

United States
Department of
Agriculture

Forest Service

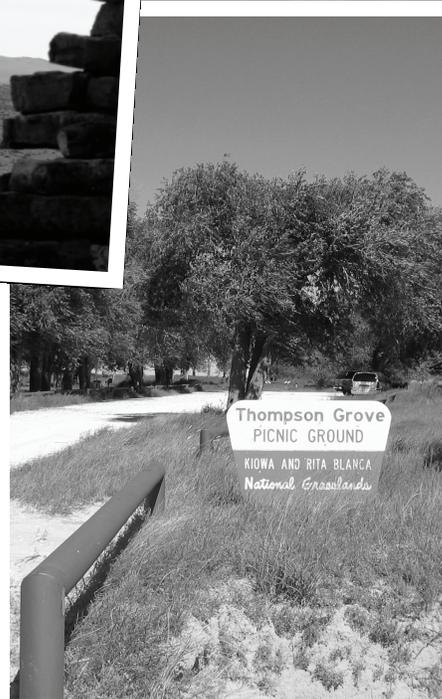
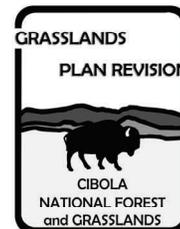
Southwestern
Region



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Version

Socio-Economic Sustainability Report

*Kiowa, Rita Blanca, Black Kettle, and
McClellan Creek*
National Grasslands



Socio-Economic Sustainability Evaluation Report for the Kiowa, Rita Blanca, Black Kettle and McClellan Creek National Grasslands 12/4/2007

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SOCIO-ECONOMIC SUSTAINABILITY EVALUATION FOR THE KIOWA, RITA BLANCA, BLACK KETTLE, AND MCCLELLAN CREEK NATIONAL GRASSLANDS

This report evaluates the conditions and trends on the Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands (Grasslands) that affect social and economic sustainability. This report focuses on how Grasslands management contributes to or detracts from the social and economic activities of residents and visitors. It also identifies past, present, and projected future trends expected to occur under existing Forest Service regulations, policies, and plans.

Background

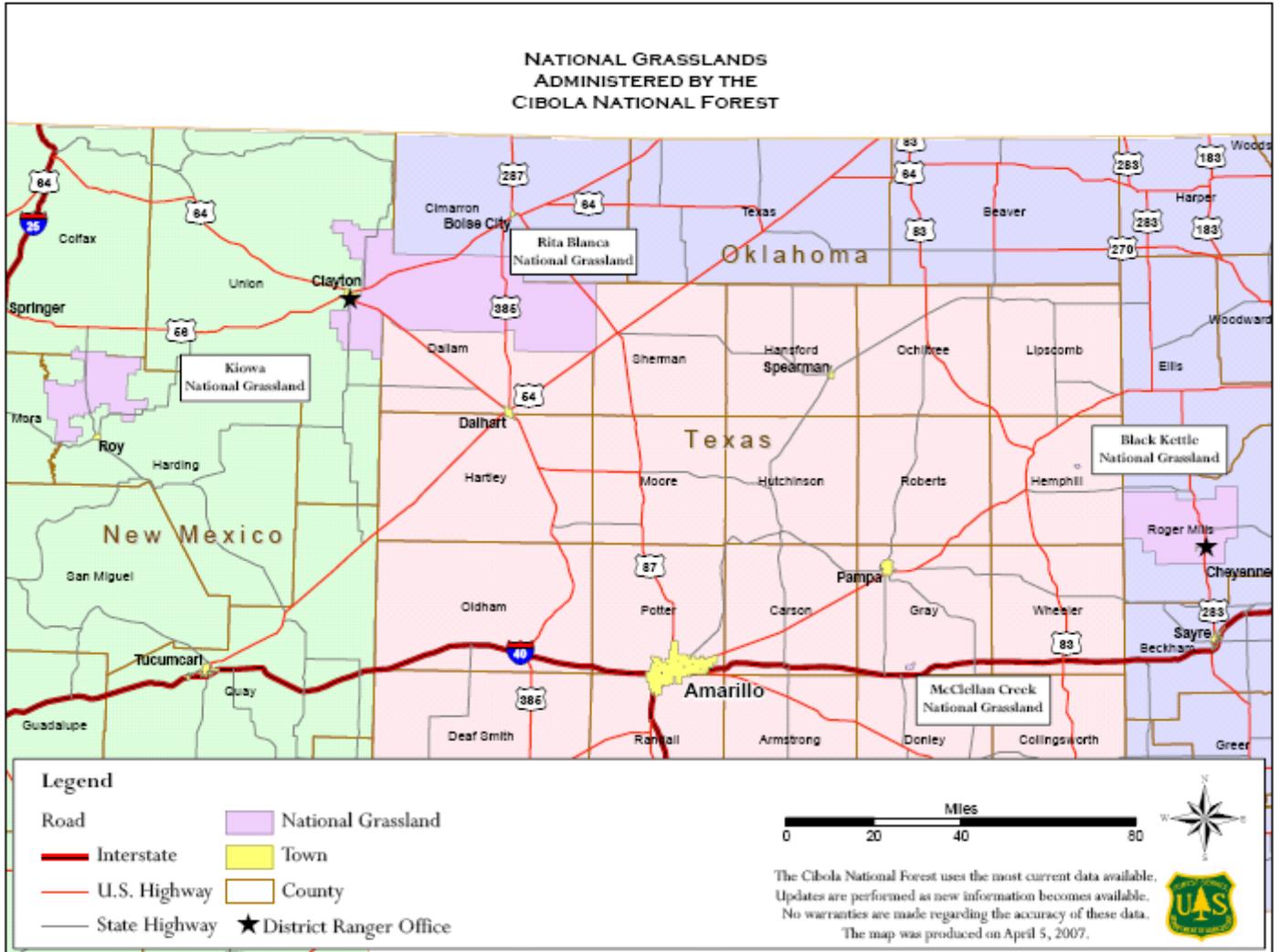
The Grasslands were established to demonstrate ongoing ecosystem restoration. Their existence, spawned by the Dust Bowl recovery efforts, reminds us daily of the importance of caring for the land. Available evidence suggests the earliest period of human occupation of the area that overlaps the Grasslands dates to the late Pleistocene period, approximately 12,000 years ago (Kalasz et al. 1999). The legacies of thousands of years of adapting to life on the High Plains by numerous cultural and ethnic groups form the social fabric of the Grasslands and surrounding communities.

In the 1930's, cultivated crops such as wheat were in high demand and exhausted the topsoil. Farmers deeply plowed large tracts of marginal lands, a method unsuitable for farming these arid lands. Overgrazing by cattle and sheep herds also stripped the prairie of its vegetative cover. The severe drought and lack of native grass cover set the stage for a disastrous loss of topsoil and the Dust Bowl conditions of the 1930s. Huge dust storms sent blizzards of topsoil throughout the plains and Midwest and as far as Washington D.C. There were 72 regional storms in 1937 alone before they began to drop off. Historians regard the Dust Bowl as one of the greatest human-caused ecological collapses in the history of the world.

After the Dust Bowl, the U.S. Congress recognized that strong measures were needed to repair and begin restoring the land. It encouraged federal acquisition and restoration of severely eroded farmlands and passed the National Industrial Recovery Act of 1933. Beginning in 1935, federal conservation programs were created to rehabilitate the area and update the traditional farming methods by seeding areas with grass, rotating crops, using contour and strip plowing, and planting trees as wind breaks.

In 1937, at the height of the Depression, the Bankhead-Jones Farm Tenant Act required the Department of Agriculture's Soil Conservation Service to restore many of the devastated farmlands acquired under the National Industrial Recovery Act. The Bankhead-Jones Farm Tenant Act created the federal lands that would eventually become the National Grasslands. The Department of Agriculture bought 2.6 million acres of sub-marginal land, which was added to some 8.7 million acres purchased by the Federal Emergency Relief Administration and successor agencies (Lewis 1988) to be managed as "land utilization projects". This federal effort focused on removing these severely eroded lands from crop production and transforming them into demonstrations of appropriate conservation and utilization practices (Lewis 1988). In 1960, Congress designated a National Grasslands System consisting of 13 grasslands including the Kiowa, Rita Blanca, Black Kettle, and McClellan Creek, to be managed by the Forest Service. Today, the Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands are administered by the Cibola National Forest, which has a headquarters office in Albuquerque, New Mexico, and district offices in Clayton, NM and Cheyenne, OK

Figure 1: Kiowa, Rita Blanca, Black Kettle, and McClellan Creek National Grasslands



Analysis Area

The social and economic trends described in this report focus on the counties that overlap a portion of the Grasslands (hereafter referred to as Grassland counties). Figure 1 shows these counties in relation to the Grasslands. Table 1 shows the percent of each Grasslands county, along with the associated Forest Service Ranger District. The Kiowa and Rita Blanca Ranger District contains the Kiowa and Rita Blanca National Grasslands, and the Black Kettle Ranger District contains Black Kettle and McClellan Creek National Grasslands.

Table 1 shows that the Grasslands cover very small proportions of the land within each county. The counties of Mora, Gray, Hemphill, and Colfax contain minor proportions of Grasslands acreage. However, the large Forest Service recreation areas in Hemphill and Gray Counties make important contributions to the social and economic well-being of local communities. The Wagon Mound community in Mora County also has important ties to the Mills Canyon area of the Kiowa National Grassland. Colfax County is excluded from further evaluation because it only contains 320 acres of general rangeland on the Kiowa National Grassland, which does not contribute significantly to the county economy. In addition, the demographics and economic conditions of Colfax County are substantially different from those of other Grassland counties because of its proximity to Taos and the recreation and tourism activities associated with that area.

Overall, the analysis area for this sustainability evaluation is primarily the administrative boundaries of each Ranger District. However, the evaluation also emphasizes social and economic conditions and trends for Grassland counties, with comparisons to state and regional trends.

Table 1: Percent of County under Grasslands Management

Forest Service Ranger District	County, State	Percent of County within Grasslands
Kiowa & Rita Blanca	Dallam, TX	8%
Kiowa & Rita Blanca	Harding, NM	5%
Black Kettle	Roger Mills, OK	4%
Kiowa & Rita Blanca	Union, NM	2%
Kiowa & Rita Blanca	Cimarron, OK	1%
Kiowa & Rita Blanca	Mora, NM	< 0.5%
Black Kettle	Gray, TX	< 0.2%
Black Kettle	Hemphill, TX	< 0.1%
Kiowa & Rita Blanca	Colfax, NM	<0.1%
Source: UNM-BBER 2005		

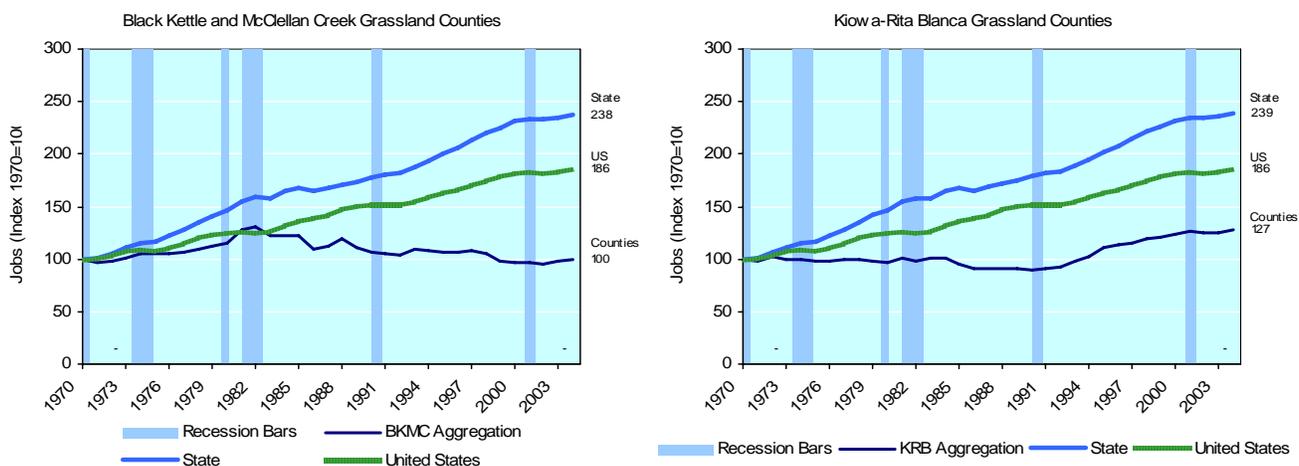
ECONOMIC CONDITIONS AND TRENDS

This section provides economic information that sets the foundation for evaluating relationships between land uses on the Grasslands and economic conditions in the Grassland counties.

Employment and Income

The following analysis of employment and income statistics uses aggregated county level data from the Economic Profile System (EPS) developed by Headwaters Economics to generate figures and tables. This profile was produced using the 2004 version of the EPS, last updated in September 2006. EPS is designed to allow users to automatically and efficiently produce detailed socioeconomic profiles at a variety of geographic scales using the spreadsheet program Microsoft Excel. Profiles contain tables and figures that illustrate long-term trends in population; employment and personal income by industry; average earnings; business development; retirement and other non-labor income; commuting patterns; agriculture; and earnings by industry. Databases used for EPS profiles are from: the Census Bureau, County Business Patterns, Bureau of Labor Statistics, and the Regional Economic Information System (REIS) of the Bureau of Economic Analysis, U.S. Department of Commerce (Headwaters Economics 2007).

Figure 2: Employment Compared to State and Nation



Source: Headwaters Economics, 2007

1. The vertical Recession Bars show periods of national recession.
2. BKCo_Aggregation and KRB County Aggregation show the aggregated Job index for the counties that contain a part of the national grasslands.
3. State data is aggregated for Texas and Oklahoma for the Black Kettle and for Texas, Oklahoma, and New Mexico for the Kiowa and Rita Blanca.

Figure 2 shows that, over the last 34 years, job growth in the Grassland counties has been slower than job growth for the States of Oklahoma, Texas, and New Mexico, and slower than national job growth. In fact, the Black Kettle and McClellan Creek National Grasslands counties have had an overall declining job market since the recession in the early 1980s. The job market for these counties has had several periods of growth and decline since 1970, largely because of cyclical changes in the oil and gas industry. The Kiowa and Rita Blanca National Grasslands counties have been experiencing moderate job growth since the early 1990's. It is projected that both of these areas will continue to have stable employment in the long term with some periods of growth and decline.

