approximately 24 miles southwest of Vernal. Wetlands are divided between 20 ponds and impoundments that are regulated for waterfowl and migratory bird habitat. Bitter Creek contains vital riparian zones with box elders, aspens, willows, and sedges which support a variety of life including reptiles, amphibians, and waterfowl. The streams

and adjacent cliffs provide habitat for birds including Peregrine Falcons and Golden Eagles and provide prime calving grounds for elk and habitat for deer.

3.13.2 RIPARIAN AND WETLAND INVENTORY

The Vernal Field Office has prepared a preliminary inventory of riparian and wetland resources within the VPA, although, as of October 2003, a comprehensive assessment of riparian condition has yet to be conducted by a full ID Team. As identified in the preliminary riparian inventory there are 295 miles and 3,674 acres of riparian areas currently in proper functioning condition, 133 miles and 1,452 acres functioning at risk, and 79 miles and 1,213 acres that are not in properly functioning condition. These are preliminary numbers and they may change as the inventory is completed. Figure 5 Forage (see Maps section) displays the coverage of riparian and wetland inventory data within the VPA. Functioning condition is divided into three classes: properly functioning condition (PFC), functioning at risk (FAR), and non-functioning (NF). (See Glossary for definitions).

3.14 SOCIOECONOMICS

3.14.1 REGIONAL OVERVIEW

This section describes the current social and economic setting, trends, conditions, and characteristics for Uintah, Duchesne, and Daggett Counties in northeastern Utah (Table 3.14.1). It will serve as a baseline for future resource management by the Vernal Field Office.

Along with much of the rest of Utah, Daggett, Duchesne, and Uintah Counties have grown in population and economic vitality over the years. These counties are populated by citizens who place a high value on living in rural and small-town environments and want to keep that identity. However, they also want to be prosperous and to live in prosperous communities. As prosperity is a common desire among members of each community, it is predicted that the economies and populations of these three counties will continue to grow indefinitely.

There are a number of similarities between Daggett, Duchesne, and Uintah Counties. The driving time from each of the three county seats to the political and economic capital of the state, Salt Lake City, is approximately 2-3 hours. Each of the counties has a distinctly rural culture and strong attitudes regarding the importance of farming and ranching in their culture. Each of the counties has an abundance of topographic scenic beauty that draws large numbers of visitors. All three counties have vast expanses of BLM and USFS land within them.

State and federal land (including the Uintah and Ouray Indian Reservation) in the three counties, managed by state and federal officials and Reservation authorities, ranges from 72% in Duchesne to 81% in Uintah to 89% in Daggett. The leadership of all three counties regards most of this land as part of their economic base.

Although the political leadership in each of the three counties knows and trusts the others, they are each highly independent. "One size" responses to the three counties from any government or

private entity seeking to engage in a region-wide project will not necessarily "fit all." There is only one all-weather road (SR 44 and US 191) from the Daggett County seat, Manila, to anywhere in Uintah and Duchesne Counties. (It is a 1.5-hour drive to Vernal and a 2.5-hour drive to the City of Duchesne.) In the winter, because that road goes over the Uinta Mountains, travel time and hazard can be increased considerably. Because of the road's location on the north slope of the Uinta Mountains and its limited access, in some ways, Daggett County residents feel more socially and economically connected to the Rock Springs, Wyoming area than they do to any area of Utah.

Uintah and Duchesne Counties have large portions of the Uintah and Ouray Indian Reservation within their boundaries, and they both work collaboratively with Reservation authorities on matters of mutual interest. Oil and natural gas is a significant portion of the economy in these two counties, particularly in Uintah County. Although Daggett County has no Native American lands and produces less oil and gas, it is the site for transportation and pipeline corridors that deliver gas and electricity to markets. Thus, the energy sector plays a different but equally important role. Daggett County also has the single largest tourist/recreation attraction of the three counties: Flaming Gorge National Recreation Area, which draws more than a million visitors a year. Uintah County is much larger in population (25,224) and economy ($229.5 million total non-farm wages annually) than either Duchesne County (population 14,371; $113.3 million total non-farm wages annually) or Daggett County (population 921; $10.8 million total non-farm wages). Daggett County's tax base is so small that it has difficulty meeting all the responsibilities and expectations of a contemporary county.

