An Economic Profile of the Bridger-Teton National Forest

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Executive Summary

The Bridger-Teton National Forest (BTNF) encompasses over 3.4 million acres of some of America's most scenic landscape. Butting up against Grand Teton and Yellowstone National Parks, the BTNF is a major component of the Greater Yellowstone region, and a repository for some of the nation's most important natural assets.

Five Wyoming counties have acreage in the Bridger-Teton National Forest: Fremont, Lincoln, Park, Sublette and Teton. Of the five, four were selected to be included in this profile. Park County was deemed to be more geographically and economically associated with the north central portion of the state and was omitted from the analysis.

Over 80,000 residents live in the four-county study region, employed in more than 60,000 jobs. These workers earn over $1.75 billion per year with a mean annual wage of about $29,000. Personal income for the region totals $3.18 billion (2004). This figure includes government transfer payments and investment income as well as labor earnings to residents. Teton County's per capita income of $80,002 is one of the highest in the nation and reflects the high proportion of wealthy residents who live in the area.

Due to its natural amenities, the region draws a significant number of outdoor recreation enthusiasts of all types and its economy reflects this in high levels of travel and tourism and second home development. Additionally, mineral development has become significantly more important to the region with the discovery of large deposits of natural gas in Sublette County. Though most gas development is not on the BTNF, the sheer dominance of the mineral industry, in terms of jobs and government revenue has raised concerns among some local residents that this activity and further exploration and production on the BTNF could threaten the quality of life in the region. Finally, agriculture remains an important part of the regional economy and lifestyle.

National forest plans undergo periodic revision in order to adapt to changes in forest attributes and use. The Bridger-Teton National Forest's most current plan was completed in 1990. The process to revise the plan started in 2005. The initial draft of the *Desired Conditions* was released in June, 2006. The authors' involvement started in October 2006.

This document is produced in support of the Bridger-Teton National Forest plan revision process. The format is designed to coincide with the format of the *Desired Conditions* document. The numbering system therefore starts with subject involvement in Chapter 3, *Economic Sustainability* to match that document.

The data for this effort came from a variety of different sources. Where possible the data for an individual aspect of the region's economy was presented first in terms of the aggregate amount at the county level and then in terms of the BTNF contribution. There are also differences in the quality and quantity of the data available for individual sectors of the region's economy. There was more detailed information for some sectors than for others. The relative availability or lack of information is not always an indicator of the relative importance of the particular sector of the

region's economy. Finally, since the data came from a number of different sources the latest year available may not be the same across the data sources. In developing the profile, the authors attempted to use the most currently available data rather than focusing on one specific year.

3.1 COMMERCIAL SERVICE OPPORTUNITIES

Commercial Recreation

Information from the Bridger-Teton National Forest indicates there were a total of 308 commercial recreation permits on the forest in 2006. Total commercial recreation use-days on the forest were nearly 993,000 days. The total gross revenue for commercial recreation on the forest was $57.1 million in 2006. The $57.1 million in spending generated an estimated secondary economic activity of $26.2 million for total economic activity of $823.3 million. The $83.3 million in economic activity supported nearly 1,400 jobs in the local economy and $26.4 million in labor earnings. The average earnings per job for this employment were $19,149.

PILT and Secure Rural Schools Payments

The combined total of BTNF PILT and BTNF SRS payments to the four-county area were nearly $1.6 million. Teton County received the largest share ($584,912) while Fremont received the smallest share ($84,490). The combined PILT and SRS payments from the BTNF represented 1.6 percent of the total county revenues for the four-county area, ranging from a high of 3.8 percent in Lincoln County to a low of 0.4 percent in Fremont County.

Utilities and Transportation Corridors

Few changes in transportation and utility corridors are anticipated on the BTNF in the coming decade. The only new corridor identified is the Lower Valley Energy natural gas pipeline which will run from Merna to Jackson (about 50 miles) carrying commercial and residential natural gas in a 6 inch pipeline. This project is slated for completion in the fall of 2008. No new roads are planned on the BTNF, but there could be three rehabilitations of existing roads (U.S. 191, Wyoming 22, and Wyoming 390) over the life of the forest plan. There are also a total of 82 communication, infrastructure, and miscellaneous sites on the BTNF.

3.2 RESOURCE COMMODITIES

Wood Products

A total of 2.8 million board feet (MMBF) of timber was commercially harvested in the Bridger-Teton National Forest Counties in 2005. Of this total, 1.8 MMBF was harvested in Fremont County (62.5%). Following Fremont County was Lincoln County with approximately 1.0 MMBF (35.2%), Teton with 42,000 board feet (1.5%), and Sublette with 23,000 board feet (0.8%). This production represents harvest from all type of land, not just from the Bridger-Teton National Forest.

There were a total of 15 wood products facilities in the four-county area in 2005. Of the 15 operations, 6 were sawmills, 5 were house log operations, 3 were log furniture operations, and 1 was a post and pole operation. Given the small amount of timber harvested in the area (2.8 MMBF in 2005) all these facilities probably tend to be smaller operations. After generally increasing between 1970 and 1978, the labor earnings for the lumber and wood products industry in the area peaked at $19.1 million in 1978. After 1978, labor earnings from the lumber and wood products industry decline steadily to just $2.0 million in 2000.

The 1990 Forest Plan called for annual production of 12 MMBF of sawtimber per year. However, 1992 has been the only year that approached that level (11.3 MMBF). After peaking in 1992, timber sales declined to 135 thousand board feet (MBF) in 2003. Since 2003 timber sales have increased to nearly 6.0 MMBF in 2006. Although fluctuating substantially, average sawtimber sales for the four-county area averaged 3.5 MMBF between 1990 and 2006. It should be noted that a timber sale in any one year does not necessarily mean that the timber was actually harvested in that same year. In some cases it may be several years before the purchaser actually harvests the timber. Because there is no major timber processor in the four-county region, the majority of sawtimber harvested on the BTNF is exported outside the area for processing.

Depending on which scenario is considered, it is estimated that the nearly 6.0 MMBF of timber sold on the BTNF in 2006 will support 15.3 to 76.3 jobs and generate $379,372 to $1,896,880 of labor earnings in the four-county area. The average earnings per job for this employment is estimated to be $24,865. Regardless of which scenario is considered it is obvious that timber production from the BTNF is not currently a major source of employment in the region.

Non-Timber Forest Products

The BTNF produces a number of non-timber forest products, including transplants, wildflower seeds, and boughs. However, discussions with timber staff on the forest indicate that none of these products have a substantial commercial use component. Rather the majority of the production for most of these products is for personal use. Because of this the economic impact of these non-timber forest products was not considered in the analysis.

Permitted Livestock Grazing

Data from the U.S. Department of Commerce's Bureau of Economic Analysis indicates that the gross revenue for agricultural operations in the BTNF counties was $153.4 million in 2004 (the latest year currently available). Of this total $121.2 million was from livestock (79%), $19.1 million was from crops (13%) and $13.1 million (9%) was from other sources.

Between 1970 and 2006 the beef cow inventory for the BTNF counties has averaged nearly 120,000 head (118,077). During this time period the beef cow inventory has ranged from a low of 91,700 head in 1978 to a high of 147,600 head in 1997. In 1970 the beef cow inventory was 127,210 head. In 2006 the beef cow inventory was only slightly higher at 127,400 head. There have, however, been some substantial changes in beef cow inventories by county between 1970 and 2006.

In contrast to beef cattle, the sheep inventory in the BTNF counties has declined substantially from 1970 to 2006. In 1970 the total breeding sheep inventory in the four-county area was nearly 200,000 head. However, by 2006 that number had fallen to only 44,000 head. This represents a decline of 155,700 head in the region (-78%).

Information from the BTNF indicates that there are currently 122 cattle permits and 12 sheep permits for grazing on the forest. The grazing permits for the BTNF currently support 39,042 head of cattle and 51,370 head of sheep. The grazing permits for the BTNF currently represent 190,014 AUMS of livestock grazing. Cattle grazing represent 145,043 of these AUMS (76%) and sheep grazing represent 44,971 AUMS (24%).

Depending on which scenario is considered it is estimated that the 190,014 AUMS of livestock grazing on the BTNF result in $7.9 million to $24.0 million in production. This production supports 187.9 to 576.0 jobs and generates $5.1 to $15.6 million in labor earnings. The average earnings per job for this employment were estimated to be $27,146. In addition to food and fiber production, agriculture enjoys a long tradition in the area and directly influences the majority of land within the region. The open spaces associated with agriculture offer landscapes, lifestyles and wildlife habitat.

Wildlife and Big Game

Geographic Information System (GIS) data from the Wyoming Game and Fish Department indicates that the BTNF provides 32 percent of the total seasonal range, 40 percent of the spring/summer/fall seasonal range, and 76 percent of the migration corridors for elk in the four-county area. For mule deer, the BTNF provides 30 percent of the total seasonal range, 33 percent of the spring/summer/fall seasonal range, and 60 percent of migration corridors in the four-county area. For antelope, the BTNF provides 7 percent of the total seasonal range, 9 percent of the spring/summer/fall seasonal range, and 14 percent of the migration corridors.

Elk, deer, and antelope hunting resulted in over 300,000 hunter days annually in the region. This hunting generated $57.7 million in expenditures. The non-local portion of these expenditures supported 1,828 jobs and $26.7 million in labor earnings. The average earnings per job for this employment were $14,610. The BTNF plays a significant role in supporting this economic activity.

Fishing is estimated to represent about 4.3 percent of the 2.8 million annual visits to the BTNF. This represents approximately 120,000 annual fishing related visits. Of these, 84,000 or 70 percent estimated to be by non-local visitors. Applying National Visitor Use Monitoring expenditure figures to the 84,000 visits resulted in an estimated expenditure associated with fishing on the BTNF of $5.8 million. This resulted in 100 jobs in the local economy and generated $2.2 million in labor earnings. The average earnings per job were estimated to be $22,357.

Water Development

Total water yield on the BTNF is 7,555 cubic feet per second (cfs). Of this amount, 574 cfs is appropriated water flow. These quantities include water from the following types of uses: Irrigation, stock water, domestic, power, milling, mining, miscellaneous, monitoring, fish propagation, wildlife, reservoir supply, municipal, industrial, recreation, manufacturing, flow-through (non-consumptive), drilling, oil refining and production, test well. Due to the format of the data, it was not possible to completely categorize flow and storage data by use.

Minerals

In 2006, the total mineral assessed valuation in the BTNF counties was $5.9 billion. Of this total, $4.2 billion was in Sublette County (70.5%), $1.1 billion was in Fremont County (18.5%), $649.5 million was in Lincoln County (11.0%), and $1.9 million was in Teton County (<0.1%). Natural gas production represented more than 90 percent of the total mineral assessed valuation in the four-county area (91.8%). crude oil represented nearly 7 percent (6.7%), coal represented slightly more than 1 percent (1.4%), and other, primarily sand and gravel, represented less than 1 percent (0.1%).

Like most of Wyoming, the BTNF counties experienced dramatic fluctuations in mining employment between 1970 and 1990. After growing rapidly from 1970, mining employment in the area peaked at over 5,600 jobs in 1980 with nearly 4,000 of these jobs in Fremont County. By 1990 mining employment in the area had declined to slightly over 1,500 jobs (-71.8%). Mining employment remained fairly steady from 1990 through 2000 averaging slightly over 1,500 jobs per year. From 2001 to 2004, total mining employment in the BTNF counties has increased by nearly 720 jobs (+53.3%).

The only non-energy mineral production currently taking place on the BTNF is sand and gravel, and landscape rock production. These commodities are important to two sectors of Wyoming's economy, transportation (for road maintenance as well as winter-time use of sand on roads), and the construction sector (for concrete and landscaping). Almost 1.8 million tons of sand and gravel was produced in the region in 2005, employing 232 people. Sand and gravel production on the BTNF for federal fiscal year 2006 included 1,427 tons of production from sale permits and 645,000 tons for free use permits.

Energy Resources

The assessed valuation of natural gas in the BTNF counties has increased in inflation-adjusted dollars by more than 17 times from $273.4 million in 1990 to $4.7 billion in 2006. Currently, 150,587 acres on the forest are leased and 44,600 are under appeal. Information from the Wyoming Oil and Gas Conservation Commission indicates that there are currently 14 producing gas wells on the Bridger-Teton National Forest. After only limited production in 1986, total natural gas production on the BTNF increased from 81.5 million MCF (thousand cubic feet) in 1987 to 131.0 million MCF in 2004. This represents an increase of more than 50 percent in 17 years.

In 2005 BTNF natural gas production was 123.6 MMCF. Using the average annual price for Wyoming it is estimated that the 2005 natural gas production on the BTNF had a value of $822.1 million. It is estimated that the BTNF natural gas production supported a total (direct plus secondary) of 248 jobs throughout the economies of Lincoln, Sublette, and Sweetwater Counties. Labor earnings associated with employment were estimated to be nearly $13 million or more than $52,000 per job. In terms of tax revenue, it is estimated that the natural gas production on the BTNF in 2005 generated $35.7 million in Ad Valorem Taxes, $34.3 million in Severance Taxes, and $30.8 million in Federal Mineral Royalties for Wyoming. The total tax revenue to Wyoming from this production is estimated to be $100.9 million.

Carbon Sequestration

The NASA-Carnegie Ames Stanford Approach (CASA) Carbon Query and Evaluation Support Tool (CQUEST) estimates that there is significant accumulation of standing wood carbon and live leaf carbon across the BTNF. The two measures combined indicate that the BTNF has approximately 415 million tons of accumulated carbon. Not including dead wood and surface soil carbon this accumulation accounts for approximately 0.6 % of the total accumulated carbon in the Rocky Mountain Region.

The BTNF annual flux (change in amount stored) of carbon is approximately 3.8 million tons. To put this in perspective, the BTNF accounts for approximately 9% of the yearly carbon increment for the entire Rocky Mountain Region. Alternatively, a 500MW pulverized coal power plant emits approximately 2.7 million metric tons of CO_2 annually. If the yearly carbon increment for the BTNF were the result of specific forest management practices, it would be worth $11 million to $15 million on the carbon credit trading market. The degree to which alternative forest management practices could affect the yearly carbon increment is unknown. Also, consideration must be given to carbon release through fire and stand dynamics and structure.

3.3 FOREST AMENITIES

Visitor Amenities

Dean Runyan Associates estimates that total visitor spending in the four-county area during 2005 was $682.5 million. These expenditures represented overnight trips to the area that were not of a local or commuting nature. They include trips for both business and pleasure. The data does not support separate analysis of trips for business and pleasure. It is assumed that the Dean Runyan estimates include the various aspects of recreation on the BTNF.

After adjusting for inflation, total visitor spending in the four-county area increased from $467.4 million in 1997 to $605.4 million in 2005 (+29.5%). This represents a compound average growth rate of 3.3 percent per year. In inflation adjusted dollars, direct labor earning from travel spending in the four-county area increased from $143.7 million in 1997 to $194.1 million in 2005 (+35.1%). This represents a compound average growth rate of 3.8 percent per year. Direct employment from travel spending in the four-county area increased from 7,750 jobs in 1997 to 8,690 jobs in 2005 (+12.1%). This represents a compound average growth rate of 1.4 percent per

year. Adjusted for inflation, local tax receipts from travel spending in the four-county area increased from $9.5 million in 1997 to $11.3 million in 2005 (+19.0%). This represents a compound average growth rate of 2.2 percent per year.

Total visitor spending for the BTNF is estimated to be $144.3 million. Of this total $117.3 million (81.3%) is estimated to be by non-locals with $27.0 million (18.7%) by locals. Since spending by non-local visitors to the BTNF represents new money to the region's economy, the economic impact of these expenditures was estimated. The results indicate that the $117.3 million in non-local visitor expenditures supported over 2,100 jobs and more than $45.4 million in labor earnings within the economy of the four-county area. The average earnings per job for this employment were $21,386 per job.

Resident Amenities

Non-labor income is an important source of income for residents of the Bridger-Teton NF counties. In 2004, non-labor income represented nearly 45 percent of total personal income in the four-county region (44.9%). This compares to 35.9 percent in Wyoming and the 30.5 percent in the U.S. The $1.4 billion of non-labor income in the BTNF counties for 2004 generated considerable employment and labor earnings in the local economy. After adjusting for non-disposable income, the $1.4 billion in non-labor incomes is estimated to represent $1.1 billion of disposable income for residents of the four-county area. The local spending of this disposable income generates an estimated 7,200 direct jobs in the area's economy. The labor earnings associated with the direct employment resulting from non-labor income in the four-county area was estimated to be $170.4 million.

The presence of natural resource amenities in the four-county region, such as the Bridger-Teton National Forest, may be one of the reasons that residents received a higher proportion of their total personal income from non-labor sources. This concept is perhaps re-enforced by the fact that, except for Fremont County, the dominate source of non-labor income in the area is investment income rather than transfer payments. These two factors suggest that the area may be an attractive place to live for individuals with outside sources of income. However, it would probably not be appropriate to attribute all the non-labor income in the area to natural resource amenities since even regions with limited natural resource amenities still receive significant amounts of non-labor income.

Under the assumption that the proportion of non-labor income in the four-county area above the national average is the result of the area's natural resource amenities suggests that natural resource amenities supported more than 2,300 direct jobs and $54.6 million of labor earnings in the four-county economy. The average earnings associated with this economic activity was $23,676.

SUMMARY

Table ES-1 provides a summary of the economy for the four-county region. This summary includes information on: 1) regional totals for key economic variables, 2) the economic contributions of forest related industries in the region, and 3) estimates of the Bridger-Teton

National Forest's contribution to the region's economy. All the information is for 2004 to be consistent with the IMPLAN model used in the analysis.

Table ES-1 indicates that in 2004 there were a total of 60,410 jobs in the four-county area. County employment ranged from 23,865 jobs in Teton County to 5,133 jobs in Sublette County. The population of the four-county area in 2004 was 77,498. County population ranged from 36,220 in Fremont to 6,655 in Sublette County. It is interesting to note that total jobs in Teton County exceeded the county's total population by more than 25 percent. This is a reflection of the large number of workers residing outside the county that in-commute to work in Teton County.

Total personal income for the four-county area in 2004 was $3.3 billion. Total personal income ranged from $1.6 billion in Teton County to $256 million in Sublette County. Approximately 60 percent of the region's income ($2.0 billion) was from labor earnings with the remaining 40 percent being non-labor income. Labor earnings represent income from wage and salary payments plus income for self-employed individuals. Non-labor income represents income from government transfer payments and investment income. Labor earnings ranged from $906 million in Teton County to $172 million in Sublette County. The percent of total personal income from labor earnings ranged from 67 percent in Sublette County to 56 percent in Teton County. For Fremont and Lincoln Counties labor earnings represented 60 percent and 66 percent of total earnings, respectively.

In 2004 the average earnings per job (AEPJ) for the four-county area was $32,558. AEPJ ranged from $37,978 in Teton County to $26,969 in Fremont County. In comparison the AEPJ for Wyoming in 2004 was $35,850 and the AEPJ for the U.S. in 2004 was $44,347. For Fremont and Lincoln Counties, AEPJ in 2004 were 61 percent and 71 percent of the national average. For Sublette and Teton Counties, AEPJ were 75 percent and 86 percent of the national average. Only Teton County's AEPJ was above the Wyoming average.

In 2004 the per capita income (PCI) for the four-county area was $42,690. PCI ranged from $85,508 in Teton County to $27,348 in Fremont County. In comparison the PCI for Wyoming in 2004 was $35,058 and the PCI for the U.S. in 2004 was $33,090. For Fremont and Lincoln Counties, PCI was 83 percent and 85 percent of the national average. For Sublette and Teton Counties, PCI was 116 percent and 258 percent of the national average. Both Teton and Sublette Counties' PCI was above the Wyoming average. Teton County has one of the highest PCI in the nation.

In 2004, the cost-of-living was 94 percent of the state average in Fremont County, 95 percent of the state average in Lincoln County (North and South Lincoln County combined), 111 percent of the state average in Sublette County, and 138 percent of the state average in Teton County.

One way of considering the BTNF's contribution to the local economy is through Forest Related Industries (FRI). FRIs are industries that are at least partially dependent on National Forest resources. That is, a portion of the economic activity associated with these industries is dependent on the natural resources within the BTNF. FRI industries were defined as Logging-Wood Products Manufacturing (L&WPM), Agriculture, Mining, Travel, and Non-Labor Income

above the national average (NLI+). In this analysis the percent of Non-Labor Income above the nation average was used as a proxy for amenity residents. Amenity residents are those individuals who live in the region specifically because of the area's amenities. Some unknown portion of the attractiveness of the region is associated with the BTNF.

Total regional employment for the FRI was 14,854 in 2004. This represented approximately one-fourth of the total jobs in the region. Travel was the largest FRI in terms of employment (8,460 jobs), followed by Agriculture (2,360 jobs), Mining (1,983 jobs), NLI+ (1,927 jobs), and L&WPM (124 jobs). The relative importance of FRI varied from 34 percent of total employment in Sublette County to 18 percent of total employment in Fremont County. For Lincoln County FRI represented 21 percent of total employment and in Teton County it represented 30 percent of total employment. In Fremont County the largest FRI in terms of employment were Travel and Agriculture; in Lincoln County the largest FRI were Mining, Agriculture and Travel; in Sublette County the largest FRI were Mining, Travel, and Agriculture; and in Teton County the largest FRI were Travel and NLI+.

Total regional labor earnings for the FRI were $426 million in 2004. This represented about 22 percent of the total labor earnings in the region. Travel was the largest FRI in terms of labor earnings ($201 million), followed by Mining ($152 million), NLI+ ($48 million), Agriculture ($22 million), and L&WPM ($4 million). The relative importance of FRI varied from 41 percent of total labor earnings in Sublette County to 17 percent of total labor earnings in Fremont County. For Lincoln County FRI represented 25 percent of total labor earnings and in Teton County it represented 20 percent of total labor earnings. Mining was the largest FRI in terms of labor earnings for Fremont, Lincoln, and Sublette Counties with Travel being the largest for Teton County.

AEPJ for FRI in the region were $28,716. This was about 90 percent of the regional average. Only Mining ($76,499) had an AEPJ above the regional average with the rest of the industries being below the regional average. AEPJ for FRI in Lincoln and Sublette Counties were above the county average with AEPJ in FRI in Fremont and Teton Counties being below the county average. It should be noted that currently only a small portion of the mining sector activity in the region occurs on the BTNF.

For some FRI it is possible to estimate the specific contribution of the BTNF to the local economy. Based on the IMPLAN model used for the analysis, the Bridger-Teton National Forest contribution through these industries to the regional economy is estimated to be 2,822 jobs. This total includes both direct and secondary jobs. This employment represented about 5 percent of the total jobs in the region and about 20 percent of the total FRI jobs in the region. Approximately three-fourths of the forest related jobs are in the travel industry with up to 20 percent being in livestock grazing. It was not possible to estimate the portion of NLI+ that was associated with the BTNF alone.

Forest related employment generated a total estimated $65 million in labor earnings. These labor earnings represented about 3 percent of the total labor earnings in the region and about 15 percent of the total FRI labor earnings in the region. The AEPJ for forest related employment was $23,160. This was about 70 percent of the regional average. The AEPJ ranged from $52,243

for natural gas related employment to $21,386 for travel related employment. Only natural gas related AEPJ was above the regional average.

The economic contribution of the BTNF is important to the regional economy; particularly to the FRI industries were it represents 20 percent of employment and 15 percent of labor earnings. In Sublette and Teton Counties FRI represented more than 30 percent of total employment. In Sublette County FRI represented more than 41 percent of total labor earnings. At the national level the specific contribution of the BTNF to the regional economy would be equivalent to 8.5 million jobs and $226.8 billion in labor earnings.

Table ES-1. Economic Summary for the Bridger-Teton NF counties, 2004.

Regional Totals (1)

	Employment (Jobs)	Population	Labor Earnings (000$)	Total Income (000$)	Average Earnings Per Job	Per Capita Income
Fremont	22,142	36,220	$597,137	$990,554	$26,969	$27,348
Lincoln	9,270	15,651	$291,624	$439,449	$31,459	$28,078
Sublette	5,133	6,655	$171,724	$256,094	$33,455	$38,481
Teton	23,865	18,972	$906,336	$1,622,266	$37,978	$85,508
Total	60,410	77,498	$1,966,821	$3,308,363	$32,558	$42,690

Forest Related Industries (2)

	Fremont	Lincoln	Sublette	Teton	Region
Logging - WPM (Jobs)	73	17	32	2	124
Agriculture (Jobs)	1,158	665	387	150	2,360
Mining (Jobs)	563	673	747	N.A.	1,983
Travel (Jobs)	1,470	570	530	5,890	8,460
NLI+ (Jobs)	699	56	34	1,138	1,927
Total	3,963	1,981	1,730	7,180	14,854

	Fremont (000$)	Lincoln (000$)	Sublette (000$)	Teton (000$)	Region (000$)
Logging - WPM (Earnings)	$2,214	$513	$979	$58	$3,764
Agriculture (Earnings)	$10,027	$4,606	$7,241	$116	$21,990
Mining (Earnings)	$44,288	$56,802	$50,608	N.A.	$151,698
Travel (Earnings)	$29,300	$10,000	$11,600	$150,300	$201,200
NLI+ (Earnings)	$15,478	$1,055	$543	$30,820	$47,896
Total	$101,307	$72,976	$70,971	$181,294	$426,548
Logging - WPM (AEPJ)	$30,332	$30,152	$30,594	$28,899	$30,352
Agriculture (AEPJ)	$8,659	$6,926	$18,711	$773	$9,318
Mining (AEPJ)	$78,664	$84,401	$67,748	N.A.	$76,499
Travel (AEPJ)	$19,932	$17,544	$21,887	$25,518	$23,783
NLI+ (AEPJ)	$22,143	$18,839	$15,971	$27,083	$24,855

Total	$25,563	$36,838	$41,024	$25,250	$28,716

Bridger-Teton Contribution (3)

	Regional Employment (Jobs)	Regional Earnings (000$)	Average Earnings Per Job
Timber	76	$1,897	$24,865
Livestock Grazing	576	$15,637	$27,146
Natural Gas	47	$2,430	$52,243
Travel	2,123	$45,391	$21,386
Total	2,822	$65,355	$23,160

Sources:

(1) U.S. Department of Commerce

(2) IMPLAN, U.S. Department of Commerce, and Dean Runyan Associates

(3) Four-County 2004 IMPLAN Model

An Economic Profile of the Bridger-Teton National Forest

Introduction

The Bridger-Teton National Forest (BTNF) encompasses over 3.4 million acres of some of America's most scenic landscape. Abutting Grand Teton and Yellowstone National Parks, the BTNF is a major component of the Greater Yellowstone region, and a repository for some of the nation's most important natural assets.

Five counties have acreage in the Bridger-Teton: Fremont, Lincoln, Park, Sublette and Teton (Table A). Of the five, four were selected to be included in this profile. Park County was deemed to be more geographically and economically associated with the north central portion of the state and was omitted from the analysis.

Table A. Bridger-Teton NF land area, in acres, by county, 2005.

County	***Bridger NF***	***Teton NF***	***Total BTNF***	***BTNF percent***
Fremont	34,415	100,757	135,172	4.0%
Lincoln	783,467	52,097	835,564	24.6%
Park	0	175,453	175,453	5.2%
Sublette	911,635	248,043	1,159,678	34.1%
Teton	6,559	1,090,228	1,096,787	32.2%
Total	1,736,076	1,666,578	3,402,654	100%

Source: Bridger-Teton National Forest

Over 80,000 residents live in the four-county study region, employed in more than 60,000 jobs. These workers earn over $1.75 billion per year with an average wage of about $29,000 per year. Personal income for the region totals $3.18 billion (Table B). This figure includes government transfer payments and investment income as well as labor earnings to residents. Teton County's per capita income of $80,002 is one of the highest in the nation and reflects the high proportion of wealthy residents who live in the area.

Table B. Economic totals for Bridger-Teton NF counties, 2004.

County	**Population**	**Employment**	**Personnel Income**	**Net Labor Earnings**	**Per Capita Income**	**Average Earnings Per Job**
Fremont	37,163	22,223	$970,818,000	$549,069,000	$26,123	$24,707
Lincoln	16,383	9,292	$429,114,000	$284,740,000	$26,193	$30,644
Sublette	7,359	5,204	$241,714,000	$161,036,000	$32,846	$30,945
Teton	19,288	23,987	$1,543,467,000	$760,926,000	$80,022	$31,722
Total	80,193	60,706	$3,185,113,000	$1,755,771,000	$39,718	$28,923

Source: U.S. Department of Commerce

Due to its natural amenities, the region draws a significant number of outdoor recreation enthusiasts of all types and its economy reflects this in high levels of travel and tourism and second home development. Additionally, mineral development has become significantly more important to the region with the discovery of large deposits of natural gas in Sublette County. Though most gas development is not on the BTNF, the sheer dominance of the mineral industry, in terms of jobs and government revenue has raised concerns among some local residents that this activity and further exploration and production on the BTNF could threaten the quality of life in the region. Finally, agriculture remains an important part of the region's economy and lifestyle.

National forest plans undergo periodic revision in order to adapt to changes in forest attributes and use. The Bridger-Teton National Forest's most current plan was completed in 1990. The process to revise the plan started in 2005. The initial draft of the *Desired Conditions* was released in June, 2006. The authors' involvement started in October 2006.

This document is produced in support of the Bridger-Teton National Forest plan revision process. The document is designed to coincide with the format of the *Desired Conditions* document. The numbering system therefore starts with subject involvement in Chapter 3, *Economic Sustainability* to match that document.

3.1 Commercial service opportunities

3.1.1 Commercial recreation

Economic Impact of Commercial Recreation

Information from the Bridger-Teton National Forest indicates that there were at total of 308 commercial recreation permits on the forest in 2006 (Table 3.1.1a). Of this total, 117 were on the Jackson District, 61 were on the Pinedale District, and 76 were on the Buffalo District. These three districts account for over 80 percent of the permits on the forest. Of the remaining permits 30 were on the Grey's River District, 20 were on the Big Piney District, and four were on the Kemmerer District.

In terms of types of permits, the largest category was non-motorized outfitters with 206 permits (Table 3.1.1a). Following non-motorized outfitters was motorized outfitters with 29 permits, resorts with 7 permits, motorized & non-motorized outfitters with 4 permits, and ski areas with 3 permits. There were also a total of 59 other commercial recreation permits which represented a variety of miscellaneous uses.

Outfitting permits involved a number of different types of recreation activities. In 2004, 60 percent of these permits were for land-based uses involving horses or other stock such as pack trips or day rides. Ten percent of the permits were for land-based uses not involving livestock such as hiking or biking. Twelve percent of the permits were for water-based uses such as rafting, other boating or fishing. Finally, 18 percent of the permits were for winter uses not related to resorts such as snowmobiling and cross-country skiing.

Table 3.1.1b summarizes the number of service or use days on the forest by type of commercial recreation permit. Total use days for commercial recreation on the forest were nearly 993,000 days. The largest category was ski area days which accounted for more than 50 percent of this total (53.7%). Following ski area days were summer non-motorized days (21.7%) and resort days (18.8%). These three types of commercial recreation accounted for more than 94 percent of the total use days on the forest. The other major categories of commercial recreation were fall non-motorized days (2.6%) and winter motorized days (2.5%).

Table 3.1.1a. Number of commercial recreation permits for Bridger-Teton NF, 2006.

Ranger District	Ski Areas	Resorts	Motorized Outfitters	Non-Motorized Outfitters	Motorized & Non-Motorized Outfitters	Other Commercial Recreation	Ranger District Total
Kemmerer	0	0	0	4	0	0	4
Big Piney	0	0	0	18	1	1	20
Grey's River	0	0	7	17	0	6	30
Jackson	2	0	9	68	2	36	117
Buffalo	0	3	8	57	0	8	76
Pinedale	1	4	5	42	1	8	61
Forest Total	3	7	29	206	4	59	308

Source: Bridger-Teton National Forest

Since commercial recreation permit fees are based on a percentage of the permit holder's gross revenue it was possible to estimate the gross revenue for commercial recreation permits on the forest based on the fees paid to the Forest Service by the permit holder. Table 3.1.1c indicates that the total gross revenue for commercial recreation on the forest was $57.1 million in 2006. Of this total nearly 70 percent was on the Jackson District and nearly 20 percent was on the Buffalo District. These two districts accounted for nearly 90 percent of the gross revenue from commercial recreation on the forest. Among the remaining districts, the Pinedale District accounted for 6.4 percent, the Grey's River District accounted for 3.1 percent, the Big Piney District accounted for 1.4 percent, and the Kemmerer District accounted for 0.6 percent. It should be noted that the $57.1 million does not represent the total expenditures in the region by visitors using the services of the permit holder, but only the portion of the expenditures that the visitor spent with the permit holder.

Table 3.1.1b. Number of commercial recreation use-days for Bridger-Teton NF.

Type	Days	Percent
Summer Non-Motorized	215,631	21.7%
Summer Motorized	1,509	0.2%
Fall Non-Motorized	25,571	2.6%
Fall Motorized	0	0.0%
Winter Non-Motorized	5,115	0.5%

Winter Motorized	24,498	2.5%
Winter Motorized & Non-Motorized	862	0.1%
Resorts	186,370	18.8%
Ski Areas	533,371	53.7%
Total	992,927	100.0%

Source: Bridger-Teton National Forest

Table 3.1.1d summarizes the economic impact of the $57.1 million in commercial recreation expenditures on the regions' economy. Estimates from the four-county IMPLAN model indicate that the $57.1 million in spending generated secondary economic activity of $26.4 million for total economic activity of $83.3 million. The $83.3 million in economic activity supports nearly 1,400 jobs in the local economy and $26.4 million in labor earnings. The average earnings per job for this employment were $19,149.

Table 3.1.1c. Gross revenue for commercial recreation on Bridger-Teton NF.

Ranger District	Gross Sales	Percent
Kemmerer	$338,439	0.6%
Big Piney	$788,586	1.4%
Greys River	$1,751,498	3.1%
Jackson	$39,189,555	68.6%
Buffalo	$11,354,939	19.9%
Pinedale	$3,681,818	6.4%
Forest Total	$57,104,835	100.0%

Source: Bridger-Teton National Forest

Table 3.1.1d. Economic impact of commercial recreation on Bridger-Teton NF.

Direct Spending	$57,104,836
Total Economic Activity	$83,322,428
Total Employment	1,381.1
Total Earnings	$26,446,888
Average Earnings Per Job	$19,149

Source: IMPLAN

Payment in Lieu of Taxes

Payment in Lieu of Taxes (PILT) payments are annual payments made by the federal government to counties with federal land within their boundaries. Since counties cannot tax the federal government, these tax dollars would otherwise be "lost" revenue to the counties. PILT

payments were first authorized in 1976 (Pub. L. 94-565, 31 Chap. 69 [as amended by PL98-63 and PL103-397]) and have undergone several revisions in the foregoing years.

The process for calculating PILT payments is complicated. A detailed discussion of PILT can be found in *Payment in Lieu of Taxes in Wyoming* by Pindell et al (1998). Payments and calculations for Bridger-Teton National Forest counties from 1998 to 2006 can be obtained from *Payment in Lieu of Taxes to Wyoming Counties* by Foulke et al at the following web address: http://agecon.uwyo.edu/EconDev/PILT1.htm .

The first row in Table 3.1.1e summarizes the total PILT payments to Bridger-Teton National Forest counties for the year 2005. The total payments for the four-county area were $3.6 million. PILT payments are based on total eligible federal acres in a county. The second row of Table 3.1.1a summarizes the total federal acres used in the PILT calculations for each of the BTNF counties. The total for the four-county area was 10.2 million acres.

Since PILT payments are based on all federally managed lands and because all counties in the region have significant amounts of other federal lands, including other National Forests, Bureau of Land Management (BLM), and National Park Service (NPS) lands, only a portion of the area's PILT payment are associated with the BTNF. To estimate the percentage of PILT payments from BTNF lands, the acres of BTNF land in each county (the third row of Table 3.1.1a) were divided by the total federal lands in each county (the second row of Table 3.1.1a) to determine the percent of PILT payments associated with the BTNF. For the four-county area the BTNF represented nearly 32 percent of the total PILT acres. However the percentage ranges from almost 48 percent in Sublette County to only slightly more than four percent in Fremont County.

Based on the percentage of total PILT acres it is estimated that the BTNF accounted for nearly $971,000 of the total PILT payments for the four-county area. Of this total more than $350,000 went to Teton County. Following Teton County was Lincoln County with more than $325,000, Sublette with more than $229,000, and Fremont with more than $65,000. Despite having more acres of BTNF than any of the other counties, Sublette share of the BTNF PILT payments was lower than Teton and Lincoln because there is a population cap on PILT payments which limits the per capita PILT payments to Sublette County.

In addition to PILT payments, counties with forest lands within their borders also share revenue from the forest. Originally, 25 percent of the annual revenue to the forest was divided up among the counties with forest lands, based on the number of acres of forest land in each county. These payments came to be called "25 percent" payments. Payments were paid as a lump sum to the state and the state distributed these monies back to the counties. State statutes mandated that at least 5 percent of these payments be used for education and roads.

The Secure Rural Schools and Self Determination Act of 2000 (SRS) changed the process. When the act was signed into law, counties had to choose whether to follow Title I or Title II. Instead of receiving the actual 25 percent of forest revenues, Title I gave counties a fixed payment based on a historical average of their three highest "25 percent" payments. Counties that opted to follow Title II of the law continued to receive their 25 percent payments but had to create a

Resource Advisory Committee (RAC) to develop projects to use the monies. In the face of declining timber harvests, all but one county in Wyoming (Crook) decided to accept the fixed payment scheme (Title I). The sixth line of Table 3.1.1a lists these SRS payments from the BTNF. The total SRS payment for the four-county area is more than $596,000. Of this total, Teton received the largest share ($234,215) while Fremont received the smallest share ($17,015).

The combined total of BTNF PILT and BTNF SRS payments to the four-county area was nearly $1.6 million (line 7 in Table 3.1.1e). Teton County received the largest share ($584,912) while Fremont received the smallest share ($84,490). The combined PILT and SRS payments from the BTNF represented 1.6 percent of the total county revenues for the four-county area (line 9 in Table 3.1.1e), ranging from a high of 3.8 percent in Lincoln County to a low of 0.4 percent in Fremont County.

The Secure Rural Schools Self Determination Act of 2000 authorization ended 30 September, 2006. The last payments were made in December of 2006. President Bush signed the Iraq Accountability Act of 2007 (P.L. 110-28) on 27 May, 2007, which funded the SRS through 2007. Additional appropriations were attached to the 2008 Energy bill, but were excluded in from the bill before final passage in December 2007. As of this writing (February, 2008) future funding is uncertain. More information can be found at the USFS 'Payments to States' website: http://wwwnotes.fs.fed.us:81/r4/payments_to_states.nsf .

Table 3.1.1e. PILT and SRS payments to Bridger-Teton NF counties, 2005.

Type	Fremont	Lincoln	Sublette	Teton	Area
Total PILT	$1,546,803	$757,883	$481,089	$841,471	$3,627,246
Total Acres	3,193,351	1,947,047	2,431,287	2,631,661	10,203,346
BTNF Acres	135,172	835,564	1,159,678	1,096,787	3,227,201
Percent BTNF	4.2%	42.9%	47.7%	41.7%	31.6%
BTNF PILT	$65,475	$325,241	$229,470	$350,697	$970,883
SRS Payment	$17,015	$148,650	$196,255	$234,215	$596,135
Total BTNF Payments	$82,490	$473,891	$425,725	$584,912	$1,567,018
Total County Revenue	$21,373,785	$12,362,340	$32,886,819	$31,804,791	$98,427,735
Percent BTNF	0.4%	3.8%	1.3%	1.8%	1.6%

Source: USFS, BTNF and BLM PILT website

3.1.2 Utilities and transportation corridors

Utility and transportation corridors are important to citizens and the economy of Wyoming. As an energy producing state, moving energy to national markets and to resident consumers is important to maintaining the state's economy. Transportation and utility corridors are the avenues for energy movement. Western Wyoming is home to several significant gas developments, such as the Jonah and Pinedale Anticline fields in Sublette County. The Bridger-Teton National Forest surrounds these fields on three sides and thus creates the potential for significant impact on the forest. Currently, that has not happened as almost all of the pipelines and power lines leave the area to the south.

The Wyoming Pipeline Authority (WPA) was contacted for information on energy corridors. The WPA provided the map shown in Figure 3.1.1a. As seen in the map, all of the gas pipelines leaving the major production areas go south with one exception, Lower Valley Energy's proposed 50 mile, 6 inch gas line that will connect Merna with Jackson, Wyoming for residential gas service. An EIS is currently in review for this project with completion scheduled for fall, 2008. The total estimated project cost is between $12 and $13 million.

Federal Energy corridors have been proposed to pass through Wyoming. These corridors would be areas where future development of pipelines and power lines would be congregated. The NEPA process for these corridors is being coordinated by the Bureau of Land Management. Contact with the Governor's Planning office indicates that the Bridger-Teton National Forest will not be affected by the energy corridors as they will pass to the south of the forest.