Table 2: Unemployment Rates for the Grassland Counties, 1995 and 2004

County	1995	2004
Dallam County, TX	3%	2%
Mora County, NM	22%	14%
Hemphill County, TX	3%	2%
Gray County, TX	5%	4%
Harding County, NM	6%	4%
Roger Mills County, OK	3%	2%
Union County, NM	4%	3%
Cimarron County, OK	3%	2%
NM – OK – TX	6%	6%
Source: Headwaters Economics 2007		

Unlike the employment data in Figure 2, the unemployment rate statistics in Table 2 show percentages based on population levels. Thus, the number of jobs can remain stable to increasing while unemployment rates may decline due to decreases in the population of working-age adults. In Grassland counties, unemployment declined between 1995 and 2004 because of population changes. According to the USDA Economic Research Service, this trend is consistent with the nationwide trend for non-metro counties whose primary industry is agriculture (USDA Economic Research Service 2007). Agricultural counties nationwide similarly showed the out-migration of working age adults, which is a significant factor in the declining unemployment rate. The projected future trend for Grassland counties is that as out-migration continues, the unemployment rate is expected to decline or remain stable.

Table 3: Employment by Industry

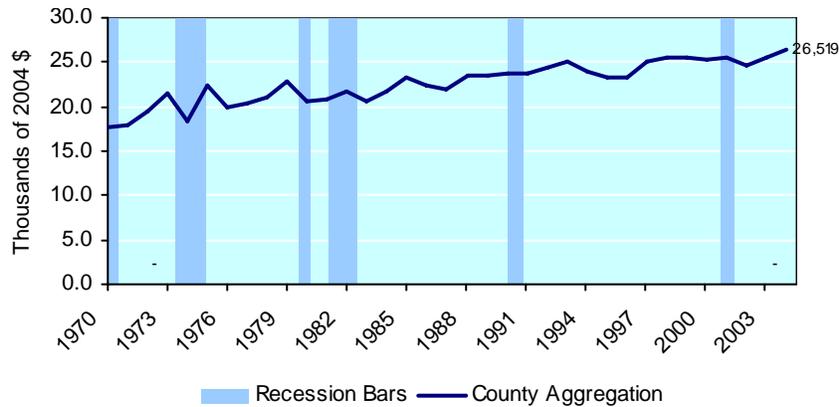
Type of Employment	Percent of Total Employment 1970	Percent of Total Employment 2004	Percent of New Employment 1970-2004	Percent of New Employment 1994-2004
Wage and Salary Jobs	68%	64%	42%	18%
Number of Non-Salary Jobs	32%	36%	58%	82%
Number of Non-Farm Jobs	17%	25%	68%	70%
Number of Farm Jobs	15%	11%	NA	12%
Source: Headwaters Economics 2007				

Similar to many agricultural counties in the U.S., non-salary workers in Grassland counties make significant contributions to the local economy. Non-salary workers are farmers or self-employed business owners who have a fluctuating income throughout the year such as when cattle or crops are sent to market. Salary earners receive a steady income from a regular wage or salary job. As shown in Table 3, non-salary jobs comprise an increasing proportion of local employment in Grassland counties. In Grassland counties from 1970 to 2004, non-salary jobs represented 32-36% of total employment. As a percentage of new job growth, from 1970 to 2004, 58% of new jobs were non-salary jobs. This percentage increased over time and throughout the 1990s, 82% of new jobs were non-salary jobs. It is projected that most new jobs in the future will continue to be non-salary jobs, which reduces the financial security of these households.

Even though the employment contribution from non-salary workers is increasing in importance, this has not lead to a substantial increase in personal income. In the last 34 years, wage and salary disbursements grew at an annual rate of 0.5%, outpacing non-salary job income, which was roughly unchanged. Much of this is due to the difference in non-farm and farm income. From 1994 to 2004,

non-farm income grew by 2.1% while farm income fell by 2.1% (Headwaters Economics 2007). The projected future trend is that farm income will continue to decline, non-farm income will continue to rise and wage and salary income in this area will remain a stable proportion of total earnings.

Figure 3: Per Capita Income for Grassland Counties (Real \$)



1. Vertical shaded bars show periods of national recession.
 2. County Aggregation shows the aggregated per capita income for the counties that contain a part of the national grasslands.
 Source: Headwaters Economics, 2007

Table 4: Per Capita Income Aggregated for Grassland Counties and States (Nominal \$¹)

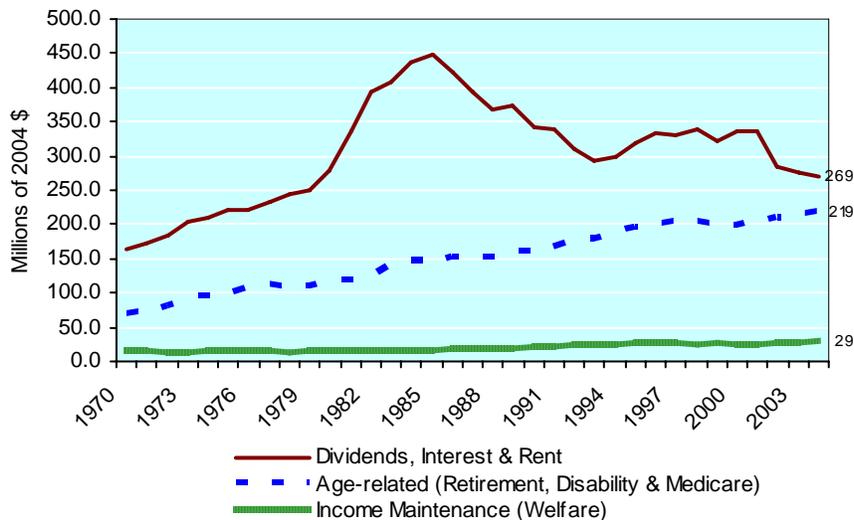
	1979	1989	1999
County Aggregate	6,620	10,936	15,840
NM-TX-OK	7,149	12,641	19,193

Source: Headwaters Economics 2007

1. Nominal Dollars are not adjusted for inflation.

Figure 3 shows that in the 34 years from 1970 to 2004, per capita income (adjusted for inflation) increased from \$17,700 to \$26,500 in Grassland counties. Despite this slight increase, income in the Grassland counties is consistently lower than the associated state averages, and this difference has been steadily widening. One reason for this widening divide between county and state income averages is that growth in income has been concentrated in urban areas and has had little effect on the economies of most Grassland counties. Meanwhile, the percentage of the local population living below the poverty line has been relatively stable over the same time period (UNM-BBER 2005). The projected future trend for Grassland counties is that the per capita income will remain stable and at a lower level than the average income and economic growth for the three states.

Figure 4: Trends in Non-Labor Income in Grassland Counties



Source: Headwaters Economics, 2007

Figure 4 shows trends in non-labor income sources, which consist of dividends, interest, and other distributions from investments, retirement accounts, or government disbursements. Non-labor sources of income grew at an annual rate of 2.4%, outpacing labor sources, which grew at a 0.2% rate. From 1970 to 2004, non-labor sources comprised 38% of all personal income and 82% of new income (Headwaters Economics 2007). Age-related disbursements account for the largest increases in income as the population in this region is aging. The aging population trend is also one of the drivers of growth in government and health care services in the Grassland counties. The projected future trend is that there will be continuing increases in the average age of Grassland area residents and age-related disbursements as a proportion of their income.

Industrial Sectors

Industries in this region are not made up of large firms but smaller operations, most of which have fewer than ten employees. Thus, industrial sector data from the Economic Profile System is limited and not used in this analysis. For Grassland counties, the primary economic activity is livestock grazing, which has a low earning potential, especially when compared to the increases in personal wealth in more urbanized areas. In 1999, 17% of jobs in Grassland counties were in agriculture (livestock-related) and mining (oil and gas), compared to just 3% in the three-state region. Dependency on these primary industries has declined from 22% of all jobs in 1989. This decline results from the out-migration of working age adults and the growth of publicly-funded service jobs such as health, education, and public administration (UNM-BBER 2005). Since most of these jobs are considered to be lower paying than those in primary industries, this shift may result in declining per capita income and fewer jobs to attract younger working age adults to the counties. The projected future trend in Grassland counties is a continued shift to more service sector jobs while livestock-related agriculture remains the primary industry.

Forest Service Economic Contribution

Land and resource uses on the Grasslands provide five types of economic opportunity for local residents: (1) royalty payments from oil and gas; (2) forage for cattle; (3) habitat for game which attracts out of area hunters; (4) special area designations, recreation sites, and unique scenic, historic, and paleontological resources which attract tourists; and (5) Forest Service-related employment opportunities. Resource extraction activities other than oil and gas, such as firewood harvesting or caliche extraction are minor, localized activities that yield negligible employment income (UNM-BBER 2005).

Table 5: Economic Contributions from Grasslands Management, by Sector

Total Employment Impacts (#)			
	Kiowa and Rita Blanca	Black Kettle and McClellan Creek	Total
Oil and Gas Extraction	0	79	79
Ranching	91	15	106
Caliche Extraction	1	0	1
Visitors and Recreation	27	48	75
Forest Service Operations	15	17	32
Total	132	159	292

Total Labor Income Impacts (\$000s)			
	Kiowa and Rita Blanca	Black Kettle and McClellan Creek	Total
Oil and Gas Extraction	0	3,508	3,508
Ranching	1,484	125	1,609
Caliche Extraction	19	0	19
Visitors and Recreation	483	750	1,233
Forest Service Operations	629	684	1,324
Total	2,615	5,067	7,693

Total Output Impacts (\$000s)			
	Kiowa and Rita Blanca	Black Kettle and McClellan Creek	Total
Oil and Gas Extraction	0	11,125	11,125
Ranching	9,143	932	10,075
Caliche Extraction	53	0	53
Visitors and Recreation	1,255	2,031	3,286
Forest Service Operations	592	600	1,192
Total	11,043	14,688	25,731

Source: UNM-BBER 2005

1. Employment includes total wage and salary employees as well as self-employed jobs in a region generated because of activities on the Grasslands. It includes both full-time and part-time workers and is measured in annual average jobs.
2. Labor Income represents all forms of employee compensation resulting from the jobs shown under employment and the indirect and induced effects of that income as it circulates in the local economy.
3. Output measures the contribution of activities on the Grasslands on the final value of products from the industry.

Table 5 shows the estimated contributions of Grassland activities on the regional economy. The Table shows that Forest Service operations payments to their staff, contractors, and suppliers help

support local business, with a contribution of nearly \$3 million generated in the local economy (the sum of labor income and outputs for Forest Service Operations). In this region, where the population is declining and incomes are low, these contributions greatly aid in sustaining community life (UNM-BBER 2005). An increase or decrease in one sector would result in significant changes because on a smaller scale, the stability of some of these communities is dependent on only a few industrial sectors. In addition to the benefits of Grasslands management, communities receive economic benefits in the form of Payment in Lieu of Taxes (PILT) because of the presence of the Grasslands within their counties.

The largest economic contribution from the Grasslands is from the oil and gas sector. Although Black Kettle and McClellan Creek National Grassland acreage is one-tenth the size of the Kiowa and Rita Blanca National Grasslands, it generates 50% more employment and output, and nearly three times as much labor income (UNM-BBER 2005). This is mostly due to the oil and gas operations that occur only on the Black Kettle and McClellan Creek National Grasslands, which account for 75% of the combined labor income and output, and 41% of the employment that the Grasslands contribute to in Roger Mills County, OK. As part of the Bankhead-Jones Tenant Farm Act of 1937, a portion of the receipts generated from Grasslands units remain in the State, and half of the State's share of revenues remains in the county. While all counties containing Grassland units receive these funds, the Black Kettle generates the most receipts due to oil and gas activities. Consequently, Roger Mills County received an average of \$466,000 per year in revenue during the period 1996-2004 of which about \$20,000 was generated by grazing fees. The rest of the funds were the result of fees associated with oil and gas uses (Coker 2005).¹

The Black Kettle and McClellan Creek National Grasslands are not only endowed with rich natural gas reserves, but also five major lakes that are the centerpieces of outstanding recreation activities, and the Black Kettle Grasslands attracts high numbers of hunters. It is more accessible than the Kiowa and Rita Blanca National Grasslands due to the close proximity to an interstate highway. IMPLAN, an input-output model that creates regional models of economic impacts, was used to estimate the contribution of the Grasslands to the local economy assuming that all of the jobs and income generated remains within the Grassland counties. However, the ease of access between the Interstate 40 corridor and Black Kettle and McClellan Creek National Grasslands may result in visitors spending part of their visit and money outside the local area. This leakage of benefits may limit the capacity of managers to significantly improve the local rural economy (UNM-BBER 2005).

The Grasslands also make a significant contribution to the livestock grazing industry in the analysis area, even though it is a small fraction of the total income for Grassland counties. Livestock grazing is paramount to the social organization, values, lifestyles, and culture in this area. Individuals raise cattle for both the long-term accumulation of capital as well as the perpetuation of a rural ranching lifestyle (UNM-BBER 2005). Most of the employment and income benefits derived from ranching are retained within the local area (UNM-BBER 2005). Most of the livestock grazing permit-holders live in one of the Grassland counties, and many of the non-resident grazing permittees employ local residents to run their ranching operations. The projected future trend is that livestock grazing will remain a primary industry in the local economy and will continue to substantially contribute to the well-being of local residents and communities.

Economic statistics also do not adequately reflect the importance of outdoor recreation and tourism resulting from the Grasslands rich endowment of unique native ecosystems, and scenic, wildlife, historic, and paleontological resources. Table 5 shows that recreation and tourism account for 1.2 million of the outputs for the Kiowa and Rita Blanca National Grasslands and nearly 2 million for the Black Kettle and McClellan Creek National Grasslands. The Grasslands play a significant role in contributing to recreation-based tourism in the region due to the overall scarcity of public lands. Grasslands managers are increasingly working with various partners to increase tourism and rural economic development. The projected future trend is that the Grasslands contribution to tourism and

¹ Refer to Oil and Gas in the Land Uses chapter for more detail.

rural economic development will continue to increase, even though the remoteness of the Grasslands may limit the degree to which it will increase.

In total, the Grasslands activities generate an estimated 292 jobs and \$7.7 million in labor income to the local economies, which is equivalent to about 1.25% of the total job market in these counties in 1999. Economic contributions from Grasslands activities are concentrated in the nearby towns such as Clayton and Roy, NM; Cheyenne and Boise City, OK; and Texline, Dalhart, Canadian, and Pampa, TX (UNM-BBER 2005). It is projected that the contribution of the Grasslands will not grow significantly in the future and will remain at less than 2% of the total job market in Grassland counties.