Table 3.14.1. County Comparisons

County	Population 2000	Land Area	Percent BLM Land	Largest Industry
Daggett	921	459,553 acres	80.6	Government Services/Tourism
Duchesne	14,371	2.1 million acres	46.6	Government Services/Retail Trade
Uintah	25,224	2.9 million acres	46.1	Oil Gas and Mining/Government Services

To best understand the relationship between socioeconomics and planning for the Vernal Field Office, the social, economic, and governmental settings are discussed for each county. From these specific discussions, region-wide conclusions about the socioeconomic factors in the VPA can be drawn.

A statewide social survey was conducted by Utah State University (USU) in 2007 to assess the ways in which Utah residents use and value public land resources and their views about public lands management. A complete analysis of the results had not been finished as of February, 2008. "Public lands," as described in the study, consist of all federal and state managed lands, and not only BLM lands. Surveys were mailed to a random sample of residents of all 29 Utah counties. According to the authors, the study and sample sizes are designed to produce results generalizable at the state-wide level, with generalization increasingly risky as the sample area diminishes. The areas sampled do not necessarily coincide with field office planning area boundaries, as that was not the focus of the study. Nonetheless, the study provides current and

interesting results not available elsewhere, and shows the dependence of local communities on public lands for a variety of economic and recreational pursuits. Appendix XX (USU Public Lands Study) contains initial summary results for Uintah, Duchesne and Daggett Counties lying within the Vernal Field office. Where appropriate, study results are incorporated within the discussion of individual resources in Chapter 4. There is nothing in the preliminary USU results that affect the formulation of alternatives in Chapter 2 or the analysis of impacts in Chapter 4.

3.14.2 UINTAH COUNTY

3.14.2.1 SOCIAL CHARACTERISTICS

Uintah County has experienced continuous population growth since the early 1900s (Table 3.14.2). Moderate growth is anticipated to continue into the next decade, as shown in the table below. The major communities include the county seat Vernal, Naples, and Ballard. Approximately 7,700 (or 31%) of Uintah County residents live in Vernal and 1,300 (or 5%) live in Naples. The largest number 15,644 (or 62%) live in unincorporated areas of the county. Most Uintah County residents live on farms, ranches, and unincorporated communities, many of which are tribal communities.

Table 3.14.2. Population Growth by Area, Past, Present, and Projected

Area	1990	2000	2020
Ballard Town	644	566	1,017
Naples City	1,334	1,300	1,718
Uintah County	22,211	25,224	29,058
Unincorporated Uintah County	13,589	15,644	18,495
Vernal City	6,644	7,714	8,341

Source: Utah Governor's Office of Planning and Budget (GOPB), 2000 Census, U.S. Census Bureau

Uintah County covers a land area of 4,477 square miles and, at 5.6 residents per square mile, is one of the least densely populated counties in the state. Approximately 10.3% of Uintah County residents are American Indian. Eighty percent of the households in Uintah County are family households, and 44.5% have children less than 18 years of age. Average household size in Uintah County, at 3.05 persons per household, is slightly smaller than the state average, at 3.13 persons per household. Approximately 65% of Uintah County residents are 18 years of age or older and 10% are 65 years plus (U.S. Census 2000).

Schools are an important component of the social setting in a community, indicating trends of the youthful population. Approximately 5,940 children are in the Uintah School District, and enrollment in Uintah schools has been steadily declining. Between 1997 and 2002, student population dropped from 6,445 to 5,938. The Vernal campus of Utah State University and the Uintah Basin Applied Technology College provide higher education opportunities to Vernal and Uintah County.