The Wyoming Department of Transportation was also contacted in regard to transportation corridors that may affect the forest plan. There are currently no new roads (corridors) planned through the Bridger-Teton National Forest. However, ongoing maintenance and rehabilitation will likely occur in several locations during the life of this plan revision. This includes:

- Rehabilitation of US 191 from Hoback junction north to where it becomes five lanes which is in the planning stage.
- Reconstruction of Wyoming 22 to Wilson is envisioned in four or five years.
- In about 10 years, there is the potential to reconstruct the whole length of Wyoming 390.

Construction is currently underway on the rehabilitation of US 26/287 from Dubois over Togwotee Pass to Moran junction. Some of this road passes through the BTNF and may be subject to re-alignment.

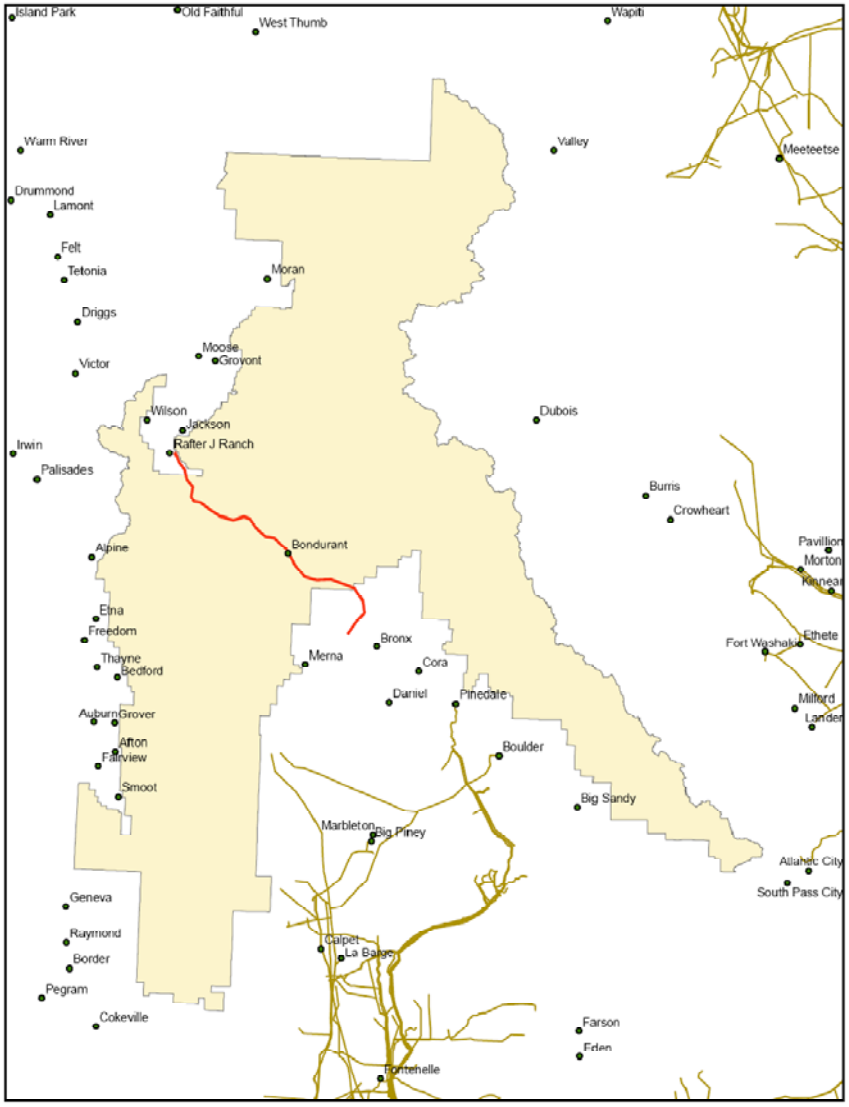
Other miscellaneous communication and infrastructure sites include the following:

- Communication sites: There are currently 25 permitted leases on the BTNF.
- Telephone and Telegraph lines: There are a total of 33 permitted leases on the BTNF, with a total length of 136.8 miles.
- Power lines: There are nine permits on the BTNF. Total length is unknown.
- Natural gas pipeline: There is one permit on the BTNF. Total length is unknown.
- Hydro-generation permits: There are three permits on the BTNF.
- Miscellaneous sites:
    - Mineral material sites: Three permits.
    - Stock pile sites: Three permits.

- Solid waste disposal sites: Two permits.
- Sewage transmission sites: Two permits.
- Service building: One permit (Sublette County Fire Department).
- Parking lots: Two permits.

Source: USDA- Forest Service, Special Use Data Base, SUDS

Figure 3.1.1a. Pipelines in the vicinity of the BTNF



Source: Wyoming Pipeline Authority

3.2 Resource commodities

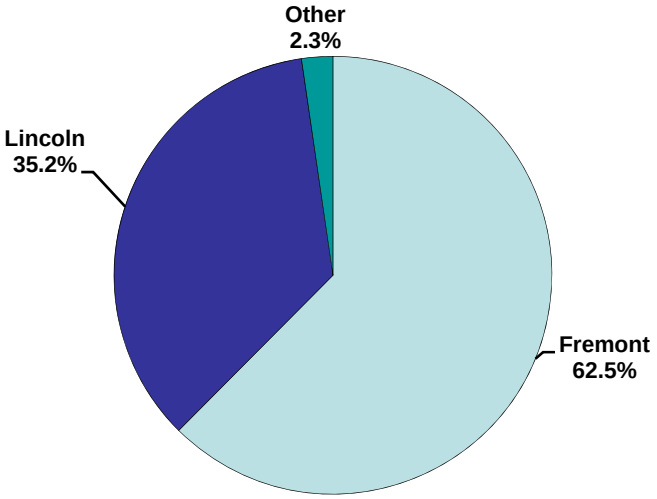
3.2.1 Wood products

Timber harvest

The Bureau of Business Research at the University of Montana maintains a database on timber production in the Intermountain West. Information from this database indicates that a total of 2.8

million board feet (MMBF) was commercially harvested in the Bridger-Teton National Forest Counties in 2005. Of this total, 1.8 MMBF was harvested in Fremont County (62.5%). Following Fremont County was Lincoln County with approximately 1.0 MMBF (35.2%), Teton with 42,000 board feet (1.5%), and Sublette with 23,000 board feet (0.8%) (Figure 3.2.1a). Approximately 40 percent of this production was from National Forests, although not exclusively from the BTNF. The remainder came from private, state, or BLM lands. Forest Service timber represented a majority of the harvest in Fremont and Teton Counties (59.0% and 64.3%) but was only a small portion of the harvest in Lincoln and Sublette (12.1% and 13.0%). Total timber harvest in the four-county area represented slightly more than 4 percent of the total harvest in the state.

Figure 3.2.1a. Timber harvest for Bridger-Teton NF counties, 2005.



Total = 2,823 MBF *Source: Keegan*

Wood product facilities

Table 3.2.1a. Number of wood product facilities in Bridger-Teton NF counties, 2005.

Type	Fremont	Lincoln	Sublette	Teton	Area
Sawmill	4	1	1	0	6
Post & Pole	0	0	1	0	1
House Logs	2	1	2	0	5
Log Furniture	0	0	1	2	3
Other	0	0	0	0	0
Total	**6**	**2**	**5**	**2**	**15**

Source: Keegan

The University of Montana database also contains information on the number of wood product facilities in the Bridger-Teton National Forest counties. Information from the database indicates that there were a total of 15 wood products facilities in the four-county area in 2005 (Table 3.2.1a). Given the small amount of timber harvested in the area (2.8 MMBF in 2005) all these facilities tend to be smaller operations.

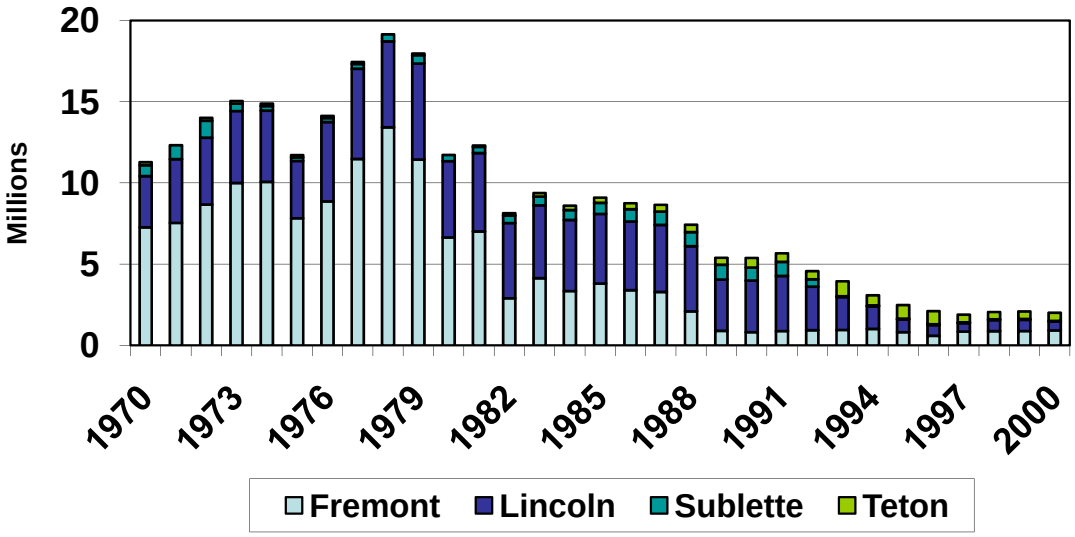
Of the 15 operations, 6 were sawmills, 5 were house log operations, 3 were log furniture operations, and 1 was a post and pole operation. This total does not include any logging businesses that may be located in the area.

Among the individual counties, Fremont County had the largest number of wood products with six facilities, including four sawmills and two house log operations. Following Fremont County was Sublette County with five facilities including one sawmill, one post and pole operation, two house log operations, and one log furniture operation. Lincoln County and Teton County both had two facilities. In Lincoln County there was one sawmill and one house log operation. In Teton County there were two log furniture operations.

Labor earnings

Figure 3.2.1b illustrates the decline in the lumber and wood products sector for the Bridger-Teton National Forest counties. After generally increasing between 1970 and 1978, the labor earnings for the lumber and wood products industry in the area peaked at $19.1 million in 1978. After 1978, labor earnings from the lumber and wood products industry declined steadily to just $2.0 million in 2000. Since the Federal government switch from the Standard Industrial Classification Code to the North American Industrial Classification Code in 2001, information specifically for the lumber and wood products industry is not available.

Figure 3.2.1b. Lumber and wood products labor earnings for Bridger-Teton NF counties.



(Inflation adjusted, 2000) *Source: Morgan et al, 2006*

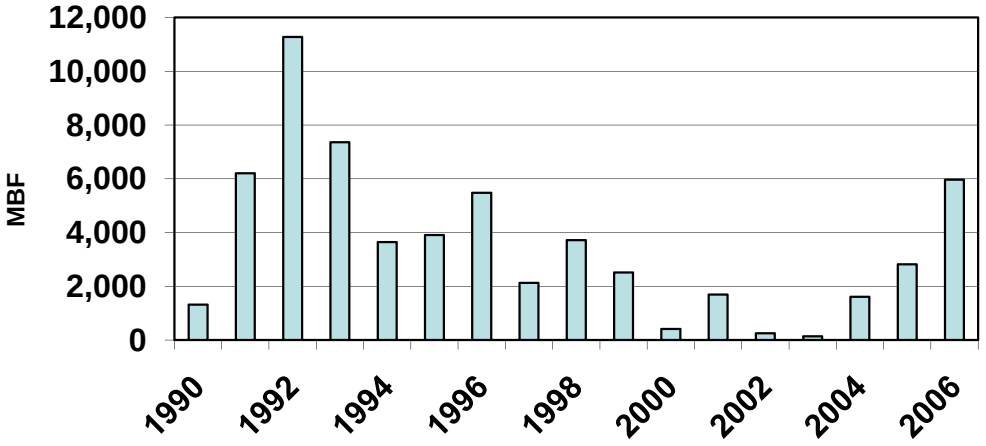
Much of the decline in labor earnings was experienced in Fremont and Lincoln Counties, who both had major sawmills close since 1970. In Fremont County labor earnings from the lumber and wood products industry peaked at $13.4 million in 1978 and had declined to $924,000 in 2000. In Lincoln County labor earnings from the lumber and wood products peaked at $5.6 million in 1977 and had declined to $542,000 in 2000.

Sublette and Teton Counties also experienced declines in the lumber and wood products industry, although they were less severe than in Fremont County and Lincoln County. In Sublette County labor earnings peaked at $1.0 million in 1972 and had declined to $50,000 in 2000. In Teton County labor earnings peaked at $916,000 in 1993 and had declined to $495,000 in 2000.

Sawtimber

Figure 3.2.1c illustrates the sawtimber sales for the Bridger-Teton National Forest between 1990 and 2006. The 1990 Forest Plan ASQ (Allowable Sale Quantity) called for annual production of 12 MMBF per year. The ASQ is the amount of timber that *may be sold*, not shall be sold. 1992 was the only year that approached the 12 MMBF level (11.3 MMBF). The BTNF ASQ was never fully funded and other resource issues, such as the Canada lynx, other threatened and endangered species, roadless areas and recreation issues, conflicted with and reduced timber production goals. Litigation of projects also prevented and delayed some projects, reducing the viability of timber production from the forest.

Figure 3.2.1c. Sawtimber sales for the Bridger-Teton NF, 1990-2006.



Source: BTNF

After peaking in 1992, timber sales declined to 135 thousand board feet (MBF) in 2003. Since 2003 timber sales have been increasing to nearly 6.0 MMBF in 2006. Although it fluctuated substantially, average sawtimber sales for the four-county area averaged 3.5 MMBF between 1990 and 2006. Increasing sales in 2006 were due to alternative management practices which emphasized reducing natural fuels in the wildlands-urban interface. The Healthy Forests Initiative included authority to use Categorical Exclusions (CE-10). Nine projects that resulted in timber sale projects were approved under CE-10 between 2004 and 2006. Projects were also approved that responded to the forest-wide mountain pine beetle epidemic.

It should be noted that this information represents sales rather than harvest. Although a timber sale occurs in a specific year, the actual harvest may or may not occur in that year, depending on a number of factors.

Timber Production on the Bridger-Teton National Forest

The Bridger-Teton National Forest produces a number of forest products including sawtimber, posts, poles, firewood, Christmas trees, transplants, flower seeds, and boughs. Discussion with the timber staff for the Bridger-Teton NF indicates that most of these products, except for sawtimber, are harvested either exclusively or predominately for personal use. Because it is the primary commercial use of forest products on the BTNF, only sawtimber was considered in the economic impact analysis for timber.

Because there is no major timber processor in the four-county region the majority of sawtimber harvested on the BTNF is exported outside the area for processing. Discussion with the timber staff for the BTNF indicate that perhaps 80 percent of the timber harvest goes to firms outside the region. The other 20 percent goes to locally based firms, although in some cases this volume

may also be processed outside the region. Since the exact flow of all timber production in the region is unclear, two scenarios were considered in the economic impact analysis. In one scenario it was assumed that all timber production on the BTNF is logged by local firms and then exported for processing. In the second scenario it was assumed that only the 20 percent of timber production from the BTNF that went to local firms was logged by local firms with the rest being done by loggers from outside the four-county area. In both cases, it was assumed that processing occurs outside the area. It is thought that these two scenarios provide a range of impacts within which the actual impact of timber production on the BTNF falls. The results of this analysis are presented in Table 3.2.1b.

The second column of Table 3.2.1b summarizes the economic impact per MMBF of logging. The University of Montana database estimates that the average direct employment per MMBF is 5.9 jobs. The four-county IMPLAN model indicates that logging generates more than 1.1 secondary jobs per every direct job in logging. This represents an employment multiplier for logging of 2.155. Applying this multiplier to the 5.9 direct job results in an estimated 6.8 secondary jobs for total employment of 12.7 jobs per MMBF of timber harvested in the region.

The U.S. Department of Commerce estimates that in 2004 forestry and logging jobs in Wyoming on average paid $27,981 per job. This represents a total of $165,088 per MMBF of timber harvested. The four-county IMPLAN model indicates that logging generates more than $0.90 of secondary labor earnings per $1.00 of direct labor earnings in logging. This represents an earnings multiplier for logging of 1.915. Applying this multiplier to the $165,088 of direct earnings results in estimated total earnings of $316,143 per MMBF of timber harvested in the region. The average earnings per job for the total employment resulting from the harvest of one MMBF of timber are estimated to be $24,865.

The third column of Table 3.2.1b summarizes the economic impact of timber harvest from the BTNF if all the logging is done by local firms. Under this scenario if all the approximately 6.0 MMBF of timber sold by the Forest in 2006 was harvested in the same year it would generate an estimated 35.4 direct jobs in the logging sector. This economic activity would also generate estimated secondary employment of 40.9 jobs for total employment of 76.3 jobs. This employment would support more than $990,000 of direct labor earnings and more than $906,000 of secondary labor earnings for a total of $1.9 million of labor earnings in the region.

The fourth column of Table 3.2.1b summarizes the economic impact of timber harvest from the BTNF if only 20 percent of the timber production from the BTNF was logged by local firms. Under this scenario only 1.2 MMBF are harvested by local loggers, generating an estimated 7.1 direct jobs plus 8.2 secondary jobs for a total of 15.3 jobs in the region. This employment would support more than $198,000 of direct labor earnings and $181,000 of secondary labor earnings for a total of more than $379,000 of labor earnings in the region.

Regardless of which scenario is considered it is obvious that timber production from the BTNF is not currently a major source of employment in the region.

Table 3.2.1b. Bridger-Teton NF timber impacts, 2006

	Per Unit	Total Harvest	Local Harvest
Timber Volume (MMBF)	1	6.0	1.2
Direct Employment (1)	5.9	35.4	7.1
Multiplier (2)	2.155	2.155	2.155
Total Employment	12.7	76.3	15.3
AEPJ - Direct (3)	$27,981	$27,981	$27,981
Direct Earnings	$165,088	$990,527	$198,105
Multiplier (2)	1.915	1.915	1.915
Total Earnings	$316,143	$1,896,860	$379,372
Average Earnings Per Job	$24,865	$24,865	$24,865

Sources: *(1) University of Montana*
(2) IMPLAN Model of four-county area
(3) U.S. Department of Commerce

3.2.2 Non-timber forest products

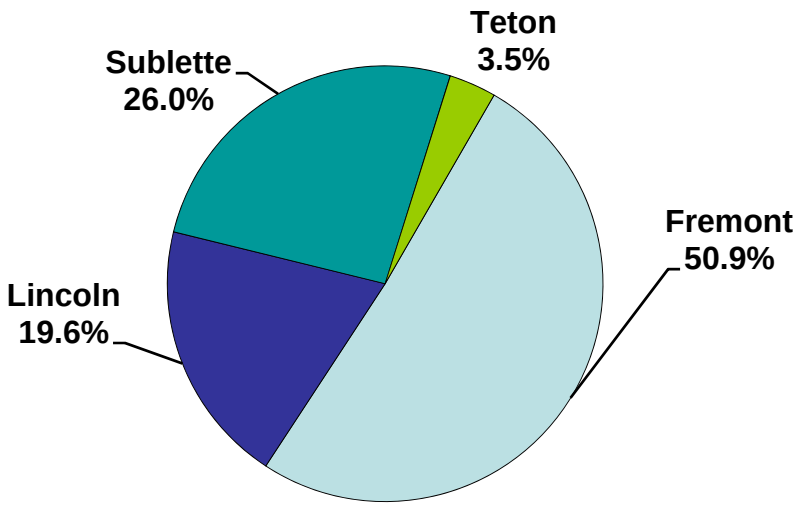
The Bridger-Teton NF produces a number of non-timber forest products, including transplants, wildflower seeds, and boughs. However, discussions with timber staff on the forest indicate that none of these products have a substantial commercial use component. Rather the majority of the production for most of these products is for personal use. Because of this the economic impact of this non-timber forest products was not considered in the analysis.

3.2.3 Permitted livestock grazing

Gross Revenue

Data from the U.S. Department of Commerce's Bureau of Economic Analysis indicates that the gross revenue for agricultural operations in the Bridger-Teton NF counties was $153.4 million in 2004 (the latest year currently available). Of this total $121.2 million was from livestock (79.0%), $19.1 million was from crops (12.5%) and $13.1 million (8.6%) was from other sources. Other sources include government payments, value of home consumption, machine hire/custom work income, rental income, and income from forest products.

Figure 3.2.3a. Gross revenue of agriculture in Bridger-Teton NF counties, 2004



Total = $153.4 million *Source: Bureau of Economic Analysis*

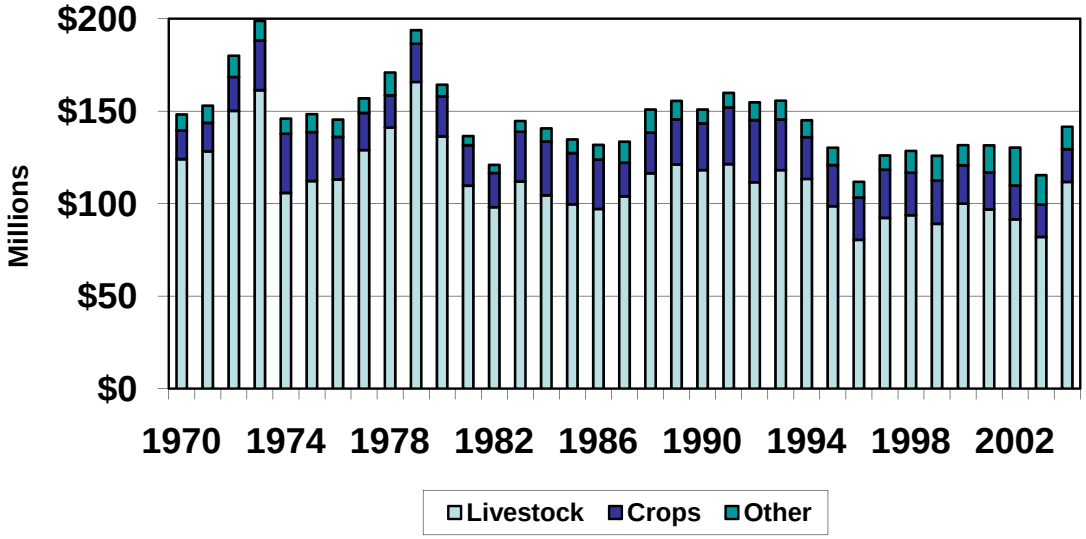
Fremont County had the largest gross revenue from agriculture with $78.1 million (50.9%) in 2006 (Figure 3.2.3a). Following Fremont was Sublette with $39.9 million (26.0%), Lincoln with $30.0 million (19.6%) and Teton with $5.4 million (3.5%).

Livestock was the largest source of agricultural revenue for all counties ranging from 70 percent in Teton County to 92 percent in Sublette County. Livestock represented 72 percent of gross revenue for agriculture in Fremont County and 82 percent in Lincoln County.

Trends in Gross Revenue

Between 1970 and 2004 the gross revenue from agriculture for the Bridger-Teton NF counties averaged $145.6 million. However, there was substantial variability during the time period ranging from a low of $111.9 million in 1996 to a high of $198.8 million in 1973. In 1970 the gross revenue from agriculture in the Bridger-Teton NF counties was $148.2 million. In 2004 gross revenue from agriculture was nearly the same at $141.6 million in inflation adjusted dollars (Figure 3.2.3b).

Figure 3.2.3b. Trends in gross revenue of agriculture for Bridger-Teton NF counties, 1970-2004.

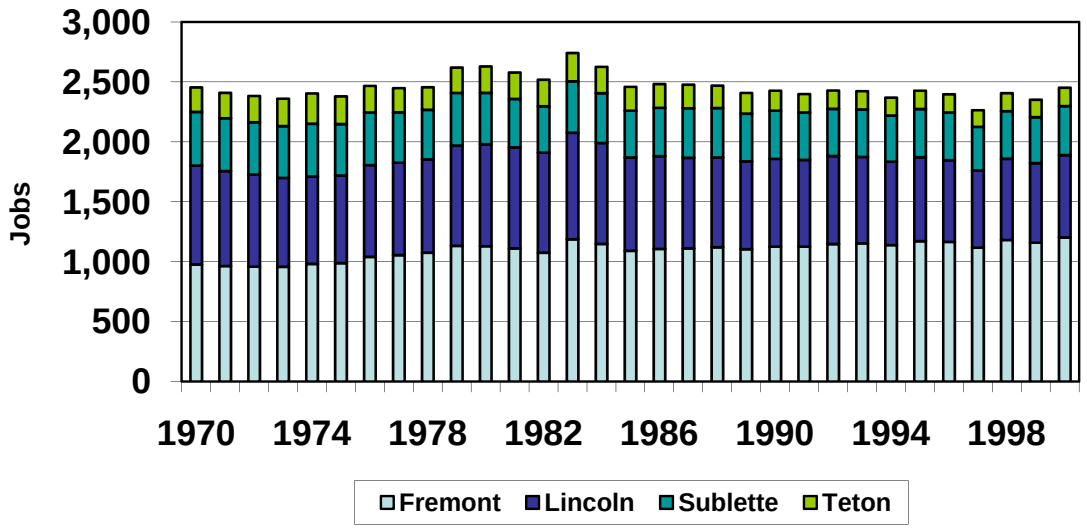


(Inflation adjusted, 2000=100) *Source: Bureau of Economic Analysis*

Livestock was the major source of gross revenue from agriculture in the region averaging 77 percent between 1970 and 2004. Livestock ranged from a low of 70 percent of gross revenue in 2002 to a high of 86 percent of gross revenue in 1979.

Crops averaged 16 percent of gross revenue from agriculture between 1970 and 2004 ranging from a low of 10 percent in 1971 to a high of 22 percent in 1974. Other income averaged 7 percent between 1970 and 2004 ranging from a low of 4 percent in 1982 to a high of 16 percent in 2002.

Figure 3.2.3c. Trends in agricultural employment for Bridger-Teton NF counties, 1970-2000.



Source: Bureau of Economic Analysis

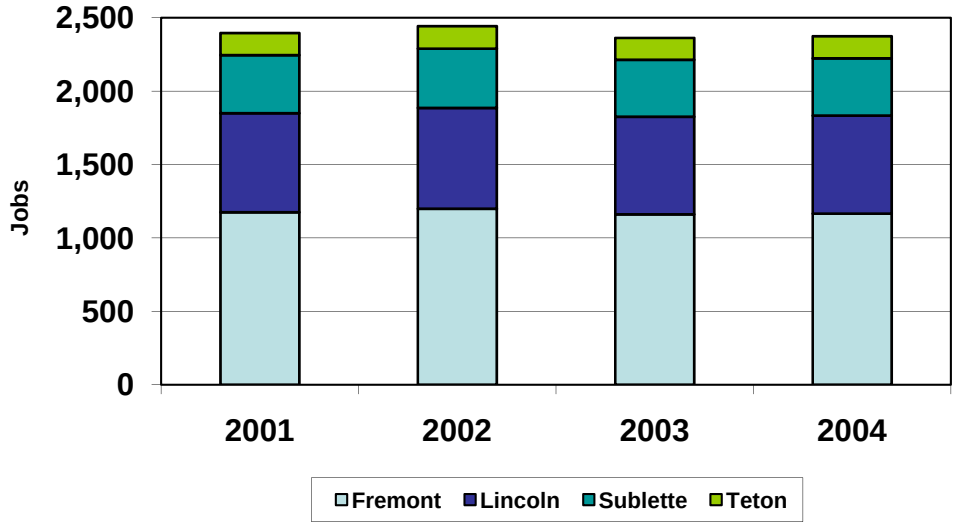
Trends in Agricultural Employment 1970-2000

Despite the fluctuations in gross revenues, agricultural employment in the Bridger-Teton NF counties was fairly stable between 1970 and 2004. In 1970 there were 2,455 agricultural jobs in the region. In 2000 that number had declined by 2 to 2,453 jobs. Agricultural employment ranged from a low of 2,265 jobs in 1997 to a high of 2,742 in 1983 (Figure 3.2.3c).

There were, however, some changes in agricultural employment by county. For example, agricultural employment in Fremont County increased by 226 jobs (+23.1%) between 1970 and 2000. Teton County, on the other hand, saw agricultural employment decline by 50 jobs (-24.5%). Lincoln County also had a loss in agricultural employment of 139 jobs (-16.8%), declining steadily since 1983. Sublette County also had a slight decline with agricultural employment declining by 39 jobs (-8.7%).

Trends in agricultural employment 2001-2004

Figure 3.2.3d. Trends in agricultural employment for Bridger-Teton NF counties, 2001-2004.



Source: Bureau of Economic Analysis

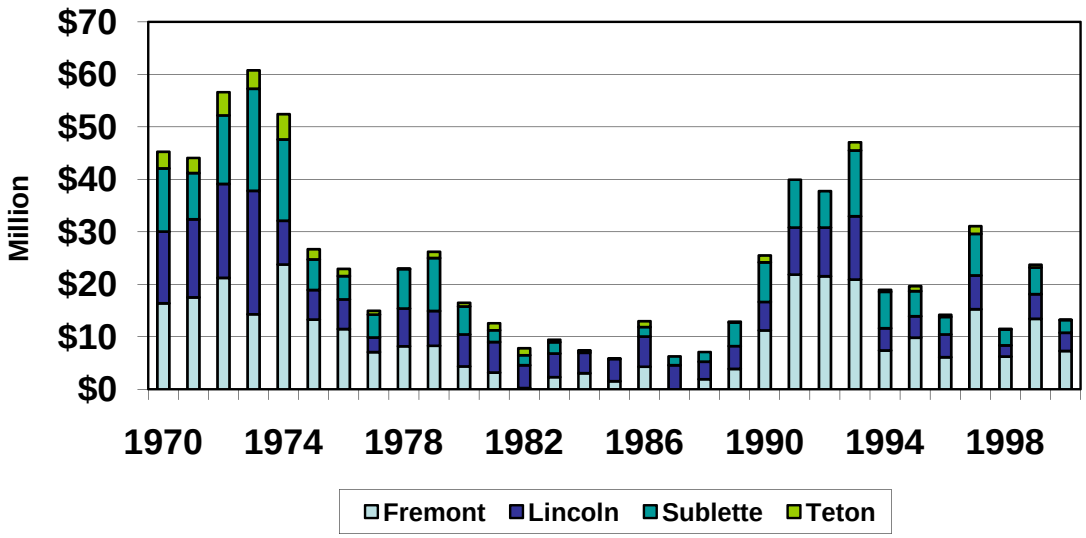
In 2001 the Federal government changed the classification system they use to report employment from the Standard Industrial Classification (SIC) code to the North American Industrial Classification (NAIC) code. Since individual firms may not have the same code under the two classifications systems it is not possible to compare employment and earnings estimates from 2001 through 2004 with those from previous years.

In 2004, agricultural employment in the Bridger-Teton NF counties totaled 2,374 jobs. Of this total 1,166 were in Fremont County (49.1%). Following Fremont County was Lincoln with 668 agricultural jobs (28.1%), Sublette with 390 agricultural jobs (16.4%), and Teton with 150 agricultural jobs (6.3%).

Despite the recent drought and other pressures on agriculture in the region, agricultural employment in the Bridger-Teton NF counties remained fairly steady between 2001 and 2004 (Figure 3.2.3d). Overall, the four-county area saw a decline of 22 agricultural jobs during the time period (-0.9%). Among individual counties, Fremont experienced a decline of 9 agricultural jobs (-0.8%). Among the other counties, Lincoln experienced a decline of 7 jobs (-1.0%), Sublette experienced a decline of 6 jobs (-1.5%) and Teton saw no decline in agricultural employment.

Trends in agricultural earnings 1970-2000

Figure 3.2.3e. Trends in agricultural earnings for Bridger-Teton NF counties, 1970-2000.



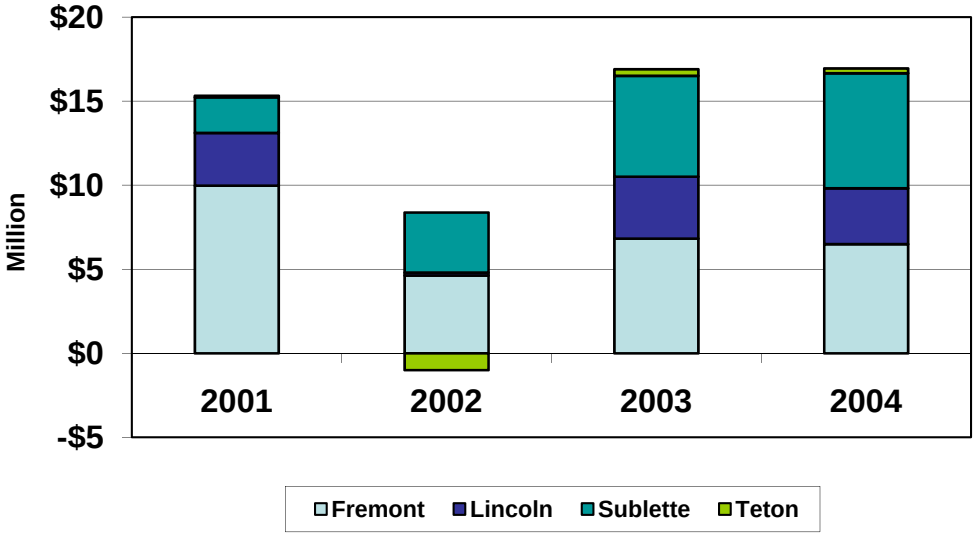
(Inflation adjusted, 2000=100) *Source: Bureau of Economic Analysis*

In contrast to the relative stability of agricultural employment between 1970 and 2000, agricultural earnings for the Bridger-Teton NF counties varied substantially during the time period. Figure 3.2.3e shows this variability ranged from a high of $60.8 million in 1973 to a low of $5.2 million in 1987. Given the region's dependency on livestock production much of the fluctuations in agricultural earnings were probably due to price variability associated with the cattle cycle and in recent years production variability associated with weather conditions, particularly drought.

For Fremont County the variability in agricultural earnings between 1970 and 2000 ranged from a high of $23.8 million in 1974 to a low of -$615,000 in 1987. For Lincoln County the variability in agricultural earnings between 1970 and 2000 ranged from a high of $23.5 million in 1973 to a low of $2.1 million in 1998. For Sublette County the variability in agricultural earnings between 1970 and 2000 ranged from a high of $19.5 million in 1973 to a low of $75,000 in 1985. For Teton County the variability in agricultural earnings between 1970 and 2000 ranged from a high of $4.8 million in 1974 to a low of -$746,000 in 1992. In five of the years between 1970 and 2000 (1985, 1987, 1988, 1991, and 1992) agricultural earnings in Teton County were negative. In addition agricultural earnings in Teton County have not been above $2 million since 1975, reflecting a continued shift in the Teton County economy away from agriculture and toward a recreation and lifestyle based economy.

Trends in agricultural earnings 2001-2004

Figure 3.2.3f. Trends in agricultural earnings for Bridger-Teton NF counties, 2001-2004.



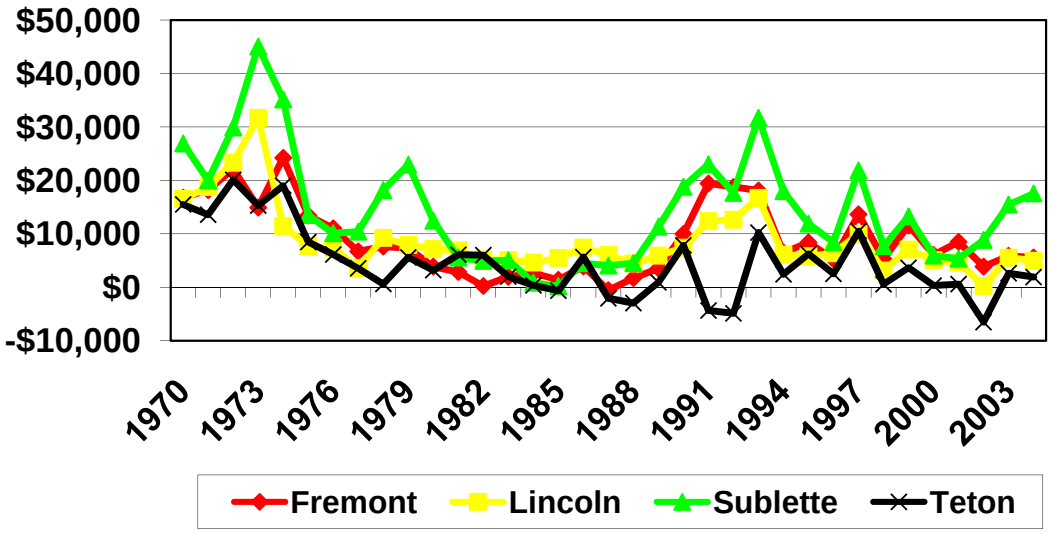
(Inflation Adjusted, 2000=100) *Source: Bureau of Economic Analysis*

In 2004, agricultural earnings in the Bridger-Teton NF counties totaled $18.4 million. Of this total $7.4 million was in Sublette County (40.4%). Following Sublette County was Fremont County with $7.0 million in agricultural earnings (38.3%), Lincoln County with $3.6 million (19.6%), and Teton County with $311,000 in agricultural earnings (1.7%).

After declining by over 50 percent between 2001 and 2002 (-51.8%), agricultural earnings in the four-county region rebounded in 2004 with an 11 percent increase above 2001 levels ($15.3 million to $16.9 million). However, this pattern varied by county (Figure 3.2.3f). For Fremont County agricultural earnings in 2004 were 35 percent less than in 2001 ($10.0 million to $6.5 million). On the other hand, agricultural earnings in Sublette County more than tripled from a very low level between 2001 and 2004 ($2.1 million to $6.8 million). For Lincoln County agricultural earnings increased by 6 percent between 2001 and 2004 ($3.1 million to $3.3 million). Agricultural earnings in Teton County also more than tripled between 2001 and 2004, ($87,000 to $287,000). These differences may relate to relative levels of drought within individual counties during the time period and the associated affects on livestock production.

Average earnings per job

Figure 3.2.3g. Average earnings per job for agricultural industry in Bridger-Teton NF counties.



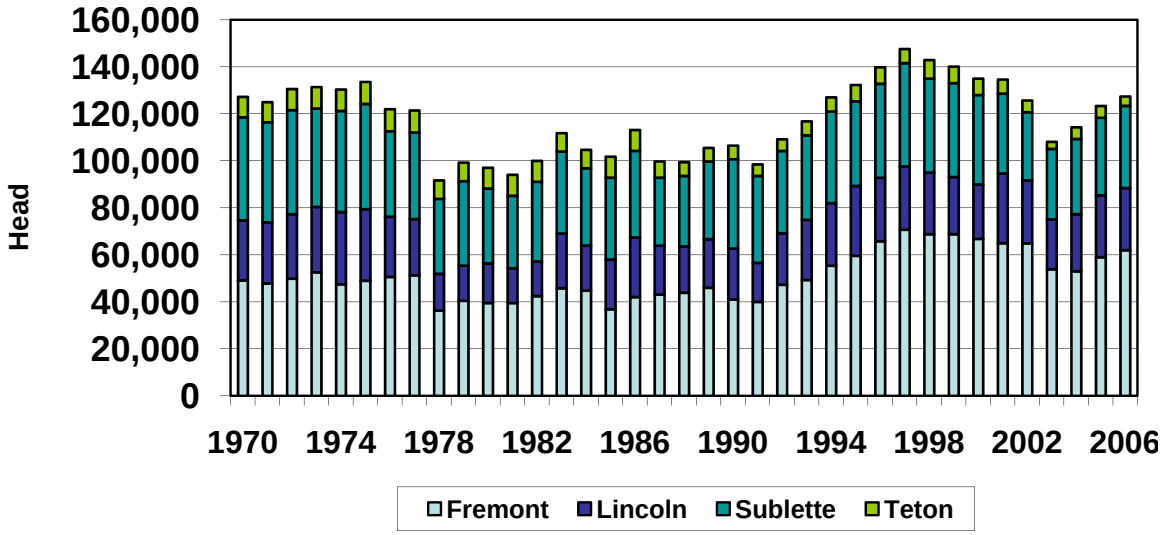
(Inflation adjusted, 2000=100) *Source: Bureau of Economic Analysis*

Average earnings per job for agriculture in the Bridger-Teton NF counties tended to be variable, similar to total earnings. This is not surprising since average earnings are based on total earnings and employment which has been fairly steady in the region. Between 1970 and 2004, average earnings per job for agriculture ranged from a high of $25,749 in 1973 to a low of $2,115 in 1987 (Figure 3.2.3g). This is a reflection of the fluctuations in profitability for agricultural production.

Among individual counties, average earnings per job for agriculture in Fremont County ranged from a high of $24,220 in 1974 to a low of -$533 in 1987. For the other counties, average earnings per job for agriculture in Lincoln County ranged from a high of $31,707 in 1973 to a low of $254 in 2002, for Sublette County the range was from a high of $45,056 in 1973 to a low of $191 in 1985, and for Teton County the range was from a high $20,108 in 1972 to a low of -$6,527 in 2002. When viewing average earnings per job for agriculture it is important to remember that the figures include a large number of small part-time operators who receive very little income from agriculture but are still counted as employed in agriculture.

Beef cow inventory

Figure 3.2.3h. Beef cow inventory for Bridger-Teton NF counties, 1970-2006.