SOCIAL CONDITIONS AND TRENDS

Demographics

This section examines population and housing statistics to give an overall picture of the populations and social structures in the Grassland counties. These trends are referenced in later sections to show the connection between demographic trends and land uses on the Grasslands.

Population

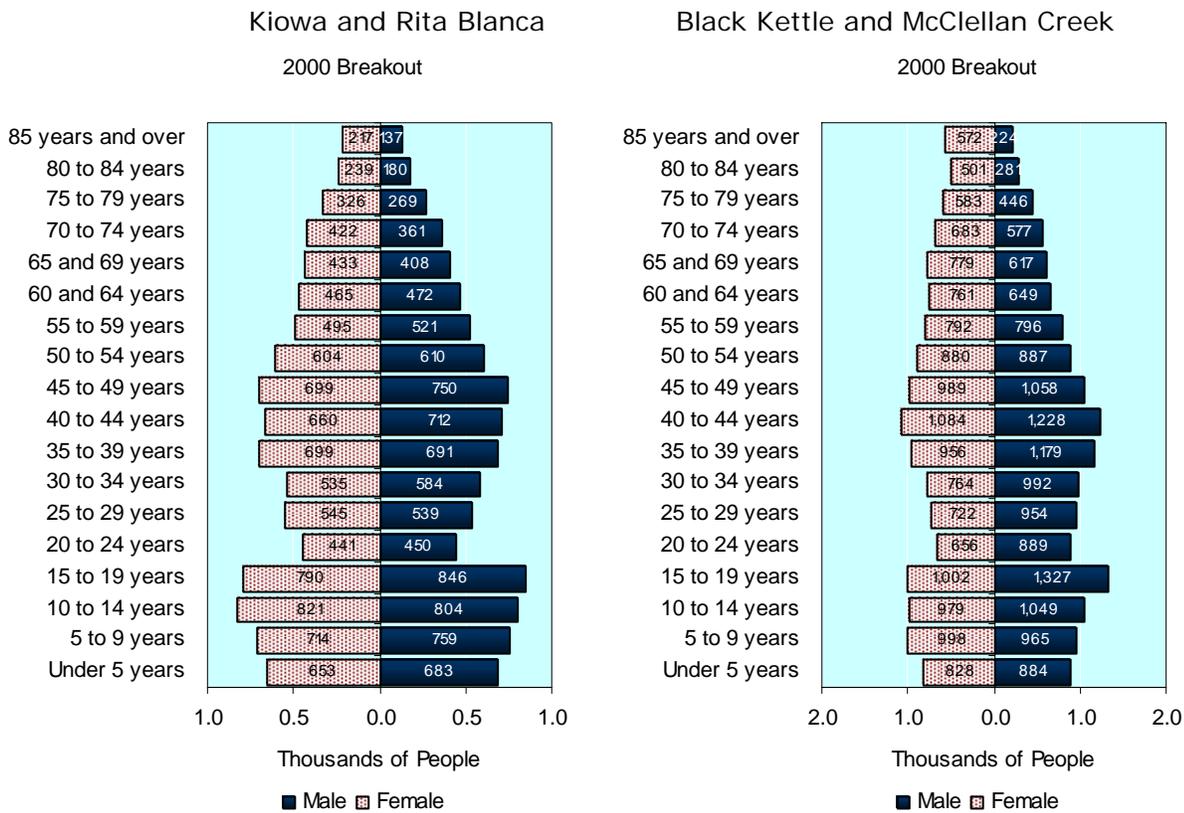
Table 6: Population Trends for Grassland Counties and Aggregated States

	1980	1990	2000	2010	2020	2030
Dallam Co. TX	6,531	5,461	6,222	6,930	7,537	7,949
Harding Co. NM	1,090	987	810	780	726	676
Roger Mills Co. OK	4,799	4,147	3,436	3,400	3,400	3,400
Union Co. NM	4,725	4,124	4,174	4,365	4,507	4,619
Cimarron Co. OK	3,648	3,301	3,148	3,200	3,400	3,500
Mora Co. NM	4,205	4,264	5,205	6,205	7,137	7,826
Gray Co. TX	26,386	23,967	22,744	22,434	22,365	21,859
Hemphill Co. TX	5,304	3,720	3,351	3,563	3,659	3,548
NM-OK-TX	18,557,375	21,647,164	26,121,520	30,150,629	34,352,708	38,648,532

Source: US Census Bureau, Decennial Census 1980, 1990, and 2000. Calculations by UNM-BBER

Table 6 shows past, present and projected future population trends. From 1980-2000, the population of Grassland counties declined 11% while the associated state populations increased by 41%. This decline in the local population is due in part to limited economic opportunities and low income levels (see Economic Condition and Trends). As shown in Table 6, all counties except Dallam and Mora are projected to lose population. The anticipated growth rates of 28% and 51% for Dallam and Mora Counties respectively is expected to be concentrated in urban areas outside the vicinity of the Grasslands (UNM-BBER 2005).

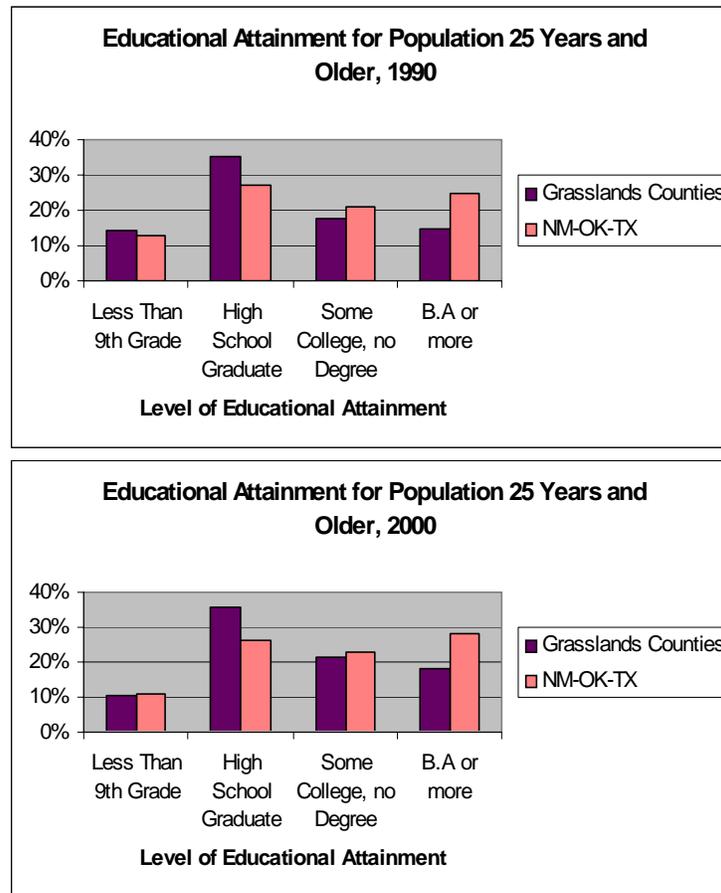
Figure 5: Age and Gender Distribution for Grassland Counties



Source: Headwaters Economics, 2007

Grassland counties show some common demographic characteristics. First of all, Figure 5 shows a smaller representation of population in the percentage of both the male and female population age 20-35 which indicates that limited job opportunities are causing these young adults to move out of Grassland counties. Secondly, two of the largest groups are men and women age 40-49 and school age children. This shows a relatively high demand for primary and secondary education and a small proportion of working age adults to support it. Thirdly, the under five-year old group is smaller than the five to ten year old group, which either suggests a declining birth rate or emigration of families with children. The projected trend is for the age and gender distribution of these counties to continue to decline in terms of prime working age adults, 20-35 years old. These trends can raise the importance of the Grassland's economic contribution, particularly to proprietor-owned businesses that are part of the agricultural job base. The Grasslands also have a role in providing educational opportunities to local schools through its interpretive programs. However, the Grasslands can only have a minimal impact on retention of 20-35 year olds because most of the jobs contributed are part-time or seasonal and may not be sufficient draw to retain that age group.

Figure 6: Educational Attainment for Grassland Counties



Source: US Census Bureau, Decennial Census 2000

Figure 6 shows that educational attainment in the Grassland counties remains behind the three-State average in terms of post-secondary education. This is primarily a result of the out-migration of adults age 20-35 as described previously. Between 1990 and 2000, the percent of the adult population that had received some post-secondary education but no degree increased and almost equaled the three-State average. Over the same time period, those having received a bachelor's or higher level degree increased 3% for both the three-State and local populations. While some improvement in retaining higher educated populations has been made, Grassland counties still lag behind other parts of their respective States in maintaining a work force that is prepared for higher-skill jobs (UNM-BBER 2005). It is projected that these educational trends will not substantially change in the next few decades.

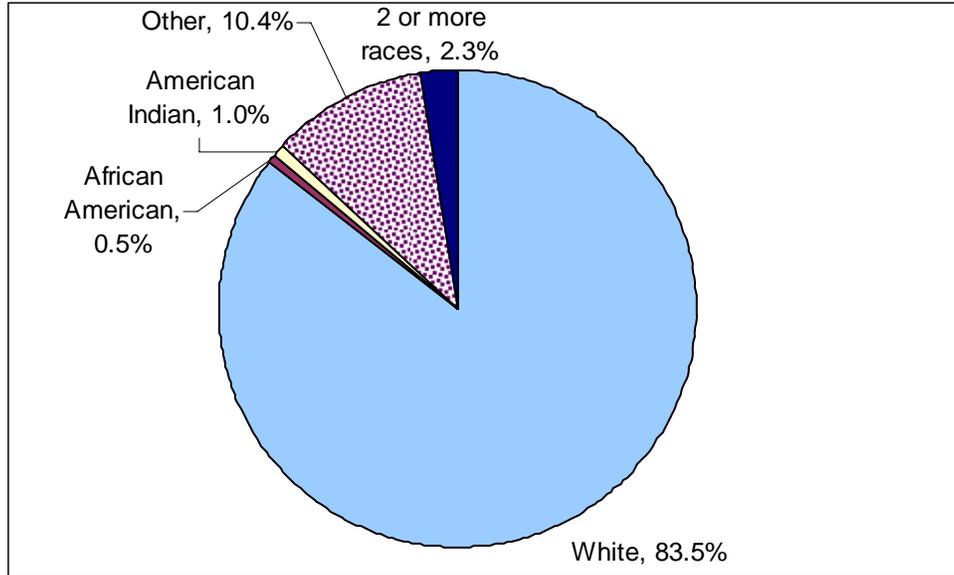
Table 7: Net Migration for the Population 5 Years and Older between 1995 and 2000

County	Domestic immigrants	Domestic outmigrants	Domestic 5-year net migration
Harding County, NM	118	468	-350
Mora County, NM	988	652	336
Union County, NM	724	888	-164
Cimarron County, OK	498	705	-207
Roger Mills County, OK	605	1,040	-435
Dallam County, TX	1,444	1,848	-404
Gray County, TX	3,516	5,199	-1,683
Hemphill County, TX	640	607	33

Source: US Census Bureau, Decennial Census 2000, SF1

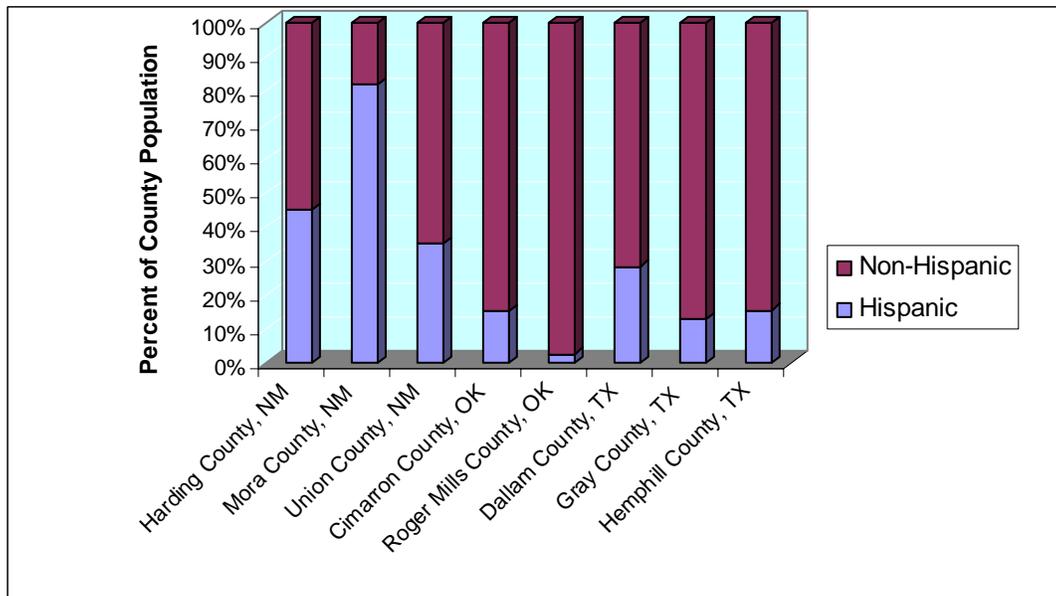
Table 7 shows that almost all Grassland counties have had more people moving out than in from 1995 to 2000. The main exception is Mora County, due to people moving in to larger cities outside the vicinity of the Grasslands. Also, Hemphill County shows a slightly positive net migration even though the County actually declined in population over that period (See Table 6). Gray County experienced the highest out-migration of residents. There is little evidence that this out-migration trend is likely to change in the future.

Figure 7: Median Percentage Population by Race for Grassland Counties



Source: US Census Bureau, Decennial Census 2000

Figure 8: Percentage of County Population (Hispanic/Non-Hispanic)



Source: US Census Bureau, Decennial Census 2000

In Figure 7, median percentage of population in each race was used as the measure of central tendency because a few counties were significant outliers to most Grassland counties in terms of one or more races. "Other" includes Hispanic and Asian. Over 83% of Grasslands county residents reported their race as White/Caucasian in the 2000 Census. The second most reported category was "Other", with most of this category coming from the Hispanic populations in Mora County. Gray County had the most Asian and African American residents and Roger Mills and Gray Counties both

had most who reported being American Indian or Native American residents. Counties in Texas and Oklahoma have fewer Hispanic residents than counties in New Mexico. It is projected that Grassland counties will continue to be primarily White/Caucasian in their racial composition because there is no projected in-migration to change the racial composition of these counties. Even though there are some Grassland counties that have a higher percentage of Hispanic residents, these residents have a similar agricultural lifestyle to those in counties that are mostly White/Caucasian. There is little effect of racial and ethnic composition on the management of the Grasslands.