The residents of Uintah County value the rural character and quiet lifestyle that comprises their communities. The historical land-use practices including farming, ranching, and natural resource development that shaped the culture of the area serve as the foundation for today's rural community. While the initial Uinta Basin settlements were founded primarily upon agricultural practices, mining also helped establish communities in the basin. By the mid-1850s farmers and ranchers were growing wheat, vegetables, and fruit and grazing cattle in the basin and miners were extracting gold, copper, and gilsonite (Burton 1996). The agricultural and mining industries assisted in the formation of the local communities within the Uinta Basin and the historical practices still occur on the land today.

Many local residents are intimately connected to the traditional land-use practices that shaped the culture of the Uinta Basin. Today, citizens identify with the rural, small town sense-of–place that has been present in their communities for over a century. While residents of the County support growth and development, it must complement the current quality of life and values held by the citizens. According to the Uintah County General Plan Update, residents value the County's progressive, diverse, friendly, safe, rural and comfortable atmosphere.

3.14.2.2 ECONOMIC CHARACTERISTICS

3.14.2.2.1 EMPLOYMENT

Uintah County has experienced significant changes in its employment base in the past 50 years (Table 3.14.3). Initially, agriculture-related activities such as ranching and farming dominated the economy. Then, during the second half of the twentieth century, the development of oil and gas reserves provided a major contribution to growth. Now, retail trade, private services, and government services together provide a significant contribution to the county's economy. This evolution in employment base demonstrates Uintah County's shift from an agrarian economy to that of oil and gas, services to support oil and gas, and the boom in public land industries.

Service-based employment contributes to the job base in the area. Almost two-thirds of Uintah County employees work in retail trade, private services, or government services. While the table below shows a high number of retail, service and government jobs, it should be noted that many of these jobs are in support of the oil, gas, and mining industry. A recent University of Utah Study commissioned by the Governor's Office concluded that 49.5% of all employment in the Uinta Basin (Uintah and Duchesne Counties) was directly or indirectly attributable to the oil and gas industry (page 21). This effect is presumably greater in Uintah than in Duchesne or Daggett Counties (State of Utah 2007).

The average annual non-farm wage in Uintah County was $28,392 in 2003. Out of the top 35 employers in Uintah County, 13 are related to oil, gas and mining, 10 are government service employers, and 7 are retail employers. Unemployment in Uintah County was 6.1% in 2003, slightly higher than the state rate (approximately 5.6%).

Table 3.14.3. Uintah County Labor Force Statistics

	2000	2001	2002	2003
Construction	414	414	503	551
Ed/Health/Soc Svs	654	678	763	821
Financial Activities	283	274	309	323
Government	2,526	2,531	2,587	2,590
Information	104	115	120	133
Labor Force	11,029	11,707	12,563	13,013
Leisure/Hospitality	833	902	956	970
Manufacturing	253	199	194	189
Mining – Inc. oil & gas empl.	1,490	1,814	1,612	1,845
Non Farm Jobs	9,261	9,868	9,957	10,323
Other Services	240	269	258	282
Profess/Business Svcs	504	508	483	466
Trade/Trans/Utilities	2,010	2,182	2,172	2,190

Source: Utah Department of Workforce Services

Per capita annual income in Uintah County was $ 19,396 in 2003, lower than the state average of $24,639. The median household income in Uintah County was $42,422 in 2003. The national threshold for poverty in 2000 was an annual household income of $14,269. Nationally, 11.3% of the population fell below the poverty line in 2000 (U.S. Census Bureau 2001). Approximately 14.5% of all residents of Uintah County fall below the federal poverty line; only San Juan County (26.4%) and Duchesne County (15%) have a higher percentage of the population below the poverty line. The average for the state of Utah is 8% (Utah Department of Workforce Services - Workforce Information, May 2001).

3.14.2.2.2 AGRICULTURE

Agriculture has historically been a big part of the identity of the people of Uintah County. The Utah Department of Agriculture reports 908 farms in Uintah County in 2002. Livestock is the county's largest source of cash receipts, with $26.2 million in 2002 for livestock and livestock products. Crops produced $3.3 million in cash receipts. The total amount of land used for agriculture includes 33,136 acres of harvested cropland and 60,838 acres of irrigated land (Utah Agricultural Statistics 2002). Uintah County officials indicate that although agriculture is a major part of the economy, to survive, many farmers and ranchers have full-time jobs and use agriculture only to supplement their livelihood and to maintain a close family tradition. Agriculture is very dependant upon BLM land access for grazing rights and other use. Grazing is discussed in detail in the VPA Analysis of Management Situation and in numerous sections of the VPA RMP.