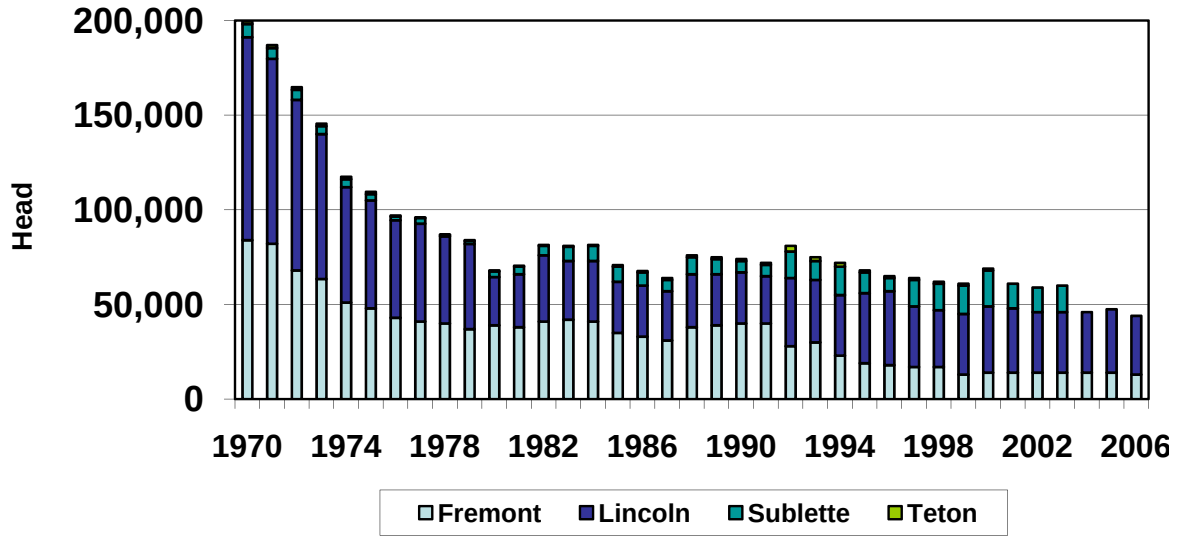
Source: Wyoming Agricultural Statistics, 2006

Between 1970 and 2006 the beef cow inventory for the Bridger-Teton NF counties has averaged nearly 120,000 head (118,077). During this time period the beef cow inventory for the region has ranged from a low of 91,700 head in 1978 to a high of 147,600 head in 1997. In 1970 the beef cow inventory was 127,210 head. In 2006 the beef cow inventory was only slightly higher at 127,400 head (Figure 3.2.3h).

There have, however, been some substantial changes in beef cow inventories by county between 1970 and 2006. For example, the beef cow inventory in Fremont County has increased by 12,850 head from 1970 to 2006 (+26.1%). Teton County, on the other hand, saw its beef cow inventory decline by 4,700 head during the time period (-54.0%). Lincoln County also had an increase in its beef cow inventory of 900 head between 1970 and 2006 (+3.5%). Sublette County experienced a reduction of 15,000 head in its beef cow inventory between 1997 and 2002 (-34.1%). Although, beef cow numbers in Sublette County have been increasing since 2002, in 2006 they were still 20 percent below 1970 levels. Brand inspection records also confirm the decline in cattle numbers in Sublette County through 2002.

Breeding sheep inventory

Figure 3.2.3i. Breeding sheep inventory for Bridger-Teton NF counties, 1970-2006.



Source: Wyoming Agricultural Statistics, 2006

In contrast to beef cattle, the sheep inventory in the Bridger-Teton NF counties has declined substantially from 1970 to 2006. Figure 3.2.3i shows that in 1970 the total breeding sheep inventory in the four-county area was nearly 200,000 head. However, by 2006 that number had fallen to only 44,000 head. This represents a decline of 155,700 head in the region (-78.0%).

The majority of this decline occurred in Lincoln and Fremont Counties where the number of sheep declined by 76,200 and 71,000 head respectively. In Lincoln County the breeding sheep inventory went from 107,200 head in 1970 to 31,000 head in 2006 (-71.1%). For Fremont County the breeding sheep inventory declined from 84,000 head to 13,000 head (-84.5%). In 1970 the Wyoming Agricultural Statistics Service reported 7,000 head of sheep in Sublette County and 1,500 head of sheep in Teton County. In 2006, they reported no breeding sheep in either county.

Livestock Grazing on the BTNF

Information from the Bridger-Teton National Forest (BTNF) indicates that are currently 122 cattle permits and 12 sheep permits for grazing on the forest (Table 3.2.3b). Of the cattle permits, 40 are on the Pinedale Ranger District, 38 are on the Grey's River Ranger District, 21 are on the Big Piney Ranger District, 16 are on the Jackson/Black Rock Ranger District, and 7 are on the Kemmerer Ranger District. Of the sheep permits, 5 are on the Kemmerer Ranger District, 5 are on the Grey's River Ranger District (excluding two permittees who are also on the Kemmerer

Ranger District), and 2 are on the Pinedale Ranger District. There currently are no sheep grazing permits on the Big Piney and Jackson/Black Rock Ranger District (Table 3.2.3b).

The grazing permits for the BTNF currently support 39,042 head of cattle and 51,370 head of sheep. For cattle, 55 percent are on the Pinedale Ranger District, with 31 percent on the Big Piney Ranger District, 6 percent on the Grey's River Ranger District, 6 percent on the Jackson/Black Rock Ranger District, and 2 percent on the Kemmerer Ranger District. For sheep, 42 percent are on the Grey's Rivers Ranger District, 42 percent are on the Kemmerer Ranger District, and 16 percent are on the Pinedale Ranger District.

The grazing permits for the BTNF currently represent 190,014 AUMS of livestock grazing. Cattle grazing represent 145,043 of these AUMS (76.3%) and sheep grazing represent 44,971 AUMS (23.7%). Of the total AUMS of livestock grazing, 42 percent are on the Pinedale Ranger District, 24 percent are on the Big Piney Ranger District, 15 percent are on the Grey's River Ranger District, 14 percent are on the Kemmerer Ranger District, and 5 percent are on the Jackson/Black Rock Ranger District.

Ranching operations with grazing permits account for 1.7 million acres of agricultural land in the region. This represents nearly 82 percent of the total agricultural land in the four-county area. Forest Service grazing permits represent more than 30 percent of these grazing permits. The Forest Service and the BLM combined represent the majority of grazing permits in the region. The Forest Service grazing permits probably include some grazing on other Forests in addition to the BTNF.

Information from the BTNF on grazing permits in 1987 and 2006 is presented in Table 3.2.3a. The number of head of cattle has changed only slightly over the time period, declining by 908 head or two percent. The number of sheep, however, declined by 26,630 or 34 percent. This is consistent with the general decline in sheep numbers across the state. The Forest Service estimates that season-of-use has not changed substantially since 1987. The number of grazing allotments has decreased since 1987, but this is a mixed indicator since some of the allotments were combined to increase flexibility in grazing management and some have been closed to grazing. The number of grazing permits in 1987 is not known, so it could not be compared to 2006.

Since 2003, 24,270 AUMs from sheep allotments and 7,357 AUMs from cattle allotments on the BTNF have been waived back to the Forest Service without any preference. Within allotments on the waived permits, approximately 55 percent of the acres are now closed to future grazing and 45 percent of the acres are in forage reserve allotments that have not yet been grazed. These changes represent six permits, approximately 17,235 head of sheep and 1,533 head of cattle and 380,679 acres.

Table 3.2.3a. Number of sheep and cattle grazing on BTNF, 1987 and 2006.

	Cattle (head)	**Sheep (head)**
1987	40,000	78,000
2006	39,092	51,370

Ranch Simulation Model

Although most ranches are typically only partially dependent on federal land grazing for forage, this forage source is a critical part of their livestock operation. Greer (1994) and Taylor et al (1992) both found that while the reliance of ranchers on forage from federal land grazing can appear relatively unimportant when calculated on an acreage or AUM basis, they become quite important when calculated on a seasonal dependency basis. The rigidity of seasonal forage availability means that the optimal use of other forages and resources are impacted when federal AUMs are not available, Torell et al (2002). Bartlett (1983), Gee (1983), Hahn et al (1989), Bartlett et al (1979), Gee (1981), Perryman and Olson (1975), Rowe and Bartlett (2001), Torell et al (1981), and Van Tassell and Richardson (1998) have all found that potential reductions in income and net ranch returns are greater than just the direct economic loss from reductions in federal grazing.

In order to account for the overall importance of federal grazing a multi-year linear programming model of cattle ranching was used to evaluate the economic importance of BTNF grazing. This model solves for the profit maximizing livestock production given a defined forage base. Profit maximization was evaluated over a 40 year time period using 100 sets of random prices that ranchers would likely face over the 40 year planning horizon. The reported "optimal" solution is the average level of production and profit realized across the 100 alternative beef price scenarios. The model was used to define an optimal solution given the base forage resources of the ranching operation. Changes in production and profitability levels were then observed with reductions or elimination of Forest Service grazing. Within the model, losses from reduced livestock production are partially offset by increased hay sales. The Western Wyoming USFS Grazing Model used for the BTNF analysis is an updated version of previous work in Fremont and Park Counties (Taylor et al, 2004, 2005). The purpose of reducing Forest Service grazing in the analysis was not to imply that such reductions are likely. Rather the purpose was to evaluate its importance by comparing ranch profitability with and without Forest Service grazing.

The results from the updated ranch model simulation are summarized in Table 3.2.3c. In the base line scenario the model ranch was running 610 brood cows and replacement heifers and was selling 170 tons of grass hay. This was estimated to generate on average $244,163 in gross revenue and $27,822 in profits for the ranching operation. The cow herd decreases by 12 percent to 539 head with a 25 percent reduction in Forest Service grazing. This reduction decreased gross ranch revenue for the ranch by 7 percent to $226,513 and reduces profitability by 17 percent to $23,056. The loss of livestock revenue is partially offset by increased hay sales from 170 tons to 271 tons. The cow herd is reduced by 23 percent to 467 head with a 50 percent reduction in Forest Service grazing. This reduction decreases gross ranch revenue for the ranch by 15 percent to $206,238 and reduces profitability by 39 percent to $16,836. The loss of livestock revenue is again partially offset by increased hay sales from 170 tons to 386 tons. The cow herd is reduced by 34 percent to 403 head with a 75 percent reduction in Forest Service grazing. This reduction decreases gross ranch revenue by 25 percent to $184,166 and reduces profitability by 67 percent to $9,293. The loss of livestock revenue is once again partially offset by increase hay sales from 170 tons to 510 tons. Finally, the cow herd is reduced by 45 percent to 332 head with a 100 percent reduction in Forest Service grazing. This reduction decreases gross ranch revenue for the ranch by 33 percent to $162,910 and reduces profitability by 139 percent to -$10,803. The loss of livestock revenue is only partially offset by increased hay sales from 170 tons to 627 tons. It

should be noted that the analysis assumes that there is a market for the increased hay sales. If this is not the case the reduction in profitability would be much greater.

Economic Impact

Results from the ranch model simulations indicate the economic importance of Forest Service grazing to ranching operations in region. Because ranching operations have economic linkages with other sectors of the region's economy, changes in BTNF grazing also have implications for the overall economy in the region. Results from the ranch level analysis suggest that that there are at least three possible approaches to evaluating the economic importance of federal grazing to local communities: 1) evaluating Forest Service AUMS only, 2) evaluating Forest Service AUMS and the effects on total production, and 3) evaluating Forest Service AUMS and their effect on the economic viability of the ranch operation. The following considers the economic impact of BTNF grazing on the local economy under each of the three perspectives. For the analysis cattle and sheep grazing have been combined and the reductions estimated for cattle ranching from a loss of Forest Service grazing are assumed to apply to sheep ranching.

Forest Service grazing only perspective

The top part of the second column of Table 3.2.3d summarizes the estimated economic of one AUM of BTNF grazing to the region's economy if the Forest Service grazing is considered in isolation. This information was estimated from a modified 2004 IMPLAN model of the four-county area. These estimates are based on the 1996-2005 average value of production for cow/calf operations in the Basin and Range region of the United States (USDA-ERS), which includes the BTNF area, a 2004 University of Idaho cow/calf budget, and a 2004 University of Idaho range sheep budget. On a per AUM basis, the average value of production was $41.42. Due to economic linkages between ranching and the rest of the region's economy, the total economic impact from the production associated with one AUM of grazing was estimated to be $88.46. This represents the total economic activity that occurs within the region as a result of the production from one AUM of livestock grazing. As a result of this economic activity it is estimated that $26.98 of labor income are generated throughout the local economy and .000994 jobs are supported per AUM of livestock grazing. The .000994 jobs represent about one job for every 1,000 AUMS of livestock grazing. Average earnings per job for this employment are $27,146 per year.

From the Forest Service Grazing Only Perspective, the 190,014 AUMS of livestock grazing on the BTNF results in $7.8 million of production, $16.8 million in total economic activity, $5.1 million in labor earnings, and 189 jobs in the region's economy (bottom part of the second column of Table 3.2.3d). This perspective assumes that the only affect on the ranching operation from Forest Service grazing is the direct production associated with the BTNF AUMS.

Ranch production perspective

As noted in the ranch simulation discussion above, estimating the economic impact of federal grazing based solely on federal AUMS probably underestimates the actual importance of federal grazing to the ranching operation. The results from the Western Wyoming USFS Grazing Model indicate that, in terms of ranch production, one AUM of BTNF grazing generates an estimated $57.99 of livestock production (top part of the third column in Table 3.2.3d). This reflects that since BTNF AUMS are part of an overall grazing system, a change in Forest Service grazing

affects the profit maximizing use of the rest of the forage resources. Under this scenario, the total economic impact of the production associated with a BTNF AUM of grazing throughout the economy of the region is $123.85. As a result of this economic activity it is estimated that $37.77 of labor earnings are generated per AUM and .001391 jobs are supported in the region's economy. The .001391 jobs represent about one job for every 720 AUMS of livestock grazing. Average earnings per job for this employment are again $27,146 per year.

From the Ranch Production Perspective, the 190,014 AUMS of livestock grazing on the BTNF results in $11.0 million of production, $23.5 million in total economic activity, $7.2 million in labor earnings, and 264 jobs in the region's economy (bottom part of the third column in Table 3.2.3c). This perspective considers the change in total ranch production resulting from the change in BTNF grazing assuming that the ranch still remains in operation.

Ranch viability perspective

Previous research and the results from the Western Wyoming USFS Grazing Model indicate that the availability of federal grazing may be critical to the economic viability of many federal grazing dependent ranches. As was observed in the ranch simulation model, the net profit for a Forest Service grazing dependent ranch without BTNF grazing was negative.

The results from the Western Wyoming USFS Grazing Model indicate that if Forest Service grazing affects the economic viability of the ranch, one AUM of Forest Service grazing actually represents an estimated $126.33 of livestock production (top part of column 4 in Table 3.2.3d). Under this scenario, the total economic impact of the production associated with one BTNF AUM of grazing throughout the region's economy is $269.81. As a result of this economic activity it is estimated that $82.29 of labor earnings are generate per AUM and .003031 jobs are supported in the region's economy. The .003031 jobs represent about 330 AUMS of grazing. Average earnings per job for this employment are again $27,146 per year.

From the Ranch Viability Perspective, the 190,014 AUMS of livestock grazing on the BTNF results in $24.0 million of production, $51.3 million in total economic activity, $15.6 million in labor earnings, and 576 jobs in the region's economy (bottom part of column 4 in Table 3.2.3d). This perspective considers the change in total ranch production resulting from the change in BTNF grazing assuming that the ranch ceases operation without Forest Service grazing.

Livestock grazing summary and conclusions

The total economic impact estimates for BTNF livestock grazing range from 190 to 576 jobs and $5.1 million to $15.5 million in labor earnings. Which of these values is the most relevant depends on a number of factors including the individual ranch's level of dependency on Forest Service grazing, the magnitude of the proposed change in grazing, the financial solvency of the ranch, the availability of alternative sources of forage, and the desire of the rancher to remain in ranching. For small changes in BTNF the Forest Service Grazing Only perspective may be the most appropriate. For larger changes where the ranching operation might still stay in operation, the Ranch Production Perspective may be the most appropriate. For larger changes where the economic viability of the ranching operation is uncertain the Ranch Viability Perspective may be the most appropriate.

Table 3.2.3b. Bridger-Teton NF Grazing Permits, 2005.

Animal Unit Months

Ranger District	Cattle AUMs	Sheep AUMs	Total AUMs
Kemmerer	7,815	18,015	25,830
Big Piney	46,570	0	46,570
Grey's River	11,819	16,871	28,690
Jackson/Black Rock	9,652	0	9,652
Pinedale	69,187	10,085	79,272
Total	145,043	44,971	190,014

Number of Animals

Ranger District	Cattle (Head)	Sheep (Head)	Horses (Head)
Kemmerer	697	21,425	102
Big Piney	12,073	0	142
Grey's River	2,362	21,792	102
Jackson/Black Rock	2,333	0	162
Pinedale	21,577	8,153	113
Total	39,042	51,370	621

Number of Permittees

Ranger District	Cattle Permittees	Sheep Permittees	
Kemmerer	7	5	
Big Piney	21	0	
Grey's River	38	5	*
Jackson/Black Rock	16	0	
Pinedale	40	2	
Total	122	12	

*Excludes two permittees who are also on the Kemmerer District

Source: Bridger-Teton National Forest

Table 3.2.3c. Results from Ranch Simulation Model.

	Base	25% Reduction	50% Reduction	75% Reduction	100% Reduction
Gross Returns	$244,163	$226,513	$206,238	$184,166	$162,910
Ranch Profits	$27,822	$23,056	$16,836	$9,293	-$10,803
Cow Herd Size	610	539	467	403	332
Hay Sold (Tons)	170	271	386	510	627

Source: Western Wyoming USFS Grazing Model

Table 3.2.3d. The economic impact of Bridger-Teton NF Grazing.

Per AUM	Total USFS Grazing Only	Total Ranch Production Perspective	Total Ranch Viability Perspective
Value of Production	$41.42	$57.99	$126.33
Total Economic Impact	$88.46	$123.85	$269.81
Total Labor Earnings	$26.98	$37.77	$82.29
Total Employment (Jobs)	0.000994	0.001391	0.003031
Ave Earning Per Job	$27,146	$27,146	$27,146
Total BTNF AUMs			
Total AUMs	190,014	190,014	190,014
Value of Production	$7,870,210	$11,018,293	$24,004,139
Total Economic Impact	$16,809,060	$23,532,685	$51,267,634
Labor Earnings	$5,126,747	$7,177,445	$15,636,577
Employment (Jobs)	188.9	264.4	576.0
Ave Earning Per Job	$27,146	$27,146	$27,146

Agricultural amenities

In addition to food and fiber production, the agricultural industry enjoys a long tradition in the area and directly influences the majority of private land within the region. The open spaces associated with agriculture offer landscapes, lifestyles, and wildlife habitat. As a result, significant changes in the economic viability of the industry, regardless of cause, are likely to have important economic, social, cultural, and environmental implications. A recent survey sponsored by the Wyoming Stock Growers Association, the Ruckelshaus Institute of Environment and Natural Resources, and the Nature Conservancy (Public Opinion Strategies and FMMA, 2007) found that nearly three-fourths of state residents felt that they personally benefit from the presence of farms and ranches in Wyoming. In addition nearly 60 percent of respondents were concerned about the availability of water for farming and ranching in Wyoming and nearly 50 percent were concerned with the loss of family farms and ranches in the State. The concerns regarding agriculture, water and retaining farms and ranches ranked 3rd and 5th out of 17 possible concerns facing Wyoming residents.

Agriculture is the dominate use of private land in the region. Agricultural land represented 86 percent of the total private land in the four-county area (1.8 million acres). The percent of private land in agriculture ranged from 95 percent in Sublette County and 90 percent in Fremont County to 78 percent in Lincoln County and 47 percent in Teton County. In addition, agricultural operations holding grazing permits controlled 82 percent of the total agricultural land in the

region. This ranged from 86 percent in Fremont County, 80 percent in Sublette County, and 78 percent in Lincoln County to 45 percent in Teton County. Federal grazing (BLM & USFS) represented three-fourths of the grazing permits in the area with the Forest Service accounting for 30 percent of the total number of permits. Not all these permits would be exclusively on the BTNF.

Much of the agricultural land in the region is productive ranchland for both livestock and wildlife. The American Farmland Trust (AFT) classifies 1.5 million acres of the private land in the four-county area as "prime' ranchland (American Farmland Trust, 2002). This includes 464,000 acres in Fremont County, 360,320 acres in Lincoln County, 658,560 acres in Sublette, and 26,240 acres in Teton County. The AFT defines "prime" ranchland as high quality land with desirable wildlife characteristics including proximity to publicly owned lands, year-round water availability, mixed grass and tree cover, and a variety of vegetation. The AFT has also estimated that, due to the proximity of the "prime" ranchland to developed areas, up to 60 percent of the "prime" ranchland in the region could be potentially be developed by 2020. This would represent the conversion of more than 907,000 acres of agricultural land in the region to residential development. Such a conversion would affect 72 percent of the "prime" ranchland in Lincoln County, 64 percent of the "prime" ranchland in Fremont County, 63 percent of the "prime" ranchland in Teton County, and 51 percent of the "prime" ranchland in Sublette County.

In addition to the social, cultural, and environmental implications of the conversion of "prime" ranchland in the region, there would also be significant economic implications. Studies in Colorado have found that ranchland provides important economic benefits to both residents and visitors. Magnan et al (2005) found that the natural environment, ranchlands, and western historical preservation were the three most important contributors to local quality of life in Routt County. The analysis indicated that the value of ranchlands to current Routt County residents is likely to be $20-$30 million. Ellingson et al (2005) found that the natural environment, ranch open space, western historical preservation, and recreational amenities are local assets that strongly add to the summer visitors' experience. The analysis indicated that 50 percent of Routt County's summer tourists would reduce their expenditures and time spent in the area if existing ranchlands were converted to urban uses. This reduction would cost the county about $8 million per year in lost direct revenue. Orens and Seidl (2004) found that Gunnison's public open space and private working landscapes contribute to the quality of the winter tourism in the area. Their analysis indicates that wholesale conversion of local ranchland to tourism infrastructure and second homes may reduce winter tourism by as much as 40 percent. The impact of such a change could reach $14 million dollars and 350 jobs per year. While it is unclear exactly how these economic values might translate to the four-county area in this analysis, it does seem clear that there is significant amenity values associated with agricultural lands in the region.

Economic importance of wildlife and big game resources

This section summarizes the role that Bridger Teton National Forest and surrounding areas plays in providing wildlife habitat for residents and visitors. The analysis focuses primarily on the three major big game species in the area, Pronghorn Antelope, Elk, and Mule Deer due, in part to readily available data. It is important to note that there are a host of other game and non-game species that bring enjoyment to regional residents and non-residents but their relationship to

creating economic value is not as well documented. (For example, wildlife watching is a significant activity in this state but U.S. Fish and Wildlife does not collect information at the sub-state level. While one could argue that most wildlife watching activities are conducted in the Greater Yellowstone Ecosystem, there are considerable resources and corresponding activities elsewhere in the State. So it is impossible to separate down to a sub-state region.) Therefore the focus is on these species as indicators of other species' importance as well as their own intrinsic value. The analysis will summarize the seasonal range categories migration corridors on and off the Forest, and the economic importance of these species to the regional economy.

BTNF's location south of Grand Teton and Yellowstone National Parks puts it in a unique position with regards to migratory herds that have national and international significance. Yellowstone N.P. being a World Heritage Site hosts animals that migrate in and out of the park on a seasonal basis. Many of these animals end up in the BTNF or nearby during various times of the year. Management policies on the Forest are therefore intertwined with National Park Service management and policies, BLM management and policies, and state and private land management. Policies that affect wildlife on the Forest have implications on the National Park Service, Wyoming Department of Game and Fish, BLM districts, and private land management.

Seasonal range in the Bridger Teton National Forest region

This section summarizes the quantity and type of big game range in and around the Forest. The three species Pronghorn, Elk, and Mule Deer are critical for the ecology of the region and the regional economy. Other species are dependent upon these species for food or other ecosystem services. The Greater Yellowstone Ecosystem that surrounds BTNF brings in millions of tourists each year. Visitors and residents hunt or wildlife watch these animals while spending money on food, transportation, lodging, and other items.

Range is defined using Wyoming Game and Fish categories below (Wyoming Game and Fish Department, 2006). NOH and OUT are excluded from the summaries, but there is some acreage for these categories.

NOH = No Herdunit. These areas have no documented use by the species in question and are not a part of any herdunit for that species. This designation is used to populate otherwise empty polygons and therefore it will not be included when specific herdunits are requested, but only when coverage for the entire state, an entire county, or BLM 1:100,000 map is desired.

OUT = Out. These areas, while a part of a herdunit, do not contain enough animals to be important habitat, or the habitats are of limited importance to the species.

CRU = Crucial. These areas can describe any particular seasonal range or habitat component (often winter or winter/yearlong range), but describes that component which has been documented as the determining factor in a population's ability to maintain itself at a certain level (theoretically at or above the population objective) over the long term.

SSF = Spring/Summer/Fall. A population or portion of a population of animals use the documented habitats within this range from the end of the previous winter to the onset of persistent winter conditions (variable, but commonly this period is between 5/1 and 11/30).

SWR = Severe Winter Relief. A documented survival range which may or may not be considered a crucial range area as defined above. It is used to a great extent, only in occasionally extremely severe winters (e.g., 2 years out of 10).

WIN = Winter. A population or portion of a population of animals use the documented suitable habitat within this range annually, in substantial numbers only during the winter (variable, but commonly between 12/1 and 4/30).

WYL = Winter/Yearlong. A population or portion of a population of animals makes general use of the documented suitable habitat within this range on a year-round basis. But during the winter months (between 12/1 and 4/30), there is a significant influx of additional animals into the area from other seasonal ranges.

YRL = Yearlong. A population or portion of a population of animals makes general use of the suitable documented habitat within the range on a year-round basis. Exception: occasionally, under severe conditions (e.g., extremely severe winters, or drought) animals may leave the area.

Elk seasonal range

Elk seasonal range in the region is summarized in and the Map in Figure 3.2.3j and the corresponding table (Table 3.2.3d). There are several issues to note in the map and tables. First, almost 40 percent of the species' spring, summer, and fall range is located on the Forest. This is the period that drives the economics: Hunting, wildlife watching, etc., and bolsters the population through new calves. People come to see or hunt the animals during this period. The second thing to note is that winter and crucial winter range is not located as much in the BTNF. This means that land use activities outside the forest can impact the population base when they are in the BTNF, and when residents and visitors want to see or hunt the animals. That said there is still significant critical range in the Forest itself. Twenty-seven percent (1.1 Million Ha.) of crucial winter and year-long habitat is still located on the Forest.

Table 3.2.3d. Elk seasonal range in the Greater BTNF area.

	Total Land Area (Hectares)			
RANGE	Within the BTNF	BTNF Region	Total	BTNF Pct of Total
CRUSWR		19,956	19,956	0.0%
CRUWIN	32,783	175,143	207,926	15.8%
CRUWYL	63,343	169,784	233,128	27.2%
SSF	1,188,733	1,805,835	2,994,568	39.7%
SWR		3,132	3,132	0.0%
WIN	16,761	211,672	228,433	7.3%
WYL	31,952	358,552	390,504	8.2%
YRL	54,210	106,678	160,888	33.7%
Grand Total	1,387,783	2,850,752	4,238,535	32.7%

Finally 76 percent of the identified elk migration corridors are within the BTNF. Elk need to be able to move from winter to summer range or move to crucial winter range easily to maintain herd size and viability. These corridors are vital to the herd population. Out of 2,197 kilometers of corridors, over 1,676 kilometers are located within the BTNF.

Table 3.2.3e. Elk migration corridors

	Greater BTNF Area			
	No of Corridors	Aggregate Kilometers	Kilometers in the BTNF	Percent of Total in the BTNF
Migration Corridors	293	2,197	1,676	76.3%

Mule deer seasonal range in the greater Bridger-Teton National Forest area

Mule deer are another species critical to ecological and economic viability of the region. Both elk and mule deer are target species for resident and nonresident hunters. The majority of BTNF is classified as spring, summer, fall range. As in the case of elk, the BTNF claims more spring, summer, fall range which is time of year that residents and visitors enjoy them the most. Crucial winter and crucial winter and yearlong account for less than 12 percent and regular winter range is 6.8 percent of total. Like the case of elk the species dependence upon non-BTNF range means that uses on those areas could affect population levels and therefore economic impacts on the Forest. With a third of the spring, summer, fall range on the Forest, visitor enjoyment from these animals may be driven by other agency and landowner priorities and preferences.

Figure 3.2.3j. Elk seasonal range in the Greater Bridger-Teton National Forest.

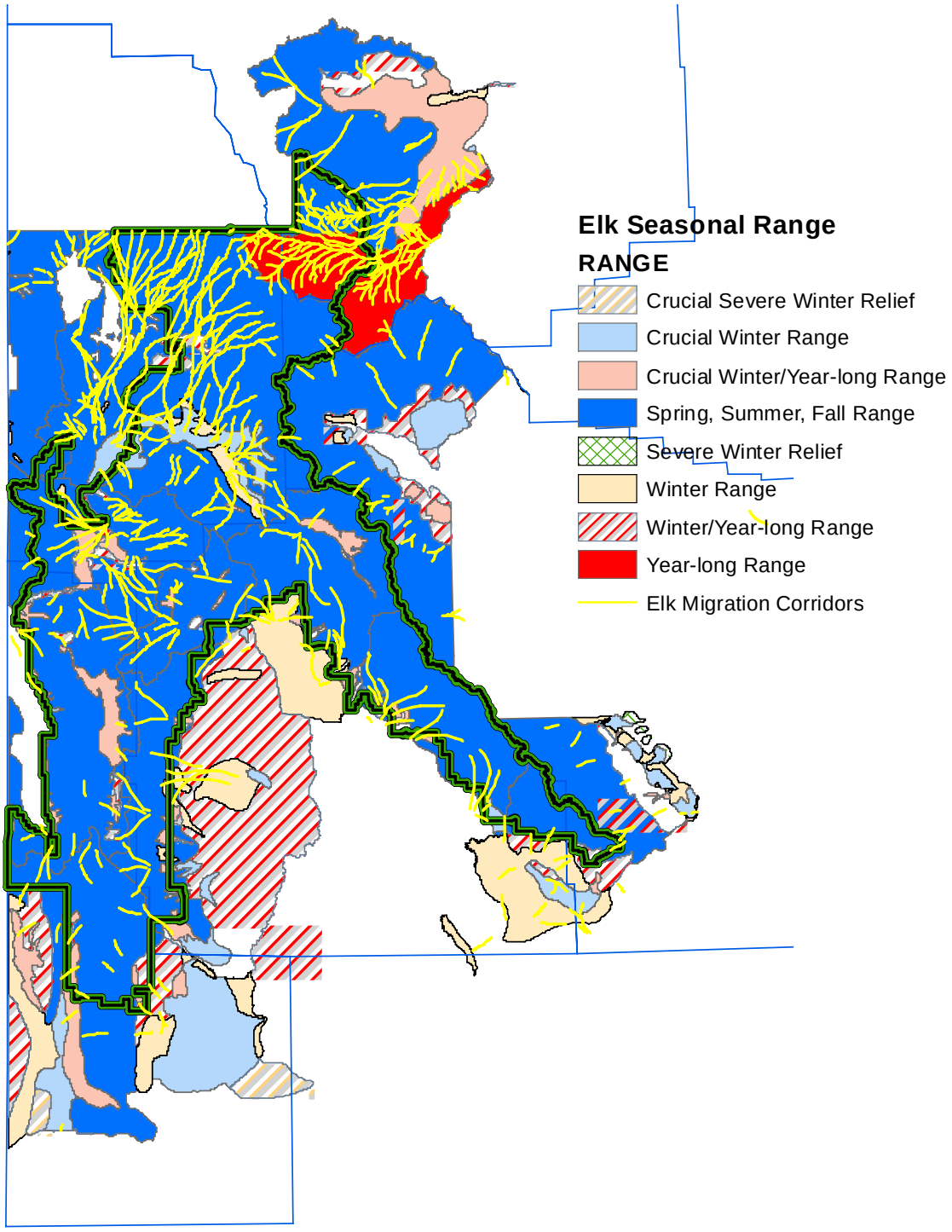


Figure 3.2.3k. Mule deer seasonal range in the Greater Bridger Teton National Forest.

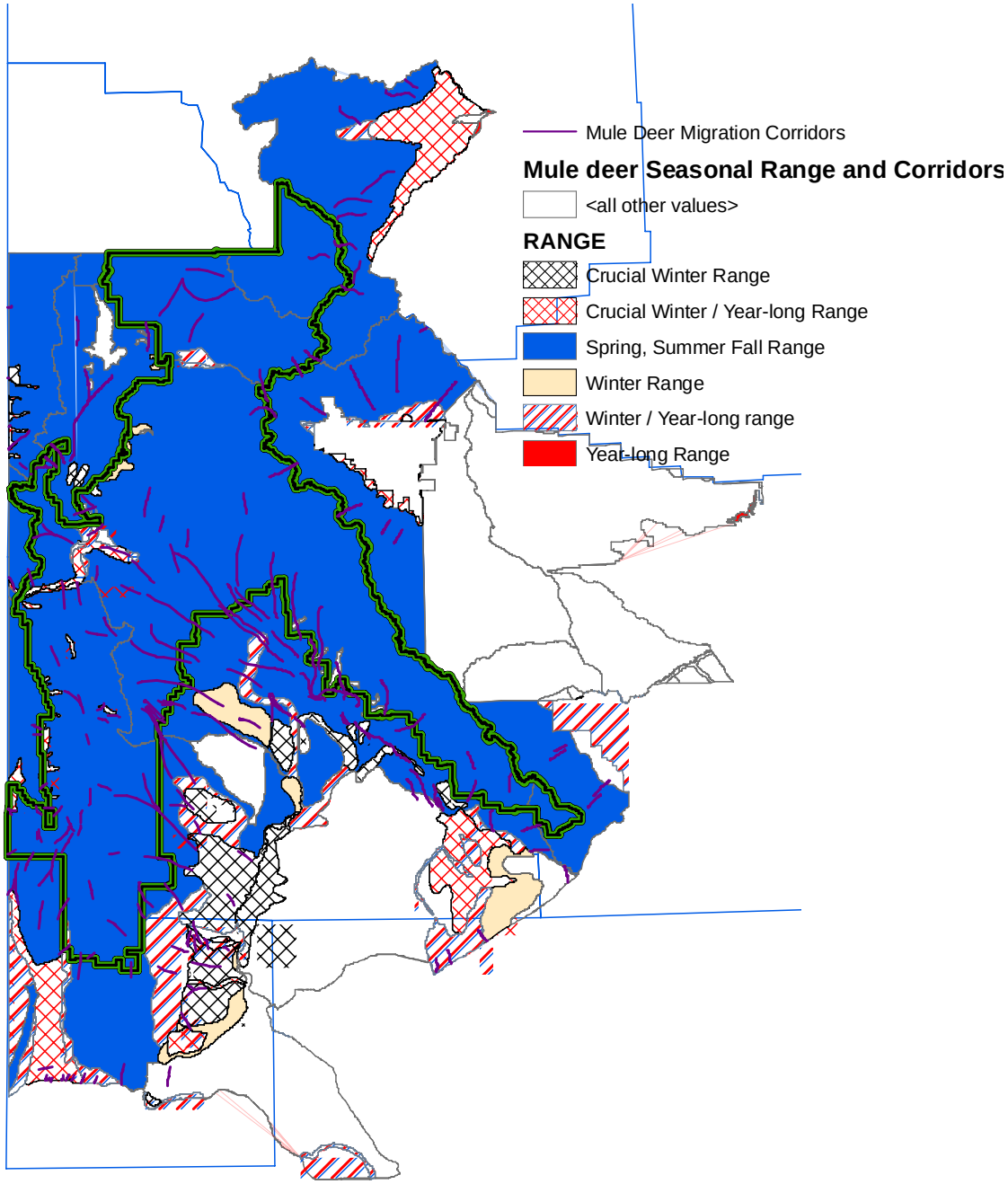


Table 3.2.3f. Mule deer seasonal range in the Greater BTNF area.

	HECTARES			
	Within the BTNF	BTNF Region	Total	BTNF Pct of Total
CRUWIN	308	154,359	154,667	0.2%
CRUWYL	25,455	205,387	230,841	11.0%
SSF	1,352,051	2,693,302	4,045,353	33.4%
WIN	5,400	74,520	79,921	6.8%
WYL	14,228	212,147	226,375	6.3%
YRL		2,386	2,386	0.0%
Grand Total	1,397,442	3,342,101	4,739,544	29.5%

Finally migration corridors for mule deer are significant on theBTNF. Over 180 identified routes exist with over 59 percent of the routes on the BTNF. Since the overall winter versus summer range is bifurcated between Forest Service and non-Forest Service land, this magnifies the importance of these corridors.

Table 3.2.3g. Mule deer migration corridors.

	Greater BTNF Area			
	No of Corridors	Aggregate Kilometers	Kilometers in the BTNF	Percent of Total in the BTNF
Mule Deer	180	1,665	986	59.2%

Pronghorn antelope seasonal range

Pronghorn, not surprisingly, have the least exposure on BTNF land, preferring the open flat areas south and to the east of the Forest (Figure 3.2.3l and Table 3.2.3h). Only 7.1 percent of the seasonal range for antelope is on Bridger Teton National Forest. Of that only spring, summer, fall range and yearlong range show any significant quantities (9 and 7 percent respectively).

However the importance of BTNF in supporting antelope is understated by simply looking at range. Migration information suggest a more important link, which is to provide corridors for summer and winter movements (Table 3.2.3i) Of the total 101 identified corridors representing 851 kilometers, many of the corridors are coming in from the northern crook of BTNF where the animals migrate from the Yellowstone-Teton areas. According to biologists that have studied pronghorn migration, these are highly used, critical corridors.

Figure 3.2.3l. Pronghorn antelope seasonal range

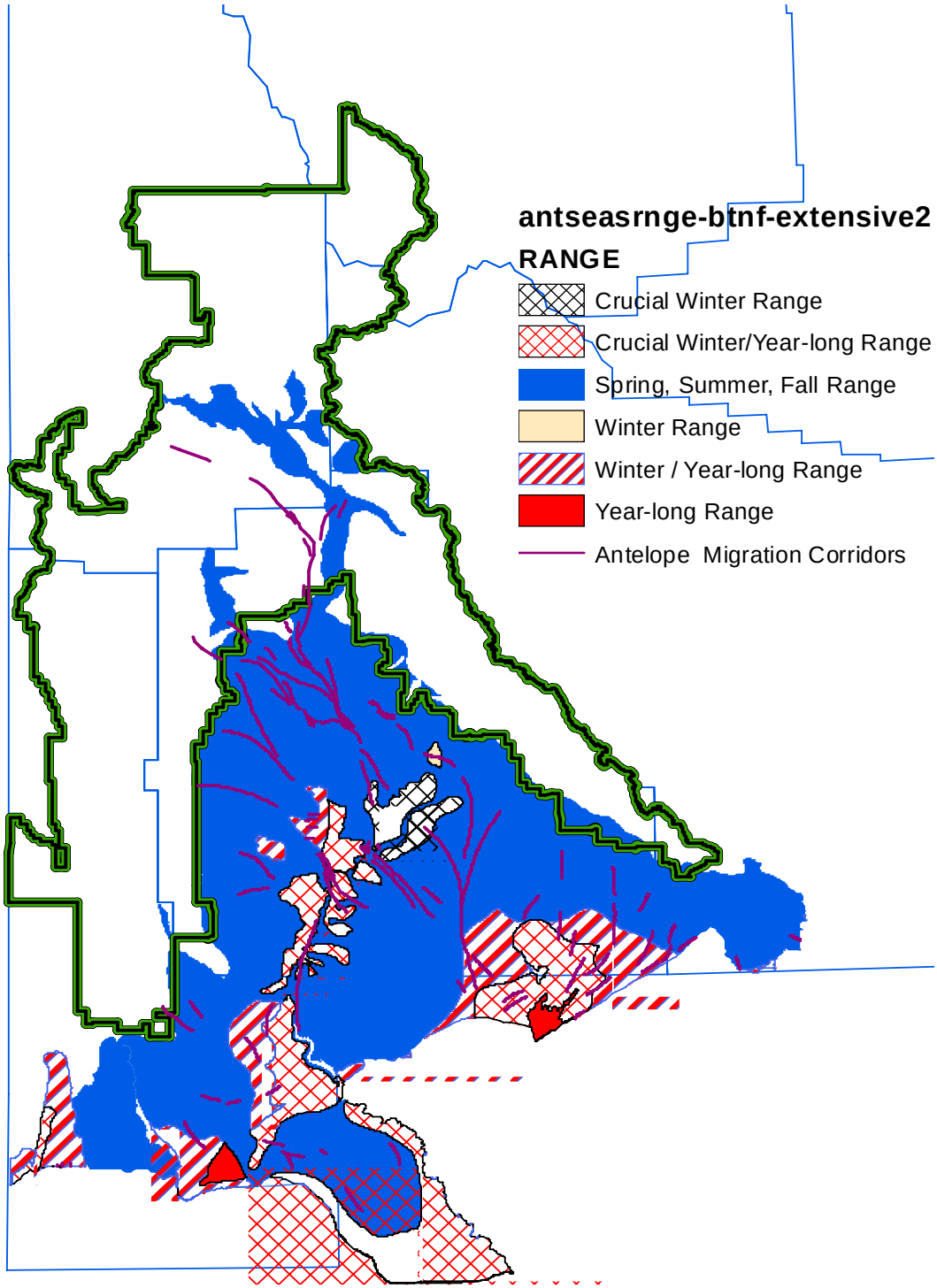


Table 3.2.3h. Pronghorn antelope seasonal range in the greater BTNF area.