Housing

Table 8: Percentage of Urban and Rural Residences

	Urban	Rural
Harding County, NM	0%	100%
Mora County, NM	0%	100%
Union County, NM	0%	100%
Cimarron County, OK	0%	100%
Roger Mills County, OK	0%	100%
Dallam County, TX	73%	27%
Gray County, TX	83%	17%
Hemphill County, TX	0%	100%
Source: US Census Bureau, Decennial Census 2000		

Table 8 shows that in all counties except for Gray and Dallam, all residences were in rural areas in 2000. The towns of Dalhart and Pampa, with populations of 7,241 and 17,887 respectively, are categorized in the census as urban clusters having over 2,500 people. The projected future trend is that the percent of residents in urban clusters within Dallam and Gray Counties is likely to increase while the rural counties are likely to remain 100% rural.

Table 9: Owner Occupied Housing Affordability

	1990	2000
Specified owner-occupied housing units: Median value (Adjusted for inflation in 2000 \$'s)	\$47,694	\$48,800
% of median income necessary to buy the median house	12%	9%
Income required to qualify for the median house	\$16,086	\$13,789
Housing Affordability Index: (100 or above means that the median family can afford the median house.)*	210	269
Source: Headwaters Economics 2007		

On the housing affordability index (shown in Table 9), a value of 100 indicates that a household with the median income has exactly enough income to qualify for a mortgage on a median-priced home, assuming a 20% down payment and a qualifying income ratio of 25% (National Association of Realtors 2007). Even though the median house value increased between 1990 and 2000, the average income required to qualify for the median house (\$48,800 in 2000) fell over \$2,000. The increasing housing affordability index for Grassland counties means more people should be able to qualify for a loan for a house than a decade ago.

Table 10: Average Age of Housing Stock by County, 1980-2000

	1980	1990	2000
Harding County, NM	24	45	53
Mora County, NM	36	39	37
Union County, NM	38	38	45
Cimarron County, OK	30	38	44
Roger Mills County, OK	32	31	41
Dallam County, TX	34	34	43
Gray County, TX	30	34	43
Hemphill County, TX	30	33	42
Source: U.S. Census Bureau, Decennial Census 1980, 1990, and 2000. Calculation by UNM-BBER			

From 1980 to 2000, in response to a population decline, the number of habitable houses declined as did the number of residents per house. The stagnation in building activity resulted in an increase in the average age of the housing stock in all counties (UNM-BBER 2005). Although new home construction briefly improved in the 1990s, housing stock increased by less than a 1%, which is insignificant in the context of the broader housing market in more diverse economies. Overall, these patterns conform to a more general pattern of economic stagnation – between 1990 and 2000 the average age of the housing stock increased from 35 to 42 years old, and the rate of appreciation of housing values lagged well behind the overall rate of the three-State region, 28% compared to 51% in nominal terms (UNM-BBER 2005). It is projected that the housing stock in the vicinity of the Grasslands will continue to decline while the age of homes continues to increase. Even though there will continue to be a good supply of affordable homes, older homes require more maintenance which can be difficult for households living in lower income brackets. Therefore, a stable source of income and economic opportunities are important to increase the housing security of residents.

Grasslands management is largely unrelated to the local housing industry. In more mountainous areas, federal land and the preservation of open space can generate a booming second home market that influences the housing stock and affordability in the area. In this case, the Grasslands do make a contribution to preserving the landscape character; however, in this type of landscape, this contribution is unlikely to economically or socially impact the Grassland counties significantly.

LAND USES

Consumptive Uses

Special Uses

Grasslands managers provide special use permits for a variety of land uses, mostly to support power, water, and communications lines; road easements; and oil-gas pipelines that need to cross through Grasslands units. Allowing these localized uses to occur on or across the Grasslands contributes to rural economic development in the surrounding areas.

Table 11: Historic Trends in Special Use Permits

Date Issued	Black Kettle and McClellan Creek			Kiowa and Rita Blanca		
	Issued	Closed/Expired	Active Permits ¹	Issued	Closed/Expired	Active Permits ¹
1986-1990	21	12	30	10	11	49
1991-1995	16	6	40	1	0	50
1996-2000	12	5	47	3	5	46
2001-2005	13	5	55	8	1	53

Source: USDA Forest Service 2005a

1. Active permits include long term permits issued prior to the time period indicated in the Date Issued column such as oil and gas pipelines and other infrastructure.

Table 12: Percentage of Permits by Land Use Type

Land Use Permit Type	Black Kettle and McClellan Creek	Kiowa and Rita Blanca
Oil-Gas Pipelines, sites	52%	9%
Power Lines	16%	26%
Road Easements	12%	34%
Water Lines, facilities	9%	6%
Phone/Communications	2%	11%
Education/Research	0%	6%
Recreation/Other Uses	9%	8%

Source: USDA Forest Service 2005a

Table 11 shows the past trends in the number of special use permits issued on the Grasslands, and Table 12 shows the types of permits that were issued. Since 1986, the number of permits on the Kiowa and Rita Blanca National Grasslands has been stable. Permitted activities may be temporary or long-term, although most permits on the Grasslands are issued for long-term uses. There are relatively few active special use permits on the Grasslands. Meanwhile, the number of active permits on the Black Kettle and McClellan Creek National Grasslands has nearly doubled, increasing at an average rate of about ten additional permits every five years (UNM-BBER 2005). Overall, there are no significant concerns or conflicts between these special uses and recreation activities or other land uses on the Grasslands.

Over half of the permits on the Black Kettle and McClellan Creek National Grasslands are related to oil and gas operations, and most permits on the Kiowa and Rita Blanca National Grasslands are for power lines and road easements (UNM-BBER 2005). It is projected that the types of special use permits issued may slightly change over time as demand for certain services increases or decreases. For example, in the past few years, Grasslands managers received requests for activities such as

outfitter and guide hunts, ecotourism activities, large-group gatherings, and grass-seed harvest. Permit requests for guided outdoor recreation activities are not expected to substantially increase on the Grasslands (with the exception of hunting) because of the lack of mountainous terrain and fragmented land ownership pattern. It is projected that demand for permits for educational or research purposes will remain high from universities throughout the region.

Oil and Gas

Portions of the Grasslands overlie geological formations that contain oil and gas resources. Currently, there are 37 active oil and gas wells on the Black Kettle and McClellan Creek National Grasslands, and none on the Kiowa or Rita Blanca National Grasslands. In 2001, 36 active wells on the Black Kettle yielded roughly 3 billion cubic feet of natural gas and 13,500 barrels of oil. On the McClellan Creek National Grassland, 13 wells yielded about 5,900 barrels of oil (UNM-BBER). A map in Appendix A shows oil and gas lease areas and oil and gas well sites.

Production of oil and gas products is vital to the national, regional, and local economies and to the quality of life of most Americans. Oil and gas operations on the Black Kettle make a significant contribution to the local economy, job market, and county and State tax structure (USDA Forest Service 2000). Oil and gas operations generate royalties that contribute nearly \$400,000 annually to schools and roads in Roger Mills County as well as providing roughly 80 jobs in the local communities (Coker 2005; See Table 5). For some local landowners, oil and gas wells provide a critical supplemental source of revenue. Without this added income, some ranching operations on the Black Kettle would be less than marginal (Russell and Adams-Russell 2005). Thus, while it is not an extensive use of the Grasslands, oil and gas extraction is a very important contribution to these small, rural communities.

Reasonably Foreseeable Development Scenario (RFDS) analyses were recently completed for potential oil-gas formations underlying the Grasslands (Gore 2006, Spielman 2006, Stong 2007). For the Black Kettle National Grassland, the RFDS indicates that while there could be a short-term increase in well drilling, oil and gas production is expected to decline over the next 20 years (Stong 2007). For the Lake Marvin and McClellan Creek Grassland units in Texas, no new wells have been drilled since 1972 and 1962 respectively. The wells currently in these areas have shown severely declining production rates over time and this declining trend is not projected to change (Gore 2006). For the Kiowa National Grassland, it is unlikely that economically viable volumes of oil or methane gas will be discovered and put into production. However, there may be up to five wells developed in the vicinity of the Kiowa National Grassland over the next 20 years, particularly due to the potential for CO₂ production in the Bravo Dome area, east of the Mills unit and south of Clayton (Spielman 2006). If wells are drilled close to the Grasslands, there may be more requests for permits to cross the Grasslands units with pipelines, power lines, or roads. The Rita Blanca National Grassland had an overall lack of drilling and production and are predicted to steadily decline with bleak potential for any future development activity (Stong 2007).

Overall, the projected trend in oil and gas development on the Grasslands is a steady decline as there is only a low potential for occurrence of oil and gas. Leased areas have not shown high production levels, and private land, which is much more abundant in this area, is typically preferred over federal land. Overall, oil and gas extraction is important to social and economic sustainability and there is no evidence that it is in conflict with recreation, research or other land uses on the Grasslands.

Mineral Materials

There are no areas on the Grasslands with the geologic potential for hard rock mining. There is also a very limited potential for mining common mineral materials, and mineral materials are not available for commercial or private use because of a clause in the Bankhead-Jones Farm Tenant Act.

The Kiowa and Rita Blanca National Grasslands provide special use permits for extracting caliche, a subsoil deposit of calcium carbonate that is used to surface roads. There are currently two active caliche pits that encompass less than four acres each. If the caliche removed from the Kiowa and Rita Blanca National Grasslands could be sold, it would likely yield an average price of \$5 to \$7.50 per cubic meter in commercial markets for (UNM-BBER 2005). This activity on the Grassland typically produces one full-time equivalent job with an average annual income of about \$15,000, and the direct economic output associated with caliche extraction from the Grassland for 2002 was \$40,000 (UNM-BBER 2005). The projected future trend is that there will continue to be an insignificant amount of non-commercial mineral material extraction from the Grasslands and no other mining activities.

Allowing this activity on the Grassland has not resulted in any conflicts with other land uses, and permits have been administered to agency standards. After caliche removal is complete, the excavation sites must be rehabilitated and revegetated by the user.

Wood Products

A small portion of the Grasslands contains “forested” areas consisting of piñon pine and juniper (piñon-juniper) woodlands on the western half of the Kiowa National Grassland. Over the past 60 to 80 years, the level of dependence on wood products has declined as lifestyles shifted from subsistence to an agricultural ranching lifestyle. There is a relatively low demand by rural residents for posts, poles and firewood, and for vigas and latillas that are occasionally used as home-building materials.

Table 13: Thinning of Piñon-Juniper on Kiowa National Grassland

Year	Acres Thinned
1998	150
1999	600
2000	610
2001	200
2002	200
2003	200
2004	700
2005	750

The Kiowa National Grassland provides an average of 10-30 cords per year for (free) personal use and just over 100 cords per year for sale. Market value has been approximately \$100/cord, yielding revenues of approximately \$10,000/year (USDA Forest Service 2005b). Demand is not expected to greatly increase as populations near the piñon-juniper woodlands are quite low and continuing to decline.

The supply of firewood on the Grasslands is dependant on the amount of wood that has been thinned by Grassland employees. Employees leave the cut-down trees at thinning sites for the public to remove. This is a cost-effective way to meet ecological objectives. Even though the supply of available wood on the Kiowa National Grassland has fluctuated between 200 and 600 acres in the last 8 years (Table 13), it has been adequate to meet the demand for wood from this remote area. It is projected that the supply will continue to adequately meet firewood demand in this area as thinning is expected to continue in order to meet ecological objectives.

On the Black Kettle National Grasslands, there are designated areas where the public may remove black locust trees for firewood. Although supply far outweighs demand, providing for this activity helps reduce the prevalence of this invasive tree to restore the native grassland ecosystem while providing a wood product. Some of the tree rows planted to Osage orange after the Dust Bowl have also been harvested for posts. Maps in Appendix A show areas where wood cutting has been permitted on Grassland units which overlaps many of the prescribed burning area (also shown in Appendix A).

Even though employment income associated with wood cutting activities is negligible (UNM-BBER 2005), it provides a resource that is important to individuals who rely on the cheap availability of these products to subsist. The gathering of wood products has not shown to be in conflict with other uses on the Grasslands and demand for this activity is not projected to increase or decrease significantly in the future.

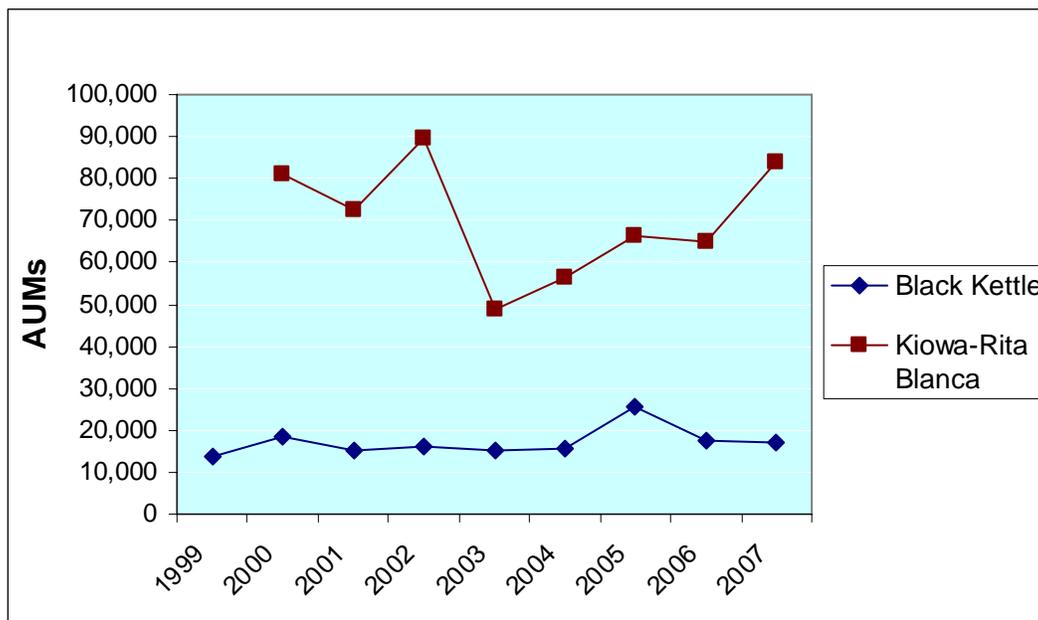
Livestock Grazing

Cattle grazing occurs on over 96% of the Grasslands, other than at developed recreation areas, research and administrative sites, and in the hundreds of wildlife enclosures and shelterbelts where cattle are fenced out. A map in Appendix A shows currently active and non-active grazing allotments.