3.14.2.2.3 MINERAL RESOURCES

The Department of the Interior's Mineral Management Service identifies fluid and non-fluid mineral resources in Uintah County. The non-fluid mineral resources explored in Uintah County include phosphate, gilsonite, oil shale, and other minerals. Fluid mineral resource activities include oil production, natural gas exploration and related mineral exploration. Among the resources, the highest revenue generator in the county is natural gas; the industry in Uintah County generated over $30 million in federal Royalties in 2001. The most significant fluid mineral resource relative to contribution to state totals is oil production. Oil and gas production in 2001 represented 21% and 32% of the state totals, respectively. Table 3.14.4 shows the federal royalty values generated in 1998 and 2001 by Uintah County, and the following figure shows the amount of oil and gas production in Uintah County from 1991 to 2001. Note that number in parenthesis may reflect adjustments from the prior fiscal year.

It is also important to note that the amount of revenue generated in Uintah and Duchesne Counties does not remain in the counties. The total revenue is allocated to the federal government (Minerals Management Service). Of the total 10% pays administrative fees, 45% is allocated to the federal government (into Reclamation and General Funds), 45% is paid to the state, and the state then redistributes 40% of the royalty back to the county of origin (BLM 2005). The majority of the balance is used to fund other local projects, such as water projects of recreation facilities. Based on this formula, approximately $16 million of the total amount of royalties in 2001 was redistributed to the Uintah County (BLM 2005).

Table 3.14.4. Federal Royalty Values Generated, 1998 and 2001

	1998	2001
Bonus	$741,035.25	$132,170.00
Gas	10,904,135.48	30,314,562.60
Gas Plant Products	(13,007.10)	15,561.81
Gilsonite	179,696.71	254,742.99
Oil	2,451,527.92	2,847,820.40
Other Revenues	561,542.36	1,178,669.68
Rent	722,936.93	854,674.40
Total	15,547,867.55	35,598,183.88

Source: Minerals Management Revenue Service, 2001

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 2003 Uintah County Collected approximately $19.5 million in total, local, centrally assessed and fee in lieu property taxes and approximately $4.3 million or 22% of the total was oil and gas extraction property taxes (BLM 2005)

Population growth rates in Uintah County have fluctuated with the boom and bust cycle of fluid and non-fluid mineral resources. For example, the population of the county grew by 64% between 1970 and 1980, following a boom in the industry. The growth rate fell to approximately 9% between 1980 and 1990, as the industry declined. The boom and bust cycle is also evident in other sectors of the local economy. Typically during a boom cycle, retail trade and service industries are strong. These industries suffer when production is low.