	Hectares			
	Within the BTNF	BTNF Region	Total	BTNF Pct of Total
CRUWIN		25,520	25,520	0.0%
CRUWYL		203,716	203,716	0.0%
SSF	115,901	1,136,088	1,251,988	9.3%
WIN		1,598	1,598	0.0%
WYL		139,834	139,834	0.0%
YRL		12,650	12,650	0.0%
Grand Total	115,901	1,519,405	1,635,306	7.1%

Table 3.2.3i. Pronghorn migration corridors in the Greater BTNF area.

	Greater BTNF Area			
	No. of Corridors	Aggregate Kilometers	Kilometers in the BTNF	Percent of Total in the BTNF
Pronghorn Antelope	101	851	121	14.2%

Economic impacts of big Game hunting in the greater BTNF Region

The above analysis links the importance of land management to economic issues. This section estimates economic impacts of hunting the three major species in the region. These impacts are estimated through hunting surveys done every year by Game and Fish and hunting expenditure studies commissioned by Game and Fish. Impact models are used to estimate labor income and job impacts. These impacts are then adjusted using the overall proportion of seasonal range on the Forest summarized in the last section. Labor income and job impacts are not calculated for local residents because this is not “new” money coming into the area. This does not mean that local residents do not highly value the species though. It just means that they are not necessarily generating new income and jobs as a result of spending on this activity. For other Wyoming residents and non-residents however, this is new dollars circulating in the local economy. As mentioned in the introduction to this section, this analysis does not include wildlife watching, which is a significant activity in the region. The data do not exist to regionally evaluate such activities. Results are summarized for all three species in Table 3.2.3j.

Elk hunting generates the most hunting expenditures ($33.5 million). Over 184,000 hunter-days are accumulated each year. Local hunters accounted for the largest category of hunter-days (84,634), but nonresidents and non-local Wyoming hunters accounted for more total hunter-days (99,869). These non-residents spend more money on the activity then local hunters ($25.8 million). Non-local hunters, either from the rest of Wyoming or nonresidents, generate $16.8 million in labor income and 900 jobs. Residents generate another $7.7 million. While this $7.7 million does not generate new labor income and jobs, it is nonetheless a very important aspect of the regional economy. Given the amount of seasonal range for elk on the BTNF, the Forest directly supports about 33 percent of the jobs and income generated by elk hunting in the region.

However, because more than 76 percent of the elk migration corridors are on the BTNF, its overall role in elk hunting is probably significantly greater.

Mule deer are second with almost $22 million in hunter expenditures. Over 106,000 hunter-days per year are accumulated each year. Non-local hunters account for over 55 percent of the hunter-days. Non-locals generated over $16 million of the $22 million in total expenditures. This then generates $9.1 million in labor income, and supports 508 jobs in the region. Basing the BTNF's proportion of seasonal range for mule deer this means that the Forest supports just under 30 percent of the jobs and income from deer hunting in the region. However, because nearly 60 percent of the mule deer migration corridors are on the BTNF, its overall role in deer hunting is probably significantly greater.

Table 3.2.3j. Economic impacts of big game hunting in the greater BTNF area.

	Hunter Days		***Economic Indicators***		
	Three year average (2001-2003)	**Percent hunter days**	**Expenditures ($)**	**Labor Income ($)**	**Jobs**
		Elk			
Local Hunters	84,634	45.9%	7,686,907	NA	NA
Other Wyo. Residents	64,268	34.8%	16,615,063	10,793,756	587
Non-Residents	35,601	19.3%	9,203,728	5,979,080	325
Portion supported by the BTNF					
Local Hunters			2,513,618	NA	NA
Other Wyo. Residents			5,433,126	3,529,558	192
Non-Residents			3,009,619	1,955,159	106
Mule Deer					
Local Hunters	47,282	44.4%	5,522,200	NA	NA
Other Wyo. Residents	32,866	30.8%	9,072,055	5,093,830	282
Non-Residents	26,450	24.8%	7,301,102	4,099,465	227
Portion supported by the BTNF					
Local Hunters			1,629,049	NA	NA
Other Wyo. Residents			2,676,256	1,502,680	83
Non-Residents			2,153,825	1,209,342	67
Pronghorn Antelope					
Local Hunters	6,321	52.1%	862,538	NA	NA
Other Wyo. Residents	2,218	18.3%	542,573	282,370	155
Non-Residents	3,598	29.6%	880,038	457,997	252
Portion supported by the BTNF					
Local Hunters			61,240	NA	NA
Other Wyo. Residents			38,523	20,048	11
Non-Residents			62,483	32,518	18

Finally pronghorn antelope do not generate as large an economic impact as do elk and mule deer but are still important both for wildlife watching and hunting in the region. Total expenditures from antelope hunting are over $2.2 million per year with $1.4 million (62 percent) generated from non-local hunters. Antelope hunting has the highest percentage of local hunters with 52% of total hunter-days. This activity generates $740,367 in labor income and 407 jobs. As in the case of elk, and mule deer, estimates of what the BTNF is supporting are calculated using the proportion of seasonal range on the Forest (7.1 percent). The BTNF then supports approximately 5$3,000 labor income and 29 jobs.

Wildlife and big game summary

An important part of the function of a national forest, especially the BTNF, is supplying ecological services for residents and visitors. National Forests try to balance national priorities with local preferences whenever possible. The provision of seasonal range serves both of those functions. Local residents and visitors gain with healthy wildlife populations. This analysis evaluated the economics and habitat provision of only three wildlife species. But these are species with sufficient information to do an analysis. Moreover these are three highly important species. The study's objective is to connect the economics of our use and enjoyment of the species with the land needed to maintain these animal populations.

Fishing resources

The Wyoming Game and Fish Department's stream database indicates that within the Department's Jackson, Pinedale, and Green River regions there are a total of 2,883 miles of stream on U.S. Forest Service lands in Fremont, Lincoln, Sublette, and Teton Counties (Table 3.2.3k). This total includes streams located on all Forest Service land in the four counties, not just the Bridger-Teton National Forest. Approximately one third of the miles of stream are in either Sublette or Teton Counties, with about 30 percent in Lincoln County and 3 percent in Fremont County.

The Wyoming Game and Fish Department classifies streams based on pounds of sport fish per mile. For the streams located on Forest Service land, 21 miles are classified as not having sport fish (Table 3.2.3l), 1,282 miles are classified as "Green" (1 to 49 pounds), 471 miles are classified as "Yellow" (50 to 299 pounds), 27 miles are classified as "Red" (300 to 599 pounds) and 19 miles are classified as "Blue" (600 pounds or more). The pounds of sport fish per mile is unknown for a substantial portion of the streams located on the U.S. Forest Service land (1,063 miles).

The Wyoming Game and Fish Department's lake database indicates that within the Department's Jackson, Pinedale, and Green River regions there are a total of 4,651 acres of lakes on U.S. Forest Service lands in Fremont, Lincoln, Sublette, and Teton Counties (Table 3.2.3m). This total includes lakes located on all Forest Service land in the four counties, not just the Bridger-Teton National Forest. Approximately 50 percent of lake acreage is in Teton County with about 20 percent in both Sublette and Lincoln Counties and about 5 percent in Fremont County. The Game and Fish database does not contain any information on the fishing productivity of these lakes.

A report by Rhea and Gispson (2007) on a recent programmed creel survey on the Hoback River provides some insight into the importance of stream fishing in the region. The survey was conducted from June 1 to October 31, 2006 from the Highway 191 Bridge at Stinking Springs upstream to the National Forest Boundary. A total of 447 interviews were conducted during the survey period.

Anglers interviewed on the Hoback River were from 46 states and two foreign countries (Canada and Mexico). Slightly more than 30 percent (30.6%) of anglers interviewed were residents of Wyoming, from 11 counties. Of the Wyoming counties, Teton and Sweetwater had the highest frequency of anglers, 62.0 percent and 17.5 percent, respectively. Nearly 70 percent (69.4%) of the anglers interviewed were nonresidents. The largest percentage of nonresidents were from California (12.6%). The neighboring states of Utah (11.9%), Colorado (10.3%), Idaho (4.8%), and Montana (3.9%) made up the majority of the remaining nonresident anglers. Hawaii, Delaware, Rhode Island, and Maine were the only states not represented by anglers interviewed on the Hoback River.

The majority of anglers fishing the Hoback River used artificial flies (76.0%). Lures and baited lures were the second most popular methods of fishing (14.1%), followed by bait fishing (9.8%). It was estimated that between June and October 2006, 2,624 anglers fished the Hoback River for 6,893 hours. This represented 194.4 anglers per mile of stream and 510.6 hours of fishing per mile of stream. Total angler numbers and hours fished peaked during the month of July and were the lowest in October.

It was also estimated that anglers caught 7,778 fish between June and October or 1.13 fish per hour. Nearly 90 percent (89.1%) of the fish caught were Snake River Cutthroat trout. More than 90 percent (93.3%) of the fish caught were released with less than 10 percent (6.7%) being kept.

Ease of access to the Hoback River from Highway 191, means that the results from this creel survey may not be entirely applicable to all other streams located on the surrounding forests. More remote streams likely will see less pressure. However, the results are an indication of volume and broad diversity of anglers that fisheries in the region can attract.

The information from the Hoback River creel survey is limited because it represents only one stream. A broader look at fishing in the BTNF is available from the National Visitor Use Monitoring report for the Forest. The National Visitor Use Monitoring (NVUM) results indicate that fishing was the main activity for 4.3 percent of the 2.8 million annual visits to the Bridger-Teton National Forest. This represents approximately 120,000 fishing related visits. If, based on the Hoback creel survey, it is assumed that 70 percent of the visits are by non-locals this would represent about 84,000 fishing related visits by nonresidents. Applying the NVUM expenditure figures for fishing to the 84,000 visits resulted in an estimated expenditure associated with fishing on the BTNF of $5.8 million. The four-county IMPLAN model for the region estimated that the $5.8 million in expenditures resulted in approximately 100 jobs in the local economy and generated $2.2 million in labor earnings. The average earnings per job were estimated to be $22,357.

Table 3.2.3k. Miles of streams on U.S. Forest Service land.

County	Miles of Stream	Percent
Fremont	90	3.1%
Lincoln	817	28.3%
Sublette	1,003	34.8%
Teton	973	33.7%
Total	2,883	100.0%

Source: Wyoming Game and Fish Stream Database

Table 3.2.3l. Classification of streams on U.S. Forest Service land.

Class	Pound of Sports Fish Per Mile	Miles of Stream	Percent
None	0	21	0.7%
Green	1 to 49	1,282	44.5%
Yellow	50 to 299	471	16.3%
Red	300 to 599	27	0.9%
Blue	600 or more	19	0.7%
Unknown	N.A.	1,063	36.9%
Total		2,883	100.0%

Source: Wyoming Game and Fish Stream Database

Table 3.2.3m. Acres of lakes on US. Forest Service land.

County	Acres	Percent
Fremont	224	4.8%
Lincoln	930	20.0%
Sublette	1,017	21.9%
Teton	2,480	53.3%
Total	4,651	100.0%

Source: Wyoming Game and Fish Lake Database

3.2.4 Water development

Water use information was obtained from the Forest Service for the Bridger-Teton National Forest. The total yield of water from the forest is 5,468,900 acre-feet per year. As measured as a

constant flow, equals 7,555 cfs (cubic feet per second). Of the 7,555 cfs, 574 cfs is appropriated, representing 7.6 percent of the water that flows off the forest. This quantity includes water for irrigation, stock water, domestic, power, and other uses. Table 3.2.4a shows the five largest appropriated water users for the Greys River and Pinedale ranger districts.

Table 3.2.4a. Diverted and stored water on the Bridger-Teton NF.

Pinedale district	Flow (cfs)	Storage (ac-ft)
New Fork Lake Irr. District	28.1	20,340
Boulder Irr. District	22.4	16,207
Burleigh Binning	20.9	15,120
Town of Pinedale	13.6	9,844
David B. McCoy	11.86	--
Greys River district		
Lower Valley Power	50	--
Archibald Gardner	48.1	--
Star Valley Power	40	--
North Afton Water	3.52	--
Town of Afton	2.5	--

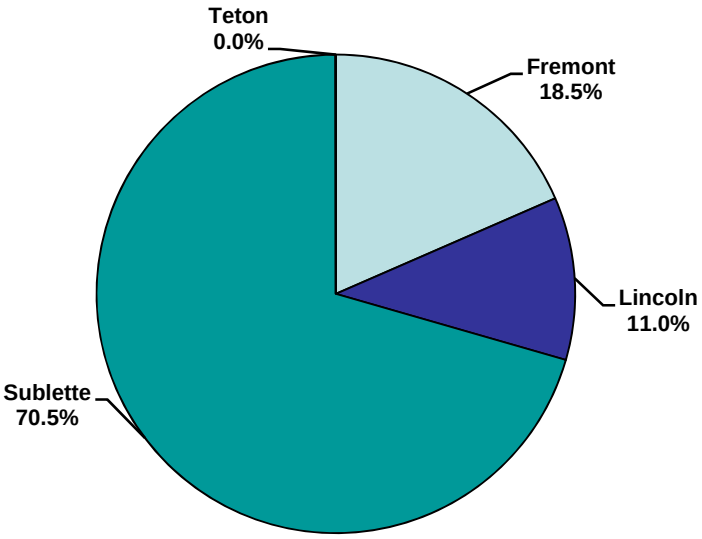
Source: Bridger-Teton National Forest

3.2.5 Minerals

In 2006, the total mineral assessed valuation in the BTNF counties was $5.9 billion (Figure 3.2.5a). Of this total $4.2 billion was in Sublette County (70.5%), $1.1 billion was in Fremont County (18.5%), $649.5 million was in Lincoln County (11.0%), and $1.9 million was in Teton County (<0.1%).

Of this $5.9 billion, natural gas production represented more than 90 percent of the total mineral assessed valuation in the four-county area (91.8%). crude oil represented nearly 7 percent (6.7%), coal represented slightly more than 1 percent (1.4%), and other, primarily sand and gravel, represented less than 1 percent (0.1%).

Figure 3.2.5a. Total mineral assessed valuation for Bridger-Teton NF counties, 2006.



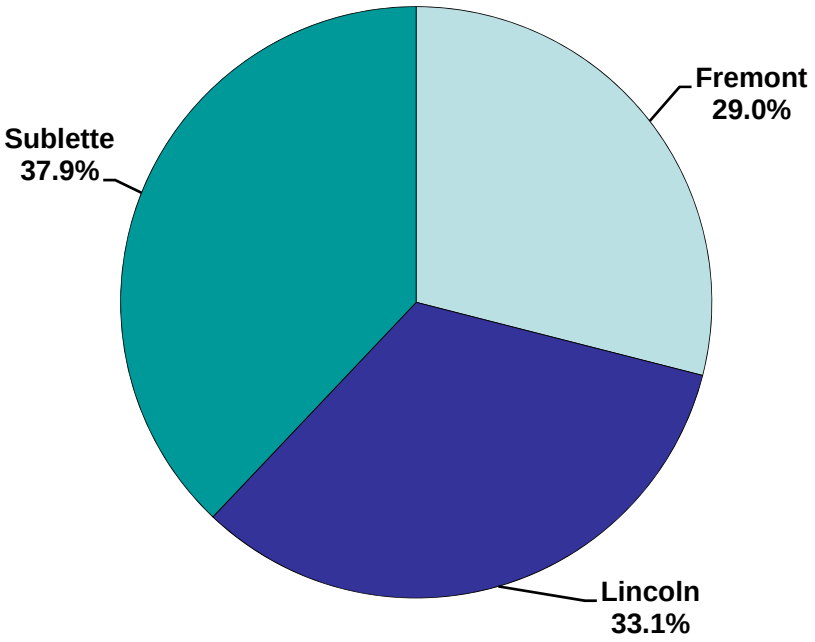
Total = $5.9 billion *Source: Wyoming Department of Revenue, Annual Report, 2006*

Mining employment

In 2004, mining employment (including oil and gas) in the BTNF counties totaled 2,067 jobs. Of this total 784 jobs were in Sublette County (37.9%), 684 jobs were in Lincoln County (33.1%) and 599 jobs were in Fremont County (29.0%). Due to the limited amount of mining employment in Teton County, the number of jobs was not available for 2004 (Figure 3.2.5b). These employment numbers represent where the jobs were located (place-of-work) rather than were the workers resided (place-of-residence). In some cases the workers may in fact reside in other parts of Wyoming or other states and commute to mining jobs in the area.

The State Inspector of Mines for Wyoming reported that there were 271 coal mining jobs in Lincoln County, 16 uranium mining jobs in Fremont County, and 71 sand and gravel operation jobs in the three counties during 2004. This suggests that out of the 2,067 mining jobs in the BTNF counties, 1,709 were involved with oil and gas production. Of this total an estimated 771 worked in Sublette County (45.1%), 572 worked in Fremont County (33.5%), and 366 (21.4%) worked in Lincoln County.

Figure 3.2.5b. Mining employment for Bridger-Teton NF counties, 2004.



Total = 2,067 jobs *Source: U.S. Bureau of Economic Analysis*

Trends in mining employment, 1970-2000

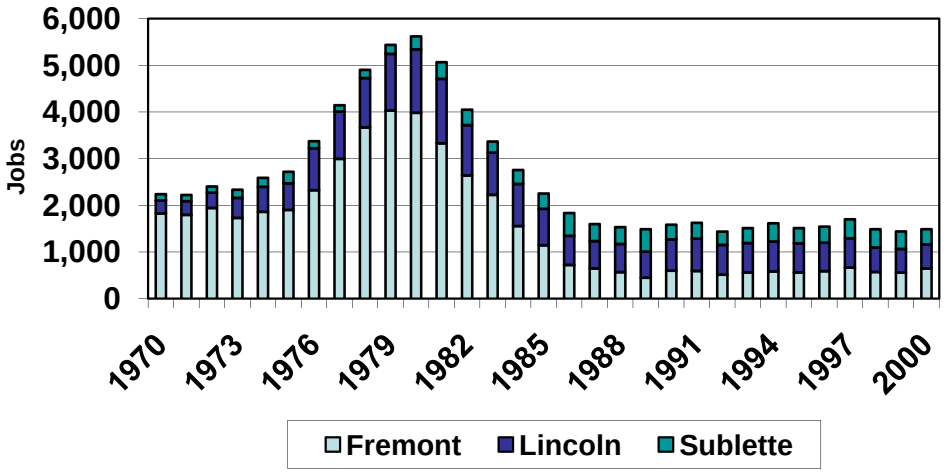
Like most of Wyoming, the BTNF counties experienced dramatic fluctuations in mining employment between 1970 and 1990. After growing rapidly from 1970, mining employment in the area peaked at over 5,600 jobs in 1980 with nearly 4,000 of these jobs in Fremont County (Figure 3.2.5c). By 1990 mining employment in the area had decline to slightly over 1,500 jobs (-71.8%). Mining employment remained fairly steady from 1990 through 2000 averaging slightly over 1,500 jobs per year.

Fremont County suffered the biggest loss of mining employment losing nearly 3,400 jobs between 1980 and 1990 (-84.9%). This loss represented not only declines in oil and gas activity but also the closing of the iron mine at South Pass and the loss of uranium mining at Jeffrey City. During this time period mining employment in Lincoln County declined by nearly 700 jobs (-

50.9%). Mining employment in Sublette County fluctuated between 300 and 500 jobs between 1980 and 1990 with no apparent trend.

Due to the small number of mining jobs in Teton County, they are often not reported by government agencies. Because of this Teton County was not included in this analysis of mining trends in the BTNF counties.

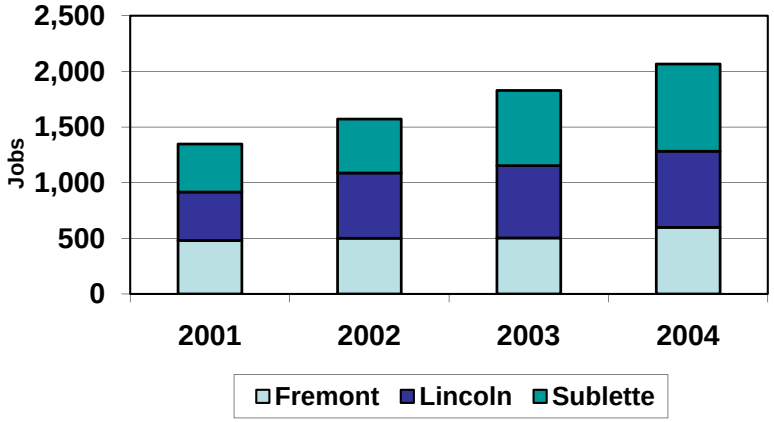
Figure 3.2.5c. Mining employment for Bridger-Teton NF counties, 1970-2000.



Source: U.S. Bureau of Economic Analysis

Trends in mining employment, 2001-2005

Figure 3.2.5d. Mining employment for Bridger-Teton NF counties, 2001-2004.



Source: U.S. Bureau of Economic Analysis

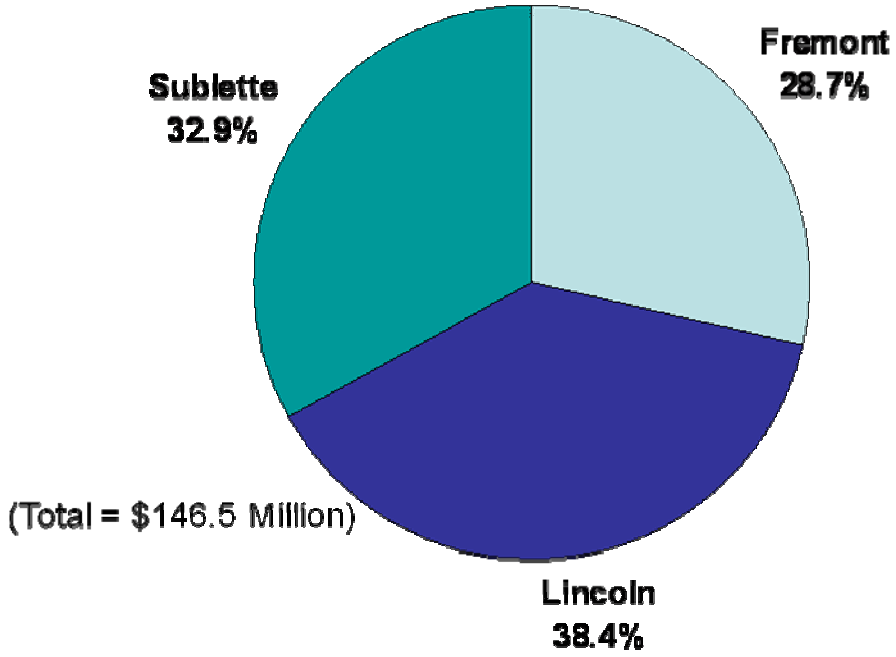
In 2001 the Federal government changed the classification system for how they report labor earnings from the Standard Industrial Classification Code to the North American Industrial Classification Code. Since individual firms may not have the same code under the two classifications systems it is not possible to compare employment and earnings estimates from 2001 through 2004 with those from previous years.

Figure 3.2.5d shows that since 2001, total mining employment in the BTNF counties has increased by nearly 720 jobs (+53.3%). Approximately 50 percent of these new jobs were in Sublette County (+352 jobs), with slightly more than one-third in Lincoln County (+248 jobs), and slightly less than one-sixth in Fremont County (+119 jobs).

Sublette County had not only the largest increase but also the fastest growth in mining employment in the area between 2001 and 2004 (+81.5%). Following Sublette County was Lincoln (+56.9%) and Fremont (+24.8%). The growth in Sublette County is due to the development of two large gas fields in the southern portion of the county, the Jonah and Pinedale Anticline fields

Mining labor earnings

Figure 3.2.5e. Mining earnings for Bridger-Teton NF counties, 2004.



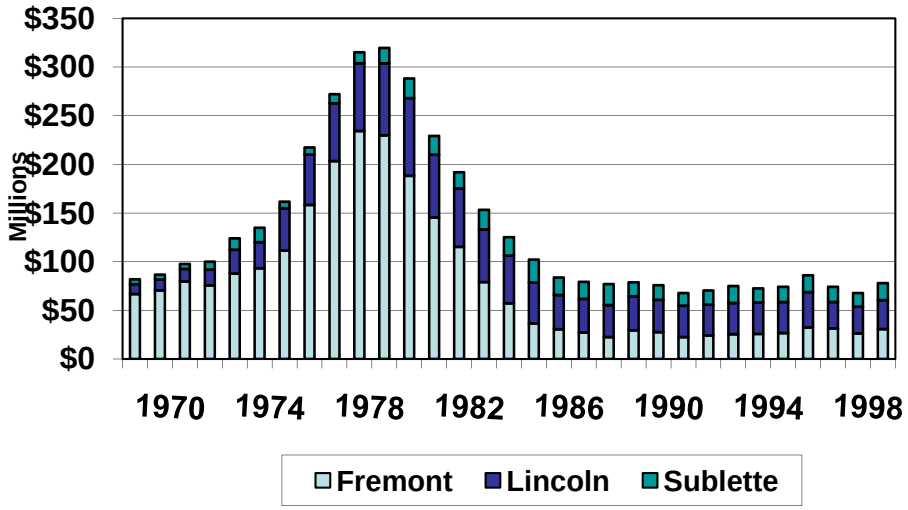
Source: U.S. Bureau of Economic Analysis

In 2004, mining earnings in the BTNF counties totaled $146.5 million (Figure 3.2.5e). Of this total $56.2 million was in Lincoln County (38.4%), $48.2 million was in Sublette County (32.9%) and $42.0 million was in Fremont County (28.7%). Due to the small number of mining jobs in Teton County, the labor earnings for mining were not reported in 2004.

These labor earnings estimates are based on where the job was located (place-of-work) rather than where the job holder resided (place-of-residence). In some cases the labor earnings associated with mining employment in the area may be flowing to workers who reside in other parts of Wyoming or other States and commute to mining jobs in the area.

Trends in mining labor earnings, 1970-2000

Figure 3.2.5f. Mining earnings for Bridger-Teton NF counties, 1970-2000.



Source: U.S. Bureau of Economic Analysis

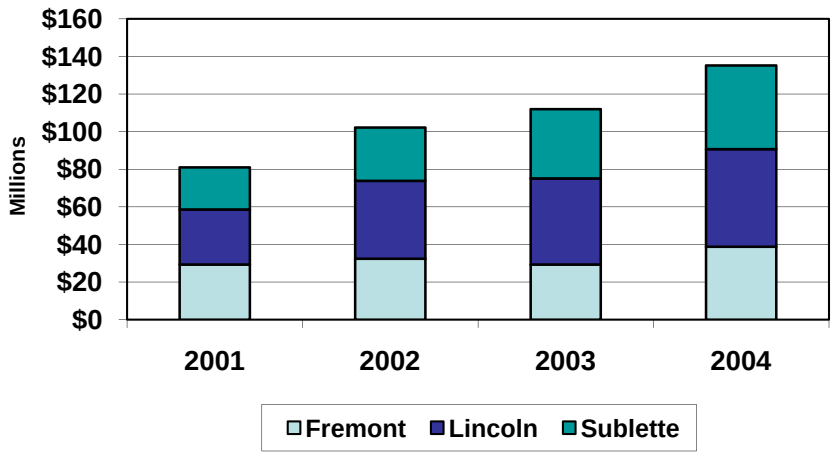
As was the case with mining employment, the BTNF counties also experienced dramatic fluctuations in labor earning from mining between 1970 and 1990. After growing rapidly from 1970, labor earnings from mining peaked at nearly $320 million in 1980 with nearly $230 million of these earnings in Fremont County. By 1990, labor earnings from mining had declined to less than $80 million (-75.4%). Labor earnings from mining have remained fairly steady from 1990 through 2000 averaging about $74 million (Figure 3.2.5f).

Fremont County suffered the largest decrease in mining labor earnings losing more than $200 million between 1980 and 1990 (-87.1%). This loss represented not only declines in oil and gas activity but also the closing of the iron mine at South Pass and the loss of uranium mining at Jeffery City. During this time period mining labor earnings in Lincoln County declined by more than $39 million (-52.8%). Mining earnings in Sublette County fluctuated between $14 million and $17 million during this time period with no apparent trend.

Due to the small number of mining jobs in Teton County, labor earnings from mining are often not report by government agencies. Because of this Teton County was not included in the analysis of mining trends in the BTNF counties.

Trends in mining labor earnings, 2001-2004

Figure 3.2.5g. Mining earnings for Bridger-Teton NF counties, 2001-2004.



Source: U.S. Bureau of Economic Analysis

As previously stated, the reporting systems between years prior to 2001 and subsequent are not compatible. Figure 3.2.5g shows that since 2001, total mining labor earnings in the BTNF counties have increased by $54.2 million (+66.9%). Approximately 40 percent of this increase has occurred in Lincoln County ($22.6 million), with another 40 percent in Sublette County ($22.2 million), and about 20 percent occurring in Fremont County (+$9.4 million).

Sublette County had the fastest growth in mining labor earnings in the area between 2001 and 2004, nearly doubling (+99.1%). Following Sublette County in terms of growth was Lincoln (+77.2%), and Fremont County (+32.2).

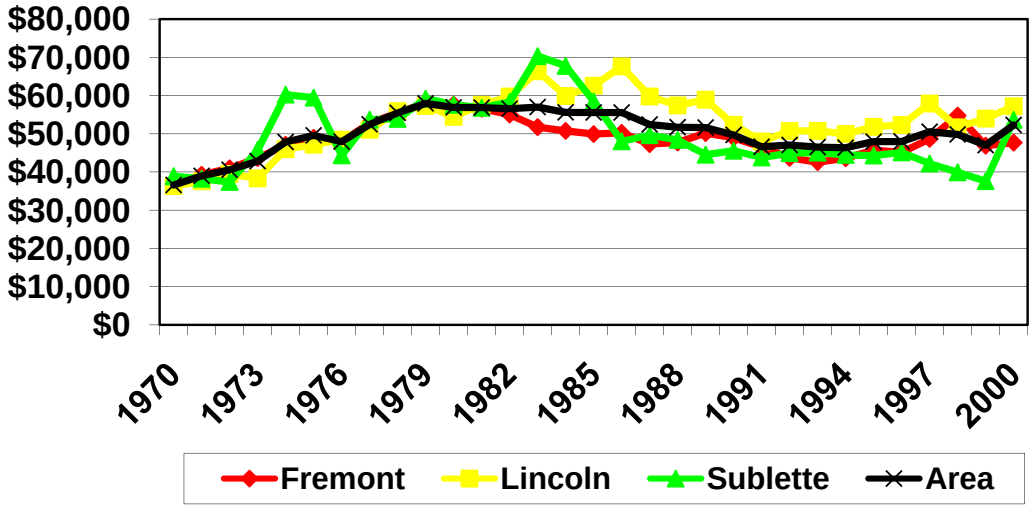
Average earnings per job. 1970-2000

Although there has been substantial variability, average earnings per job for the mining sector in the BTNF counties were, in general, increasing between 1970 and 2000 (Figure 3.2.5h). In 1970, after adjusting for inflation, average earnings per job for the area's mining sector in the area were $36,583. By 2000 average earnings per job the area's mining sector had increased in inflation-adjusted dollars to $52,299 (+43.0%).

The largest growth in average earnings per job for mining was in Lincoln County (+57.5%). Following Lincoln County in terms of grow in average earnings per job for mining were Sublette County (+37.9%), and Fremont County (+30.8%).

Between 1970 and 2000 average earnings per job for mining peaked in Sublette County at $70,315 in 1983. For Lincoln County the peak was $67,645 in 1986. For Fremont County the peak was $58,063 in 1979.

Figure 3.2.5h. Average earnings per job for mining in Bridger-Teton NF counties, 1970-2000.



(Inflation adjusted, 2000=100) *Source: U.S. Bureau of Economic Analysis*

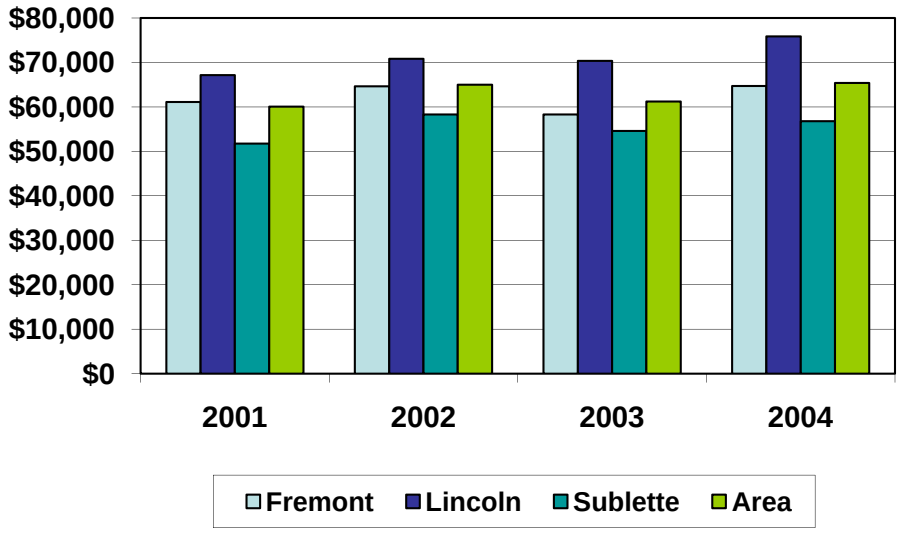
Average earnings per job, 2001-2004

Figure 3.2.5i details average earning per job for the period 2001 to 2004. In 2004 average earnings per job for the mining sector in the BTNF counties were $65,394 in inflation-adjusted dollars. Average earnings per mining job ranged from a low of $56,771 in Sublette County to $75,871 in Lincoln County, with $64,718 being the average for Fremont County. Mining earnings per job may be higher in Lincoln County due to the presence of the coal mine at Kemmerer. Coal mining jobs in Wyoming tend to be higher paying than oil and gas jobs. Mining earnings per job may be lower in Sublette County because some of the more specialized oil and gas field services may be based out of Sweetwater County.

There was a nearly 10 percent increase (+8.9%) in average earnings per job for the mining sector in the four-county area between 2001 and 2004. The largest increase was in Lincoln County (+13.0%), followed by Sublette (+9.7%), and Fremont (+5.9%).

In 2004, average earnings per job for all jobs in the four-county area were $30,048. For individual counties, average earnings per job for all jobs ranged from a low of $28,878 in Lincoln to a high of $35,607 in Teton County. For Fremont County the average was $24,529 and for Sublette the average was $30,081. The average earnings per job for mining was substantially above the average for the region and higher than the average for all three counties considered in this part of the analysis.

Figure 3.2.5i. Average earnings per job for mining in Bridger-Teton NF counties, 2001-2004.



(*Inflation adjusted, 2000=100)* *Source: U.S. Bureau of Economic Analysis*

Non-energy mineral production

The only non-energy mineral production currently taking place on the BTNF is sand and gravel, and landscape rock production. These commodities are important to two sectors of Wyoming's economy, transportation (for road maintenance and construction, as well as winter-time use of sand on roads), and the construction sector (for concrete and landscaping). Table 3.2.5a shows sand and gravel production for the four-county region that includes the BTNF for 2005 (latest information). As shown in the table, almost 1.8 million tons of sand and gravel were produced in the region in 2005, employing 232 people.

Table 3.2.5a. Sand, gravel and landscape rock production and employment in Bridger-Teton NF counties, 2005.

County	Jobs	Production (tons)
Lincoln	59	394,999
Fremont	124	748,593
Sublette	19	110,729
Teton	30	529,962
	232	**1,784,283**

Source: Bridger-Teton National Forest

Sand and gravel production on the BTNF for federal fiscal year 2006 is shown in Table 3.2.5b. Production is divided into two categories, sale permits and free use permits. Sale permits are sold

to the general public. Government agencies who wish to use sand and gravel from BTNF lands would be issued a free use permit. As noted in the table, 1,427 tons were produced from sale permits. Free use permits totaled 645,000 tons. Almost all of the gravel produced on the forest is used for Wyoming Department of Transportation highway improvement projects. In addition, the forest provides most of the gravel utilized for highway projects within Grand Teton National Park (USFS).

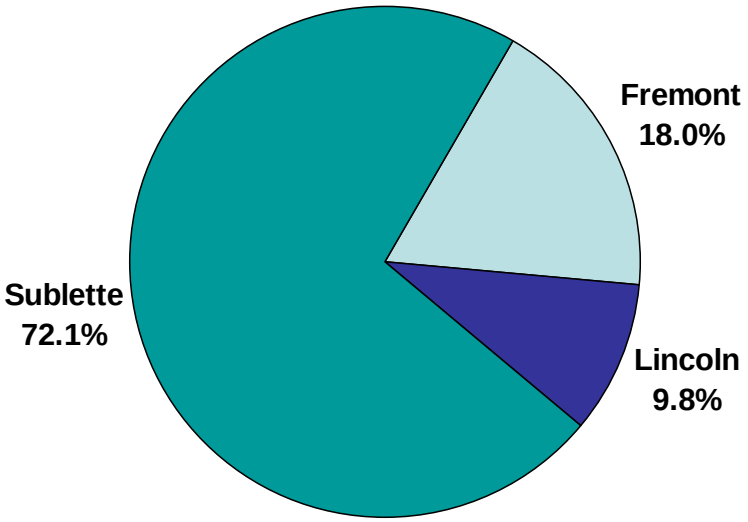
Table 3.2.5b. Sand, gravel and landscape rock production on the BTNF, 2006.

Source County	Sale permits (tons)	Free use permits (tons)
Lincoln	0	5
Sublette	1,000	230
Teton	437	645,000
	1,437	**645,235**

Source: Bridger-Teton National Forest

Natural gas assessed valuation

Figure 3.2.5j. Assessed valuation for natural gas, Bridger-Teton NF counties, 2006.



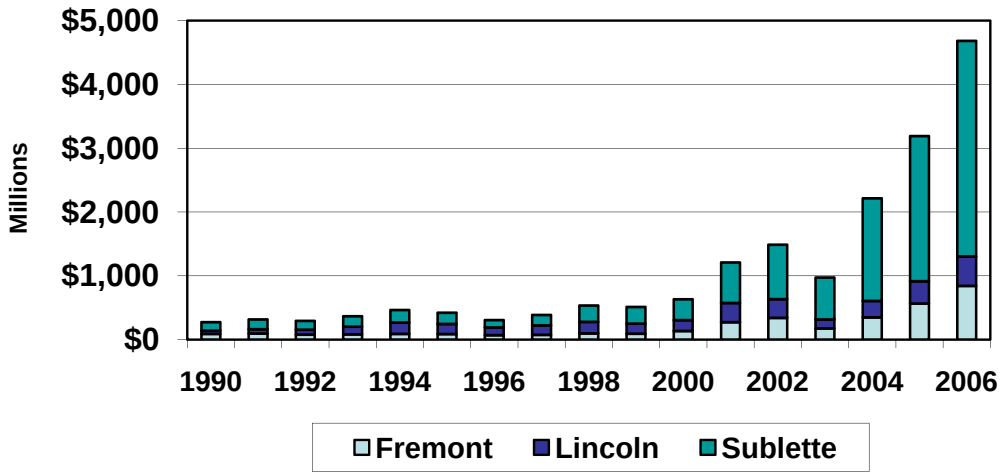
(Total=$5.4 billion) *Source: Wyoming Department of Revenue Annual Report, 2006*

In 2006, the assessed valuation of natural gas production in the BTNF counties totaled $5.4 billion (Figure 3.2.5j). Of this total $3.9 billion was in Sublette County (72.1%), $978.0 million was in Fremont County (18.0%), and $534.0 million was in Lincoln County (9.8%). Wyoming Department of Revenue records indicate that there was no natural gas production in Teton County for the year.

In 2006, natural gas production represented more than 80 percent of the total assessed valuation in the four-county area (80.8%). Among individual counties, natural gas production represented nearly 90 percent of total assessed valuation in Sublette County (88.9%), more than 70 percent of total assessed valuation in Fremont County (71.1%), and more than 55 percent of total assessed valuation in Lincoln County (56.6%).

Trends in natural gas valuation

Figure 3.2.5k. Assessed valuation of natural gas in Bridger-Teton NF counties, 1990-2006.