By providing opportunities for cattle grazing, the Grasslands help rural residents to continue living in these communities and maintain their traditional rural ranching lifestyle, which is at the top of the list of social, quality-of-life values in this area (Russell and Adams-Russell 2005). Thus, access to affordable grazing on the Grasslands provides a vital contribution to the rural lifestyle and culture, which also values self-reliance, individual property rights, hard work, and mutual support for one's neighbors (Russell and Adams-Russell 2005). Some local ranchers rely on forage (grasses) made available through the Forest Service's grazing permit system (USDA Forest Service 2000). For some, the grazing permits on the Grasslands provide the margin necessary to make otherwise non-viable ranching operations viable, particularly for the smaller ranches (Russell and Adams-Russell 2005). Of the approximately 60 grazing permittees on the Black Kettle and 135 on Kiowa and Rita Blanca National Grasslands, most are small family operated businesses and most have an address within 100 miles of the Grasslands (USDA Forest Service 2006 & 2007a). Permittees integrate the use of public and private lands in an overall livestock management strategy that helps reduce costs and maintain profitability. Providing for grazing on the Grasslands is also important to the local rural economies of Grassland counties, as previously described in the Economic Conditions and Trends Section.

There is less grazing on the Grasslands units compared to most adjacent private land in terms of Animal Unit Months (AUM) per year. An AUM is defined as one month of grazing time for one mature cow with one nursing calf. Also, the average stocking rate on the Grasslands units is approximately 1 animal to 35 acres, which is roughly estimated to be 50% of the average stocking rate on surrounding private land (UNM-BBER 2005).

Figure 9: Authorized Animal Unit Months (AUMs) by Grassland, 1999-2007



Source: USDA Forest Service, 2007

Figure 9 shows the trend in the amount of grazing on the Grasslands that is allowed by the permit and annual operating instructions. The long-term trend for both Grasslands has been stable. On the Kiowa and Rita Blanca, drought conditions resulted in a decrease in AUMs from 2003 to 2006, with a

return to pre-drought grazing levels after periods of increased precipitation. The Black Kettle has had more stable short-term trends because it receives more precipitation and is less affected by drought.

Grazing on the Grasslands has generated very few user conflicts. In the past, cattle grazing on Kiowa National Grassland Unit 91 in Mills Canyon resulted in complaints that livestock grazing was adversely impacting recreational experiences and riparian vegetation (USDA Forest Service 2006ba). Cattle were subsequently moved to an allotment outside the canyon, which alleviated the conflict. Grazing permittees have expressed concerns that increases in hunting and other recreation activity on some Grassland units results in more fences being cut and cattle gates left open, which impacts their costs and ability to effectively manage their cattle and ranching operations. Unfortunately, the Forest Service cannot enact policies that will eliminate this situation.

The projected future trends are that grazing levels (AUMs) will remain stable over the long term with annual fluctuations based on climate-driven range conditions. It is also projected that most grazing permittees will be small operators. While corporate ranching is growing in some regions, it is not expected to become dominant on the Grasslands for a number of reasons including Forest Service policies that emphasize the importance of supporting the small local operations.

Recreation-Based Uses

Recreation Activities

Providing for outdoor recreation activities is one of the primary contributors to social cohesion, quality of life, and social and economic sustainability for Grasslands communities. The demand for updated or improved amenities, including interpretive signs and trails, at some recreation sites on the Grasslands is slowly and modestly increasing. This reflects the fact that while the populations in communities around the Grasslands are declining, visitation from cities outside the area is gradually increasing (UNM-BBER 2005).

Visitors to Grasslands units get a sense of the “lone prairie” that was loved and feared by early settlers. Native prairie habitat, fresh air, and wide-open spaces are abundant on the Grasslands. The most popular recreation activities on the Grasslands are: hunting, fishing, camping, picnicking, bird and wildlife watching, boating, hiking, horseback riding, exploring historic sites, and driving to enjoy the unique scenery and open spaces (USDA Forest Service 1999, 2000, 2005c).

The National Survey on Recreation and the Environment (NSRE) is a general population telephone survey of people age 16 and older. It focuses on outdoor recreation activities wherever they may occur, not just those in the national forest or grassland. The value of this information lies in the insights it provides into overall population demand for outdoor recreation. Population-wide demands can represent broad interests, which a national forest or grassland might serve. The data shows an outdoor recreation “participation rate”, which is the proportion of people 16 or older living in the local area counties who indicated in the survey that they had participated in an outdoor activity 1 or more times during the past 12 months (USDA Forest Service 2000-2002).

Table 14 shows recreation survey data based on the “local area”. The local area generally includes all counties whose center point lies within 75 miles of any county that overlaps the Grasslands. For the Rita Blanca and Black Kettle National Grasslands this methodology included only rural counties. For McClellan Creek, the Amarillo metropolitan area is appropriately included since city residents are a known population served by the Grasslands. For the Kiowa National Grassland, the data may be skewed because the survey area includes the Santa Fe and Albuquerque metropolitan areas whose residents have access to numerous public lands and mountain ranges. Survey results for activities like backpacking, mountain biking, and visiting primitive areas do not appear to reflect the participation rates observed by Grassland managers.

Table 14: Demand for Recreation Activities in Counties Surrounding Grasslands (Participation Rates)

Activity	Kiowa	Rita Blanca	Black Kettle	McClellan Creek
Backpacking	16%	8%	7%	8%
Day hiking	48%	31%	28%	29%
Developed camping	31%	32%	34%	30%
Primitive camping	26%	24%	23%	19%
Horseback riding on trails	14%	13%	14%	10%
Mountain biking	24%	18%	16%	17%
Driving off-road	24%	26%	26%	29%
Hunting (any type)	13%	24%	26%	20%
Hunting- Big game	8%	17%	21%	14%
Hunting- Migratory birds	2%	5%	5%	4%
Hunting- Small game	7%	17%	19%	14%
Fishing- Freshwater	27%	42%	46%	38%
Fishing- Warmwater	20%	36%	41%	34%
Visiting a farm or agricultural setting	22%	29%	31%	29%
Visiting a wilderness or primitive area	42%	33%	34%	32%
Swimming in lakes, streams, etc.	32%	39%	41%	41%

Source: USDA Forest Service 2000-2002

Hiking and Camping

Based on survey data in Table 14, day hiking, developed camping, and primitive camping (which mostly consists of undeveloped sites that can be driven to) are the most frequent outdoor recreation activities in the area surrounding the Grasslands. Agricultural and rural settings are the dominant feature of scenery on the grasslands and in most of the counties included in the survey. Therefore, for the Grasslands local area, visiting an agricultural setting was reported by a higher percentage of those surveyed than at the national level (USDA Forest Service 2000-2002). While the agricultural and rural setting is the norm for the local area, the Grasslands do provide a spectrum of scenic settings. Settings range from rural with a high amount of man-made structures and developments, such as windmills, fences, and oil and gas wells, to those that are considered primitive where a person can go and be alone and not see any evidence of man, such as in the dispersed areas of Mills Canyon. These activities are important to the overall experience of Grassland visitors even though they may be a secondary or complimentary activity to hunting, fishing, or other recreation opportunities.

The Black Kettle and McClellan Creek National Grasslands currently contain a total of about 13.7 miles of short, non-motorized hiking trails around the major recreation sites, each of which is less than 2 miles in length (USDA Forest Service 2006 & 2007b). Short trails are planned for some recreation sites on the Kiowa National Grassland. The mixed land ownership pattern constrains the size of public land parcels and limits opportunities for long trail hikes through the Grasslands. The 2.4-mile portion of the Santa Fe National Historic Trail on the Kiowa National Grassland is becoming more popular for hikers even though it is maintained as a historic site rather than a trail. These trails provide a mix of day-hiking opportunities and some provide cultural, historical, or ecological information (interpretation) as well. It is projected that demand for day-hiking and particularly for interpretive trails will continue to rise on the Grasslands. Because of the flat terrain and fragmented and fenced land ownership pattern, there are currently no areas on the Grasslands which provide backpacking or long trail riding opportunities and none are expected to be developed.

Camping occurs at developed and primitive sites throughout the Grasslands. On the Black Kettle, camping most often occurs at developed sites or one of the 32 designated-dispersed sites² that are accessed from designated roads. On the Kiowa and Rita Blanca National Grasslands, camping occurs at developed sites and people also may drive off of the roads to camp. Maps in Appendix A show developed sites and general areas of dispersed (undeveloped) recreation sites. The future trend for camping is expected to remain fairly stable across the Grasslands.

Off-Highway Vehicle Use

In 1990, Black Kettle and McClellan Creek National Grasslands were closed to all driving off of designated roads and trails. McClellan Creek National Grassland provides the only designated (8-mile) trail system for Off-Highway Vehicle (OHV) use on the Grasslands and is quite popular for motorbike and all-terrain vehicle use. The Black Kettle and McClellan Creek National Grasslands recently completed the planning process required under the Forest Service's 2005 Travel Management Rule (36 CFR 294), which mandates the creation of a designated system of motorized roads, trails, and areas, by adopting the District's 1990 decision on designated routes. The Kiowa and Rita Blanca National Grasslands are currently open to driving motor vehicles off of roads or trails. Several locations on these Grasslands have been identified by the public as areas where off-road driving conflicts with other land use activities. The Kiowa and Rita Blanca National Grasslands will soon undergo the Travel Management planning process. After that, driving outside designated routes or areas will be prohibited, unless specially authorized.

The data in Table 14 shows that for all Grassland counties approximately a quarter of respondents had been off-road driving in the last year. However, this data may include respondents who drive OHVs on existing primitive roads and trails and those who drive OHVs outside Grasslands units. Nationally, OHVs and OHV use is growing and expected to continue to grow. Between 1993 and 2003, the estimated number of OHVs in the United States increased from about three to eight million (Cordell et. al. 2005). From 1999-2004 the number of OHV users in the United States increased from 36 to 51 million, a 42% increase. Survey results indicate that participation percentages within the local area of the Grasslands in Table 14 are on par with the national average for a rural area.

The projected trend for the Grasslands is that demand for OHV driving will continue to increase. The Grasslands may only be able to meet a portion of the demand for this activity due to the fragmented nature of Grasslands units and multiple use management objectives. Some of the demand may need to be met on the other private and public lands in the surrounding area.

Hunting and Fishing

Hunting and fishing on the Grasslands make an important social and economic contribution by engaging a large number of recreation users, particularly on the Black Kettle National Grassland. The Grasslands provide a unique hunting experience for people from across the country yet is equally important to local rural area residents who enjoy it as a traditional social activity that enhances their quality-of-life. Residents expressed a distinct value for both game and non-game wildlife species and would be concerned by any actions that might compromise existing game species habitat (Russell and Adams-Russell 2005).

Table 14 shows that big and small game hunting are popular activities. Big game hunting on the Grasslands includes antelope and deer, along with bear hunting on New Mexico units. Small game hunting on the Grasslands includes turkey, dove, and quail, plus rabbit hunting in Texas and Oklahoma (NM Department of Game and Fish 2006; TX Department of Parks and Wildlife 2006; OK Department of Wildlife Conservation 2006). Hunting for waterfowl (migratory birds) appears to be significantly less common in comparison to other types of hunting in this area. The data indicates

² Designated-dispersed sites are places designated (and usually mowed) to provide for parking, camping and day use activities in a natural setting without toilets, tables, and other constructed facilities. NSRE would consider these to be primitive camping.

that there may be more hunting in the Grasslands areas of Texas and Oklahoma compared to New Mexico. Hunting seasons vary, with most game and quail hunting occurring in the autumn months of September, October, November, and December and hunting for turkey occurring in both autumn and spring seasons. Hunting is not allowed on the McClellan Creek or Lake Marvin units. Hunting is entirely regulated by state agencies, not the Forest Service.

The Black Kettle National Grassland units in Oklahoma provide the only public hunting available in the State where a person does not have to draw a permit to hunt; only a State hunting license is required. The Black Kettle National Grassland is one of the best public hunting areas in the nation for Rio Grande turkey and northern bobwhite quail, and attracts as many as 3,000 hunters from across the nation during the spring turkey season (UNM-BBER 2005). On the Kiowa and Rita Blanca National Grasslands, antelope hunting attracts a large number of applicants, although only 5 to 10 permits are issued annually for antelope hunting on the Rita Blanca National Grassland in Dallam County, TX (UNM-BBER 2005). Recreational shooting of prairie dogs also occurs, mostly on the Rita Blanca National Grassland, and participation fluctuates mostly in relation to fluctuations in prairie dog populations. Nationally, the number of hunters declined by about 7% from 1991 to 2001 (USDI Fish and Wildlife Service 2001).³ However, the decreases occurred in small game and other animal hunting, while stable numbers were seen in big game and migratory bird hunting. Also for this time period, hunting expenditures increased 29%, primarily from equipment expenditures (USDI Fish and Wildlife Service 2001). For each of the three States, numbers of hunters showed no significant change from 1991 to 2001, though they did increase slightly. Hunting expenditures also increased slightly in all three States, but only significantly in New Mexico, which showed a 130% increase (USDI Fish and Wildlife Service 2001).

Based on about 20 years of data collected on deer licenses and harvests for New Mexico and Oklahoma, deer hunting is clearly a popular activity in these States, with Oklahoma having significantly higher numbers compared to New Mexico. For both Oklahoma and New Mexico, the number of deer hunting licenses sold in the past decade has remained relatively stable, at roughly 350,000 in Oklahoma and 50,000 in New Mexico (NM Department of Game and Fish 2007; OK Department of Wildlife Conservation 2007). Deer hunting only occurs on a few Grassland units in Texas, on the Rita Blanca National Grassland.