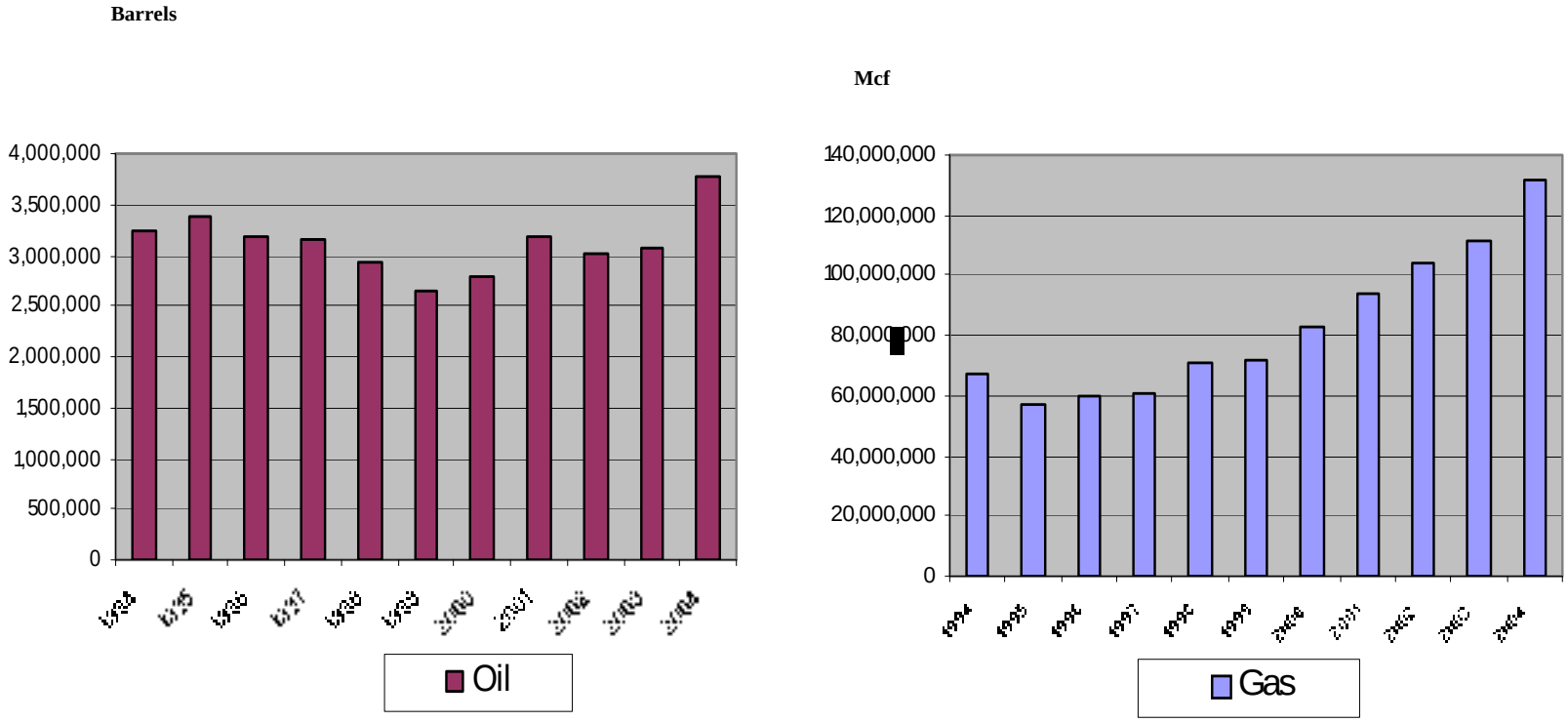

Figure 3.14.1. Uintah County Oil and Gas Production, 1999–2004. Source: Utah State Division of Oil, Gas and Mining, Department of Natural Resources 2004.

3.14.2.2.4 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 Uintah County decreased 2.0% in 2003, down from 1,661 in 2002 to 1,628. Traveler spending in Uintah County was estimated to be $72.6 million per in 2003; a 40.7% increase from 2002 (Table 3.14.5). Traveler spending grew steadily from the early 1990s to 2002 and then surged to over $72 million in 2003. The significant jump in travel-related spending is anticipated to be the result of increased oil and gas development in the Uinta Basin (Johnson 2006). This inference could be drawn from the fact that regional visitation counts to popular tourist destinations in the area did not show comparable increases. For example, visitation to Dinosaur National Monument, for which Vernal serves as a gateway has declined from over 360,000 visits in 2005 to approximately 230,000 visits in 2007. The 36% drop in visitation over a two year period could be partially attributed to the closing of the quarry within the Monument. In addition, visitation trends to the Flaming Gorge Area have also decreased in recent years (1999 - 2003) by 29%. This data supports that the recent increases in "traveler spending" are less likely attributed to recreation and tourism and more likely to be from services related to the oil and gas industry.

Estimated local tax revenues from traveler spending also increased significantly in 2003. Uintah County experienced a 40.7% increase in local tax revenues from traveler spending in comparison to 2002, up from $1.08 million to $1.5 million. In 2003, Uintah County also ranked eighth 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).