(inflation adjusted, 2000=100) Source: Wyoming Department of Revenue Annual Report, 2006

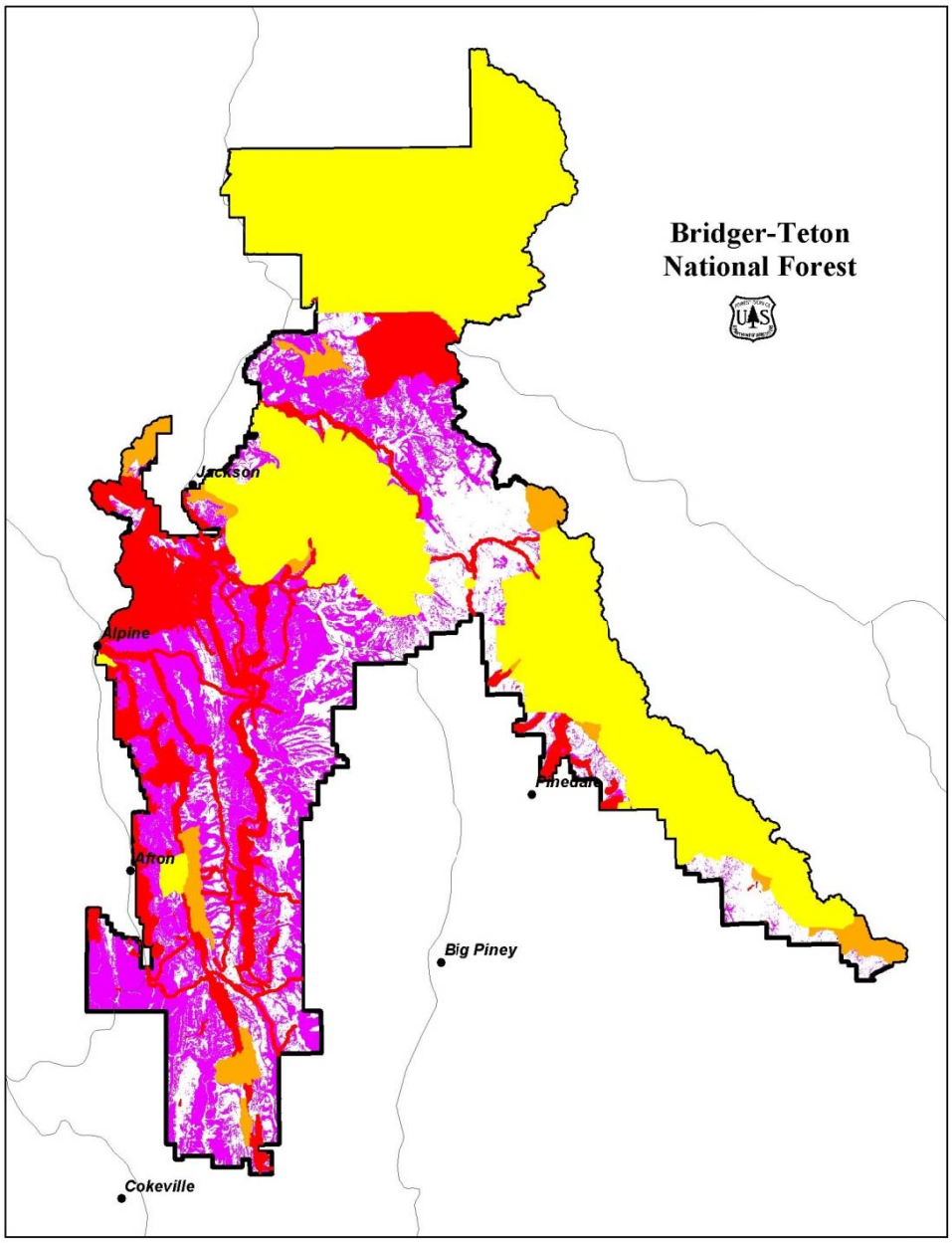
The assessed valuation of natural gas in the BTNF counties has increased in inflation-adjusted dollars by more than 17 times from $273.4 million in 1990 to $4.7 billion in 2006 (Figure 3.2.5k). Among individual counties, $3.2 billion of the increase was in Sublette County (73.6%), with $751.7 million of the increase in Fremont County, and $411.6 million of the increase in Lincoln County (9.3%). Approximately one fourth of the total increase was due to expanded production (1990 = 225.4 bcf and 2006 = 1,054.8 bcf) with three-fourth of the increase being due to higher prices (1990 = $1.21 per mcf and 2006 = $4.44 per mcf).

Sublette County not only had the largest increase in natural gas assessed valuation but also the fastest growth. Between 1990 and 2006 the natural gas assessed valuation in Sublette County increased by more than 25 times. During the same time period the natural gas assessed valuation in Fremont and Lincoln Counties both increased by more than 9 times.

3.2.6 Natural Gas Production on the BTNF

The area available for drilling on the BTNF is limited by both policy and environmental considerations. Figure 3.2.6a shows a map of the BTNF with restricted areas highlighted. The yellow areas represent areas legally withdrawn from mineral entry by law. The orange areas

Figure 3.2.6a. "No-surface occupancy" areas, Bridger-Teton National Forest.



Source: Bridger-Teton National Forest

Legally withdrawn from mineral entry by law

Administratively withdrawn-NSO, "No Surface Occupancy"

Technical stipulation: NSO

Considered not suitable and not available by 1990 forest plan

represent areas considered not suitable and not available under the 1990 Forest Plan. The red represents areas that are suitable and available for leasing but have administrative no-surface-occupancy stipulations placed on them. The pink areas represent areas that are suitable and

available for leasing but have technical no-surface-occupancy stipulations placed on them. Currently, 150,587 acres on the forest are leased and 44,600 are under appeal.

Information from the Wyoming Oil and Gas Conservation Commission indicates that there are currently 14 producing gas wells on the Bridger-Teton National Forest (Likwartz, 2006). Table 3.2.6a summarizes these wells in terms of which field they are located in, which county, and when they were completed. Of these 14 wells there are four wells in both the Fogarty Creek and Lake Ridge Fields. In addition, there are three wells in the Soda, two wells in the Maki Creek, and one well in the Riley Ridge Fields. *All the current producing wells are located in Sublette County*. The earliest wells were two wells completed in 1982, one in the Fogarty Creek Field and one in the Riley Ridge Field. There were also two wells completed in 1985, five wells completed in 1986, one well completed in 1987, one well completed in 1994, one well completed in 1999, and one well completed in 2002. The most recent producing well was one completed in 2004 in the Maki Creek Field.

Table 3.2.6a. Producing oil and gas wells on the Bridger-Teton NF.

Well	Field	County	Completion Date
1	Fogarty Creek	Sublette	1982
2	Riley Ridge	Sublette	1982
3	Lake Ridge	Sublette	1985
4	Soda	Sublette	1985
5	Fogarty Creek	Sublette	1986
6	Lake Ridge	Sublette	1986
7	Lake Ridge	Sublette	1986
8	Fogarty Creek	Sublette	1986
9	Lake Ridge	Sublette	1986
10	Soda	Sublette	1987
11	Fogarty Creek	Sublette	1994
12	Maki Creek	Sublette	1999
13	Soda	Sublette	2002
14	Maki Creek	Sublette	2004

Source: Wyoming Oil & Gas Conservation Commission

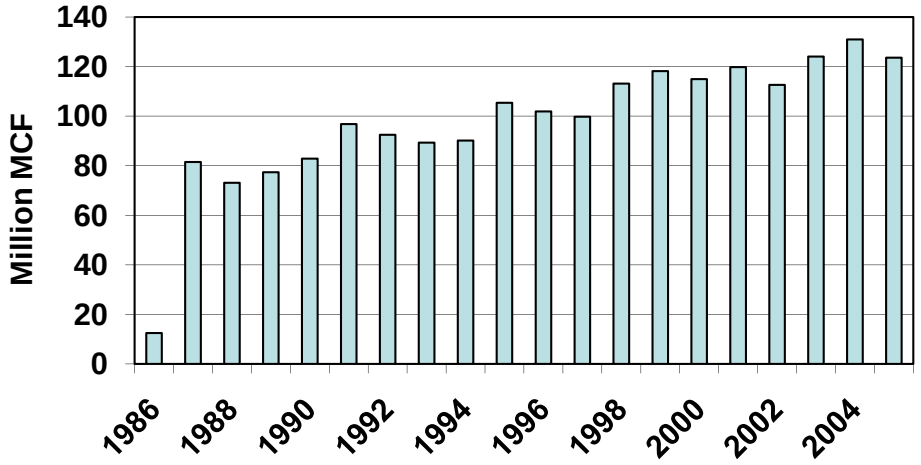
After only limited production in 1986, total natural gas production on the Bridger-Teton National Forest (BTNF) increased from 81.5 million MCF (thousand cubic feet) in 1987 to 131.0 million MCF in 2004 (Figure 3.2.6b). This represents an increase of more than 50 percent in 17 years. In 2005 BTNF natural gas production was 123.6 MMCF. Since production of condensate on the BTNF has averaged only slightly more than 650 barrels since 1986 (Table 3.2.6b), it was not considered in the analysis.

The current wells on the BTNF are among the highest producing gas wells in the state producing at a rate of 40-70 million cubic feet/day (Likwartz, 2007). Gas from the fields where these wells are located is processed at ExxonMobil's Shute Creek plant located near LaBarge. This plant supplies the CO_2 for all six enhanced oil recovery projects in Wyoming and also produces 30

percent of the world's helium. If future wells are developed on the BTNF it is not clear that they would produce at the level of the current wells.

The economic impact of natural gas production on the BTNF is summarized in Table 3.2.6c. Using the average annual price for Wyoming it is estimated that the 2005 natural gas production on the BTNF had a value of $822.1 million. Based on per unit coefficients from the Pinedale Anticline Draft Supplemental EIS it is estimated that the BTNF natural gas production supported a total (direct plus secondary) of 248 jobs throughout the economies of Lincoln, Sublette, and Sweetwater Counties. (Note: Employment is expressed in annual equivalents where one job for 12 months equals one annual equivalent). Labor earnings associated with employment were estimated to be nearly $13 million or more than $52,000 per job.

Figure 3.2.6b. Natural gas production, Bridger-Teton NF, 1986-2005.



Source: Wyoming Oil & Gas Conservation Commission, 2007

Based on per unit coefficients from the Pinedale Anticline Draft Supplemental EIS it is estimated that the drilling of an additional natural gas well on the BTNF would result in additional employment of nearly 25 jobs and $1.3 million in labor earnings in the three-county area of Lincoln, Sublette, Sweetwater. These estimates are based on the assumption that only 40 percent of the workers are local residents. The analysis also assumes that the well drilled on the BTNF would have similar development characteristics to those currently being drilled on the Pinedale Anticline.

In terms of tax revenue, it is estimated that the natural gas production on the BTNF in 2005 generated $35.7 million in Ad Valorem Taxes, $34.3 million in Severance Taxes, and $30.8 million in Federal Mineral Royalties for Wyoming. The total tax revenue to Wyoming from this production is estimated to be $100.9 million.

The tax revenue from natural gas production on the BTNF funds various levels of government in Wyoming (Table 3.2.6d). Of the estimated $35.7 million generated in Ad Valorem Taxes it is estimated that $7.3 million went to the Sublette County general fund, $1.5 million went to special districts in Sublette County, and $19.6 million went to the local school districts in Sublette County. The remaining $7.3 million went to the State School Foundation Program. It should be note that due to recapture provisions for school funding in Wyoming much of the revenue going to Sublette County Schools is in fact recaptured by the State School Foundation. Due to the high per student assessed valuation in Sublette County over 50 percent of the school districts revenue was recaptured by the State School Foundation Program in 2004-2005. This amount will increase in the future due to recent changes in the recapture provisions in Wyoming.

In terms of severance taxes, the State of Wyoming allocates a small percentage of this revenue with counties, cities, and towns in Wyoming with the distribution based primarily on population (Table 3.2.6d). Of the total severance tax revenue from natural gas production on the BTNF ($34.3 million) it is estimated that overall counties, cities, and towns in Wyoming received slightly less than $762,000 with approximately $90,000 going to counties, cities, and towns in the four-county area. The remaining $33.5 million is retained by the State. While a small additional amount of severance tax goes to a capital construction account for cities, towns, counties and special districts and another small additional amount goes to a state aid for county roads account it was not possible to estimate how these funds were distributed.

Table 3.2.6b. Oil and gas production on the Bridger-Teton NF.

Year	Natural Gas MCF	Condensate BBLS
1986	12,436,551	0
1987	81,514,258	0
1988	73,116,788	0
1989	77,385,401	834
1990	82,850,178	2,576
1991	96,808,421	222
1992	92,447,771	559
1993	89,310,741	218
1994	90,167,884	589
1995	105,394,535	80
1996	101,919,965	188
1997	99,793,494	406
1998	113,151,245	210
1999	118,200,751	79
2000	114,961,721	1,046
2001	119,782,833	1,262
2002	112,633,144	1,637
2003	124,071,781	1,874
2004	130,968,651	453
2005	123,608,930	838

Source: Wyoming Oil & Gas Conservation Commission

Similar to severance taxes, the State of Wyoming allocates a small percentage of Federal Mineral Royalties to cities and towns in Wyoming. No share is currently allocated to county government. Of the total severance tax revenue from natural gas production on the BTNF ($30.8 million) it is estimated that overall cites and towns in Wyoming received about $535,000 with approximately $84,000 going to cities and towns in the four-county area. The remaining $30.3 million is retained by the State. While a small additional amount of severance tax goes to a capital construction account for cities, towns, counties and special districts it was not possible to estimate how these funds were distributed.

Table 3.2.6c. Economic Impact of Natural Gas Production on the Bridger-Teton NF, 2005.

Value of Production

	Natural Gas	Source
Production (MCF)	123,608,930	Wyoming Oil and Gas Conservation Commission
Value Per Unit	$6.651	CREG - 10/5/2006
Value of Production	$822,122,993	

Economic Impact of Production*

	Per MMCF	BTNF Total	
Employment (AE)	0.002008	248	Pinedale Anticline Draft Supplemental EIS
Labor Earnings	$104.90	$12,966,577	Pinedale Anticline Draft Supplemental EIS
Ave. Earnings/Job	$52,243	$52,243	

* For Lincoln, Sublette, and Sweetwater Counties

Economic Impact of Development*

	Total Per Well All Local Jobs	Total Per Well 40% Local Jobs	
Employment (AE)	47.4	24.6	Pinedale Anticline Draft Supplemental EIS
Labor Earnings	$2,430,179	$1,261,232	Pinedale Anticline Draft Supplemental EIS
Ave. Earnings/Job	$51,291	$51,291	

* For Lincoln, Sublette, and Sweetwater Counties

Ad Valorem Tax - Production

Gas Production	123,608,930	Wyoming Oil and Gas Conservation Commission

Sales Percent	91.04%	CREG - 10/5/2006
Gas Sales	112,533,570	
Valuation Per MCF	$5.429	CREG - 10/5/2006
Assessed Value	$610,944,751	
Mill Levy	58.49	Wyoming Department of Revenue - Annual Report
Total Tax	$35,734,158	

Severance Tax

Gas Sales	112,533,570	
Tax Per Unit	$0.3047	Wyoming Department of Revenue - Annual Report
Total Tax	$34,288,979	

Federal Mineral Royalties

Gas Production	123,608,930	Wyoming Oil and Gas Conservation Commission
FMR/MCF	$0.499	Minerals Management Service Website
Total FMR	$61,680,856	
Wyoming's Share	50.0%	
Wyoming's FMR	$30,840,428	

Table 3.2.6d. Distribution of Natural Gas Revenue from Bridger-Teton NF.

Ad Valorem Tax - Production

	Mill Levy	Percent	BTNF Gas Production
Sublette County	12.00	20.5%	$7,331,337
Special Districts	2.47	4.2%	$1,509,034
Local Schools*	32.02	54.7%	$19,562,451
State School Foundation	12.00	20.5%	$7,331,337
Total	58.49	100.0%	$35,734,158

* Includes amount recaptured by State School Foundation

Severance Tax	Percent of Total	BTNF Gas Production
Fremont Cities & Towns	0.086%	$29,327
Lincoln Cities & Towns	0.037%	$12,688
Sublette Cities & Towns	0.012%	$4,060
Teton Cities & Towns	0.040%	$13,821
Other Cities & Towns	1.399%	$479,730

Fremont County	0.042%	$14,518
Lincoln County	0.018%	$6,163
Sublette County	0.007%	$2,493
Teton County	0.022%	$7,496
Other Counties	0.559%	$191,531
State & Reserve Accounts	97.778%	$33,527,151
Total	100.000%	$34,288,979

Federal Mineral Royalties

	Percent of Total	BTNF Gas Production
Fremont Cities & Towns	0.129%	$39,717
Lincoln Cities & Towns	0.073%	$22,399
Sublette Cities & Towns	0.028%	$8,526
Teton Cities & Towns	0.045%	$13,845
Other Cities & Towns	1.461%	$450,515
Fremont County	0.000%	$0
Lincoln County	0.000%	$0
Sublette County	0.000%	$0
Teton County	0.000%	$0
Other Counties	0.000%	$0
State & Reserve Accounts	98.265%	$30,305,427
Total	100.000%	$30,840,428

Source: Wyoming Department of Revenue Annual Report, 2006

3.2.7 Carbon sequestration

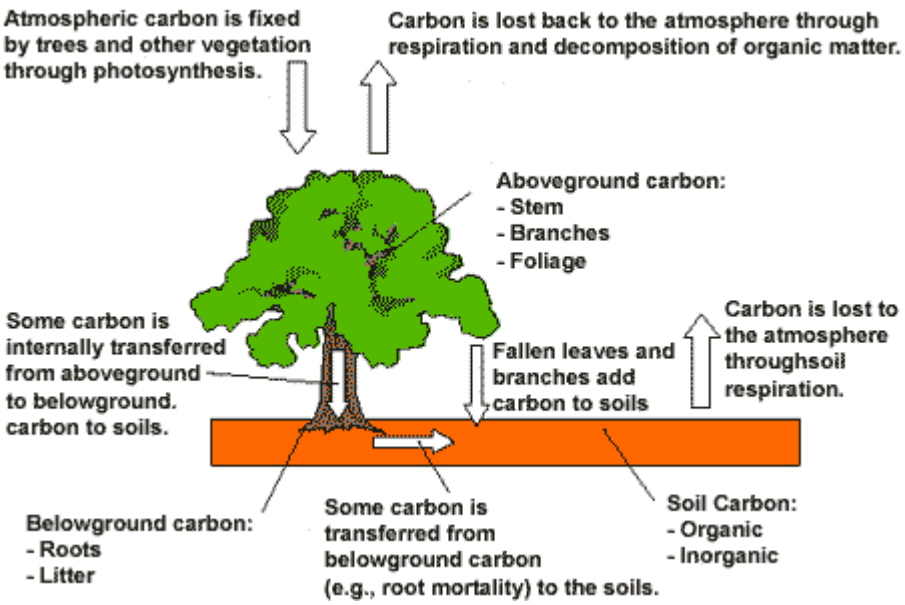
Concerns about global climate change have increased pressure on nations and industries to control anthropogenic (human caused) greenhouse gas (GHG) emissions. Carbon, in the form of carbon dioxide (CO_2) is a major contributor to atmospheric GHG; as a result, carbon sequestration is seen as one promising means of reducing emissions and mitigating climate change. Carbon sequestration refers to the net removal of CO_2 from the atmosphere into long-lived storage including above and below ground biomass, oceans, and biomass products with long useful lives (e.g. timber products) (Oakridge National Laboratory, 2001). Carbon sequestration in terrestrial biospheres is one option for immediate sequestration since atmospheric CO_2 over short time horizons is primarily controlled by biotic processes (National Science Foundation, 2000) and, therefore, terrestrial sequestration presents a management option to effect carbon fluxes in the short term. If the United States were to ratify the Kyoto Protocol or a similar international agreement, managing National Forests for terrestrial carbon sequestration could become a critical component of a domestic climate management portfolio. It is therefore important that this valuable ecosystem service is understood and considered during the Forest planning process.

In response to global pressure to reduce greenhouse gases (GHG), a growing market for GHG emission "offsets" has emerged. A GHG offset is generated when a specific action reduces, avoids or sequesters GHG. Markets for GHG offsets, including the sequestration of carbon in forest systems, are still evolving and there is no universal definition of which activities qualify. There are, however, several private firms and government agencies available to document GHG emission reductions, contract and manage offset projects, and purchase or trade offsets (Table 3.2.7a). Additionally, the US Department of Energy has developed technical guidelines for measuring and reporting GHG emissions/reductions (US Department of Energy, 2006).

Table 3.2.7a. Greenhouse gas offset management firms and agencies.

Chicago Climate Exchange (www.chicagoclimatex.com/)
EcoSecurities (www.ecosecurities.com/)
California Climate Action Registry (http://198.104.131.213/)
The Nature Conservancy (www.nature.org)
The Pacific Forest Trust (www.pacificforest.org/services/climate.html)
The Climate Trust (www.climatetrust.org/)
Trexler and Associates, Inc (www.climateservices.com/index.htm?proj_forestry.htm)
National Carbon Offset Coalition (www.ncoc.us/)
The World Bank Carbon Finance Unit (http://carbonfinance.org)

Figure 3.2.7a. The terrestrial carbon cycle



(*Source: US Environmental Protection Agency, 2006)*

Forests sequester carbon through the process of photosynthesis, where atmospheric carbon is fixed by growing vegetation, and converted to above and below ground carbon pools (Figure 3.2.7a). Forests act as carbon sinks when photosynthetic uptake exceeds respiration loss. Since the terrestrial carbon cycle is a dynamic process, the quantity of carbon sequestered by a given forested area is constantly changing depending natural cycles (e.g. climate and fire) and anthropogenic disturbances (e.g. timber harvest).

A range of management practices exist to increase forest sequestration potential. These practices include: 1) afforestation – the creation of forests on non-forested lands, 2) reforestation – replanting of harvested or damaged timber stands, 3) preservation – the protection of forests and 4) timber harvest management – lengthening timber harvest schedules or adopting low-impact logging.

The first step to determine a forests potential to generate GHG offsets is to establish a baseline. The baseline provides a standard against which potential offset project benefits can be evaluated. Since the forest carbon cycle is dynamic, baseline values are likely to change over time; therefore the appropriate baseline comparison for proposed offset projects must ultimately be determined by the firms/agencies involved.

Current State of Carbon Sequestration on the BTNF

Several models have been developed to assess carbon sequestration in forest ecosystems. Predictions from the NASA-Carnegie Ames Stanford Approach (CASA) Carbon Query and Evaluation Support Tool (CQUEST) were used to approximate the current state of carbon sequestration on the BTNF (Potter, et al., 2006). CQUEST is a computer simulation model that uses satellite remote sensing inputs at an 8-km resolution to predict carbon sequestration in forest and agricultural ecosystems. Carbon sequestration data simulated with the CQUEST model have been ground-truthed for accuracy. However, CQUEST predictions are the result of a simulation model and are therefore uncertain, as well as limited in their spatial and temporal resolution. BTNF planners should be aware of these limitations and should treat CQUEST predictions as approximate estimates of measurable carbon pools.

Through collaboration with NASA staff, the CQUEST model was used to generate three estimates of current carbon sequestration within the BTNF boundary: standing wood carbon, live leaf carbon and the yearly carbon increment.

Standing Wood Carbon & Live Leaf Carbon

Standing wood carbon (SWC) and live leaf carbon (LLC) provide estimates of the accumulation of carbon over time. SWC measures the quantity of carbon stored in standing (live) wood tissue. LLC measures the quantity of carbon stored in living green leaf tissue. Combined these measures represent a significant proportion of carbon stored in the BTNF ecosystem. Two other measures, dead wood carbon and surface soil carbon, would also be required for a complete baseline assessment of accumulated carbon. These additional measures are in the process of being ground-truthed for the Bridger-Teton region and are not yet available.

The CQUEST estimates show that there is significant accumulation of standing wood carbon (Figure 3.2.7b) and live leaf carbon (Figure 3.2.7c) across the BTNF. The two measures combined indicate that the BTNF has approximately 415 million tons of accumulated carbon[1]. Not including dead wood and surface soil carbon this accumulation accounts for approximately 0.6 % of the total accumulated carbon in the Rocky Mountain Region[2] (see Potter, et al., 2006).

Figure 3.2.7b. Standing wood carbon (tons/ha).

[1] The accumulated carbon reported here does not include dead wood or surface soil carbon. In previously reported CQUEST data soil carbon accounted for approximately 80% of total accumulated carbon in the Rocky Mountain Region (Potter et al. 2006). Therefore the data reported here are likely to significantly underestimate the total accumulation of carbon on the BTNF.

[2] The Rocky Mountain Region encompasses Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

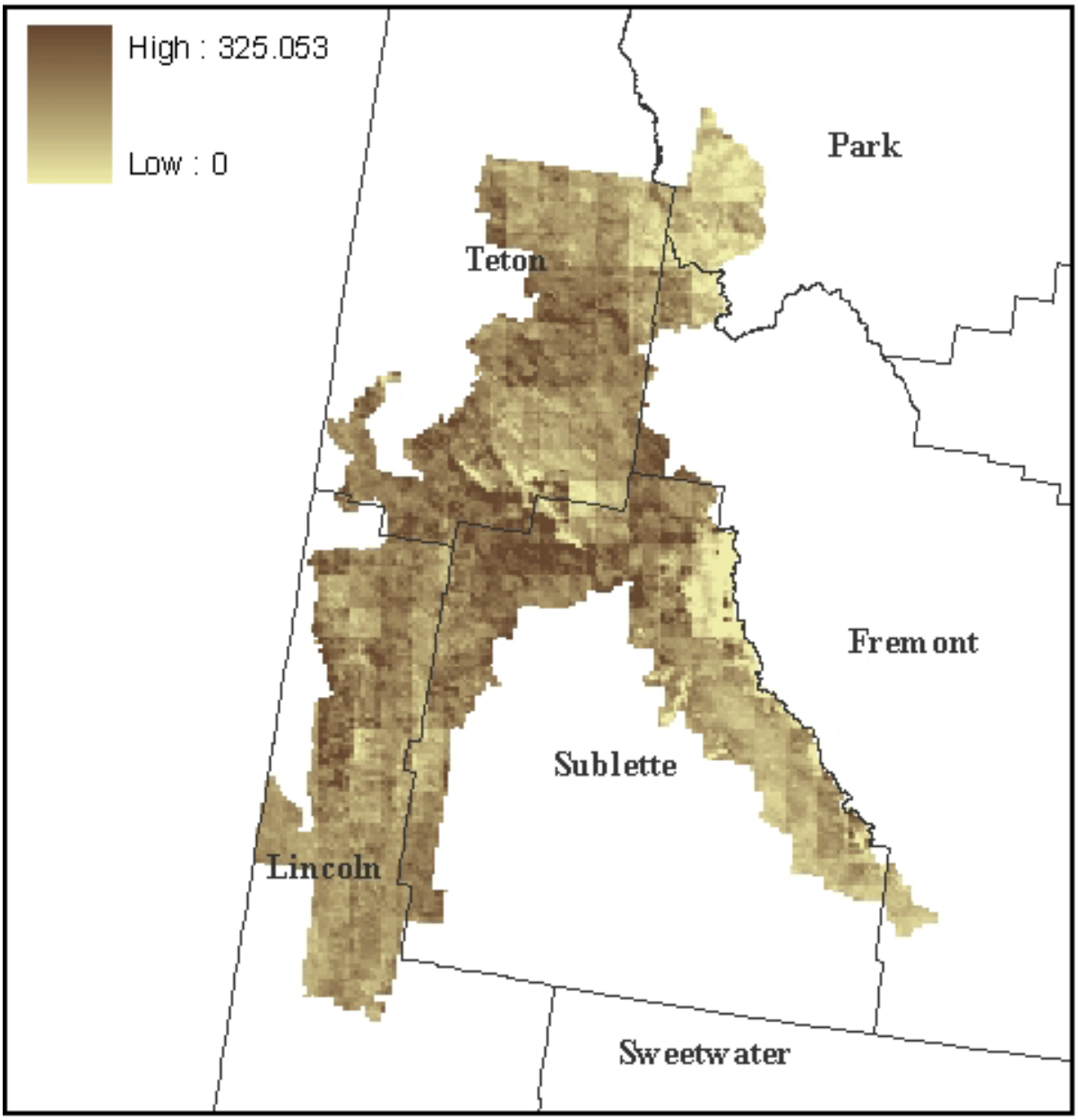

High : 325.053
Low : 0
Park
Teton
Fremont
Sublette
Lincoln
Sweetwater

Figure 3.2.7c. Live leaf carbon (tons/ha).

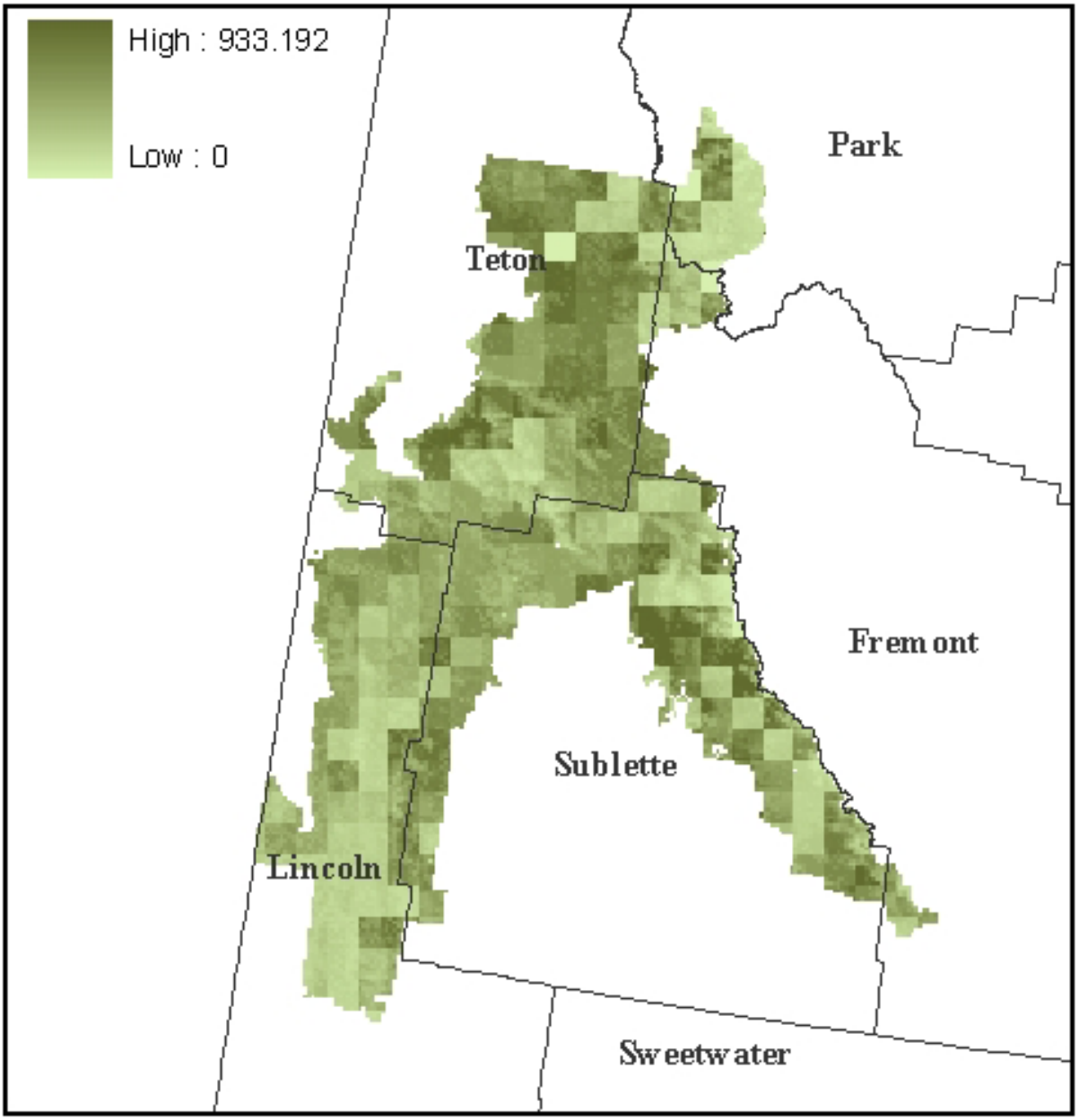
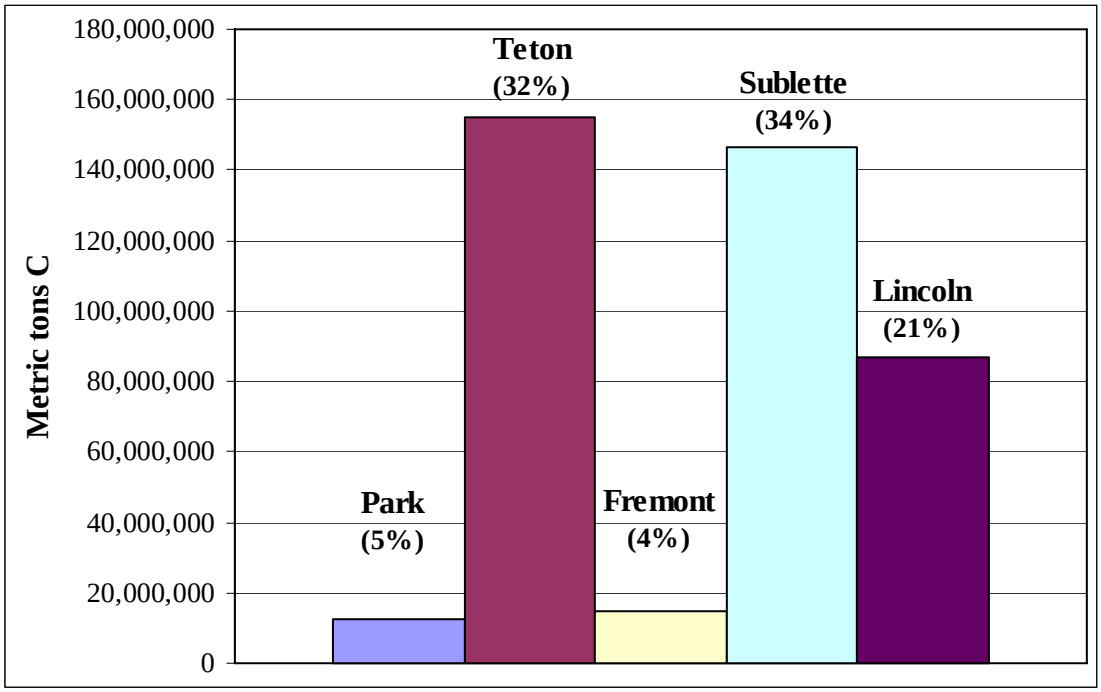


Figure 3.2.7d. Accumulated live leaf and standing wood carbon on the BTNF by county (parentheses indicate the percent of the BTNF in each county).



Carbon accumulated in live leaf and standing wood pools are roughly distributed across the representative counties in relative proportion to forest area (Figure 3.2.7d). Teton and Sublette Counties, which represent 66% of the BTNF area, account for 72% of the accumulated carbon. Fremont County (4% of the BTNF) accounts for nearly 1.5 million tons more than Park County (5% of the BTNF), even though it contains fewer BTNF acres.

Yearly Carbon Increment

The yearly carbon increment estimates the annual transfer of carbon from the atmosphere to the terrestrial biosphere. This measure, which is related to net primary productivity, could be used to estimate new sequestration resulting from alternative forest management practices. As such, it is the measure that could be used to generate incremental carbon sequestration for GHG offset trading programs. The CQUEST Model estimates significant annual flux in carbon across the BTNF (Figure 3.2.7e).

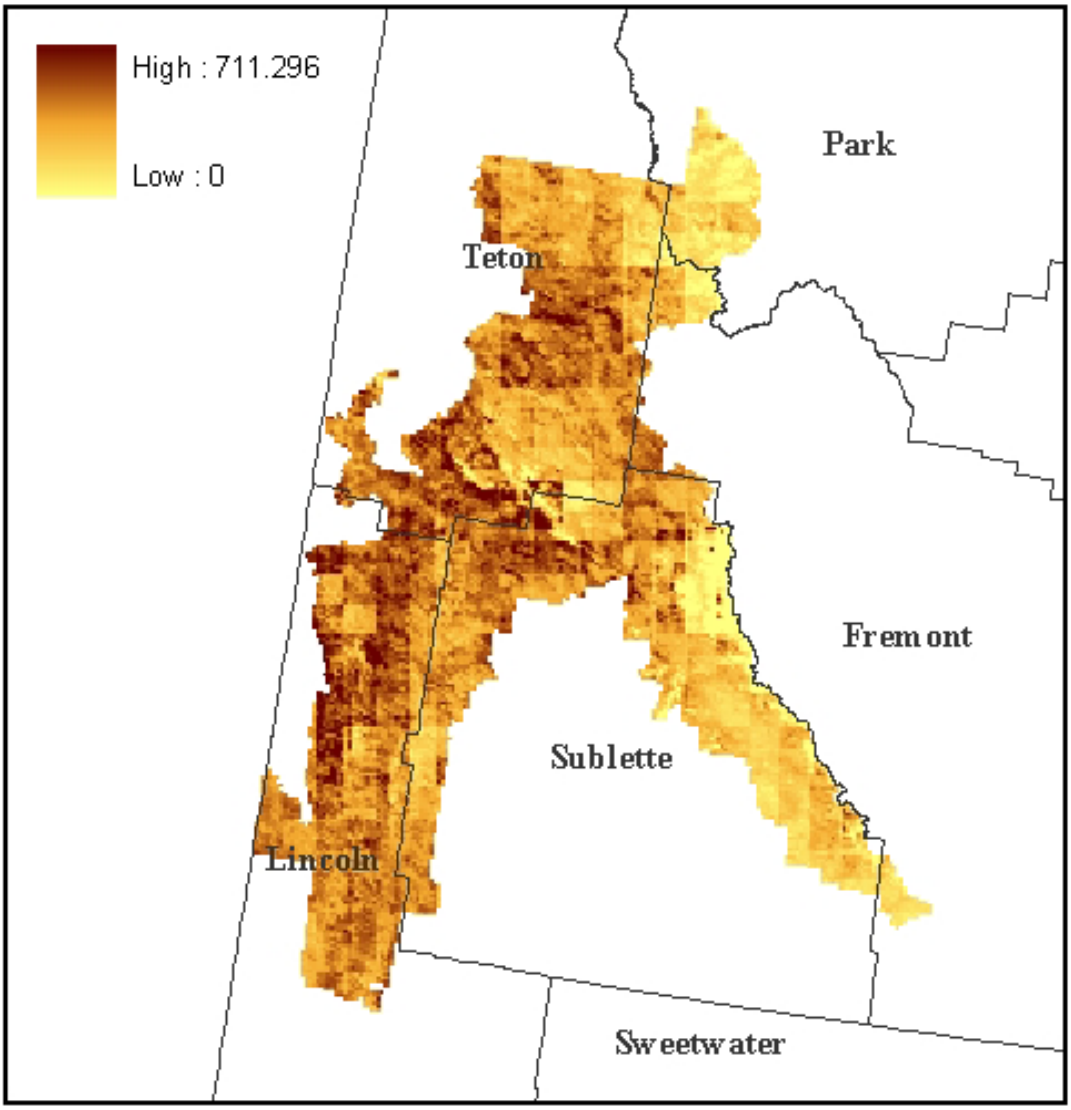
The BTNF annual flux of carbon is approximately 3.8 million tons (Table 3.2.7b). To put this in perspective, the BTNF accounts for approximately 9% of the yearly carbon increment for the entire Rocky Mountain Region. Alternatively, a 500MW pulverized coal power plant emits approximately 2.7 million metric tons of CO_2 annually. If the yearly carbon increment for the BTNF were the result of specific forest management practices, it would be worth $11 million to $15 million on the carbon credit trading market[3]. The degree to which alternative forest

[3] Estimates based upon the February 2007 market data for the Chicago Climate Exchange (www.chicagoclimateex.com). Most credit trading programs require that the supplier demonstrate that the carbon increment would not have been produced without management intervention.

Table 3.2.7b. Yearly carbon increment on the BTNF, by county.

	Percent of BTNF Area	Yearly Carbon Increment (tons C/yr)
Park	5 %	105,174.00
Teton	32 %	1,336,960.00
Fremont	4 %	113,648.00
Sublette	35 %	1,147,230.00
Lincoln	21 %	1,104,970.00
Total		3,807,982.00

Figure 3.2.7e. Yearly carbon increment, (g C/m^2/yr).

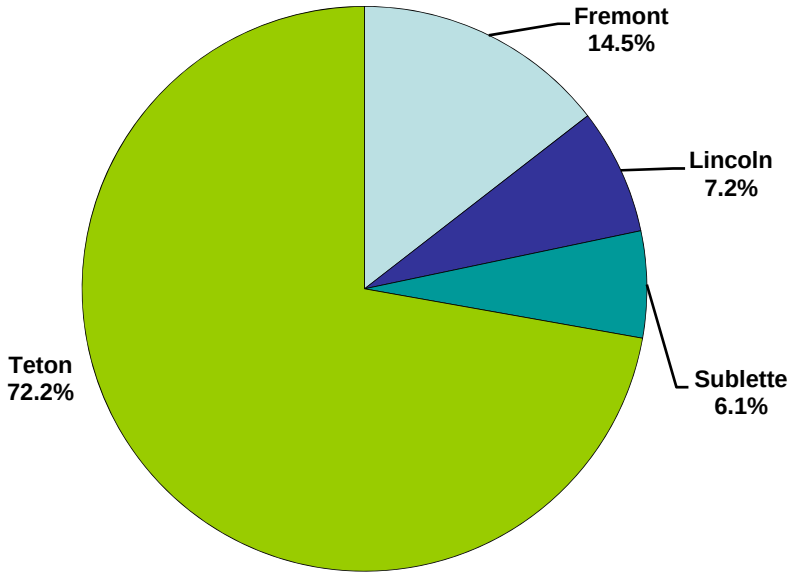


management practices could affect the yearly carbon increment is unknown; however, the CQUEST model could be used to simulate management effects and estimate the value of alternative practices in terms of carbon offset credit trading.