**Table 15: Deer and Quail Hunters – Black Kettle National Grassland
(Peak Number of Hunters by Year)**

Year	Approximate Number of Hunters
Deer Gun hunt ^{1, 2}	
1999	578
2000	309
2001	339
2003	395
2005	303
2006	318
Deer Muzzleloader hunt ^{1, 3}	
2003	258
2004	226
2005	264
Deer Antlerless hunt ^{1, 3}	
2003	120
Quail hunt ^{3, 4}	

³ The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation's methodology was slightly altered in 1991, and therefore results of the survey in 1991 and beyond cannot be directly compared to the prior results.

Year	Approximate Number of Hunters
2002	403
2003	520
2004	371
Source: Hajny 1999	
1. 1.62 hunters per vehicle assumed	
2. 1999 is from 100% survey the others are route surveys of 25% of the District	
3. Transect surveys of 25% of district.	
4. Hunter per vehicle ratio provided annually by the Black Kettle Ranger District. 2003 - 2.07, 2004- 2.7, 2005- 2.3 (estimate)	

Table 15 shows some current trends in the number of hunters during opening days of the quail and deer seasons on the Black Kettle National Grassland in Oklahoma. At its busiest, the deer hunt on the Black Kettle National Grassland, the largest public hunting area in the western half of Oklahoma, attracted as many as one deer hunter for each 54 acres of public land, or approximately 578 hunters (UNM-BBER 2005). The number of hunters for opening day of deer season fluctuates on an annual basis but there is on average one hunter for approximately every 90 acres. For quail season, opening day has the second highest number of hunters of any opening day surveyed. Rio Grande turkey is also one of the most popular species hunted on the Black Kettle National Grassland, although there is no reliable trend data for numbers of hunters on the Grasslands for turkey and other hunted species. Hunting activity on the Grasslands rarely creates significant conflicts with other land uses. The projected future trend is that hunting on the Grasslands will remain a stable and continuously popular activity on the Grasslands, with the highest densities of hunters occurring on the Black Kettle National Grassland in Oklahoma.

Fishing is very popular on the lakes and creeks of the Black Kettle National Grassland, which are stocked with the assistance of the Oklahoma Department of Wildlife Conservation and the Texas Parks and Wildlife Department. There are opportunities to fish from boats, piers, or along shorelines. Lake fish include largemouth bass, catfish, crappie, bluegill, and sunfish. On the Kiowa National Grassland, the Canadian River provides another excellent area for fishing. Nationwide the number of people fishing (anglers) remained relatively stable from 1991-2001, with only a slight decline of 4%. However, participants are spending more. Over the same time horizon, expenditures by the anglers rose 14%. Statewide, the same survey administered in New Mexico, Texas and Oklahoma indicates the same stable trend in number of anglers from 1991-2001 (USDI Fish and Wildlife Service 2001).

These stable state and national trends in fishing activity are projected to continue on the Grasslands as well. Like hunting, fishing is expected to remain a popular activity that can be enjoyed on the Grasslands and contribute to quality-of-life values, with no major conflicts with other land uses.

Other Recreation Activities

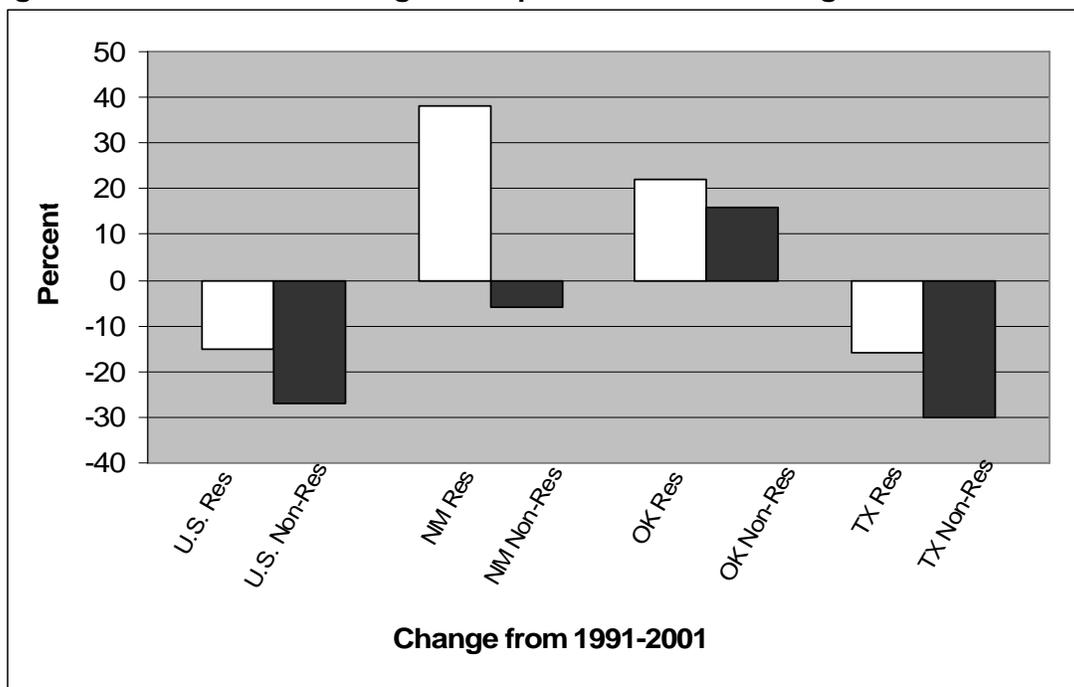
Table 14 shows mountain biking and backpacking to be less frequent than other recreation activities on the Grasslands. While these activities may occur on a very limited basis in Mills Canyon or the larger recreation areas of the Black Kettle and McClellan Creek National Grasslands, the Grasslands are not a destination for these activities as there is a lack of desired terrain features, contiguous public land parcels, or long trails. The projected trend is that these activities will remain quite limited on the Grasslands and are not likely to significantly increase.

People participating in horseback riding often encounter the same difficulty in traveling long distances in the Grasslands and this activity often requires the use of rural roads to get from one unit to another. However, interest in this activity does continue to grow in some areas of the Grasslands and some facilities have been built to accommodate horseback riders. Camping with horses is allowed in all of the recreations areas, as well as on any of the Grassland areas. There are

no developed equestrian trails and horseback riding is allowed anywhere on the Grasslands (Milner 2001). There have been no conflicts between horseback riding and other land uses.

Bird and wildlife watching are developing into very popular activities on the Grasslands. This activity includes observing and photographing birds and wildlife. According to national survey of all wildlife and bird watching, bird watching attracted the biggest following (USDI Fish and Wildlife Service 2001). The national survey also showed that watching wildlife has declined from 1991-2001. State-by-state trends are quite variable. Figure 10 shows that for New Mexico numbers of non-residential participants declined while residential participants increased 38%. In Oklahoma, both nonresidential and residential participants increased. In Texas, where 94% of the land is in private ownership (TX Center for Policy Studies and Environmental Defense 2007), both nonresidential and residential participation has decreased, 38 and 24% respectively. While total expenditures of wildlife watchers increased nationwide, they were stable or only slightly increased in New Mexico and Texas and declined slightly in Oklahoma (USDI Fish and Wildlife Service 2001). There is a potential to work with partners to expand these opportunities on the Grasslands as tourism and rural economic development opportunities (see Community Relationships section for more detail).

Figure 10: Wildlife Watching Participation Percent Change from 1991-2001



Source: U.S. Fish and Wildlife Service's National Survey of Fishing, Hunting, and Wildlife-Associated Recreation 2001

Outdoor recreational activities on the Grasslands are very important to the local tourism economy, generating 75 jobs, \$1.2 million in direct income and \$3 million in indirect income for local businesses (See Table 5). Also, the lakes and streams on the Black Kettle provide unique and biologically diverse features that make a major contribution to the quality of outdoor recreation. While recreation on the Grasslands occurs year-round, the highest levels of recreation activity occur during hunting seasons in the spring and fall, and around the lakes and the Canadian River during the hot summer months.

Some constraints on improving public recreation and tourism opportunities stem from the fragmented land ownership pattern and lack of adequate boundary signs, particularly on some Kiowa and Rita Blanca National Grassland units. These two situations make it difficult for visitors to know whether they are on private or public lands, which contributes to people trespassing onto private property (Russell and Adams-Russell 2005). This situation also causes some visitors to have difficulty in locating specific Grassland units for recreational purposes, or to be uncertain about what hunting

regulations apply to a given piece of land. Existing directives require the Forest Service to identify (sign) national forest and grassland boundaries, and Grassland managers will continue to sign boundary fences to the extent practical in order to help reduce those problems.

Other than the land use conflicts related to uncontrolled motorized use on portions of the Kiowa and Rita Blanca National Grasslands, there are currently no other significant conflicts involving recreation uses on the Grasslands. Overall, visitors and residents have expressed satisfaction with recreation opportunities provided on the Grasslands (Russell and Adams-Russell 2005). Under current management, opportunities for horseback riding and wildlife watching have expanded, particularly with the help of partners, and will continue to expand in the future according to participant needs.

Designated Areas

The Kiowa and Rita Blanca National Grasslands have several designated areas that attract visitors to some of the unique resources of the area. These designated areas have the potential to enhance tourism, and improve rural development opportunities in an economically declining region. The areas may be designated by Congress or the appropriate official of the executive branch, depending on the type of designation. There are currently five of these types of areas designated on the Grasslands:

- Santa Fe National Historic Trail
- Santa Fe Trail National Scenic Byway
- La Frontera del Llano Scenic Byway
- Canadian River Eligible Scenic River Corridor
- Canadian River-Mills Canyon Inventoried Roadless Area

The Designated Areas Map in Appendix A displays each of these areas.

Canadian River/Mills Canyon

The Canadian River/Mills Canyon area on the Kiowa National Grassland contains a large semi-primitive area including a 7,465-acre Inventoried Roadless Area, a 17-mile eligible Scenic River segment, two developed campgrounds, and an interpretive site. The three Forest Service roads (600, 601, and 602) that provide access to the canyon bottom and campground area were excluded from the Inventoried Roadless Area boundary, along with the campground (See Mills Canyon Map in Appendix A).

This Roadless Area, along with the values associated with the eligible Scenic River designation, provides outstanding opportunities for hiking, wildlife viewing, hunting, fishing, and enjoyment of the unique historic, scenic, geologic, and ecological features. It is unique as it is the only large area on the Grasslands that provides a semi-primitive setting. The recreation opportunities and values that make the canyon a special place contribute in many ways to the local communities. The canyon is the most distinguishing land feature of Harding County and the campground provides one of the only developed outdoor recreation areas in the county. The area is also important to the local history of the region and has the potential to be an important destination on northeast New Mexico's newest scenic byway.

Wilderness and other primitive areas such as roadless areas attract visitors who often spend money in the local communities, thereby creating jobs and income. They also provide amenities that contribute to the quality of life of nearby residents. In-migration is the primary driver of population growth in the American West. Studies have shown that counties with wilderness or national parks had population growth six times faster than the national average and nearly twice as fast as non-urban counties in the West. Despite some known benefits of these types of designated areas, the literature on their economic benefits is somewhat limited and inconclusive on whether or not the economic net benefit is positive (Rudzitis and Johnson 2000).

There are two existing conditions that seriously impact the values for which the Roadless Area and eligible Scenic River were designated and therefore, do not meet desired conditions described by agency policies: uncontrolled motorized use and invasive plants (salt-cedar) along the Canadian River. The Mills Canyon area is popular for off-road motor vehicle use partly due to the scenic beauty, river access, rugged terrain, remoteness, tree-shaded campground, and expanse of unfenced natural environment. Many Grasslands area residents and visitors to Mills Canyon expressed their view that uncontrolled OHV use is incompatible with the character of Mills Canyon (Russell and Adams-Russell 2005; USDA Forest Service 2006b). There are over 11 miles (at a density of 1.3 miles per square mile) of unauthorized user-created roads and trails in the Inventoried Roadless Area. The uncontrolled motorized use and resulting roads and trails are significantly degrading roadless area characteristics and natural resource values in this area. In addition, adjacent private landowners have reported increased trespass issues associated with off-road vehicle use. Due to the 2005 Travel Management Rule that prohibits cross-country travel, there is expected to be an eventual decline in unauthorized roads in Mills Canyon.

In addition, the dominance of invasive plants along the Canadian River corridor further detracts from the scenic quality, water quality, wildlife habitat, naturalness, and other values of this special area (salt-cedar is discussed in more detail in Ecological Sustainability Evaluation section). Invasive plant control treatments currently being planned would result in a significant decline of invasive plants in the Canyon (USDA Forest Service 2006a).

Historic Trail and Scenic Byways

Several areas were designated in the Grasslands in response to a growing demand for cultural and historic tourism. This demand is part of a shift in the overall preferences of American travelers, from escapism in the 1980s to enrichment in the 1990s. One in five adults took an educational trip from 1998-2001, and 40% of families include stops at historic sites as part of their summer trips (Newman 2001). Historic/cultural tourism rose 13% (192 to 217 million person trips) from 1996-2002. These visitors have also been shown to travel farther, spend more money and travel longer (Craine 2005). In addition, 35 million adults say that a specific arts, heritage, or cultural event or activity influenced their choice of destination according to the Travel Industry Association of America (Craine 2005). Therefore, designating unique cultural, historic or scenic areas, trails, and highways can create attractions with the potential to increase tourism.

The Santa Fe National Historic Trail is a nationally-designated trail with a 2.4 mile segment located on the Kiowa Grassland. In 2001, the Forest Service developed an interpretive kiosk and day-use/picnic site near the historic trail route in accordance with the Santa Fe National Historic Trail Master Plan (USDI National Park Service 1990). The site provides interpretive and recreational opportunities to a wide variety of visitors, and contributes to local tourism. The Trail and site can play an important role in marketing to tourists. The Grasslands segment is especially important since most of the Trail is located on private land and may not be accessible to visitors. The only conflict to maintaining the historic and scenic qualities of the Trail area is the unregulated motorized use that occurs there and evidence of that use. The Master Plan recommends prohibiting motorized use in the Trail area.

The Santa Fe Trail National Scenic Byway and La Frontera del Llano State Scenic Byway are very scenic highway corridors that pass through the Kiowa Grassland. These byways are important economic development tools for rural communities. Seventy-six percent of Americans choose to travel by auto, truck, or recreational vehicle (RV) and designated scenic routes can be a major attraction for those looking for a drive that enhances their road-trip experience (Newman 2001). The Grasslands play an important role in contributing to the scenic quality of the corridor and in providing public open space along the routes, such as picnic areas and interpretive sites. These sites are one of the major attractions along scenic byways. Currently, there are no uses on the Kiowa that conflict with the scenic resources along the corridors and that trend is likely to continue. Visitation to these areas is projected to follow the national trend and increase as the nationwide interest in historical and cultural tourism increases.