Table 3.14.5. Uintah County Travel-related Spending in 2003

	Traveler Spending	% Change from 2002	Tax Revenue in Traveler Spending	% Change from 2002
State of Utah	$4,631,000,000	-1.3	$444,000,000*	19.4
Uintah County	$72,600,000	40.7	$1,519,500	40.7

*Represents state and local tax revenues from the entire state

Source: Utah Division of Travel Development 2004

Traveler spending and tax revenue includes all visits to the area, whether for recreation, business, or other purposes. While it is a valuable measure for visitation to Uintah 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, comes 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 Uintah 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.

3.14.2.3 GOVERNMENT SETTING

A community's ability to support and pay for necessary public services is based on both the tax base within the community and the portion of that tax base that may be subject to economic change. This analysis of county finance is intended to be used to evaluate public policy decisions as well as the county's future ability to support and pay for necessary public services. Public services are the single largest expense of the county (35%), with public welfare the second large expense (18%; Uintah County 2000).

Uintah County draws its revenues from a wide range of sources, which would seem to protect it against a downturn in any one or a few areas. Because by law mineral lease payments cannot be reflected as county revenue, it is important to note the structure of these lease payments. These funds are not paid to the County directly and therefore do not show up in the general fund. Instead, a special service district administers these funds for use for transportation, roads, recreation and parks, and other items in Uintah County. This income is vital to the local economy.

Local governments such as Uintah County are normally supported by taxes. However, when a local government (such as Uintah County) contains vast expanses of federally owned land, taxes are not collected on that land. The Payments in Lieu of Taxes Act (PILT) provides for payments to local units of government containing certain federally owned lands (such as Uintah County) to assist in financing operations of that local government. Payments may be used by the counties for any governmental purpose. The total PILT payment to Uintah County in 2000 was $685,850. In 2003, this value rose to a high of just under $1.2 million. (www.blm.gov/PILT).

3.14.3 DUCHESNE COUNTY

3.14.3.1 SOCIAL CHARACTERISTICS

From 1995 to the present, the population of Duchesne County has grown steadily, along with the growth of Utah, to peak at 14,371. Moderate growth is anticipated to continue into the next decade. The Census Bureau predicts approximately 2,383 new residents by 2020 (U.S. Census 2000).

Approximately 4,300 (or 30%) of Duchesne County residents live in Roosevelt; 1,408 (or 10%) live in Duchesne; 539 live in Myton; 178 live in Altamont; and 149 live in Tabiona. The balance (54%) live in the unincorporated areas of the county (U.S. Census 2000). The majority of residents of Duchesne County live on farms and ranches and in unincorporated communities, many of which are Tribal communities on the Uintah and Ouray Reservation.

Table 3.14.6. Duchesne County Population, Past, Present, and Projected

	1990	2000	2020
Altamont	178	197	247
Duchesne	1,408	1,497	1,878
Myton	539	525	659
Roosevelt	4,299	4,325	5,427
Tabiona	149	138	174
Unincorporated Duchesne County	6,027	7,831	9,832
Total	**12,600**	**14,518**	**18,216**

Source: 2000 Census, U.S. Census Bureau

Average household size, at 3.11 persons per household, is virtually the same as the average for the state, at 3.13 persons per household. Only 7.3% of households have individuals aged 65 years and over, suggesting that the population of Duchesne County is young in comparison to the rest of Utah (U.S. Census 2000).

Of the 6,988 housing units, 4,559, or 65.2%, are occupied. Over one quarter (26.4%) of the housing stock in Duchesne County is for seasonal, recreational, or occasional use, which is defined by the owners having a primary residence elsewhere. Most (81%) of occupied housing is owner occupied (U.S. 2000).

The Duchesne County School District is a small rural school district with 4,100 students in thirteen schools, which are in six rural communities of the county. There are six elementary schools, three high schools, one junior high school, one K-12 school, and two special schools.