3.3 Forest amenities

3.3.1 Visitor amenities

Figure 3.3.1a. Visitor spending by county for Bridger-Teton NF counties, 2005

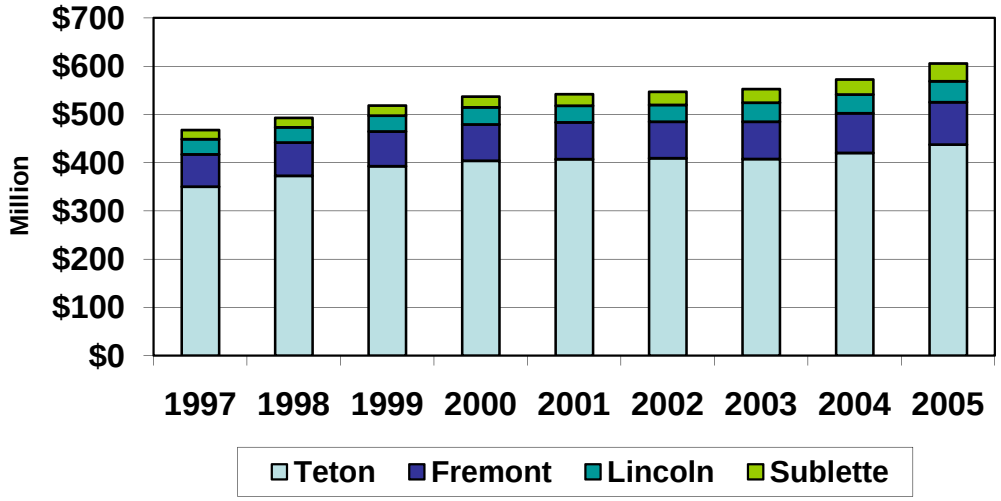


Total=$682,500,000 *Source: Dean Runyan Associates*

Dean Runyan Associates provides an annual report to the Wyoming Business Council on the economic impact of travel in Wyoming. The following information was taken from their most recent report. Dean Runyan Associates estimates that total visitor spending in the four-county area during 2005 was $682.5 million (Figure 3.3.1a). These expenditures represented overnight trips to the area that were not of a local or commuting nature and presumably included trips to the Bridger-Teton National Forest. They include trips for both business and pleasure. It is assumed that the Dean Runyan Associates estimates include all travel expenditures, including the various components previously discussed in this report. Of the total spending, $493.0 million was in Teton County (72.2%), $99.2 million was in Fremont County (14.5%), $48.9 million was in Lincoln County (7.2%), and $41.4 was in Sublette County (6.1%). The largest category of visitor spending was $172.3 million for Accommodations (25.2%). Following Accommodations were $142.2 million for Food & Beverage Service (20.8%), $105.1 million for Arts, Entertainment, Recreation (15.4%), $101.8 million for Retail Sales (14.9%), $88.6 million for Ground Transportation & Fuel (13.0%), $42.9 million at Food Stores (6.3%), and $29.5 million for other items (4.3%).

Trends in visitor spending

Figure 3.3.1b. Total Visitor Spending for Bridger-Teton NF counties, 1997-2005.



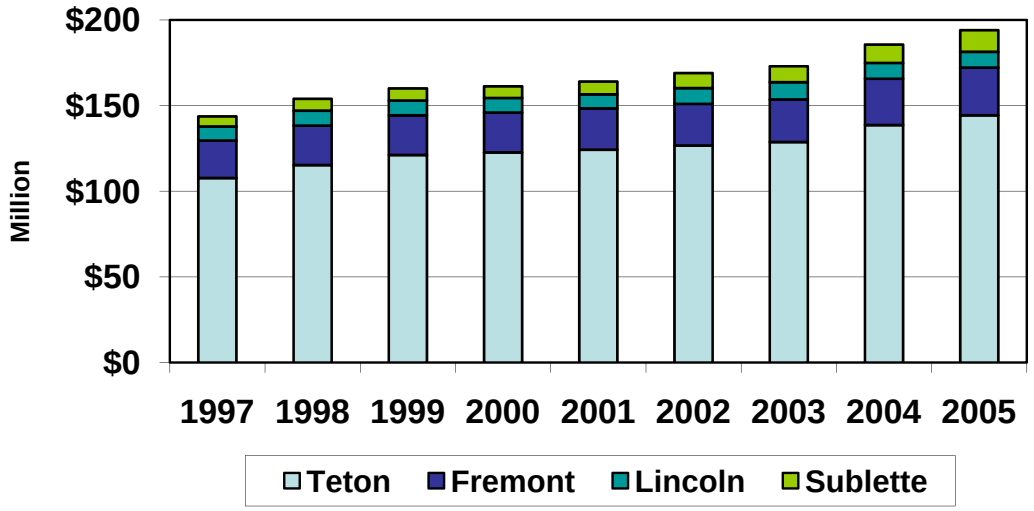
(Inflation adjusted 2000= 100) *Source: Dean Runyan Associates*

Figure 3.3.1b shows that adjusted for inflation total visitor spending in the four-county area increased from $467.4 million in 1997 to $605.4 million in 2005 (+29.5%). This represents a compound average growth rate of 3.3 percent per year. Among the individual counties, the fastest growth rate for visitor spending was in Sublette County which nearly doubled between 1997 and 2005 (+96.8%) or 8.8 percent per year. Following Sublette County was Lincoln County which grew by more than one-third (+37.5%) or 4.1 percent per year. Fremont County grew by nearly one-third (+31.2%) or 3.5 percent per year, and Teton County grew by about one-quarter (+24.9%) or 2.8 percent per year. Some of this increase, particularly in places like Sublette

County, was no doubt related to the increased natural gas drilling and production activity in the area. Local officials estimate that 75 percent of the hotel rooms in Sublette County are typically rented by gas field workers. They also estimate over 90 percent of the commercial RV sites in the county are rented to gas field workers. They feel that this lack of lodging availability has had a negative impact on recreation services businesses in the county.

Trends in Labor Earnings

Figure 3.3.1c. Earnings from travel spending for Bridger-Teton NF counties, 1997-2005.



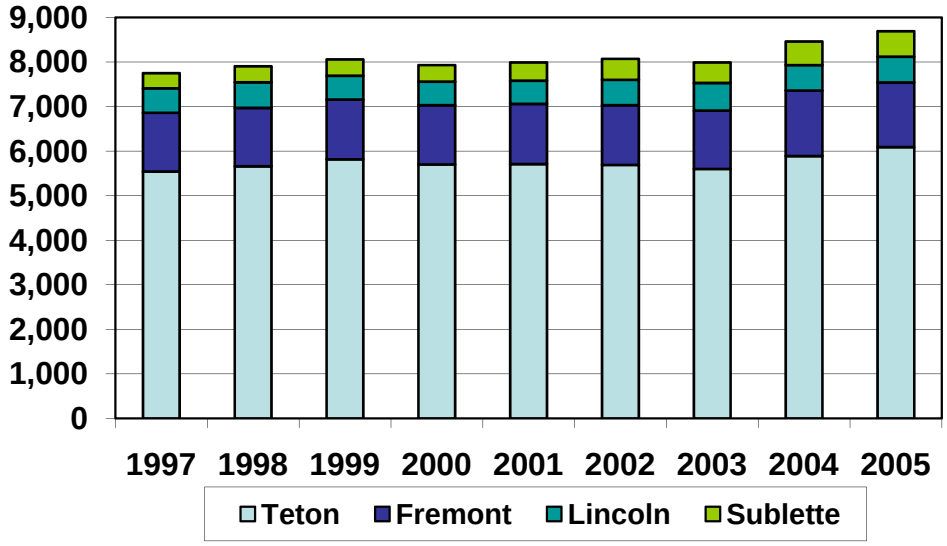
(Inflation adjusted, 2000=100) *Source: Dean Runyan Associates*

In inflation adjusted dollars, direct labor earnings from travel spending in the four-county area increased from $143.7 million in 1997 to $194.1 million in 2005 (+35.1%). This represents a compound average growth rate of 3.8 percent per year (Figure 3.3.1c). Of the $194.1 million in total direct labor earnings for 2005, $144.4 million was in Teton County (74.4%), $27.8 million was in Fremont County (14.3%), $9.2 million was in Lincoln County (4.8%), and $12.6 million was in Sublette County (6.5%).

Among individual counties, the fastest growth rate for labor earnings from travel spending was Sublette County which more than doubled (+114.8%) between 1997 and 2005 or 10.0 percent per year. Following Sublette was Teton Counties which grew by more than one-third (+34.0%) or 3.7 percent per year, Fremont County grew by more than one-quarter (+27.2%) or 3.0 percent per year, and Lincoln County grew by over 10 percent (+12.7%) or 1.5 percent per year.

Trends in employment

Figure 3.3.1d. Employment from travel spending for Bridger-Teton NF counties, 1997-2005.



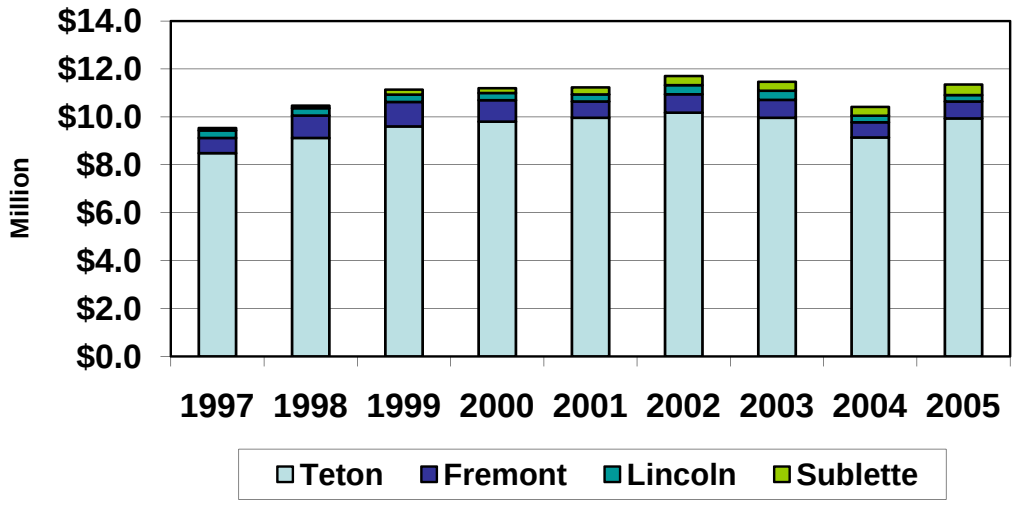
Source: Dean Runyan Associates

Direct employment from travel spending in the four-county area increased from 7,750 jobs in 1997 to 8,690 jobs in 2005 (+12.1%). This represents a compound average growth rate of 1.4 percent per year (Figure 3.3.1d). Of the total direct employment of 8,690 jobs in 2005, 6,090 jobs were in Teton County (70.1%), 1,450 jobs were in Fremont County (16.7%), 580 jobs were in Lincoln County (6.7%), and 570 jobs were in Sublette County (6.6%).

Among the individual counties, the fastest growth rate for employment from travel spending was Sublette County which grew by more than two-thirds (+67.6%) between 1997 and 2005 or 6.7 percent per year. Following Sublette County were Teton County which grew by nearly 10 percent (+9.9%) or 1.2 percent per year, Fremont County which grew by nearly 10 percent (+9.8%) per year or 1.2 percent per year, and Lincoln County which grew by more than 5 percent (5.5%) or 0.7 percent per year.

Trends in local tax revenue

Figure 3.3.1e. Local tax receipts from travel spending for Bridger-Teton NF counties.



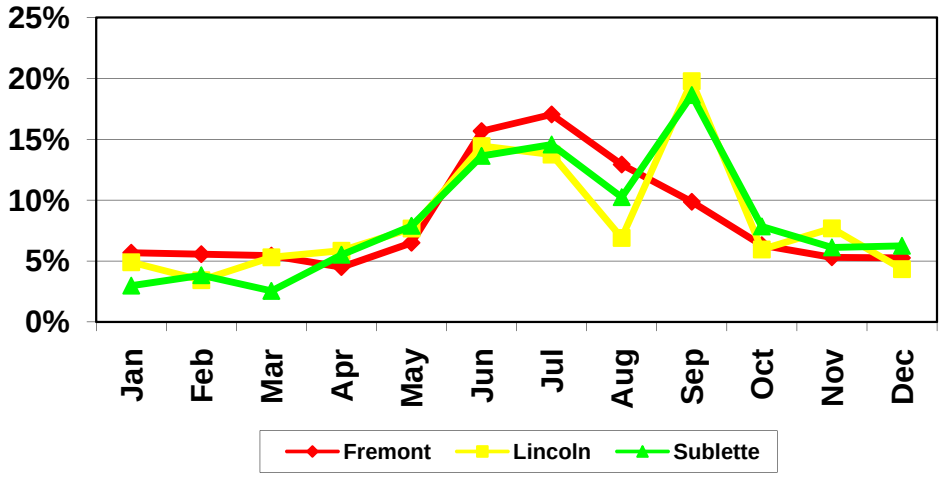
(Inflation adjusted, 2000=100) *Source: Dean Runyan Associates*

Adjusted for inflation, local tax receipts from travel spending in the four-county area increased from $9.5 million in 1997 to $11.3 million in 2005 (+19.0%). This represents a compound average growth rate of 2.2 percent per year (Figure 3.3.1e). Of total local tax revenue in 2005, $9.9 million was in Teton County (87.5%), $0.7 million was in Fremont County (6.3%), $0.4 million was in Sublette County (3.9%), and $0.3 million was in Lincoln County (2.3%).

Among individual counties, the fastest growth rate for local tax receipts from travel spending was Sublette County which increased by more than 4 times (323.2 %) between 1997 and 2005 or 19.8 percent per year. Following Sublette County was Teton County which grew by nearly 20 percent (+17.0%) or 2.0 percent per year. Fremont County grew by nearly 15 percent (12.8%) or 1.5 percent per year. Lincoln County declined by more than 15 percent (-15.4%) or – 2.1 percent per year.

Seasonality

Figure 3.3.1f. Lodging sales per month for Bridger-Teton NF counties, 2005.



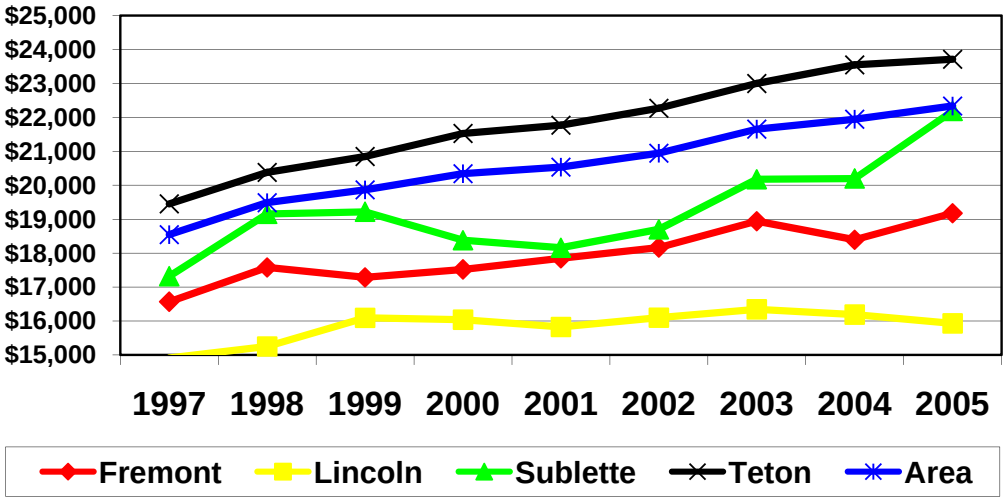
Source: Wyoming Department of Revenue

Estimates of lodging sales based on monthly lodging tax revenue suggest that travel spending in three of the four counties is seasonal in nature (Figure 3.3.1f). For both Fremont and Lincoln Counties, 55 percent of the lodging sales for 2005 occur in a four-month period (June, July, August, and September). For Sublette County 57 percent of lodging sales occur in the same four-month period. This of course suggests that the other eight months account for between 40 and 45 percent of lodging sales in the three counties.

Since Teton County no longer has a lodging tax, the seasonality of lodging sales could not be estimated. It should be noted that lodging tax receipts were lagged two months to account for delays in reporting. It should also be noted that the lodging tax in Lincoln County is not county-wide and is only charged in Cokeville, Afton, Diamondville, and Kemmerer.

Average earnings per job

Figure 3.3.1g. Average earnings per job for the travel industry for Bridger-Teton NF counties, 1997-2005.



Source: Dean Runyan Associates

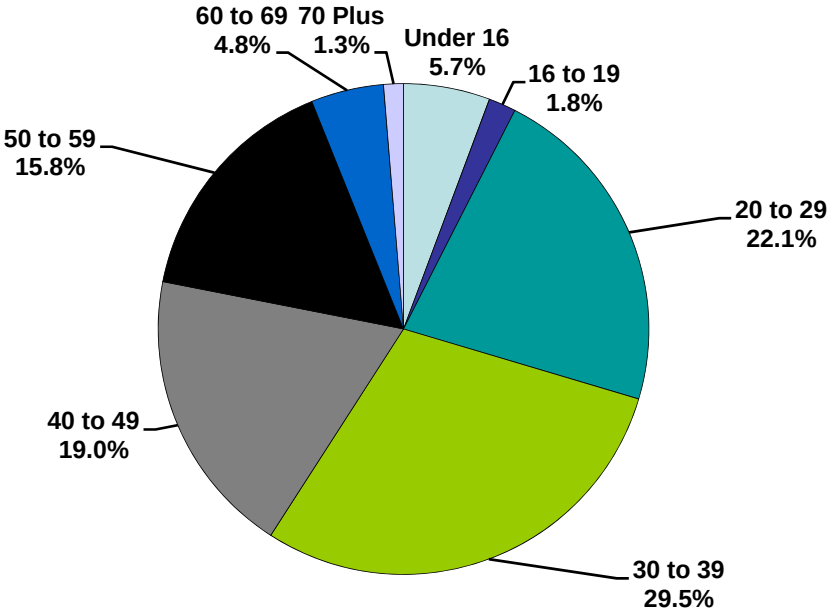
In 2005, average earnings per job for the travel industry in the four-county area were $22,335. For individual counties, average earnings per job ranged from a low of $15,928 in Lincoln County to a high of $23,712 for Teton County. For Fremont County the average was $19,175 and for Sublette County the average was $22,187.

Figure 3.3.1g shows average earnings per job for the travel industry in the four-county area from 1997 to 2005. Average earnings per job increased more than 20 percent in inflation-adjusted dollars ($18,543 to $22,335). Sublette County had the largest increase in average earnings per job (+28.1%). Following Sublette County were Teton (+21.9%), Fremont County (+15.8%), and Lincoln County (+6.8%).

In 2005, average earnings per job for all jobs in the four-county area were $34,284. For individual counties, average earnings per job for all jobs ranged from a low of $28,636 in Fremont County to a high of $39,481 in Teton County. For Lincoln County the average was $32,065 and for Sublette the average was $37,977.

Visitor descriptive statistics-age distribution

Figure 3.3.1h. Age of Bridger-Teton NF recreation visitors, 2003.



Source: Bridger-Teton National Forest, NVUM

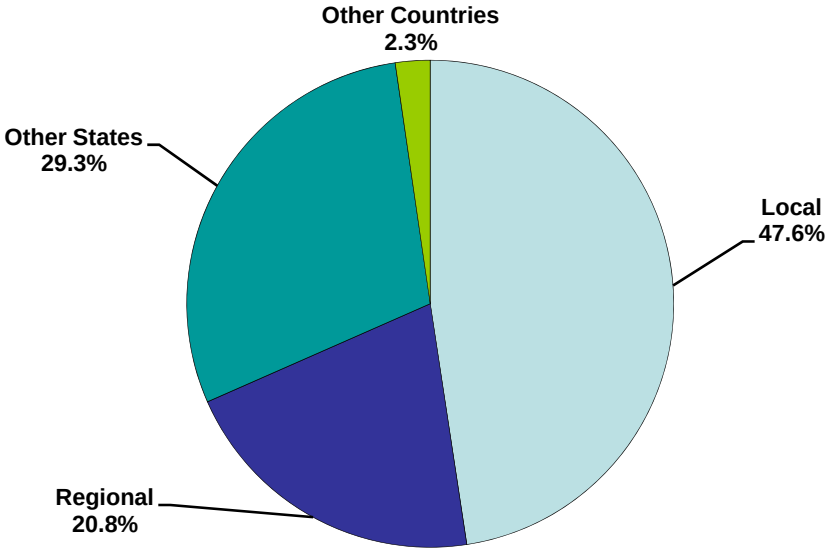
Information from the National Visitors Use Monitoring Project Report (NVUM) was obtained to analyze visitation trends on the Bridger-Teton National Forest. These results are based on an intercept survey of visitors to the Forest conducted by the Forest Service between October 2001 and September 2002. A total of 1,755 visitors were sampled in this survey.

In terms of age distribution the largest category of recreation visitors to the Forest was young adults (age 20 to 39). This age category represented more than 50 percent of the total Forest visitors (51.6%). The second largest category of visitors was middle aged adults (age 40 to 59). This category represented more than one-third of the total visitors to the Forest (34.8%). Youth (under 19 years old) represented only 7.5 percent of Forest visitors, while retirement aged adults (60 and older) represented only 6.1 percent of Forest visitors (Figure3.3.1h).

Recreation visitors to the Forest were predominately male (71.9%) and white (96.9%).

Visitor descriptive statistics-origin of recreation visitors

Figure 3.3.1i. Origin of Bridger-Teton NF recreation visitors, 2003.



Source: Bridger-Teton National Forest, NVUM

Figure 3.3.1i shows that nearly one-half of recreation visitors to the Forest were by residents of the four-county area (47.6%). Teton County residents accounted for 41.6 percent of total Forest recreation visitors. In terms of local visitors, Teton County residents were followed by Lincoln County residents (3.6%), Sublette County residents (1.4%), and Fremont County residents (0.9%).

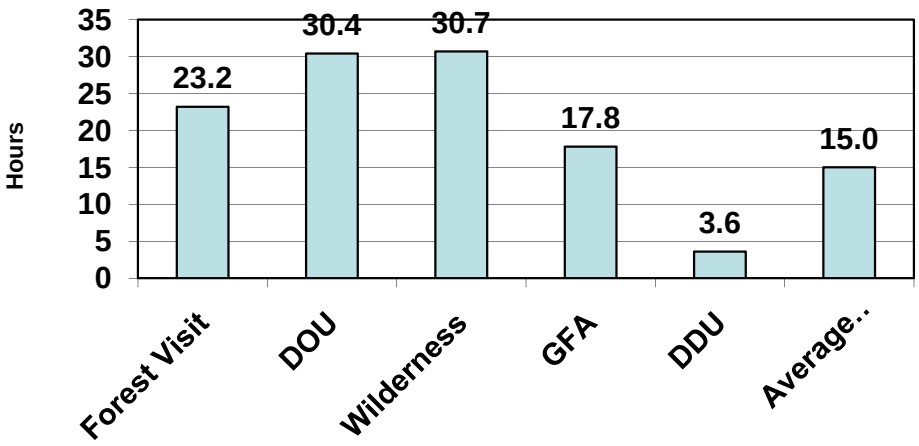
Regional residents, including individuals from other Wyoming counties and states bordering western Wyoming, accounted for about one-fifth of the total recreation visitors to the Forest (20.8%). Sweetwater County residents accounted for 1.9 percent of total Forest visitors, while Uinta County residents represented 0.9 percent. Among neighboring states, Utah had the largest proportion of Forest visitors (8.4%).

Nearly 30 percent of Forest visitors were from non-bordering states (29.3%) and less than three percent of visitors were from foreign countries (2.3%). The largest non-bordering state was California (3.8%).

Almost all recreation visitors indicated that this Forest was the primary destination for this trip (98.2%).

Visitor descriptive statistics-length of stay

Figure 3.3.1j. Average length of stay for Bridger-Teton NF visitors.



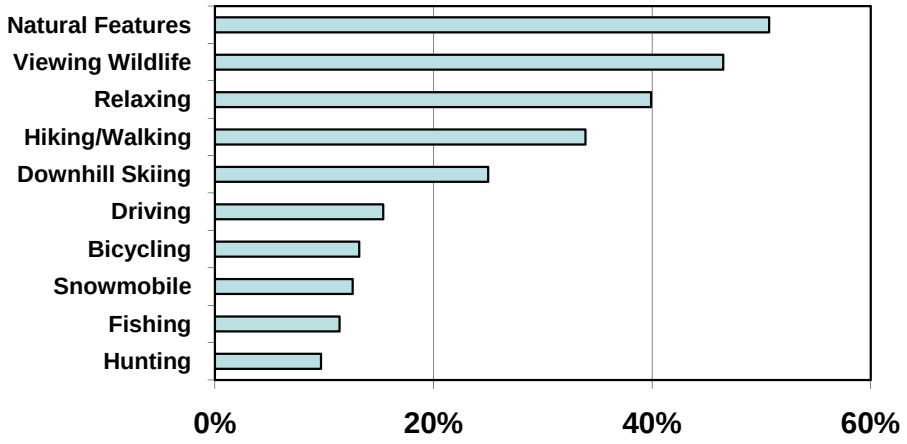
Source: Bridger-Teton National Forest, NVUM

Figure 3.3.1j details length of stay figures for the BTNF. The average length of stay per Forest visit was 23.2 hours. Over 16 percent (16.3%) of visitors stayed overnight on the Forest. The average recreation visitor went to 1.2 sites during their national forest visit. The average length of visit per site ranged from 3.6 hours for Day Use Developed Sites (DDU) to 30.7 hours for Wilderness sites. For Overnight Use Developed Sites (DOU) the average length of visit was 30.4 hours. For General Forest Areas (GFA) the average length of visit was 17.8 hours. Overall recreation visitors averaged 15.0 hours per site. Approximately 2 percent of total site visits on the Forest were to Wilderness areas (1.7%).

Visitor descriptive statistics-participation rates

The NVUM report considered both participation rates (Figure 3.3.1k.) and primary activity for recreation visitors to the Forest. In terms of participation rate, the top five recreation activities were: 1) Viewing natural features (50.7%), 2) Viewing wildlife (46.5%), 3) Relaxing (39.9%), 4) Hiking/walking (33.9%), and 5) Downhill skiing (25.0%). Rounding out the top 10 recreation activities were: 6) Driving for pleasure on roads (15.4%), 7) Bicycling, including mountain bikes (13.2%), 8) Snowmobile travel (12.6%), 9) Fishing (11.4%), and 10) Hunting (9.7%).

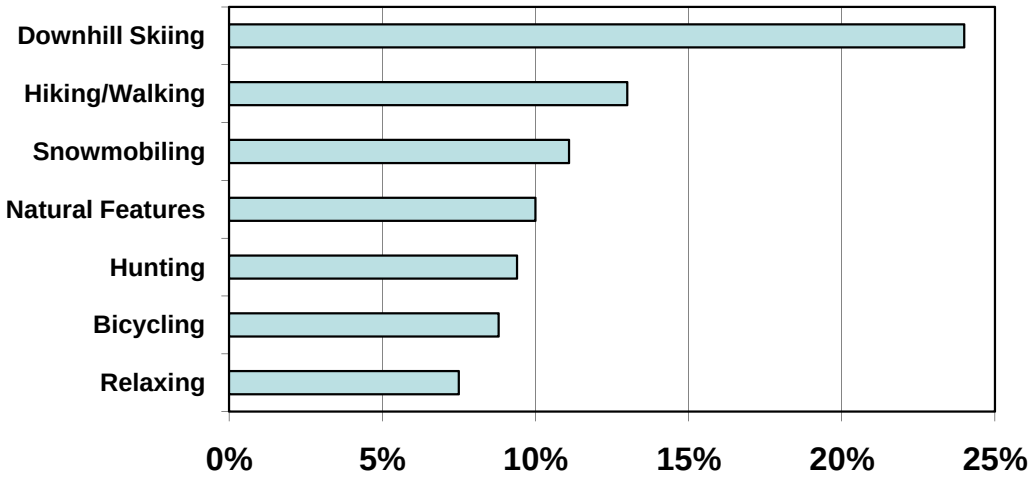
Figure 3.3.1k. Highest participation rates for Bridger-Teton NF visitors.



Source: Bridger-Teton National Forest, NVUM

Visitor descriptive statistics-primary recreation activity

Figure 3.3.1l. Most frequent primary recreation activity for Bridger-Teton NF visitors.



Source: Bridger-Teton National Forest, NVUM

Primary recreation activity for the trip is shown in Figure 3.3.1l. The most frequent primary recreation activity was downhill skiing (24.0%). Following downhill skiing in the top five were:

2) Hiking/walking (13.0%), 3) Snowmobiling (11.1%), 4) Viewing natural features (10.0%) and 5) Hunting (9.4%).

Also among the leaders in terms of primary recreation activities were: 6) Bicycling, including mountain bikes (8.8%) and 7) Relaxing (7.5%). Some recreation activities that had a high participation rate were lower in terms of being the primary recreation activity for the trip. For example, while 50.7 percent of recreation visitors indicated that they participated in viewing natural features during their trip, only 10.0 percent indicated that viewing natural features was the primary purpose of the trip. Overall, the National Visitor Use Monitoring report estimates that there were nearly 2.7 million visits to the Bridger-Teton National Forest in FY02.

Economic impact of visitor spending

Estimates of visitor spending for the BTNF were based on the National Visitor Use Monitoring Results (NVUM) for the Forest (Kocis et al, 2003). The NVUM results were developed from an intercept survey of 1,755 visitors to the BTNF between October 2001 and September 2002. The visitation data use in this analysis is actually updated information from the NVUM for the BTNF obtained from the Forest Service's Natural Resource Information System – Human Dimensions.

In order to estimate visitor spending the Forest Service breaks the NVUM visitation data in seven trip segments or types. These types include: 1) Non-local residents on day trips, 2) Non-local residents staying overnight on the national forest, 3) Non-local resident staying overnight off the national forest, 4) Local residents on day trips, 5) Local residents staying overnight on the national forest, 6) Local residents staying overnight off the national forest, and 7) Visits where recreating on the national forest was not the primary trip purpose.

Table 3.3.1a summarized the estimated total visits to the BTNF by type of visit. Total visits to the forest were estimated to be nearly 2.8 million. A visit is defined as the entry of one person upon the national forest to participate in recreation activities for an unspecified period of time. Of the total visits, slightly more than 861,000 (31.0%) were estimated to be visits by non-local residents with more than 1.7 million estimated to be by local residents and nearly 200,000 estimated to be non-primary visits. For this analysis non-primary visits were assumed to be by non-locals. Local visitors were defined as individuals living within 50 miles of the recreation site.

Because only one-third of the visitors sampled in the NVUM process were asked questions about their spending, there was not a large enough sample to reliably estimate visitor spending by individual forest. Instead the Forest Service estimated visitor spending for three categories of forests: 1) Above Average Spending Forests, 2) Average Spending Forests, and 3) Below Average Spending Forests (Stynes and White, 2005). The Average Spending Forests estimates were used for the BTNF based on the NVUM data. Downhill skier visits were estimated separately from other visits due to their higher spending. Table 3.3.1b summarizes the per-party per-visit spending estimates used in the analysis. Because recreation visits were on a per person basis while spending is reported on a per party basis the per person visit estimates in Table 1 were converted to per party visits. For non-primary visits the non-local day trip spending estimate was used rather than the entire spending for the trip.

By combining the recreation visits information in Table 3.3.1a and the per visit spending estimates from Table 3.3.1b it was possible to estimate total visitor spending for the BTNF. These results are summarized in Table 3.3.1c. Total visitor spending for the BTNF is estimated to be $144.3 million. Of this total $117.3 million (81.3%) is estimated to be by non-locals with $27.0 million (18.7%) by locals. Non-locals represent a higher proportion of total spending despite being a lower proportion of total visits due to their higher expenditures per visit. Since spending by non-local visitors to the BTNF represents new money to the region's economy, the economic impact of these expenditures was estimated. Table 3.3.1d summarizes the economic impact of non-local BTNF visitor spending. The results indicate that the $117.3 million in non-local visitor expenditures supported more than 2,100 jobs and $45.4 million in labor earnings within the economy of the four-county area. Average earnings per job ranged from an estimated $20,152 for spending from non-primary visitors to an estimated $22,480 for spending by non-local visitors staying overnight on the forest. The average for all non-local visitors was $21,386 per job.

Table 3.3.1a. Total recreation visits to the Bridger-Teton NF, 2002.

Type	Visits	Percent
Non-local Day Trips	250,002	9.0%
Non-local Overnight on Forest	194,446	7.0%
Non-local Overnight off Forest	416,670	15.0%
Total Non-local Visits	861,117	31.0%
Local Day Trips	1,500,010	54.0%
Local Overnight on Forest	55,556	2.0%
Local Overnight off Forest	166,668	6.0%
Total Local Visits	1,722,234	62.0%
Non-Primary Visits	194,446	7.0%
Total Visits	2,777,797	100.0%

Source: NVUM

Table 3.3.1b. Spending estimates for Bridger-Teton NF, 2003.

Type	Downhill Skiing	Other Visits
Non-local Day Trips	$79.54	$51.60
Non-local Overnight on Forest	N.A.	$161.25
Non-local Overnight off Forest	$341.97	$245.25
Local Day Trips	$53.34	$32.85
Local Overnight on Forest	N.A.	$124.49
Local Overnight off Forest	$205.17	$116.14
Non-Primary Visits	$79.54	$51.60

Average Spending	$151.91	$111.88

Source: NVUM

Table 3.3.1c. Total visitor spending for Bridger-Teton NF.

Type	Spending	Percent
Non-local Day Trips	$7,517,990	5.2%
Non-local Overnight on Forest	$13,229,756	9.2%
Non-local Overnight off Forest	$92,670,838	64.2%
Total Non-local Visits	$113,418,585	78.6%
Local Day Trips	$18,396,345	12.7%
Local Overnight on Forest	$2,590,263	1.8%
Local Overnight off Forest	$5,988,266	4.2%
Total Local Visits	$26,974,875	18.7%
Non-Primary Visits	$3,900,044	2.7%
Total Spending	$144,293,504	100.0%

Source: NVUM

Table 3.3.1d. Economic impact of non-local visitor spending for Bridger-Teton NF.

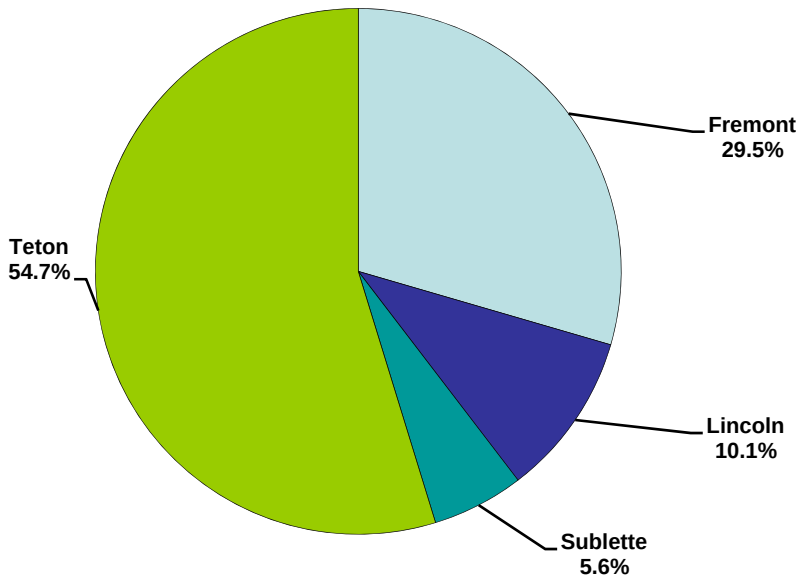
Type	Total Spending	Total Employment	Total Earnings	Average Earnings Per Job
Non-local Day Trips	$7,517,990	129.9	$2,630,286	$20,249
Non-local Overnight on Forest	$13,229,756	197.5	$4,439,711	$22,480
Non-local Overnight off Forest	$92,670,839	1,726.8	$36,944,895	$21,395
Non-Primary Visits	$3,900,043	68.3	$1,376,413	$20,152
Total	$117,318,628	2,122.5	$45,391,305	$21,386

Source: IMPLAN

3.3.2 Resident amenities

Non-labor income

Figure 3.3.2a. Non-labor income for Bridger-Teton NF counties, 2004.
Total = $1.4billion *Source: U.S. Bureau of Economic Analysis*



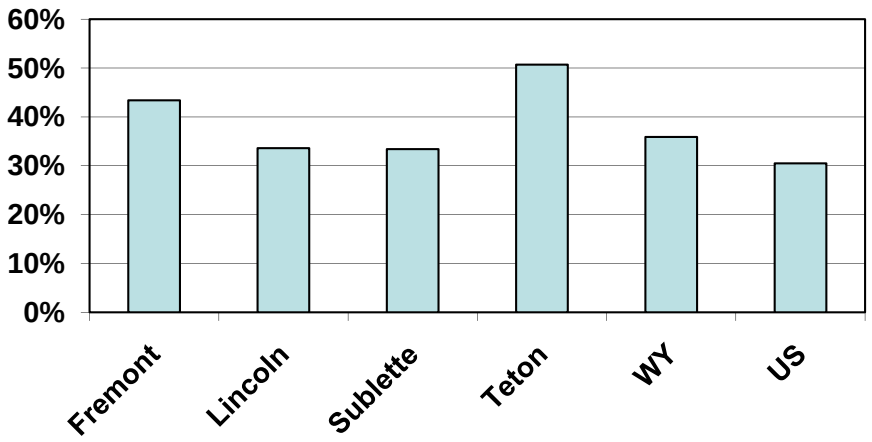
Non-labor income represents personal income from sources other than labor earnings (wages, salaries, and self-employed income). It is divided into two components: 1) government transfer payments (primarily retirement income such as social security) and 2) investment income (dividends, interest, and rents).

In 2004, total non-labor income for the Bridger-Teton NF counties was $1.4 billion Figure 3.3.2a). Of this total $782.5 million was in Teton County (54.7%), $421.8 million was in Fremont County (29.5%), $144.4 million was in Lincoln County (10.1%), and $80.7 million was in Sublette County (5.6%).

For the most part, non-labor income can be thought of as income that comes from sources that are external to the local economy. Labor earnings, on the other hand, primarily come from sources internal to the local economy. As a result, non-labor income is less directly dependent activity within the local economy.

Importance of non-labor income

Figure 3.3.2b. Percent of total income non-labor income, 2004.



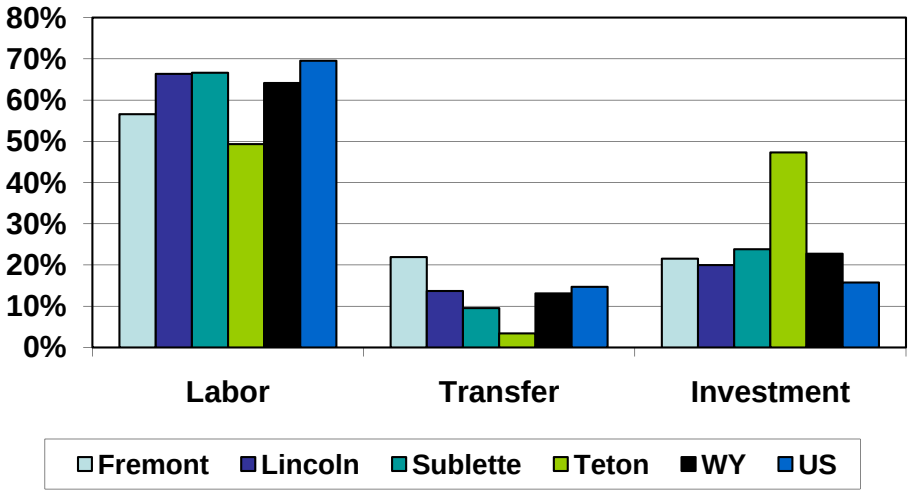
Source: U.S. Bureau of Economic Analysis

Non-labor income is an important source of income for residents of the Bridger-Teton NF counties. Figure 3.3.2b shows that in 2004, non-labor income represented nearly 45 percent of total personal income in the four-county region (44.9%). For individual counties non-labor income represented from one-third of total personal income in Sublette and Lincoln Counties (33.4% and 33.6%) to more than 50 percent in Teton County (50.7%). For Fremont County, non-labor income represented more than 40 percent of total personal income (43.4%).

Compared to Wyoming (35.9%) and the U.S. (30.5%), the Teton and Fremont economies were both more dependent on non-labor income as a source personal income. The Sublette and Lincoln County economies were more dependent than the U.S. economy on non-labor income, but less dependent than the state economy.