Developed Sites

The Grasslands provide many developed recreation sites that are important to sustaining positive social and economic conditions in local and regional communities. Developed recreation sites typically include facilities such as restrooms, picnic tables, grills, trash containers, parking barriers, and bulletin boards. Maps in Appendix A show locations of the developed sites on the Grasslands.

Attributes common to developed sites on the Grasslands that enhance recreational qualities and ultimately benefit local social and economic conditions, include the following:

- All sites are open year-round, which is unusual compared to many Forest Service sites. They are easily accessible by passenger cars other than the one high-clearance-vehicle road in Mills Canyon.
- Although many of these sites require frequent grass-mowing to maintain camping and picnicking sites, user fees have not been charged, except at the McClellan Creek Recreation Area complex.
- Drinking water is provided at all campgrounds other than Mills Canyon and Rim campgrounds, and is monitored to ensure it meets standards for public safety. Drinking water is not provided at any of the day use sites.
- Reconstruction upgrades have at least partially occurred at all of the sites, with toilets and other facilities brought up to meet current standards, including accessibility. No major maintenance issues exist, although upgrades will continue to replace facilities at the end of their service life and as needed to meet accessibility standards.
- Visitor use does not exceed the design capacity at these sites, meaning they generally do not exceed 70% of the capacity except during hunting seasons (UNM-BBER 2005). While the sites are popular and highly-valued in sustaining local communities, they do not have serious over-crowding or overflow problems. Over the past 20 years, visitor use has remained relatively stable, with slight increases at the newer sites and slightly reduced visitation at the McClellan Creek Recreation Area, especially during low water years.

The Forest Service is increasingly working to develop and improve interpretive services by laying out objectives aimed at increasing coordination with other programs and agencies, increasing professional training, and developing a means of working with others to ensure sustainability of interpretive programs (USDA Forest Service 2003). To meet these and other objectives, the Grasslands are developing interpretive sites at the significant historic sites on the Grasslands, and providing archaeological presentations and tours, which together help improve public awareness and appreciation of heritage resource sites. Preserving and interpreting these non-renewable heritage resources for future generations is highly-valued by local and non-local residents alike (Russell and Adams-Russell 2005). In addition, public access to important heritage resource sites on the Grasslands provides an important opportunity to promote tourism and local economic growth. Together, preservation and interpretation of these sites are vitally important to supporting social and economic sustainability in these small, economically depressed rural communities. Overall, the Grassland's current management trends for heritage resources are projected to enhance heritage resource preservation and interpretation.

The Black Kettle and McClellan Creek National Grasslands have worked with partners to add unique eco-tourism areas with interpretive nature trails that are popular with youth groups, school children, and wildlife and bird enthusiasts. In partnership with the National Park Service, the Grasslands will also feature interpretative exhibits at the Washita Battlefield Visitor Center. These unique sites will further support social and economic sustainability for the rural town of Cheyenne, OK and other economically depressed communities in the area. It is projected that as demand for cultural and heritage tourism increases, more interpretive sites may be needed in order to meet that demand.

Campgrounds, picnic areas, and water-based recreation sites also contribute to developing a rural tourism industry in Grassland counties. The recent expansions and upgrades of the two Mills Canyon area campgrounds increase camping capacity, reduce over-crowding on busy weekends, provide

access opportunities for persons with disabilities, add a historic interpretive site, and add facilities long desired by horse and recreational vehicle users (Russell and Adams-Russell 2005).

The Grasslands feature two major recreation complexes in Texas – McClellan Creek and Lake Marvin Recreation Areas, designed around highly scenic reservoirs. There is a high-level of community interest in Pampa and Canadian, TX in improving tourism to these areas (USDA Forest Service 2006b). While the lakebed at McClellan Creek does not consistently sustain the high water levels that it once had for boating and water-skiing, and the historic visitor center and store were destroyed in a 2006 wildfire, this area is still very attractive and popular. It supports many lake-based activities, features shade trees and lush vegetation, contains a wide variety of camping and picnicking sites, and has one of the few Off-Highway Vehicle (OHV) trail systems in the region. The 576-acre Lake Marvin Recreation Area opened as a destination resort in 1939 with furnished cabins, a bath-house, a lodge, and other facilities and events that brought tourists as well as locals to water-ski, swim, fish, and recreate at this resort (Canadian Boat Club 1939). In 1985, the Recreation Area had significantly deteriorated but it has been substantially rehabilitated in the past 20 years. The renewed public interest in Lake Marvin has generated opportunities to work with partners to increase tourism to this site to help support the local economy.

The Black Kettle National Grassland features three other popular and significant lake-based recreation areas that add to the diversity of the terrain and provide recreational opportunities not usually found in the Grasslands region. The lakes attract high numbers of visitors year-round, with the highest use during spring and fall hunting seasons as well as during the hot summer months. The Grasslands also provide a few picnic areas that are designed for day-use and social gatherings. Thompson Grove Picnic Area and the Felt Picnic area are the only areas on the Grasslands exclusively for this use. These areas provide a park-like atmosphere and target use by local residents. Use of these areas is generally low and is expected to remain so.

Under current management, the projected trend is that all the developed recreation sites on the Grasslands will continue to make a contribution to the quality of life for local residents and visitors, help stimulate the local rural economy, and continue to adequately satisfy the public demand for different types of developed sites.

Other Social Resource Values

Paleontological Resources

Paleontological (fossil) excavations and research conducted on the Grasslands continues to contribute to valuable public information about past life forms, evolution, and ecosystem diversity. The Grasslands provide a rare opportunity for this type of discovery, particularly with cultivated lands and human developments covering most of the surrounding private land. Paleontological sites are highly-valued by society; therefore the proper management of these sites plays a vital role in sustaining Grassland communities like Clayton, New Mexico. Potential damage to fossils from erosion and weathering, as well as vandalism and theft, will continue to be an issue to address at Perico Creek and other fossil sites. The large number of paleontological sites in the area surrounding the Kiowa National Grassland may imply that there are other such areas on the Grasslands that have not yet been discovered. Under current management, there are no projected threats to this activity and this contribution to New Mexico history is likely to continue into the future.

Heritage Resources

Many significant well-preserved heritage resources that represent American Indian, Hispanic, and European Americans' adaptations to the High Plains can be found on the Grasslands. Significant heritage resource sites include a 2.4 mile section of the historic Santa Fe Trail and the Mills Orchard and Ranch Site, a historic property on the New Mexico State Register of Cultural Properties. In addition, there are numerous homestead sites, prehistoric and historic artifact scatters, and other

archaeological sites. Most of the Black Kettle has been surveyed (63%) as a part of oil and gas company surveys that were part of the oil and gas permitting process. Less has been surveyed on the Kiowa and Rita Blanca National Grasslands (6%) primarily due to the smaller size of ground-disturbing projects undertaken. Surveys have recorded over 550 heritage resource sites that span 12,000 years of human history on the Grasslands. The survey of these sites contributes to the knowledge of local human history and is an asset to local communities and to tribes that are connected to the area. It is projected that heritage resource surveys and associated site protection measures will continue to be implemented in accordance with legal and policy requirements. Surveys of the Black Kettle will likely continue to be more extensive than the other Grasslands due to the large oil and gas lease areas that require archeological clearance.

Another important aspect of preserving heritage resources is the stabilization of historic structures. Priority heritage sites identified by the Forest have been targeted for such stabilization efforts because of their importance to local history. In 2005, several structures in the Mills Canyon Orchard and Ranch site were stabilized. It is projected that stabilization projects will continue to be used as a tool to protect heritage resources in the future.

Research Areas

There are no designated Research Natural Areas on the Grasslands. Three Grasslands ecosystems were identified in the current management plan to study as possible RNAs, although those studies were not completed (USDA Forest Service 1985). There are several active and on-going research projects conducted by various educational and research institutions. Most of this research focuses on wildlife and the southern Great Plains habitat. The plains ecosystem is one of the least surveyed habitats in the US, which is why there has been an increasing level of interest. The Grasslands provide a unique research opportunity in this region because the area has been managed to include some fire and grazing disturbance patterns. The Black Kettle receives about one request for research projects every two-years. The Grasslands have supported research projects that have been going on for five or more years. Research projects on the Grasslands have included research on: shinnery oak grasslands and shortgrass prairie fire regimes, effects of fire and livestock grazing on wildlife and to different habitat types, invasive plant spread on the Black Kettle, wildlife species of emerging concern, sylvatic plague, native plants, livestock research (Clayton Livestock Research Site), and paleontological research. These projects are typically done in partnership with a university or research institute and yield valuable educational information to society in general, and for use in future management of the Grasslands.

Much of the new research proposed for the grasslands has focused on emerging species of conservation concern and fire regimes in the Southern Great Plains. There could also be more interest in invasive plant research as the issue continues to gain attention. Over the next 10 years, some of these research projects are expected to end or move to a new location, and new research project sites may emerge creating a steady demand for research opportunities on the Grasslands.

Scenic Resources

The scenery and rural setting of the Grasslands strongly shapes the experience of visitors. The Grasslands are generally characterized by pastoral agricultural landscape from vast open grasslands of the Kiowa and Rita Blanca to the rolling hills of the Black Kettle. Views from Grassland units often include homes, barns, tractors, trucks, windmills, cattle, stock tanks, and other private ranchland features, in addition to some oil and gas wells. Grasslands residents are accustomed to viewing these structures and features and see them as a highly-valued part of the traditional landscape. Many visitors also have a deep appreciation of the rural character of the plains grasslands landscapes. The presence of farms and ranches contributes to the “sense of place” or “cultural identity” that these areas provide for residents and visitors alike.

On the Black Kettle and McClellan Creek National Grasslands, the many lakes, ponds, wetlands, and riparian vegetation are wonderful surprises to prairie visitors and add to the rich diversity of the rolling red hills, patches of oaks and shrubs, and other vegetation interspersed with the cultivated fields on surrounding private lands. The landscape has changed little over the past 20 years. While some new oil and gas wells have been drilled, others have been plugged and abandoned. Closed oil-gas sites were rehabilitated to minimize evidence of the past operation. In the past 20 years, Grasslands managers have created some trails to improve the public's opportunity to view scenic landscapes and wildlife.

East Kiowa and Rita Blanca National Grasslands areas greet the traveler with the vast expanse of an undulating plain of waving grass, punctuated by windmills and farmsteads. An area on the Rita Blanca National Grassland typifies the "High Lonesome" prairie of lore. One of the most distinctive and beautiful landscapes enjoyed by many visitors is in Mills Canyon, with its mosaic of evergreen trees, red-rock cliffs, and free-flowing river at the bottom of a deep canyon. These features are unique to this part of the plains grasslands. Two Scenic Byways traverse this part of the Grasslands and management of scenic resources along these viewsheds can have a significant impact on the recreational experience of drivers (see Designated Areas). There has been very limited development that has impacted scenery on the Grasslands in the last decade. While there are several small (less than two acres) caliche extraction pits, most of them retired and rehabilitated, they are not located in areas viewed from scenic travel ways or recreation sites. It is projected that future developments along these corridors and other areas developed to highlight scenic resources will further enhance enjoyment and the marketability of the Grassland's scenic resources.

Local communities are beginning to capitalize on the value of these resources. Scenic byways and other economic development mechanisms are incorporating scenery as a way to draw in visitors from outside the local area. For local residents, scenery defines their "sense of place" and has an intrinsic impact on their quality of life. Protecting and highlighting scenic resources is also becoming increasingly important to the Grassland counties in contributing to rural economic development.

FOREST ACCESS AND TRAVEL PATTERNS

The road system plays an integral role in contributing to social and economic sustainability as roads are used by the public for virtually every land use activity on the Grasslands. Roads also facilitate the management of recreation, fires, grazing, wildlife habitat, and other activities.

Traffic on county roads surrounding the Grasslands is considered light (UNM-BBER 2005). A few major state and federal highways carry the heaviest traffic counts, particularly Interstate 40 (I-40) which is the major thoroughfare from the Pacific ports to the Midwestern states. I-40 between Albuquerque, NM and Oklahoma City, OK, lies just 3 miles south of McClellan Creek National Grassland and within 25 miles of the closest Black Kettle National Grassland unit. I-40 shapes most of the region's commercial transport. In accessing the Kiowa National Grassland, Interstate 25 (I-25) in northeastern New Mexico lies 20 miles from the nearest Kiowa National Grassland unit, but the amount of commercial traffic may increase through the Kiowa National Grassland, once the I-25 connection to US-64/87 from Raton to Clayton is widened to four lanes. This project is part of the larger Port-to-Plains transportation corridor project, which will connect Denver, CO to Laredo, TX expected in 2010). The Vicinity Map in the beginning of this Report shows the major roads and towns, and the Road Inventory maps in Appendix A show other roads.

The Kiowa and Rita Blanca National Grasslands have approximately 492 miles of inventoried roads⁴ while the Black Kettle and McClellan Creek National Grasslands contain roughly 119 miles of inventoried roads (USDA Forest Service 2006 & 2007b). The majority of roads in Grassland units are unsurfaced roads suitable for high-clearance vehicles; their major contribution to the road network is to provide access to Grasslands units. In addition, there are federal and state highways, county roads, and privately-owned roads. In fact, the majority of roads used to access Grassland units are under the jurisdiction of state and county agencies or private owners. Table 16 shows the average (mean) and maximum road density based on current road inventories within each Grassland administrative boundary and within Grasslands units. After the Travel Management Rule is implemented, many of these roads may be closed to the public and only available for use by permittees and for administrative use.

Table 16 shows average road densities on the Grasslands. Road density on the Grasslands has remained relatively stable on the Black Kettle and McClellan Creek National Grasslands where off-road driving is prohibited, but has substantially increased on the Kiowa and Rita Blanca National Grasslands due to the increase in Off-Highway Vehicle (OHV) use and user-created roads. There have been no major road construction or reconstruction projects on the Grasslands in the past 20 years, although a few short road segments were constructed for oil and gas, utility projects, or permitted special uses. Most of the short road segments built by oil and gas companies provided a highly-valued road into a Grassland unit, so those roads were retained for hunters to use after the gas well-pad was closed and rehabilitated.