The residents of Duchesne County value the rural character and quiet lifestyle that comprises their communities. The historical land-use practices including farming, ranching, and natural resource development that shaped the culture of the area serve as the foundation for today's rural

community. The practices still occur on the land today and many residents are intimately connected to the traditional agricultural lifestyle. 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. According to the Duchesne County General Plan, residents value the County's "small town" qualities, exiting moral climate, low crime rates, and "neighborly" atmosphere.

3.14.3.1.1 UINTAH AND OURAY RESERVATION

The Uintah and Ouray Reservation is located within the Uinta Basin, covering a large portion of western Uintah and eastern Duchesne Counties. Ownership is a mixture of federal lands, fee lands, Indian Trust lands, and state of Utah lands. The Ute tribe has ownership of almost 1/4 of the total land area of the Uinta Basin. Oil and gas production from this land represents 1/4 of the oil and gas produced in Uintah County.

According to the Tribe's Department of Vital Statistics, the enrolled membership in the Ute Tribe is 3,120 members, up from 2,500 members in 1980. The population is projected to reach approximately 4,600 by 2010. Approximately 85% of the members of the Ute Tribe live within the boundaries of the Reservation (Bureau of Indian Affairs 2002). The median household income within the Reservation is significantly lower than in the national, state, or county median household income.

Table 3.14.7. Median Household Income

Region	Median Income
Duchesne County	26,491
State of Utah	31,417
United States	35,989
Ute Indian Tribe	14,500

Source: U.S. Bureau of Indian Affairs, 2002

Over 30% of the Ute population falls into the very low-income category. The Housing Authority indicates that many families are awaiting affordable housing (Bureau of Indian Affairs 2002).

3.14.3.2 ECONOMIC CHARACTERISTICS

3.14.3.2.1 EMPLOYMENT

Duchesne County has experienced significant changes in its employment base in the past 50 years. Instead of the dominance of the traditional agrarian economy, trade, public employment, and private services together represent 55% of the jobs. The average annual non-farm wage in Duchesne County is $23,769. The average annual non-farm wage in Duchesne County is $28,392 in 2003. The table below shows the distribution of jobs in the county.

Table 3.14.8. Duchesne County Labor Force Statistics

	2000	2001	2002	2003
Construction	311	383	367	374
Ed/Health/Soc. Services	304	421	423	460
Finance/Ins./Real Estate	120	132	129	138
Government	1,538	1,533	1,585	1,658
Information	111	141	166	170
Labor Force	5,881	6,280	6,381	6,381
Leisure /Hospitality	322	293	330	310
Manufacturing	130	128	124	116
Mining – Includes oil and gas employment	517	633	616	451
Non Farm Jobs	4,764	5,126	5,192	5,049
Other Services	120	134	159	150
Prof./ Business Services	138	146	134	142
Trade/Trans./Utilities	1,159	1,182	1,159	1,080

Source: Department of Workforce Services

Unemployment in Duchesne County is consistently higher than the state's, at 6.8% in 2003. Almost one third of Duchesne County employees receive unemployment compensation. This can be attributed to the high Native American population and the very low median income of this population. Although per capita annual income in Duchesne County has grown from $8,197 to $12,326 in the past ten years, it is still considerably less than that of the state ($18,185). The median household income for Duchesne County in 2000 was $21,298 (U.S. Census 2000).

Poverty is determined as households below an annual income of $14,269 (U.S. Census 2000). Duchesne County has the second highest percentage of persons below the poverty line (the highest being San Juan County). Of the total Duchesne County population in 1999 (14,381), 2,178 households (or 15%) reported an income below the poverty line. Nationally, only 11.3% of the population falls below the poverty line.

3.14.3.2.2 AGRICULTURE

The Utah Department of Agriculture reports 932 farms in Duchesne County, with 1,304,716 acres of land being farmed. Livestock is the county's largest source of cash receipts, with a contribution of $32.5 million for livestock and livestock products and $7.7 million for crops. Duchesne County has 50,093 acres of harvested cropland and 94,723 acres of irrigated land (Utah Agricultural Statistics 2001).