Sources of personal income

Figure 3.3.2c. Sources of personal income for Bridger-Teton NF counties, 2004.



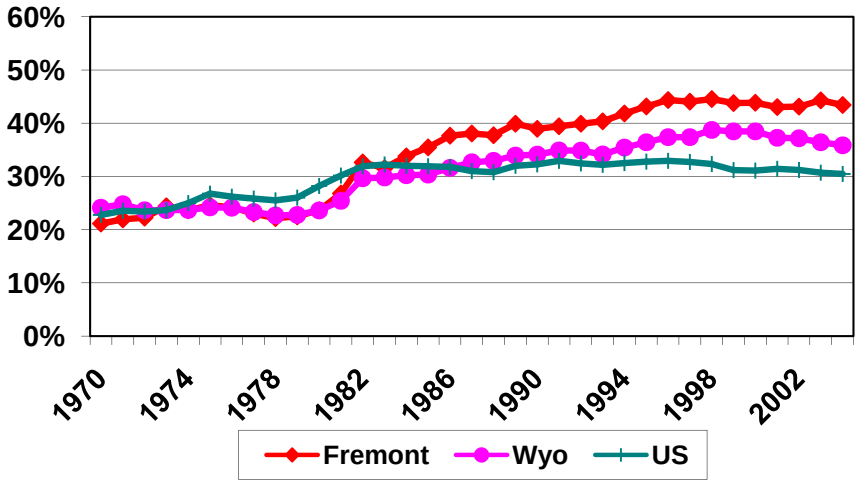
Source: U.S. Bureau of Economic Analysis

Figure 3.3.2c illustrates the relative size of the three components (labor earnings, transfer payments, and investment income) of personal income in the Bridger-Teton NF counties. In all counties except for Teton, labor earnings represent more than one-half of total personal income. For Teton (49.3%) and Fremont (56.6%) Counties the percent from labor earnings are relatively smaller than at the state (64.1%) or national (69.5%) level. For Sublette (66.6%) and Lincoln (66.4%) Counties, labor earnings are relatively larger than at the state level, but relatively smaller than at the national level.

In terms of non-labor income, the majority for all counties except Fremont comes from investment income rather than transfer payments. The greatest difference is in Teton County were nearly 50 percent of total personal income (47.3%) comes from investment income with only slightly more than 3 percent coming from transfer payments (3.4%). At the other extreme, slightly more 20 percent of total personal income in Fremont County comes from transfer payments (21.9%) and about the same percent comes from investment income (21.5%). For both Sublette and Lincoln Counties investment income is larger than transfer payments (23.8% vs. 9.6% and 20.0% vs. 13.7%). At the state level investment income is also larger than transfer payments (22.7% vs. 13.1%). However, at the national level investment income and transfer payments are more comparable (15.8% vs. 14.7%).

Trends in non-labor income for Fremont County

Figure 3.3.2d. Non-labor income as a percent of total income for Fremont County.



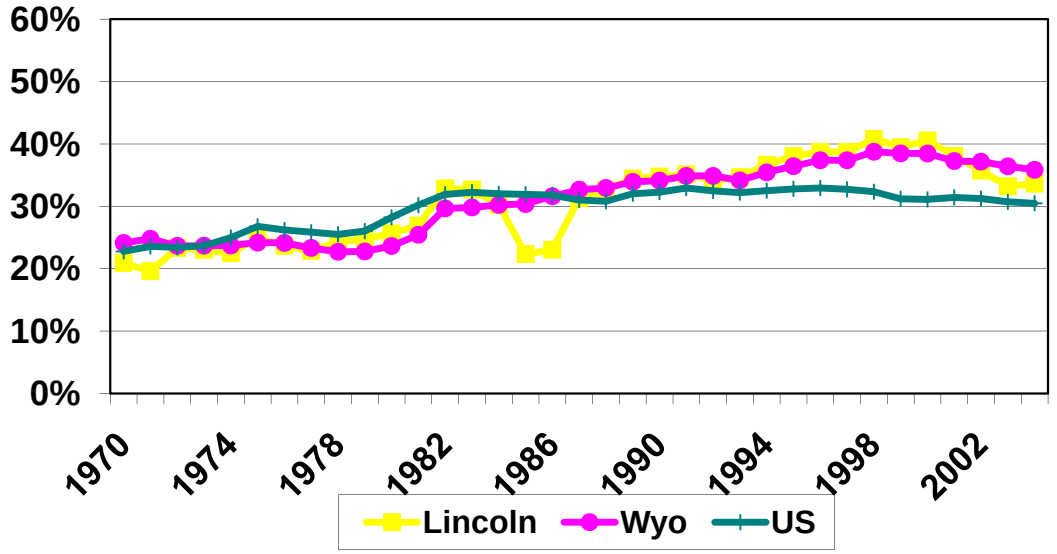
(Inflation adjusted, 2000=100) *Source: U.S. Bureau of Economic Analysis*

Non-labor income has become more important in Fremont County over time. In 1970 non-labor income represented one-fifth of total personal income in the county (21.2%). After growing steadily since 1970, non-labor income in the county peaked at nearly 45 percent of total personal income in 1998 (44.6%). Since 1998, the percent of total personal income from non-labor income in Fremont County has declined slightly. In 2004 non-labor income represented slightly more the 40 percent of total personal income (43.4%) in Fremont County (Figure 3.3.2d).

In 1970 the percent of total personal income from non-labor income in Fremont County was comparable to that for Wyoming and the U.S. (21.2% vs. 24.2% vs. 22.8%). However, by 2004 non-labor income had become significantly larger source of personal income in Fremont County than at the state or national level (43.4% vs. 35.9% vs. 30.5%).

Trends in non-labor income for Lincoln County

Figure 3.3.2e. Non-labor income as a percent of total income for Lincoln County.



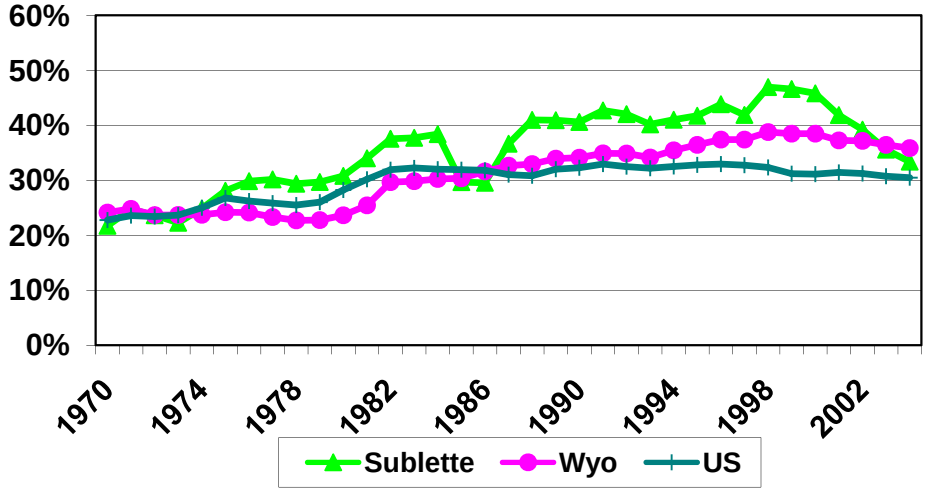
(Inflation adjusted, 2000=100) *Source: U.S. Bureau of Economic Analysis*

Figure 3.3.2e shows that non-labor income has also become more important in Lincoln County over time. In 1970 non-labor income represented about one-fifth of total personal income in the county (20.9%). After generally increasing since 1970, non-labor income in the county peaked at more than 40 percent of total personal income in 1998 (40.8%). Since 1998 the percent of total personal income from non-labor income in Lincoln County has declined nearly 20 percent (-17.6%). In 2004 non-labor income represented approximately one-third of total personal income in Lincoln County (33.6%).

In 1970 the percent of total personal income from non-labor income in Lincoln County was comparable to that for Wyoming and the U.S. (20.9% vs. 24.2% vs. 22.8%). At its peak in 1998 the relative importance of non-labor income in both Lincoln County and Wyoming was substantially above that for the U.S. (40.8% vs. 38.8% vs. 32.3%). However, by 2004 the relative importance of non-labor income in Lincoln County was below the state level and only slightly higher than the national level (33.6% vs. 35.9% vs. 30.5%).

Trends in non-labor income for Sublette County

Figure 3.3.2f. Non-labor income as a percent of total income for Sublette County.



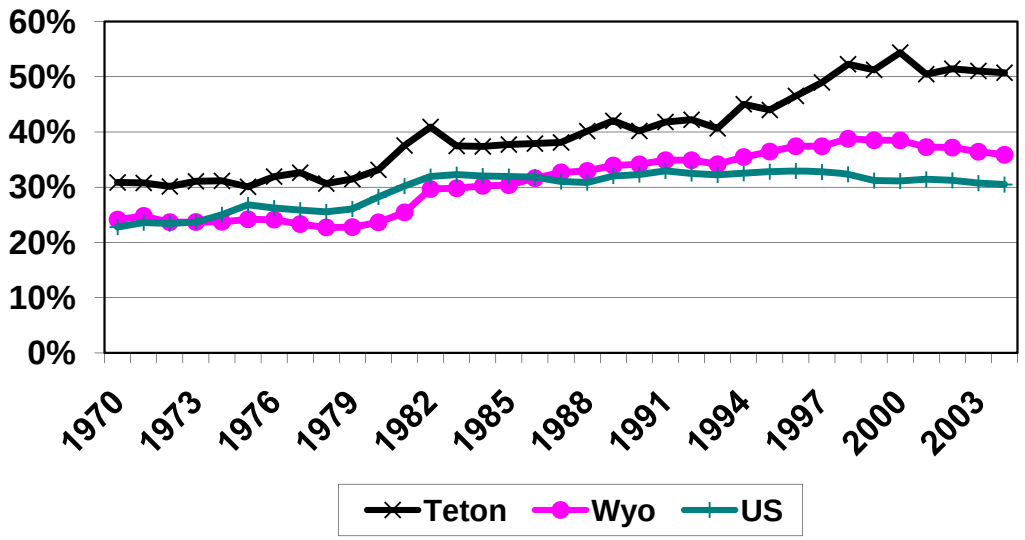
(Inflation adjusted, 2000=100) *Source: U.S. Bureau of Economic Analysis*

Non-labor income has also become more important in Sublette County over time (Figure 3.3.2f). In 1970 non-labor income represented about slightly more than one-fifth of total personal income in the county (21.7%). After generally increasing since 1970, non-labor income in the county peaked at nearly 50 percent of total personal income in 1998 (46.9%). Since 1998 the percent of total personal income from non-labor income in Sublette County has declined nearly 30 percent (-28.9%). In 2004 non-labor income represented approximately one-third of total personal income in Sublette County (33.4%).

In 1970 the percent of total personal income from non-labor income in Sublette County was comparable to that for Wyoming and the U.S. (21.7% vs. 24.2% vs. 22.8%). At its peak in 1998 the relative importance of non-labor income in Sublette County was substantially above that for both Wyoming and the U.S. (46.9% vs. 38.8% vs. 32.3%). However, by 2004 the relative importance of non-labor income in Sublette County was below the state level and slightly higher than the national level (33.4% vs. 35.9% vs. 30.5%).

Trends in non-labor income for Teton County

Figure 3.3.2g. Non-labor income as a percent of total income for Teton County.



(Inflation adjusted, 2000=100) *Source: U.S. Bureau of Economic Analysis*

Figure 3.3.2g shows that Non-labor income in Teton County has increased the most of any of the four counties over time. In 1970 non-labor income represented about 30 percent of total personal income in the county (30.8%). After steadily increasing since 1970, non-labor income in the county peaked at more than 54 percent of total personal income in 2000 (54.4%). Since 2000 the percent of total personal income from non-labor income in Teton County has declined slightly to approximately 50 percent. In 2004 non-labor income represented slightly more than one-half of total personal income in Teton County (50.7%).

In 1970 the percent of total personal income from non-labor income in Teton County was higher than both Wyoming and the U.S. (30.8% vs. 24.2% vs. 22.8%). At its peak in 2000 the relative importance of non-labor income in Teton County was substantially higher than that for Wyoming and the U.S. (54.4% vs. 38.5% vs. 31.1%). Even though the relative importance of non-labor income in Teton County has declined slightly since 2000, it remained substantially higher than state and national levels in 2004 (50.7% vs. 35.9% vs. 30.5%).

Economic impact of non-labor income

The $1.4 billion of non-labor income in the Bridger-Teton NF counties for 2004 generated considerable employment and labor earnings in the local economy. The following employment and earnings impacts of non-labor income in the Bridger-Teton NF counties have been estimated using 2004 IMPLAN models for each of the four counties and an aggregated model for the four-county area. Due to regional interactions between the economies of the four counties the

economic impact for the four-county area will be greater than the sum of the totals for the individual counties.

After adjusting for non-disposable income, the $1.4 billion in non-labor incomes is estimated to represent $1.1 billion of disposable income for residents of the four-county area (see top part of Table 3.3.2c). The local spending of this disposable income generates an estimated 7,200 direct jobs in the area's economy. Among individual counties, non-labor income in Teton County is estimated to generate nearly 2,900 direct jobs in the county's economy. For Fremont County, the estimate is more than 2,300 direct jobs in the county's economy, with more than 600 direct jobs for Lincoln County, and an estimated 375 direct jobs for Sublette County. Regional interactions between the economies of the four counties are estimated to generate more than 1,000 additional direct jobs from non-labor income in the region.

The labor earnings associated with the direct employment resulting from non-labor income in the four-county area was estimated to be $170.4 million. Among individual counties, the direct employment from non-labor income in Teton County was estimated to support $77.3 million in labor earnings (see top part of Table 3.3.2c). For Fremont County, direct employment from non-labor income supported an estimated $51.9 million in labor earnings, with $11.2 million in labor earnings for Lincoln County, and $6.3 million in labor earnings for Sublette County. Regional interactions between the economies of the four counties are estimated to support an additional $23.5 million in labor earnings from non-labor income.

Average earnings per job for direct employment from non-labor income averaged $23,676 for the four-county area (see top part of Table 3.3.2c). For individual counties, average earnings per job ranged from a low of $16,793 in Sublette County to a high of $27,083 in Teton County. For Lincoln County the average was $18,725 per job, while the average for Fremont County was $22,127 per job.

One of the reasons that residents of the four-county area received a higher proportion of their total personal income from non-labor sources may be the presence of natural resource amenities such the Bridger-Teton National Forest. This concept is perhaps re-enforced by the fact that, except for Fremont County, the dominate source of non-labor income in the area is investment income rather than transfer payments. These two factors suggest that the area may be an attractive place to live for individuals with outside sources of income. However, it would probably not be appropriate to attribute all the non-labor income in the area to natural resource amenities since even regions with limited natural resource amenities still receive significant non-labor income. The question is how much of the non-labor income in the area to attribute to natural resource amenities?

While there may not be a definitive answer to the above question, an assumption could be made that the proportion of non-labor income in the four-county area above the national average is the result of the area's natural resource amenities. Under this assumption, all the non-labor income above 30.5 percent of total personal income (the U.S. average for 2004) would be due to natural resource amenities. For the four-county area this would represent approximately one-third of the total non-labor income in the region or $457.9 million of non-labor income due to natural resource amenities (see middle part of Table 3.3.2c). After adjusting for non-disposable income

this amount becomes $364.5 million of disposable income for residents of the four-county area. Local spending of this disposable income resulting from natural resource amenities is estimated to generate more than 2,300 direct jobs in the four-county economy. Among individual counties, non-labor income resulting from natural resource amenities is estimated to generate more than 1,100 direct jobs in Teton County. For Fremont County, employment from non-labor income associated with natural resource amenities is estimated to generate nearly 700 direct jobs, for Lincoln County the estimate is nearly 60 direct jobs, and for Sublette County the estimate is more than 30 direct jobs. Regional interactions between the economies of the four counties are estimated to generate an additional 380 direct jobs in the region due to natural resource amenities.

The labor earnings associated with the direct employment from natural resource amenities related non-labor income for the four-county area is estimated to be $54.6 million. For individual counties the labor earnings associated with the direct employment from natural resource amenities in Teton County is estimated to be $30.8 million. For Fremont County the estimate is $15.5 million, for Lincoln County the estimate is $1.0 million, and for Sublette County the estimate is approximately $543,000. Regional interactions between the economies of the four counties are estimated to generate an additional $6.7 million in labor earnings due to natural resource amenities.

An alternative assumption regarding the role of natural resource amenities in non-labor income for the area is that the proportion of non-labor income in the four-county area above the state average is the result of the area's natural resource amenities. This assumption considers that individuals with outside sources of income may be attracted to Wyoming not only for natural resource amenities, but also due to other factors such as the lack of state income tax, lack of crime, and presence of a small town atmosphere. Under this assumption, all the non-labor income above 35.9 percent of total personal income (the Wyoming average for 2004) would be due to natural resource amenities. For the four-county area this would represent one-fifth of the total non-labor income in the region or $285.9 million of non-labor income due to natural resource amenities (see bottom part of Table 3.3.2c). After adjusting for non-disposable income this amount becomes $227.6 million of disposable income for residents of the four-county area. Local spending of this disposable income resulting from natural resource amenities is estimated to generate nearly 1,500 direct jobs in the four-county economy. Among individual counties under this scenario, non-labor income resulting from natural resource amenities is estimated to be more than 830 direct jobs in Teton County. For Fremont County, employment from non-labor income associated with natural resource amenities under this scenario is estimated to be nearly 410 direct jobs. One of the drawbacks of this scenario is that since the percent of total personal income from non-labor income in Lincoln and Sublette Counties is below the Wyoming average (33.6% and 33.4% vs. 35.9%) it implies that neither of these counties has non-labor income resulting from natural resource amenities. This seems unlikely. Regional interactions between the economies of the four counties are estimated to generate an additional 200 direct jobs in the region due to natural resource amenities.

The labor earnings associated with the direct employment from natural resource amenities related non-labor income for the four-county area is estimated to be $34.1 million. For individual counties the labor earnings associated with the direct employment from natural resource

amenities in Teton County is estimated to be $22.6 million. For Fremont County the estimate is $9.0 million. Regional interactions between the economies of the four counties are estimate to generate an additional $2.5 million due to natural resource amenities.

In summary, non-labor income is an important part of the economies in the Bridger-Teton NF counties. In 2004 the region's $1.4 billion of non-labor income was responsible for an estimated 7,200 direct jobs and $170.4 million in direct labor earnings. Natural resource amenities such as the Bridger-Teton National Forest contribute to attracting and retaining individuals with non-labor income to the area. It should be noted that the BTNF is only part of the natural resource amenities in the region. Yellowstone and Grand Teton National Parks also make substantial contributions to the scenic setting of the area. In addition there are numerous other amenities such as commercial air service, ski areas, retail and service outlets, and cultural attractions that contribute to making an attractive location with outdoor recreation opportunities a highly desirable place to live.

Table 3.3.2a. Sources of Personal Income for Bridger-Teton NF counties, 2004.

	Fremont (000$)	Lincoln (000$)	Sublette (000$)	Teton (000$)	Area (000$)	Wyoming (000$)	U.S. (000$)
Net Labor Earnings	$549,069	$284,740	$161,036	$760,926	$1,755,771	$11,123,766	$6,747,565,000
Transfer Payments	$212,670	$58,709	$23,093	$52,673	$347,145	$2,273,823	$1,428,159,000
Investment Income	$209,079	$85,665	$57,585	$729,868	$1,082,197	$3,943,626	$1,529,780,000
Total	$970,818	$429,114	$241,714	$1,543,467	$3,185,113	$17,341,215	$9,705,504,000
Non-Labor Income	$421,749	$144,374	$80,678	$782,541	$1,429,342	$6,217,449	$2,957,939,000

	Fremont Percent	Lincoln Percent	Sublette Percent	Teton Percent	Area Percent	Wyoming Percent	U.S. Percent
Net Labor Earnings	56.6%	66.4%	66.6%	49.3%	55.1%	64.1%	69.5%
Transfer Payments	21.9%	13.7%	9.6%	3.4%	10.9%	13.1%	14.7%
Investment Income	21.5%	20.0%	23.8%	47.3%	34.0%	22.7%	15.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Non-Labor Income	43.4%	33.6%	33.4%	50.7%	44.9%	35.9%	30.5%

(Source: U.S. Bureau of Economic Analysis)

Table 3.3.2b. Percent of Total Personal Income from Non-Labor Income for Bridger-Teton NF counties, 2004.

Year	Fremont Non-Labor Income	Lincoln Non-Labor Income	Sublette Non-Labor Income	Teton Non-Labor Income	Area Non-Labor Income	Wyoming Non-Labor Income	U.S. Non-Labor Income
1970	21.2%	20.9%	21.7%	30.8%	22.9%	24.1%	22.8%
1971	21.9%	19.6%	24.7%	30.8%	23.2%	24.8%	23.6%
1972	22.3%	23.3%	23.6%	30.1%	24.1%	23.7%	23.4%
1973	24.4%	23.0%	22.3%	31.1%	25.2%	23.7%	23.7%
1974	23.6%	22.5%	24.9%	31.1%	25.1%	23.7%	25.0%
1975	24.6%	24.9%	28.1%	30.1%	26.2%	24.2%	26.8%
1976	24.2%	23.7%	29.8%	31.9%	26.2%	24.1%	26.2%
1977	23.0%	22.9%	30.2%	32.6%	25.5%	23.3%	25.9%
1978	22.2%	24.3%	29.4%	30.7%	24.8%	22.7%	25.5%
1979	22.5%	24.8%	29.7%	31.5%	25.3%	22.8%	26.0%
1980	23.7%	25.7%	30.8%	33.2%	26.5%	23.6%	28.2%
1981	26.8%	26.9%	34.0%	37.5%	29.7%	25.4%	30.2%
1982	32.6%	32.9%	37.6%	40.9%	35.0%	29.7%	31.9%
1983	31.6%	32.7%	37.7%	37.5%	33.7%	29.8%	32.3%
1984	33.8%	30.3%	38.4%	37.4%	34.3%	30.2%	32.0%
1985	35.5%	22.4%	29.7%	37.7%	31.9%	30.4%	31.9%
1986	37.7%	23.0%	29.6%	37.9%	33.0%	31.6%	31.8%
1987	38.1%	31.3%	36.6%	38.1%	36.6%	32.7%	31.0%
1988	37.8%	32.6%	41.0%	40.1%	37.8%	32.9%	30.8%
1989	39.9%	34.5%	40.9%	42.0%	39.8%	33.9%	32.0%
1990	39.0%	34.8%	40.6%	40.2%	38.8%	34.1%	32.3%
1991	39.4%	35.1%	42.7%	41.8%	39.8%	34.9%	32.9%
1992	39.9%	34.2%	42.0%	42.2%	40.0%	34.9%	32.5%
1993	40.4%	34.7%	40.2%	40.6%	39.6%	34.1%	32.2%
1994	41.8%	36.7%	41.0%	45.0%	42.3%	35.4%	32.5%
1995	43.2%	38.1%	41.7%	44.0%	42.7%	36.4%	32.8%
1996	44.4%	38.7%	43.8%	46.5%	44.4%	37.4%	32.9%
1997	44.1%	38.7%	41.9%	48.9%	45.2%	37.4%	32.7%
1998	44.6%	40.8%	46.9%	52.2%	47.6%	38.8%	32.3%
1999	43.8%	39.5%	46.6%	51.2%	46.8%	38.5%	31.2%
2000	43.9%	40.6%	45.8%	54.4%	48.4%	38.5%	31.1%
2001	43.0%	38.1%	41.9%	50.4%	45.8%	37.3%	31.4%
2002	43.1%	35.7%	39.2%	51.4%	45.9%	37.2%	31.2%
2003	44.3%	33.2%	35.6%	51.0%	45.4%	36.4%	30.7%
2004	43.4%	33.6%	33.4%	50.7%	44.9%	35.9%	30.5%

Source: U.S. Bureau of Economic Analysis

Table 3.3.2c. Economic Impact of Non-labor Income in BTNF counties, 2004.

All Non-Labor Income

County	Non-Labor Income	Disposable Income	Direct Employment	Direct Earnings	Average Earnings Per Job
Fremont	$421,749,000	$368,186,877	2,347.9	$51,952,859	$22,127
Lincoln	$144,374,000	$121,562,908	602.9	$11,289,498	$18,725
Sublette	$80,678,000	$66,801,384	375.0	$6,297,219	$16,793
Teton	$782,541,000	$563,429,520	2,856.2	$77,353,704	$27,083
Area*	$1,429,342,000	$1,137,756,232	7,198.6	$170,433,383	$23,676

* Note: The Area totals are greater than the sum of the individual counties due to regional linkages

Non-Labor Income Above National Average

County	Non-Labor Income	Disposable Income	Direct Employment	Direct Earnings	Average Earnings Per Job
Fremont	$125,649,510	$109,692,022	699.5	$15,478,048	$22,127
Lincoln	$13,494,230	$11,362,142	56.4	$1,055,197	$18,725
Sublette	$6,955,230	$5,758,930	32.3	$542,882	$16,793
Teton	$311,783,565	$224,484,167	1,138.0	$30,819,617	$27,083
Area*	$457,882,535	$364,474,498	2,306.0	$54,597,479	$23,676

* Note: The Area totals are greater than the sum of the individual counties due to regional linkages

Non-Labor Income Above Wyoming Average

County	Non-Labor Income	Disposable Income	Direct Employment	Direct Earnings	Average Earnings Per Job
Fremont	$73,225,338	$63,925,720	407.6	$9,020,213	$22,127
Lincoln	N.A.	N.A.	N.A.	N.A.	N.A.
Sublette	N.A.	N.A.	N.A.	N.A.	N.A.
Teton	$228,436,347	$164,474,170	833.8	$22,580,795	$27,083
Area*	$285,886,433	$227,565,601	1,439.8	$34,088,827	$23,676

* Note: The Area totals are greater than the sum of the individual counties due to regional linkages

Source: IMPLAN models

Review relevant amenity related literature

Federal and public lands are becoming increasingly popular with recreationists, retirees, and businesses. Increased population brings increased pressure on public lands. The impacts of these increased pressures tend to fall most on local residents and land owners as they try to preserve their quality of life. Table 3.3.2d illustrates county population change over four decades pertaining to metropolitan, nonmetropolitan, and wilderness counties (counties containing some wilderness area).

During the period from 1960 to 1970, metropolitan counties grew the fastest followed by wilderness counties and non-metropolitan counties. Wilderness counties are defined here as counties have some statutory wilderness within their geographic borders. The 1970's brought about a significant shift in the population growth rates as wilderness counties grew the fastest, followed by nonmetropolitan counties, and then metropolitan counties. During the 1970's wilderness county population increased by 31 percent and nonmetropolitan county population increased by over 14 percent. The 1980's saw metropolitan county population gains increase at the expense primarily of nonmetropolitan counties and to some extent, wilderness counties. The decade of the 1990's, saw a rebound in population growth to wilderness counties and nonmetropolitan counties as well as continued increase in metropolitan counties. Overall, county population change over the last four decades averaged roughly 13 percent for metropolitan areas, approximately 8 percent in nonmetropolitan areas and 25 percent in wilderness counties. With the population shift to wilderness counties the question becomes, "Why are people moving to wilderness counties?"

Table 3.3.2d. Percent county population change.

	Metropolitan	Nonmetropolitan	Wilderness
1960-1970	17.1	4.3	12.8
1970-1980	10.6	14.3	31.4
1980-1990	11.6	3.9	24.0
1990-2000	13.9	10.2	29.9

Source: Rudzitis (1996) and calculations by Dearian et al.

In "The role of wilderness and public land amenities in explaining migration and rural development in the American Northwest", Dearian et al discuss some possibilities as to why people have migrated to the interior Northwest region. They include Wyoming, Western Montana, Idaho, Northern Utah, Nevada, Washington and Oregon east of the Cascade Mountains in this region. The following discussion is adapted from Dearian et al.

Table 3.3.2e addresses the question of why people have migrated to the interior Northwest region. One-third of surveyed respondents moved to the region due to a job opportunity; whereas, one-quarter of the respondents first moved to the region and then looked for work. Additionally, 16 percent had lived in the region most, if not all, of his/her life. Retirement, job transfer and a change in marital/family status each accounted for one percent of the migration to the region. Table 3.3.2f shows that there are many factors that influence a person's decision to move or stay in the area.

In Table 3.3.2f, Over three-quarters of the respondents felt that landscape, scenery and environment were important factors in deciding to move or stay in the area, followed by pace of lifestyle (76%), crime rate (75%), and outdoor recreation (72%). Accordingly, sixty-four percent agreed that employment was an important factor in their decision. Cost of living was important to over one-half of the respondents. Only 22 percent felt that social services were an important factor. Approximately 75 percent felt that social services were more of a neutral factor (47%) or was not an important (31%) in their decision to move or stay in the region.

Table 3.3.2e. Why did you move to this county?

	Percent
Moved here for job opportunity	33.1
Wanted to live here, then looked for a job	25.9
Lived here most/all of life	16.1
Parents/Family moved when young	3.3
Educational opportunity	1.8
Access to family and friends	5.4
Change in marital/family status	1.1
Returning to area	0.5
Job transfer	0.9
Retirement	0.9
Other	4.0
Missing	7.0
Total	100.0

Source: Dearian et al.

Table 3.3.2f. Relative importance of factors in decision to move to or stay in area (percent).

	Important	**Neutral**	**Unimportant**
Landscape, scenery, & environment	77.5	13.5	9.0
Pace of lifestyle	76.4	16.0	7.6
Crime rate	75.4	17.7	6.9
Outdoor recreation	72.1	18.7	9.2
Climate	65.2	25.5	9.3
Employment opportunity	64.1	17.3	18.6
Access to family and friends	61.5	17.8	20.6
Quality of schools	55.5	25.8	18.7
Cost of living	54.3	38.1	7.6
Social services	22.3	46.7	31.0

Source: Dearian et al.

Living adjacent to a forest offers local residents and their communities an array of amenities, which as defined by Goe and Green (2005), provide benefits to people through the direct consumption of specific aspects of land, natural resources and human activity (Goe & Green, 2005. pg 95). Hence, with the increased usage of federal and public lands the question then

becomes “How do local residents and communities adjacent to forests value those lands coupled with all the amenities?”

Public benefits from the use of the National Forest

Living near a national forest offers benefits and amenities to the local residents and communities. Understanding what local residents value in a national forest is accomplished by measuring the benefits associated with forest usage. Two studies by Blevins et al (2002, 2003) have attempted to do this. These studies were carried out in conjunction with the plan revision for the Bighorn National Forest (BHNF) and the Medicine Bow National Forest (MBNF). Surveys were used in these studies to obtain an overview of how residents value their respective national forest. The Social Assessment of the Four-County Area (SAFCA) of the Bighorn National Forest included Big Horn, Johnson, Sheridan, and Washakie counties (Blevins, et. al., 2002). While the Forest Service Social Assessment for the Medicine Bow National Forest 15 year Revision Plan included Albany, Carbon, and Converse counties (Blevins, et. al., 2003).

Respondents were asked to rank possible missions that they would like to see the Forest Service undertake (Table 3.3.2g). Respondents were asked to rank the possible missions on a scale of one (most important) to nine (least important). Results concluded that residents from both forests strongly agreed that providing and protecting sources of water for human use was a priority (most important), as was making sure the forests were available for future use and enjoyment. Additionally, residents felt that is was important to provide a healthy home for wildlife. Providing a place for people to relax and providing recreational opportunities received intermediate support. The least favored options consistent among both groups were support for livestock grazing, timber production and mineral extraction. Though, BHNF residents felt stronger about timber production than residents in the MBNF.

Table 3.3.2g. Public benefits from the use of the respective National Forests.

	MBNF				**BHNF**				
	Albany	**Carbon**	**Converse**	**Avg**	**Big Horn**	**Johnson**	**Sheridan**	**Washakie**	**Avg**
Provide and protect water	1.7	1.6	1.6	**1.6**	1.8	1.3	1.1	1.9	**1.4**
Healthy home for wildlife	2.3	2.2	2.5	**2.3**	2.5	2.1	1.9	2.6	**2.2**
Place to relax	4.3	4.3	4.2	**4.3**	3.6	3.7	3.3	3.7	**3.6**
Forest for future use	1.6	1.7	1.8	**1.7**	1.7	1.6	1.7	1.6	**6**
Traditional way of life	5.1	4.9	4.8	**4.9**	2.8	3.6	5.5	3.9	**4.3**
Recreation opportunities	4.6	4.5	4.4	**4.5**	4.1	4.4	4.2	4.0	**4.2**
Minerals	7.4	7.6	7.0	**7.3**	7.0	7.3	7.6	6.6	**7.1**
Timber	6.5	6.0	6.5	**6.3**	5.0	5.5	6.0	5.3	**5.6**
Grazing	6.3	6.9	6.5	**6.6**	5.6	5.5	6.6	5.3	**5.8**

Source: Blevins et al

Reasons for selecting current place of residence

Respondents were asked to rank their reasons for selecting their current place of residence on a scale of 1 to 10 (Table 3.3.2h). Among their choices were proximity to National Forest, family (was raised here), close to work, avoid urban lifestyle, affordability, recreational opportunities, close to immediate family, wide open spaces, climate, employment and rural lifestyle appreciation. Residents from both forests agreed that the wide open spaces and avoiding the big city lifestyle were the most important reasons for selecting their current place of residence. The least important reasons for residents from BHNF were affordability and the climate; while appreciation for the rural lifestyle, employment and climate were least important to residents of the MBNF.

Table 3.3.2h. Reasons for selecting current place of residence.

	MBNF				**BHNF**				
	Albany	**Carbon**	**Converse**	**Avg**	**Big Horn**	**Johnson**	**Sheridan**	**Washakie**	**Avg**
Proximity to forest	4.5	4.7	5.9	**5.0**	4.1	3.8	3.1	3.8	**3.7**
Close to work/Employment	6.3	6.0	6.3	**6.2**	4.4	5.5	5.5	4.0	**4.9**
Avoid urban lifestyle	3.0	3.1	3.0	**3.0**	2.4	2.5	2.5	2.2	**2.4**
Afford to live here	6.7	5.6	5.5	**5.9**	4.9	6.1	6.1	5.5	**5.6**
Recreational opportunities	4.2	4.1	4.9	**4.4**	4.2	3.9	3.8	3.9	**3.9**
Close to immediate family	7.6	5.6	5.7	**6.3**	2.9	4.2	3.7	3.5	**3.6**
Wide open spaces	2.9	2.8	2.8	**2.8**	2.3	2.0	2.5	2.5	**2.3**
Climate	6.3	7.0	6.5	**6.6**	5.6	5.3	5.3	5.6	**5.4**
Rural lifestyle	7.4	8.5	7.0	**7.6**	3.1	2.5	2.9	3.0	**2.9**

Source: Blevins et al

Resident feelings towards shifts in Forest Service management

According to Blevins, et. al., one in six to one in five MBNF respondents indicated a negative effect in terms of imposing grazing restrictions or a decrease in logging. Slightly more respondents believed that the same shifts would positively impact their situation or lifestyle, while the majority of respondents thought that it would have no perceived effect on their situation. Of greater concern was possible restriction of access to the national forest by the restriction of rights of way and easements. Over half of each county surveyed viewed it negatively.

Big Horn National Forest residents were mixed in their feelings about possible forest service management shifts. In general Big Horn, Johnson and Washakie counties were more likely to report negative impacts, while Sheridan residents were more likely to report positive impacts regarding possible management shifts.

Supplemental Tables

Table 3.2.1b. Timber Harvest for Bridger-Teton NF counties, 2005.

County	MBF	Percent
Fremont	1,763	62.5%
Lincoln	995	35.2%
Sublette	23	0.8%
Teton	42	1.5%
Total	2,823	100.0%

Source: Keegan

Table 3.2.1c. Lumber and Wood Products Labor Earnings, Bridger-Teton NF counties.

Year	Deflated Fremont (000$)	Deflated Lincoln (000$)	Deflated Sublette (000$)	Deflated Teton (000$)	Deflated Area (000$)
1970	$7,271	$3,150	$673	$189	$11,283
1971	$7,543	$3,924	$856	$0	$12,323
1972	$8,669	$4,119	$1,045	$175	$14,007
1973	$10,000	$4,428	$452	$166	$15,046
1974	$10,069	$4,381	$286	$151	$14,887
1975	$7,826	$3,527	$225	$139	$11,717
1976	$8,865	$4,886	$250	$132	$14,132
1977	$11,480	$5,553	$290	$124	$17,446
1978	$13,425	$5,288	$435	$0	$19,148
1979	$11,439	$5,914	$510	$106	$17,969
1980	$6,648	$4,697	$380	$0	$11,725
1981	$7,015	$4,829	$377	$88	$12,310
1982	$2,903	$4,629	$459	$152	$8,144
1983	$4,137	$4,489	$538	$211	$9,376
1984	$3,346	$4,375	$613	$267	$8,601
1985	$3,811	$4,283	$684	$320	$9,098
1986	$3,398	$4,228	$757	$372	$8,755
1987	$3,290	$4,131	$818	$417	$8,656
1988	$2,097	$4,011	$866	$456	$7,430
1989	$902	$3,154	$911	$429	$5,395
1990	$815	$3,174	$800	$596	$5,385
1991	$886	$3,390	$869	$527	$5,673
1992	$939	$2,681	$447	$503	$4,571
1993	$954	$2,020	$57	$916	$3,947
1994	$1,016	$1,391	$56	$624	$3,086
1995	$816	$783	$55	$831	$2,484
1996	$593	$657	$53	$804	$2,108

1997	$854	$513	$53	$472	$1,891
1998	$880	$680	$52	$443	$2,056
1999	$883	$691	$51	$465	$2,091
2000	$924	$542	$50	$495	$2,011

Source: Bureau of Economic Analysis

Table 3.2.1d. Sawtimber Sales for the Bridger-Teton NF.

Fiscal Year	MBF Sold	CCF Sold
1990	1,314	2,694
1991	6,205	12,720
1992	11,276	23,116
1993	7,360	15,088
1994	3,645	7,472
1995	3,906	8,007
1996	5,477	11,228
1997	2,125	4,356
1998	3,717	7,620
1999	2,513	5,152
2000	409	839
2001	1,688	5,860
2002	248	478
2003	135	705
2004	1,610	3,481
2005	2,818	5,792
2006	5,963	12,679

Source: Bridger-Teton NF

Table 3.2.3a. Gross Revenue from Agriculture in Bridger-Teton NF counties, 2004.

	Fremont (000$)	Lincoln (000$)	Sublette (000$)	Teton (000$)	Total (000$)
Livestock Marketings	$55,955	$24,528	$36,935	$3,766	$121,184
Crop Marketings	$13,786	$2,810	$1,187	$1,347	$19,130
Other Revenue	$8,393	$2,662	$1,804	$274	$13,133
Total	$78,134	$30,000	$39,926	$5,387	$153,447
Percent	50.9%	19.6%	26.0%	3.5%	100.0%

Source: Bureau of Economic Analysis

Table 3.2.3b. Trends in Gross Revenue for Agriculture in Bridger-Teton NF counties.

Year	Deflated Area Livestock (000$)	Deflated Area Crops (000$)	Deflated Area Other (000$)	Deflated Area Total (000$)
1970	$124,085	$15,464	$8,666	$148,215
1971	$128,284	$15,435	$9,262	$152,981
1972	$150,231	$18,256	$11,508	$179,995
1973	$161,374	$26,927	$10,508	$198,810
1974	$105,839	$32,054	$8,056	$145,949
1975	$112,260	$26,427	$9,740	$148,427
1976	$113,105	$22,981	$9,373	$145,460
1977	$128,985	$20,101	$7,877	$156,964
1978	$141,119	$17,490	$12,317	$170,926
1979	$165,813	$20,666	$7,321	$193,799
1980	$136,349	$21,704	$6,273	$164,327
1981	$109,755	$21,856	$4,944	$136,555
1982	$98,082	$18,517	$4,354	$120,953
1983	$111,983	$26,936	$5,782	$144,702
1984	$104,517	$29,090	$7,110	$140,718
1985	$99,722	$27,676	$7,368	$134,766
1986	$97,137	$26,704	$7,922	$131,764
1987	$104,040	$18,156	$11,325	$133,521
1988	$116,491	$21,999	$12,380	$150,870
1989	$121,187	$24,358	$10,004	$155,549
1990	$118,151	$25,335	$7,420	$150,906
1991	$121,393	$30,608	$7,903	$159,905
1992	$111,600	$33,605	$9,594	$154,799
1993	$118,169	$27,387	$10,138	$155,695
1994	$113,413	$22,563	$9,138	$145,115
1995	$98,685	$22,173	$9,406	$130,264
1996	$80,457	$22,848	$8,551	$111,856

1997	$92,337	$26,050	$7,709	$126,096
1998	$93,759	$23,029	$11,739	$128,527
1999	$89,160	$23,321	$13,402	$125,883
2000	$99,995	$20,817	$10,851	$131,663
2001	$96,927	$20,001	$14,623	$131,551
2002	$91,572	$18,252	$20,461	$130,284
2003	$82,070	$17,441	$15,909	$115,419
2004	$111,821	$17,652	$12,118	$141,592

Source: Bureau of Economic Analysis

Table 3.2.3c. Agricultural Employment for Bridger-Teton NF counties, 2004.