Table 16: Road Density – Miles per Square Mile

	Kiowa and Rita Blanca (East) Grasslands		Kiowa Grasslands Mills Unit		Black Kettle and McClellan Creek Grasslands	
	Mean	Max.	Mean	Max.	Mean	Max.
Inventoried Roads in Admin. Boundary	<1	4	1	5	<1	4
All Roads in Admin. Boundary	2	11	2	7	3	16
Inventoried Roads in Grasslands Units	1	4	1	5	1	4
All Roads in Grassland Units	2	7	2	7	2	8
<i>Inventoried roads</i> were defined in Footnote 3. <i>Administrative boundary</i> is the boundary surrounding the mix of public and private lands that includes the National Grasslands (see Vicinity map) <i>All roads</i> includes literally all types of roads, under various jurisdictions including private and unauthorized "user-created" roads <i>Grassland Units</i> consist of the small parcels of National Grasslands and excludes roads on private or other lands.						

Source: USDA Forest Service 2006 & 2007b

The projected future trend for roads and traffic on the Grasslands is that the main roads and traffic volumes through the Grasslands will remain fairly constant, mostly due to the fact that while tourism is slightly increasing, it is offset by a declining local population in Grasslands communities. The projected trend for road construction is that no major new road construction will likely occur, although there may be a slight increase in short spur roads to new oil and gas wells. The total road density and number of user-created roads is projected to be reduced on the Kiowa and Rita Blanca

⁴ *Inventoried roads* include roads identified in the Cibola National Forest INFRA-roads database including: roads constructed or authorized for construction by Forest Service, roads that existed before Forest Service management of Grasslands, and unauthorized roads or vehicle tracks that were found on the ground and added as "system" roads in this database. Inventoried roads will soon undergo analysis in order to eventually create a "designated system" of motorized roads and trails, in accordance with the 2005 Travel Mangement Rule.

National Grasslands upon implementation of the 2005 Travel Management Rule. However, many road scars will remain visible into the future as rehabilitation often occurs slowly.

Road access to Grassland units on the Black Kettle and McClellan Creek National Grasslands is adequate to meet public and management needs. However, on the Kiowa and Rita Blanca National Grasslands, many Grassland units are accessed only from private roads through private lands, and this is becoming an important issue for the Grasslands. While many landowners have allowed some local residents to drive on their private roads to access Grassland units, the Forest Service does not have legal right-of-way easements for the majority of those private roads needed to access certain Grasslands units. Also, some private landowners do not have legal easements to drive through Grassland units to access private lands. On the Kiowa and Rita Blanca National Grasslands there are about 50 Grasslands units that have no legal public road access (within ½-mile). The lack of legal road access to certain Grassland units reduces potential opportunities for the general public to enjoy outdoor recreation activities on those units. This impacts opportunities to expand tourism and rural economic development. The lack of legal rights-of-way also limits the ability to thin and remove firewood from piñon-juniper woodlands in need of treatment to meet ecosystem restoration objectives. Other isolated Grassland units need invasive plant control treatments or other restoration treatments. It is uncertain whether the Forest Service can acquire all the desired road easements through private lands as some private landowners have expressed concerns about allowing the public to drive through their lands.

The Forest Service and several private landowners have expressed a willingness to exchange selected Grasslands units with private land in a way that would improve public access for recreation and reduce private-land trespass issues. However, only two land exchanges were completed on the Grasslands in the past 20 years, mostly due to funding constraints. It is projected that Grasslands managers will continue to consider exchanging specific land parcels with willing landowners to meet public needs and multiple-use objectives, where it is mutually beneficial. Funding available to complete the required environmental assessments, surveys, and appraisals may continue to be a limiting factor and few land ownership adjustments are expected to take place overall.

COMMUNITY RELATIONSHIPS

Local community residents have expressed that the Forest Service is maintaining good relationships and open communications with interested residents (Russell and Adams-Russell 2005; USDA Forest Service 2006b). These positive relationships strengthen the social cohesion and satisfaction with Forest Service actions within local communities. In addition, partnerships with other agencies and organizations have increasingly been used to meet Grasslands management objectives. While some partnerships are non-funded, funded partnerships from 2000-2005 resulted in Forest Service contributions of over \$282,000 to over ten projects on the Kiowa and Rita Blanca National Grasslands and over \$786,000 to over ten projects on the Black Kettle National Grassland.⁵ Most partnership projects on the Grasslands were aimed at improving wildlife habitat and native ecosystem functions, or recreation-sites and tourism opportunities, which resulted in enhancing social and economic conditions in local communities.

Governments

Government Agencies and Tribal Governments

The Grassland managers regularly coordinate with other federal, state, county and city governments to improve the local social and economic conditions of the Grassland communities. Federal agencies like the National Park Service, USDA Natural Resource Conservation Service and US Department of Transportation have worked with the Grasslands to manage areas adjacent to or within the Grasslands jurisdiction. State and local government agencies often partner with the Forest Service to promote economic development, preserve heritage resources, maintain locally important recreation areas, and protect and improve wildlife habitat. State wildlife agencies are particularly involved in habitat improvement and recreation management. Other government agencies at all levels participate with the Grasslands in law enforcement and wildfire prevention and suppression activities.

American Indian tribes are consulted prior to proposing potentially ground-disturbing actions on the Grasslands. There are seven tribes that historically used and may continue to use the Grasslands for traditional, cultural, or religious activities: Kiowa, Comanche, Wichita and Affiliated Tribes, Cheyenne-Arapaho, Apache Tribe of Oklahoma, Jicarilla Apache Nation, and the Mescalero Apache (UNM-BBER, 2005). For many of these tribes, after years of separation from their traditional homelands, they have adapted their cultural practices to resources closer and more easily accessible to where they currently reside. Some tribes expressed a desire to increase their use of the Grasslands to collect plants or other natural resource materials. While no Traditional Cultural Properties have been identified to date on the Grasslands, several tribes acknowledge historic use of the Grasslands, specifically the Canadian River/Mills Canyon area on the Kiowa National Grassland. Certain tribes have expressed an interest in seeing interpretive sites on the Grasslands be more inclusive of tribal history and in being more involved in project-level decisions.

Communities of Interest

Economic Development

The Grasslands provide local communities with a marketable asset to encourage tourism and recreation related economic development. Local groups that focus on attracting visitors to the area have worked with the Grasslands to find ways of marketing the Grasslands. The Cimarron Heritage Center, Clayton Chamber of Commerce, and the Eastern Plains Council of Governments have all

⁵ \$750,000 of the Black Kettle's contribution was used to build a shared office for the Forest Service and the Washita Battlefield National Historic Site.

partnered with the Grasslands to develop a tourism brochures for the counties and the Canadian Chamber of Commerce plays an active role in recreation site operation and maintenance and promoting the Fall Festival at Lake Marvin.

Scenic byways have been an important tool for economic development around the Kiowa and Rita Blanca National Grasslands. There are several organizations that work to coordinate federal, state and local involvement in managing and improving these corridors. The area has a new scenic byway, which passes through the Kiowa National Grasslands near Mills Canyon. Some Harding County staff members are establishing a scenic byway association and are developing a management plan for the La Frontera del Llano Scenic Byway. These partnerships can help diversify the local economy and are projected to be an important part of future Grassland management.

Environmental

Several environmental groups have expressed an interest in the ecological conditions on the Grasslands. These groups have increased their participation because of emerging ecological issues on the Grasslands. Many have been involved in wildlife habitat conservation and improvement efforts (See Land Management and Resource Stewardship).

One of these emerging issues is the playa lakes and their role in the landscape of the Kiowa and Rita Blanca National Grasslands. The Playa Lakes Joint Venture is a coalition of interest groups, local governments, and other organizations (including Ducks Unlimited) to protect and study playa lakes. Protection of migratory bird habitat is another issue in which the Grasslands have had an emerging role. Monitoring and coordinating management for migratory species with adjacent landowners has been increasing in the last few years.

Other environmental groups have worked with the Grasslands to highlight birding and wildlife viewing opportunities. The Audubon Society designated certain riparian areas on the Grasslands as Important Birding Areas, and numerous guidebooks and websites recommend locations on the Grasslands for bird watchers. Large tracts of the Grasslands have been included in the Great Plains Trail network, which focuses on birding and wildlife watching opportunities. Increasing awareness of the value of grassland habitat and ecosystems is projected to continue to drive an increase in demand for these types of opportunities and partnerships.

Grazing

Relationships between the grazing permittees and Forest Service are necessarily close, as they work in partnership to maintain range facilities, monitor forage production and utilization, and determine appropriate stocking levels and the timing of allowable use. Adjustments to stocking levels or grazing management strategies continue to be made in the Annual Operating Plans as needed based on site-specific conditions. These partnerships will remain vital to local communities and are projected to remain stable.

Land Management and Resource Stewardship

Wildlife Habitat

Wildlife habitat is a valued resource to local communities and Grassland users. Partnerships with the wildlife agencies, conservation groups, and research institutes have resulted in matching funds for many habitat improvements projects on the Grasslands, particularly around playa lakes and game habitat. These groups also help with wildlife surveys that provide valuable information sharing to the Grasslands. The recent trend of increases in the cost of hunting on private land has led groups like the National Wild Turkey Federation and Quail Unlimited to focus more of their interest in public lands. There has been increasing involvement in habitat protection and restoration by these groups

across the Grasslands. The projection is that these groups will continue to increasingly be involved in habitat management activities on the Grasslands.

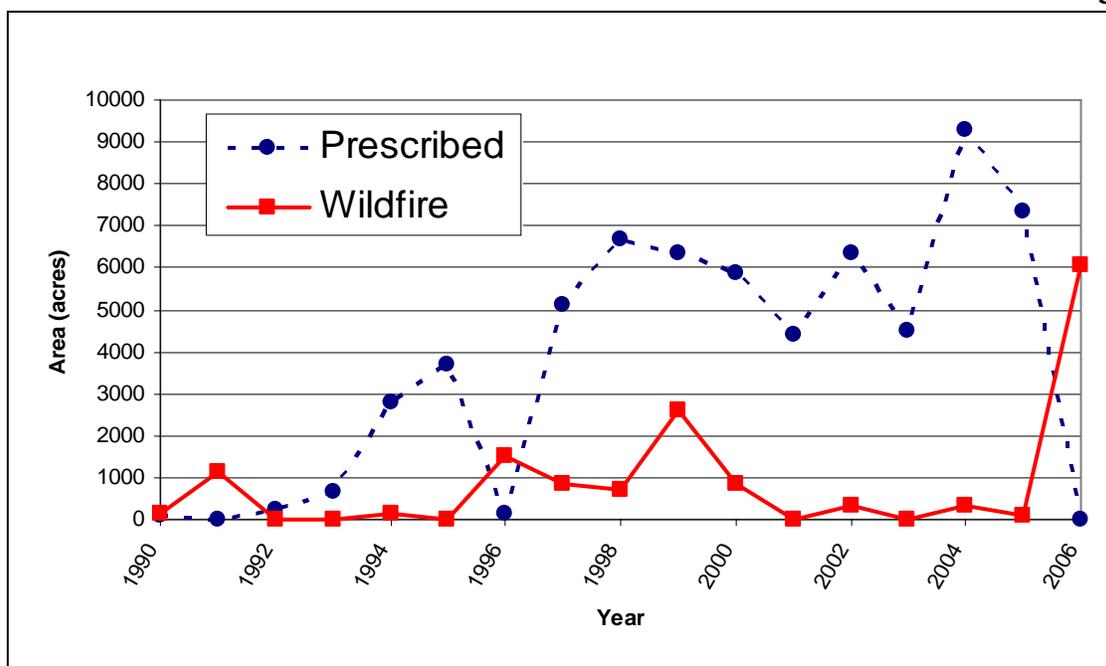
Research

As described in the Land Uses section of this document, there are several ongoing research projects on the Grasslands, conducted by universities and other research institutes. The successful partnerships between the Grasslands managers and educational and research institutions is expected to continue to support groundbreaking research on the Grasslands. The results of these partnerships will continue to provide valuable public information and education about past life forms, evolution and ecological diversity. In addition, they will help develop trained environmental professionals who are well acquainted with grassland ecosystems. There is projected to be a fairly constant number of these activities on the Grasslands under current management.

Wildland Urban Interface

Forest Service firefighters and fire management specialists work with local fire departments to decrease the region’s vulnerability to losses from wildland fires. This role has become increasingly important as the scale of wildfires in this region has become larger over the last few fire seasons. In addition, Grasslands managers have been making significant strides in using prescribed burning to mimic the historic role of fire in sustaining fire-adapted ecosystems and reduce the risk of uncharacteristic wildfires (Figure 11).

Figure 11: Grassland Area Burned in Prescribed and Wildfires* from 1990 through 2006



* Wildfire acreages are the sum of recorded wildfires. Typically only wildfires greater than 10 acres are recorded.

In the past 20 years, the Forest Service gave presentations on fire prevention to local community groups and schools, and coordinated with the rural volunteer fire departments and other agencies. The Forest Service provided technical assistance for local firefighting resources and assisted landowners in protecting their property from wildfire damage. The Forest Service also greatly increased the use of prescribed burning to reduce fuel hazards. Grasslands managers have entered into interagency agreements with State, tribal, and local rural fire departments to more effectively coordinate assistance and response to wildfires across multiple land jurisdictions in the area. These

agreements are especially important to maintain due to the mixed land ownership pattern across three states, multiple counties, and municipalities.

Although less than 20% of the Grasslands acres are classified as being within a Wildland Urban Interface (Jakich and Riggs 2006; USDA Forest Service and USDI Bureau of Land Management 2004), the protection of all structures and properties from wildfire impacts is critical to sustaining livestock grazing, hunting, and other uses critical to social and economic sustainability, especially within these communities. Wildfires can quickly wipe out entire farms and ranches adjacent to Grasslands units. Even the loss of individual windmills and water tanks during a wildfire can have serious social and economic impacts to families who depend on grazing cattle on the Grasslands units (maps in Appendix A show land ownership patterns and WUI areas). Partnerships to conduct prescribed burns across private land boundaries have improved the ability of the Grasslands managers to carry out prescribed burns in and around private structures. Some of the increase in this activity is related to the availability of funding for private land owners to complete habitat improvement and fuel reduction work on their lands. Because of these conditions, maintaining strong partnerships with local communities in these areas will continue to be an important component of meeting the agencies wildfire management.

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⁹ Contains current information and associated financial data on the inventory of constructed features, such as buildings, dams, bridges, water systems, roads, trails, developed recreation sites, range improvements, administrative sites, heritage sites, general forest areas, and wilderness.