County	Agricultural Jobs	Percent
Fremont	1,166	49.1%
Lincoln	668	28.1%
Sublette	390	16.4%
Teton	150	6.3%
Total	2,374	100.0%

Source: Bureau of Economic Analysis

Table 3.2.3d. Trends in Agricultural Employment for Bridger-Teton NF counties.

Year	Fremont SIC	Lincoln SIC	Sublette SIC	Teton SIC	Area SIC
1970	977	826	448	204	2,455
1971	964	793	441	212	2,410
1972	959	768	437	220	2,384
1973	958	742	432	229	2,361
1974	982	729	441	253	2,405
1975	989	730	430	231	2,380
1976	1,041	766	439	222	2,468
1977	1,056	771	420	202	2,449
1978	1,076	779	413	189	2,457
1979	1,133	836	440	212	2,621
1980	1,130	851	429	220	2,630
1981	1,112	843	404	220	2,579
1982	1,076	835	387	221	2,519
1983	1,188	889	429	236	2,742
1984	1,149	842	416	220	2,627
1985	1,092	778	391	199	2,460
1986	1,107	774	404	198	2,483
1987	1,112	756	413	197	2,478
1988	1,121	750	412	187	2,470
1989	1,105	733	398	173	2,409
1990	1,126	733	402	167	2,428

1991	1,126	724	396	154	2,400
1992	1,148	734	394	153	2,429
1993	1,154	721	396	153	2,424
1994	1,139	696	386	149	2,370
1995	1,172	701	402	153	2,428
1996	1,166	682	398	152	2,398
1997	1,118	645	363	139	2,265
1998	1,182	678	397	150	2,407
1999	1,159	665	383	145	2,352
2000	1,203	687	409	154	2,453
Year	Fremont NAICS	Lincoln NAICS	Sublette NAICS	Teton NAICS	Area NAICS
2001	1,175	675	396	150	2,396
2002	1,199	687	404	153	2,443
2003	1,161	665	388	149	2,363
2004	1,166	668	390	150	2,374

Source: Bureau of Economic Analysis

Table 3.2.3e. Agricultural Earnings for Bridger-Teton NF counties, 2004.

County	Earnings (000$)	Percent
Fremont	$7,041	38.3%
Lincoln	$3,599	19.6%
Sublette	$7,420	40.4%
Teton	$311	1.7%
Total	$18,371	100.0%

Source: Bureau of Economic Analysis

Table 3.2.3f. Trends in Agricultural Earnings for Bridger-Teton NF counties.

Year	Deflated Fremont SIC (000$)	Deflated Lincoln SIC (000$)	Deflated Sublette SIC (000$)	Deflated Teton SIC (000$)	Deflated Area SIC (000$)
1970	$16,383	$13,665	$12,054	$3,161	$45,262
1971	$17,524	$14,873	$8,813	$2,880	$44,089
1972	$21,228	$17,905	$13,068	$4,424	$56,625
1973	$14,298	$23,526	$19,464	$3,504	$60,793
1974	$23,784	$8,337	$15,495	$4,809	$52,424
1975	$13,280	$5,640	$5,813	$1,958	$26,692
1976	$11,479	$5,660	$4,435	$1,362	$22,937
1977	$7,090	$2,774	$4,375	$718	$14,957
1978	$8,202	$7,198	$7,501	$116	$23,016
1979	$8,294	$6,628	$10,096	$1,186	$26,203
1980	$4,361	$6,093	$5,330	$703	$16,487
1981	$3,181	$5,823	$2,241	$1,343	$12,588
1982	$242	$4,339	$1,909	$1,328	$7,818
1983	$2,316	$4,505	$2,156	$476	$9,453
1984	$3,060	$3,902	$360	$79	$7,400
1985	$1,531	$4,253	$75	-$128	$5,731
1986	$4,298	$5,743	$1,819	$1,120	$12,980
1987	-$615	$4,592	$1,669	-$406	$5,241
1988	$1,920	$3,329	$1,855	-$552	$6,551
1989	$3,892	$4,341	$4,506	$162	$12,901
1990	$11,223	$5,425	$7,557	$1,307	$25,511
1991	$21,866	$8,966	$9,109	-$670	$39,270
1992	$21,545	$9,271	$6,950	-$746	$37,021
1993	$20,901	$12,068	$12,547	$1,567	$47,083
1994	$7,394	$4,245	$6,939	$361	$18,939
1995	$9,834	$4,087	$4,780	$953	$19,654
1996	$6,112	$4,343	$3,346	$384	$14,185
1997	$15,254	$6,432	$7,933	$1,459	$31,077
1998	$6,241	$2,133	$3,050	$86	$11,510
1999	$13,436	$4,692	$5,078	$531	$23,737
2000	$7,297	$3,483	$2,417	$50	$13,247

Year	Deflated Fremont NAICS (000$)	Deflated Lincoln NAICS (000$)	Deflated Sublette NAICS (000$)	Deflated Teton NAICS (000$)	Deflated Area NAICS (000$)
2001	$9,976	$3,138	$2,121	$87	$15,322
2002	$4,631	$175	$3,573	-$999	$7,381
2003	$6,826	$3,685	$5,999	$390	$16,900
2004	$6,497	$3,321	$6,847	$287	$16,952

Source: Bureau of Economic Analysis

Table 3.2.3g. Average Earnings Per Agricultural Job for Bridger-Teton NF counties.

Year	Fremont Average Earnings Per Job	Lincoln Average Earnings Per Job	Sublette Average Earnings Per Job	Teton Average Earnings Per Job	Area Average Earnings Per Job
1970	$16,769	$16,543	$26,906	$15,495	$18,437
1971	$18,178	$18,755	$19,983	$13,583	$18,294
1972	$22,136	$23,314	$29,904	$20,108	$23,752
1973	$14,925	$31,707	$45,056	$15,301	$25,749
1974	$24,220	$11,436	$35,136	$19,006	$21,798
1975	$13,428	$7,727	$13,518	$8,476	$11,215
1976	$11,027	$7,390	$10,103	$6,137	$9,294
1977	$6,714	$3,598	$10,417	$3,553	$6,107
1978	$7,622	$9,240	$18,162	$612	$9,368
1979	$7,320	$7,928	$22,945	$5,593	$9,997
1980	$3,859	$7,160	$12,425	$3,195	$6,269
1981	$2,860	$6,908	$5,547	$6,107	$4,881
1982	$225	$5,196	$4,934	$6,010	$3,104
1983	$1,949	$5,068	$5,025	$2,016	$3,447
1984	$2,664	$4,634	$864	$358	$2,817
1985	$1,402	$5,467	$191	-$646	$2,330
1986	$3,882	$7,420	$4,502	$5,657	$5,227
1987	-$553	$6,074	$4,041	-$2,061	$2,115
1988	$1,713	$4,438	$4,502	-$2,951	$2,652
1989	$3,522	$5,922	$11,320	$939	$5,355
1990	$9,967	$7,401	$18,798	$7,826	$10,507
1991	$19,419	$12,383	$23,004	-$4,351	$16,363
1992	$18,768	$12,631	$17,640	-$4,874	$15,241
1993	$18,112	$16,738	$31,685	$10,243	$19,424
1994	$6,492	$6,099	$17,976	$2,425	$7,991
1995	$8,391	$5,831	$11,890	$6,231	$8,095
1996	$5,242	$6,368	$8,407	$2,525	$5,916
1997	$13,644	$9,971	$21,853	$10,497	$13,721
1998	$5,280	$3,146	$7,682	$577	$4,782
1999	$11,593	$7,055	$13,259	$3,661	$10,092
2000	$6,066	$5,070	$5,910	$325	$5,400

Year	Fremont Average Earnings Per Job	Lincoln Average Earnings Per Job	Sublette Average Earnings Per Job	Teton Average Earnings Per Job	Area Average Earnings Per Job
2001	$8,490	$4,649	$5,355	$581	$6,395
2002	$3,862	$254	$8,845	-$6,527	$3,021
2003	$5,879	$5,541	$15,462	$2,619	$7,152
2004	$5,572	$4,971	$17,556	$1,913	$7,141

Source: Bureau of Economic Analysis

Table 3.2.3h. Beef Cow Inventory for Bridger-Teton NF counties.

Year	Fremont (Head)	Lincoln (Head)	Sublette (Head)	Teton (Head)	Area (Head)
1970	49,150	25,500	43,860	8,700	127,210
1971	47,840	26,020	42,570	8,550	124,980
1972	49,860	27,440	44,310	8,960	130,570
1973	52,570	27,850	41,830	9,150	131,400
1974	47,460	30,760	43,000	9,140	130,360
1975	49,000	30,450	44,800	9,340	133,590
1976	50,650	25,600	36,360	9,380	121,990
1977	51,300	23,900	36,870	9,380	121,450
1978	36,300	15,620	31,900	7,880	91,700
1979	40,450	14,980	35,930	7,890	99,250
1980	39,550	16,800	31,850	8,850	97,050
1981	39,500	14,800	30,850	8,900	94,050
1982	42,450	14,800	33,850	8,900	100,000
1983	45,800	23,300	34,850	7,850	111,800
1984	44,800	19,200	32,850	7,850	104,700
1985	36,900	21,100	34,850	8,900	101,750
1986	42,050	25,350	36,850	8,900	113,150
1987	43,150	20,800	28,900	6,900	99,750
1988	43,900	19,700	30,000	5,850	99,450
1989	46,000	20,700	33,000	5,800	105,500
1990	41,000	21,700	38,000	5,800	106,500
1991	40,000	16,600	37,000	4,900	98,500
1992	47,300	21,900	35,000	5,000	109,200
1993	49,300	25,600	36,000	5,900	116,800
1994	55,400	26,600	39,000	6,000	127,000
1995	59,600	29,700	36,000	7,000	132,300
1996	65,800	27,000	40,000	7,000	139,800
1997	70,700	26,900	44,000	6,000	147,600
1998	68,800	26,200	40,000	7,900	142,900
1999	68,800	24,300	40,000	7,000	140,100
2000	66,800	23,200	38,000	7,000	135,000
2001	65,000	29,600	34,000	6,000	134,600
2002	64,900	26,800	29,000	5,000	125,700
2003	53,910	21,200	30,000	3,000	108,110
2004	53,000	24,300	32,000	5,000	114,300
2005	59,000	26,350	33,000	5,000	123,350
2006	62,000	26,400	35,000	4,000	127,400

Source: Wyoming Agricultural Statistics

Table 3.2.3i. Breeding Sheep Inventory for Bridger-Teton NF counties.

Year	Fremont (Head)	Lincoln (Head)	Sublette (Head)	Teton (Head)	Area (Head)
1970	84,000	107,200	7,000	1,500	199,700
1971	82,100	97,700	5,700	1,500	187,000
1972	68,000	90,100	5,300	1,400	164,800
1973	63,500	76,500	4,200	1,300	145,500
1974	51,000	61,000	4,200	1,300	117,500
1975	48,000	57,000	3,300	1,200	109,500
1976	43,000	51,500	2,000	500	97,000
1977	41,000	51,700	3,000	300	96,000
1978	40,000	46,000	700	300	87,000
1979	37,000	45,000	1,600	400	84,000
1980	39,000	25,500	3,000	500	68,000
1981	38,000	28,000	4,000	500	70,500
1982	41,000	35,000	5,000	500	81,500
1983	42,000	31,000	7,500	500	81,000
1984	41,000	32,000	8,000	500	81,500
1985	35,000	27,000	8,000	800	70,800
1986	33,000	27,000	7,000	700	67,700
1987	31,000	26,000	6,000	1,000	64,000
1988	38,000	28,000	9,000	1,000	76,000
1989	39,000	27,000	8,000	1,000	75,000
1990	40,000	27,000	6,000	1,000	74,000
1991	40,000	25,000	6,000	1,000	72,000
1992	28,000	36,000	14,000	3,000	81,000
1993	30,000	33,000	10,000	2,000	75,000
1994	23,000	32,000	15,000	2,000	72,000
1995	19,000	37,000	11,000	1,000	68,000
1996	18,000	39,000	7,000	1,000	65,000
1997	17,000	32,000	14,000	1,000	64,000
1998	17,000	30,000	14,000	1,000	62,000
1999	13,000	32,000	15,000	1,000	61,000
2000	14,000	35,000	19,000	1,000	69,000
2001	14,000	34,000	13,000	0	61,000
2002	14,000	32,000	13,000	0	59,000
2003	14,000	32,000	14,000	0	60,000
2004	14,000	32,000	0	0	46,000
2005	14,000	33,500	0	0	47,500
2006	13,000	31,000	0	0	44,000

Source: Wyoming Agricultural Statistics

Table 3.2.5c. Mining Employment for Bridger-Teton NF counties.

Year	Fremont SIC (Jobs)	Lincoln SIC (Jobs)	Sublette SIC (Jobs)	Area SIC (Jobs)
1970	1,830	278	132	2,240
1971	1,798	290	134	2,222
1972	1,944	329	132	2,405
1973	1,732	428	176	2,336
1974	1,863	535	193	2,591
1975	1,903	569	250	2,722
1976	2,326	897	151	3,374
1977	2,997	1,012	137	4,146
1978	3,670	1,061	173	4,904
1979	4,035	1,213	192	5,440
1980	3,985	1,359	276	5,620
1981	3,330	1,383	356	5,069
1982	2,642	1,080	330	4,052
1983	2,227	905	235	3,367
1984	1,557	903	297	2,757
1985	1,146	783	324	2,253
1986	726	623	488	1,837
1987	648	587	363	1,598
1988	569	604	361	1,534
1989	449	559	483	1,491
1990	603	667	315	1,585
1991	594	692	340	1,626
1992	515	637	287	1,439
1993	565	628	319	1,512
1994	584	643	389	1,616
1995	564	625	323	1,512
1996	591	610	343	1,544
1997	666	627	409	1,702
1998	574	526	388	1,488
1999	560	509	371	1,440
2000	646	518	326	1,490

Year	Fremont NAICS (Jobs)	Lincoln NAICS (Jobs)	Sublette NAICS (Jobs)	Area NAICS (Jobs)
2001	480	436	432	1,348
2002	501	586	485	1,572
2003	503	651	675	1,829
2004	599	684	784	2,067

Source: Bureau of Economic Analysis

Table 3.2.5d. Mining Earnings for Bridger-Teton NF counties.

Year	Deflated Fremont SIC (000$)	Deflated Lincoln SIC (000$)	Deflated Sublette SIC (000$)	Deflated Area SIC (000$)
1970	$66,712	$10,099	$5,135	$81,946
1971	$70,606	$10,905	$5,121	$86,632
1972	$79,645	$13,001	$4,936	$97,581
1973	$75,576	$16,412	$8,055	$100,043
1974	$87,759	$24,606	$11,627	$123,991
1975	$93,150	$26,845	$14,863	$134,857
1976	$111,482	$43,470	$6,696	$161,648
1977	$158,357	$51,693	$7,357	$217,407
1978	$203,371	$59,314	$9,325	$272,010
1979	$234,285	$69,517	$11,364	$315,166
1980	$229,753	$74,014	$15,897	$319,665
1981	$188,265	$79,642	$20,210	$288,117
1982	$145,340	$64,543	$19,249	$229,132
1983	$115,195	$60,095	$16,524	$191,814
1984	$79,015	$54,080	$20,125	$153,220
1985	$57,207	$49,014	$18,942	$125,163
1986	$36,480	$42,143	$23,436	$102,059
1987	$30,651	$35,083	$18,016	$83,750
1988	$27,155	$34,692	$17,471	$79,318
1989	$22,532	$32,938	$21,507	$76,976
1990	$29,516	$34,915	$14,346	$78,777
1991	$27,623	$33,215	$14,889	$75,727
1992	$22,510	$32,308	$12,895	$67,713
1993	$24,062	$31,881	$14,375	$70,318
1994	$25,472	$32,142	$17,294	$74,909
1995	$25,771	$32,374	$14,308	$72,453
1996	$26,669	$31,923	$15,482	$74,074
1997	$32,420	$36,314	$17,266	$85,999
1998	$31,419	$27,191	$15,490	$74,099
1999	$26,248	$27,484	$13,942	$67,674
2000	$30,798	$29,641	$17,487	$77,926

Year	Deflated Fremont NAICS (000$)	Deflated Lincoln NAICS (000$)	Deflated Sublette NAICS (000$)	Deflated Area NAICS (000$)
2001	$29,329	$29,285	$22,352	$80,966
2002	$32,385	$41,494	$28,275	$102,155
2003	$29,331	$45,808	$36,851	$111,991
2004	$38,766	$51,896	$44,508	$135,170

Source: Bureau of Economic Analysis

Table 3.2.5e. Mining Average Earnings Per Job for Bridger-Teton NF counties.

Year	Fremont Average Earnings Per Job	Lincoln Average Earnings Per Job	Sublette Average Earnings Per Job	Area Average Earnings Per Job
1970	$ 36,455	$ 36,328	$ 38,899	$ 36,583
1971	$ 39,269	$ 37,604	$ 38,215	$ 38,988
1972	$ 40,969	$ 39,518	$ 37,390	$ 40,574
1973	$ 43,635	$ 38,347	$ 45,767	$ 42,827
1974	$ 47,106	$ 45,993	$ 60,242	$ 47,855
1975	$ 48,949	$ 47,179	$ 59,452	$ 49,544
1976	$ 47,928	$ 48,462	$ 44,344	$ 47,910
1977	$ 52,838	$ 51,080	$ 53,701	$ 52,438
1978	$ 55,415	$ 55,904	$ 53,903	$ 55,467
1979	$ 58,063	$ 57,310	$ 59,190	$ 57,935
1980	$ 57,655	$ 54,462	$ 57,599	$ 56,880
1981	$ 56,536	$ 57,586	$ 56,769	$ 56,839
1982	$ 55,011	$ 59,762	$ 58,329	$ 56,548
1983	$ 51,726	$ 66,403	$ 70,315	$ 56,969
1984	$ 50,748	$ 59,889	$ 67,761	$ 55,575
1985	$ 49,919	$ 62,598	$ 58,463	$ 55,554
1986	$ 50,248	$ 67,645	$ 48,025	$ 55,558
1987	$ 47,301	$ 59,766	$ 49,632	$ 52,409
1988	$ 47,724	$ 57,437	$ 48,397	$ 51,707
1989	$ 50,182	$ 58,923	$ 44,527	$ 51,627
1990	$ 48,949	$ 52,347	$ 45,542	$ 49,702
1991	$ 46,504	$ 47,999	$ 43,790	$ 46,573
1992	$ 43,709	$ 50,719	$ 44,930	$ 47,056
1993	$ 42,587	$ 50,766	$ 45,063	$ 46,507
1994	$ 43,617	$ 49,988	$ 44,458	$ 46,355
1995	$ 45,693	$ 51,798	$ 44,298	$ 47,918
1996	$ 45,125	$ 52,333	$ 45,137	$ 47,975
1997	$ 48,678	$ 57,917	$ 42,215	$ 50,528
1998	$ 54,736	$ 51,693	$ 39,923	$ 49,798
1999	$ 46,871	$ 53,997	$ 37,580	$ 46,996
2000	$ 47,675	$ 57,222	$ 53,641	$ 52,299

Year	Fremont Average Earnings Per Job	Lincoln Average Earnings Per Job	Sublette Average Earnings Per Job	Area Average Earnings Per Job
2001	$ 61,102	$ 67,167	$ 51,741	$ 60,063
2002	$ 64,641	$ 70,809	$ 58,300	$ 64,984
2003	$ 58,313	$ 70,366	$ 54,595	$ 61,231
2004	$ 64,718	$ 75,871	$ 56,771	$ 65,394

Source: Bureau of Economic Analysis

Table 3.2.5f. Natural Gas Assessed Valuation for Bridger-Teton NF counties.

Year	Fremont	Lincoln	Sublette	Deflator
1990	$74,898,411	$39,899,866	$108,242,786	81.590
1991	$82,323,114	$56,897,740	$127,434,897	84.444
1992	$68,508,245	$67,475,867	$117,574,163	86.385
1993	$73,087,025	$107,031,916	$143,330,148	88.381
1994	$83,393,763	$159,441,247	$176,419,309	90.259
1995	$80,716,255	$147,268,366	$161,886,490	92.106
1996	$67,986,458	$111,000,346	$109,148,027	93.852
1997	$72,896,708	$141,845,458	$154,159,492	95.414
1998	$95,723,518	$174,880,623	$245,693,162	96.472
1999	$92,702,841	$152,550,992	$255,842,028	97.868
2000	$135,845,998	$171,037,389	$325,135,208	100.000
2001	$281,550,370	$308,152,972	$649,534,420	102.399
2002	$355,644,694	$306,356,856	$888,651,595	104.187
2003	$188,720,936	$149,124,322	$699,588,667	106.404
2004	$382,367,469	$281,584,452	$1,758,636,617	109.426
2005	$638,396,484	$394,143,297	$2,564,144,305	112.737
2006	$978,034,182	$533,975,354	$3,915,189,492	115.949

Year	Deflated Fremont	Deflated Lincoln	Deflated Sublette	Deflated Area
1990	$91,798,518	$48,902,888	$132,666,731	$273,368,137
1991	$97,488,411	$67,379,257	$150,910,541	$315,778,209
1992	$79,305,719	$78,110,629	$136,104,836	$293,521,184
1993	$82,695,404	$121,102,857	$162,173,033	$365,971,294
1994	$92,393,848	$176,648,586	$195,458,967	$464,501,400
1995	$87,634,090	$159,890,090	$175,761,069	$423,285,249
1996	$72,440,074	$118,271,689	$116,298,030	$307,009,793
1997	$76,400,432	$148,663,150	$161,569,049	$386,632,630
1998	$99,224,146	$181,276,042	$254,678,209	$535,178,397
1999	$94,722,321	$155,874,231	$261,415,404	$512,011,956
2000	$135,845,998	$171,037,389	$325,135,208	$632,018,595
2001	$274,954,218	$300,933,576	$634,317,152	$1,210,204,945
2002	$341,352,274	$294,045,184	$852,939,037	$1,488,336,496
2003	$177,362,633	$140,149,169	$657,483,428	$974,995,230
2004	$349,430,180	$257,328,653	$1,607,146,946	$2,213,905,779
2005	$566,270,598	$349,613,079	$2,274,447,879	$3,190,331,556
2006	$843,503,766	$460,526,054	$3,376,647,916	$4,680,677,736

Source: Wyoming Department of Revenue Annual Report

Table 3.2.5g. Total mineral assessed valuation for Bridger-Teton NF counties, 2006

County	Assessed Valuation	Percent
Fremont	$1,091,026,712	18.5%
Lincoln	$649,508,898	11.0%
Sublette	$4,166,708,605	70.5%
Teton	$1,862,712	0.0%
Total	$5,909,106,927	100.0%

County	Oil	Gas	Coal	Other	Total
Fremont	$112,413,096	$978,034,182	$0	$579,434	$1,091,026,712
Lincoln	$30,485,735	$533,975,354	$84,164,067	$883,742	$649,508,898
Sublette	$250,566,079	$3,915,189,492	$0	$953,034	$4,166,708,605
Teton	$0	$0	$0	$1,862,712	$1,862,712
Total	$393,464,910	$5,427,199,028	$84,164,067	$4,278,922	$5,909,106,927
	6.7%	91.8%	1.4%	0.1%	100.0%

Source: Wyoming Department of Revenue

Table 1. Visitor Spending at Destination for Bridger-Teton N.F. Counties

Year	Fremont	Lincoln	Sublette	Teton	Deflator	Deflated Fremont	Deflated Lincoln	Deflated Sublette	Deflated Teton	Deflated Total
1997	$64,000,000	$30,100,000	$17,800,000	$334,100,000	95.414	$67,076,110	$31,546,733	$18,655,543	$350,158,258	$467,436,645
1998	$66,700,000	$30,100,000	$19,000,000	$359,600,000	96.472	$69,139,232	$31,200,763	$19,694,834	$372,750,643	$492,785,471
1999	$70,300,000	$32,100,000	$20,400,000	$384,400,000	97.868	$71,831,446	$32,799,281	$20,844,403	$392,773,940	$518,249,070
2000	$75,100,000	$35,600,000	$22,200,000	$404,000,000	100.000	$75,100,000	$35,600,000	$22,200,000	$404,000,000	$536,900,000
2001	$78,100,000	$35,300,000	$24,500,000	$417,000,000	102.399	$76,270,276	$34,472,993	$23,926,015	$407,230,539	$541,899,823
2002	$78,500,000	$36,300,000	$28,400,000	$426,500,000	104.187	$75,345,293	$34,841,199	$27,258,679	$409,360,093	$546,805,264
2003	$82,300,000	$41,800,000	$30,000,000	$433,700,000	106.404	$77,346,716	$39,284,237	$28,194,429	$407,597,459	$552,422,841
2004	$89,800,000	$42,600,000	$34,000,000	$459,900,000	109.426	$82,064,592	$38,930,419	$31,071,226	$420,284,028	$572,350,264
2005	$99,200,000	$48,900,000	$41,400,000	$493,000,000	112.737	$87,992,407	$43,375,289	$36,722,638	$437,300,975	$605,391,309
Total Change 1997 to 2005						31.2%	37.5%	96.8%	24.9%	29.5%
Annual Change 1997 to 2005						3.5%	4.1%	8.8%	2.8%	3.3%

Source: Dean Runyan Associates

Table 2. Visitor Spending by Type of Lodging for Bridger-Teton N.F. Counties, 2005.

	Fremont	Lincoln	Sublette	Teton	Total	Fremont Percent	Lincoln Percent	Sublette Percent	Teton Percent	Total Percent	Order
Hotel/Motel	$33,900,000	$11,850,000	$21,550,000	$362,900,000	$430,200,000	34.2%	24.2%	52.1%	73.6%	63.0%	1
Private Campground	$19,000,000	$9,500,000	$2,000,000	$27,200,000	$57,700,000	19.2%	19.4%	4.8%	5.5%	8.5%	2
Public Campground	$8,300,000	$2,700,000	$3,400,000	$31,800,000	$46,200,000	8.4%	5.5%	8.2%	6.5%	6.8%	3
Private Home	$22,100,000	$10,950,000	$3,100,000	$15,600,000	$51,750,000	22.3%	22.4%	7.5%	3.2%	7.6%	4
Vacation Home	$6,200,000	$8,800,000	$7,450,000	$25,000,000	$47,450,000	6.3%	18.0%	18.0%	5.1%	7.0%	5
Day Spending	$9,700,000	$5,100,000	$3,900,000	$30,500,000	$49,200,000	9.8%	10.4%	9.4%	6.2%	7.2%	6
Total	$99,200,000	$48,900,000	$41,400,000	$493,000,000	$682,500,000	100.0%	100.0%	100.0%	100.0%	100.0%	

Source Dean Runyan Associates

Table 3. Visitor Spending by Type of Purchase for Bridger-Teton N.F. Counties, 2005

	Fremont	Lincoln	Sublette	Teton	Total	Fremont Percent	Lincoln Percent	Sublette Percent	Teton	Total Percent
Accommodations	$13,200,000	$2,900,000	$8,300,000	$147,900,000	$172,300,000	13.3%	5.9%	20.0%	30.0%	25.2%
Food & Beverage Services	$18,800,000	$5,250,000	$8,750,000	$109,400,000	$142,200,000	19.0%	10.7%	21.1%	22.2%	20.8%
Food Stores	$6,900,000	$1,900,000	$3,100,000	$31,000,000	$42,900,000	7.0%	3.9%	7.5%	6.3%	6.3%
Ground Tran & Motor Fuel	$29,600,000	$30,350,000	$5,500,000	$23,200,000	$88,650,000	29.8%	62.1%	13.3%	4.7%	13.0%
Arts, Entertain. & Recreation	$15,200,000	$4,250,000	$7,300,000	$78,400,000	$105,150,000	15.3%	8.7%	17.6%	15.9%	15.4%
Retail Sales	$14,800,000	$4,250,000	$8,450,000	$74,300,000	$101,800,000	14.9%	8.7%	20.4%	15.1%	14.9%
Air Transportation	$700,000	$0	$0	$28,800,000	$29,500,000	0.7%	0.0%	0.0%	5.8%	4.3%
Total	$99,200,000	$48,900,000	$41,400,000	$493,000,000	$682,500,000	100.0%	100.0%	100.0%	100%	100.0%
	14.5%	7.2%	6.1%	72.2%	100.0%					

Source Dean Runyan Associates

Table 4. Industry Earnings Generated by Travel Spending for Bridger-Teton N.F. Counties

Year	Fremont	Lincoln	Sublette	Teton	Deflator	Deflated Fremont	Deflated Lincoln	Deflated Sublette	Deflated Teton	Deflated Total
1997	$20,800,000	$7,800,000	$5,600,000	$102,500,000	95.124	$21,866,196	$8,199,823	$5,887,053	$107,754,089	$143,707,161
1998	$22,100,000	$8,400,000	$6,600,000	$110,700,000	95.978	$23,026,110	$8,752,006	$6,876,576	$115,338,932	$153,993,624
1999	$22,600,000	$8,400,000	$6,900,000	$118,300,000	97.575	$23,161,671	$8,608,762	$7,071,483	$121,240,072	$160,081,988
2000	$23,300,000	$8,500,000	$6,800,000	$122,700,000	100.000	$23,300,000	$8,500,000	$6,800,000	$122,700,000	$161,300,000
2001	$24,600,000	$8,400,000	$7,600,000	$126,900,000	102.094	$24,095,441	$8,227,712	$7,444,120	$124,297,216	$164,064,490
2002	$25,200,000	$9,500,000	$9,100,000	$131,200,000	103.542	$24,337,950	$9,175,021	$8,788,704	$126,711,866	$169,013,540
2003	$26,200,000	$10,700,000	$9,800,000	$136,000,000	105.597	$24,811,311	$10,132,864	$9,280,567	$128,791,538	$173,016,279
2004	$29,300,000	$10,000,000	$11,600,000	$150,300,000	108.373	$27,036,254	$9,227,391	$10,703,773	$138,687,681	$185,655,099
2005	$31,000,000	$10,300,000	$14,100,000	$161,000,000	111.493	$27,804,436	$9,238,248	$12,646,534	$144,403,685	$194,092,903
Total Change 1997 to 2005						27.2%	12.7%	114.8%	34.0%	35.1%
Annual Change 1997 to 2005						3.0%	1.5%	10.0%	3.7%	3.8%

Source: Dean Runyan Associates

Table 5. Industry Employment Generated by Travel Spending for Bridger-Teton N.F. Counties

Year	Fremont	Lincoln	Sublette	Teton	Total
1997	1,320	550	340	5,540	7,750
1998	1,310	574	359	5,660	7,903
1999	1,340	535	368	5,816	8,059
2000	1,330	530	370	5,700	7,930
2001	1,350	520	410	5,710	7,990
2002	1,340	570	470	5,690	8,070
2003	1,310	620	460	5,600	7,990
2004	1,470	570	530	5,890	8,460
2005	1,450	580	570	6,090	8,690
Total Change 1997 to 2005	9.8%	5.5%	67.6%	9.9%	12.1%
Annual Change 1997 to 2005	1.2%	0.7%	6.7%	1.2%	1.4%
Source: Dean Runyan Associates					
	16.7%	6.7%	6.6%	70.1%	100.0%

Table 6. Local Tax Receipts Generated by Travel Spending in Bridger-Teton N.F. counties

Year	Fremont	Lincoln	Sublette	Teton	Deflator	Deflated Fremont	Deflated Lincoln	Deflated Sublette	Deflated Teton	Deflated Total
1997	$600,000	$300,000	$100,000	$8,100,000	95.414	$628,839	$314,419	$104,806	$8,489,320	$9,537,384
1998	$900,000	$300,000	$100,000	$8,800,000	96.472	$932,913	$310,971	$103,657	$9,121,818	$10,469,359
1999	$1,000,000	$300,000	$200,000	$9,400,000	97.868	$1,021,784	$306,535	$204,357	$9,604,774	$11,137,450
2000	$900,000	$300,000	$200,000	$9,800,000	100.000	$900,000	$300,000	$200,000	$9,800,000	$11,200,000
2001	$700,000	$300,000	$300,000	$10,200,000	102.399	$683,600	$292,972	$292,972	$9,961,035	$11,230,578
2002	$800,000	$400,000	$400,000	$10,600,000	104.187	$767,850	$383,925	$383,925	$10,174,014	$11,709,714
2003	$800,000	$400,000	$400,000	$10,600,000	106.404	$751,851	$375,926	$375,926	$9,962,032	$11,465,734
2004	$700,000	$300,000	$400,000	$10,000,000	109.426	$639,702	$274,158	$365,544	$9,138,596	$10,417,999
2005	$800,000	$300,000	$500,000	$11,200,000	112.737	$709,616	$266,106	$443,510	$9,934,627	$11,353,859
Total Change 1997 to 2005						12.8%	-15.4%	323.2%	17.0%	19.0%
Annual Change 1997 to 2005						1.5%	-2.1%	19.8%	2.0%	2.2%

Source: Dean Runyan Associates

Table 7. Estimated Lodging Sales by Month for Bridger-Teton N.F. Counties, 2005

Month*	Lodging Tax Fremont	Lodging Tax Lincoln**	Lodging Tax Sublette	Lodging Tax Teton	Lodging Sales Fremont	Lodging Sales Lincoln**	Lodging Sales Sublette	Lodging Sales Teton	Lodging Sales Total	Lodging Sales Fremont	Lodging Sales Lincoln**	Lodging Sales Sublette	Lodging Sales Teton	Lodging Sales Total
Jan	$12,694	$1,705	$6,524	N.A.	$634,700	$85,250	$217,467	N.A.	$937,417	5.7%	4.9%	3.0%	N.A.	4.6%
Feb	$12,425	$1,193	$8,381	N.A.	$621,250	$59,650	$279,367	N.A.	$960,267	5.6%	3.4%	3.8%	N.A.	4.7%
Mar	$12,175	$1,847	$5,564	N.A.	$608,750	$92,350	$185,467	N.A.	$886,567	5.4%	5.3%	2.5%	N.A.	4.4%
Apr	$10,057	$2,032	$12,071	N.A.	$502,850	$101,600	$402,367	N.A.	$1,006,817	4.5%	5.8%	5.5%	N.A.	5.0%
May	$14,525	$2,671	$17,291	N.A.	$726,250	$133,550	$576,367	N.A.	$1,436,167	6.5%	7.7%	7.9%	N.A.	7.1%
Jun	$35,036	$5,022	$29,854	N.A.	$1,751,800	$251,100	$995,133	N.A.	$2,998,033	15.7%	14.4%	13.6%	N.A.	14.8%
Jul	$38,093	$4,782	$31,901	N.A.	$1,904,650	$239,100	$1,063,367	N.A.	$3,207,117	17.0%	13.7%	14.6%	N.A.	15.9%
Aug	$28,897	$2,399	$22,427	N.A.	$1,444,850	$119,950	$747,567	N.A.	$2,312,367	12.9%	6.9%	10.2%	N.A.	11.4%
Sep	$22,040	$6,880	$40,808	N.A.	$1,102,000	$344,000	$1,360,267	N.A.	$2,806,267	9.9%	19.8%	18.6%	N.A.	13.9%
Oct	$14,072	$2,069	$17,154	N.A.	$703,600	$103,450	$571,800	N.A.	$1,378,850	6.3%	5.9%	7.8%	N.A.	6.8%
Nov	$11,852	$2,676	$13,384	N.A.	$592,600	$133,800	$446,133	N.A.	$1,172,533	5.3%	7.7%	6.1%	N.A.	5.8%
Dec	$11,748	$1,508	$13,691	N.A.	$587,400	$75,400	$456,367	N.A.	$1,119,167	5.3%	4.3%	6.3%	N.A.	5.5%
Total	$223,614	$34,784	$219,050		$11,180,700	$1,739,200	$7,301,667		$20,221,567		100.0%	100.0%	100.0%	

* Lagged two months to account for delays in reporting

** Lodging tax in Lincoln County is only imposed in Cokeville, Afton, Diamondville, and Kemmerer

Source: Wyoming Department of Revenue

Table 7a. Averaging Earnings Per Job for Travel Industry in the Bridger-Teton NF counties

Year	Deflated Fremont Earnings	Deflated Lincoln Earnings	Deflated Sublette Earnings	Deflated Teton Earnings	Deflated Total Earnings
1997	$21,866,196	$8,199,823	$5,887,053	$107,754,089	$143,707,161
1998	$23,026,110	$8,752,006	$6,876,576	$115,338,932	$153,993,624
1999	$23,161,671	$8,608,762	$7,071,483	$121,240,072	$160,081,988
2000	$23,300,000	$8,500,000	$6,800,000	$122,700,000	$161,300,000
2001	$24,095,441	$8,227,712	$7,444,120	$124,297,216	$164,064,490
2002	$24,337,950	$9,175,021	$8,788,704	$126,711,866	$169,013,540
2003	$24,811,311	$10,132,864	$9,280,567	$128,791,538	$173,016,279
2004	$27,036,254	$9,227,391	$10,703,773	$138,687,681	$185,655,099
2005	$27,804,436	$9,238,248	$12,646,534	$144,403,685	$194,092,903

Year	Fremont Employment	Lincoln Employment	Sublette Employment	Teton Employment	Total Employment
1997	1,320	550	340	5,540	7,750
1998	1,310	574	359	5,660	7,903
1999	1,340	535	368	5,816	8,059
2000	1,330	530	370	5,700	7,930
2001	1,350	520	410	5,710	7,990
2002	1,340	570	470	5,690	8,070
2003	1,310	620	460	5,600	7,990
2004	1,470	570	530	5,890	8,460
2005	1,450	580	570	6,090	8,690

Year	Fremont Average Earnings Per job	Lincoln Average Earnings Per job	Sublette Average Earnings Per job	Teton Average Earnings Per job	Total Average Earnings Per job
1997	$16,565	$14,909	$17,315	$19,450	$18,543
1998	$17,577	$15,247	$19,155	$20,378	$19,485
1999	$17,285	$16,091	$19,216	$20,846	$19,864
2000	$17,519	$16,038	$18,378	$21,526	$20,340
2001	$17,848	$15,823	$18,156	$21,768	$20,534
2002	$18,163	$16,097	$18,699	$22,269	$20,943
2003	$18,940	$16,343	$20,175	$22,998	$21,654
2004	$18,392	$16,188	$20,196	$23,546	$21,945
2005	$19,175	$15,928	$22,187	$23,712	$22,335
Change	15.8%	6.8%	28.1%	21.9%	20.5%

Source: Dean Runyan Associates

Table 7b. Averaging Earnings Per Job in the Bridger-Teton NF counties, 2004

County	Total Earnings	Total Jobs	Average Earnings Per Job	Deflator	Deflated Average Earnings Per Job
Fremont	$596,483,000	22,223	$26,841	109.426	$24,529
Lincoln	$293,624,000	9,292	$31,600	109.426	$28,878
Sublette	$171,298,000	5,204	$32,917	109.426	$30,081
Teton	$934,603,000	23,987	$38,963	109.426	$35,607
Total	$1,996,008,000	60,706	$32,880	109.426	$30,048

Source: U.S. Bureau of Economic Analysis

Table 8. Description of Visitors to Bridger-Teton N.F., 2002

Gender Recreation Visitors	
Male	71.9%
Female	28.1%
Total	100.0%

Age of Recreation Visitors	
Under 16	5.7%
16 to 19	1.8%
20 to 29	22.1%
30 to 39	29.5%
40 to 49	19.0%
50 to 59	15.8%
60 to 69	4.8%
70 Plus	1.3%
Total	100.0%

Race/Ethnicity of Recreation Visitors	
White	96.9%
Hispanic	1.5%
Other	0.8%
Asian	0.5%
African American	0.3%
Native American	0.0%
Pacific Islander	0.0%
Total	100.0%

Recreation on Forest was Primary Trip Destination	
Yes	98.2%
No	1.8%
Total	100.0%

Source: Bridger-Teton NF NVUM

Table 9. Origin of Bridger-Teton NF Recreation Visitors

Local	
Fremont	0.9%
Lincoln	3.6%
Sublette	1.4%
Teton	41.6%
Total Local	47.6%
Regional	
Sweetwater	1.9%
Uinta	0.6%
Other Wyoming	3.0%
Montana	0.8%
Colorado	3.8%
Utah	8.4%
Idaho	4.8%
Total Regional	20.8%
Other States	29.3%
Other Countries	2.3%
Total	100.0%

Source: Bridger-Teton NF NVUM

Table 11 Forest and Site Visit Length of Stay by Site Type

	Average (Hours)
National Forest Visit	23.2
Site Visits:	
Developed Overnight Use	30.4
Wilderness	30.7
General Forest Area	17.8
Developed Day Use	3.6
Average - All Sites	15.0

Source: Bridger-Teton NF NVUM

Table 12. Recreation Activities on Bridger-Teton NF

Activity	Participation Rate	Primary Activity	Percent Primary	Order
Developed Camping	8.7%	3.2%	36.8%	1
Primative Camping	5.6%	0.8%	14.3%	2
Backpacking	5.3%	1.9%	35.8%	3
Resort Use	1.7%	0.8%	47.1%	4
Picnicking	3.9%	0.6%	15.4%	5
Viewing Natural Features	50.7%	10.0%	19.7%	6
Visiting Historic Sites	3.6%	0.4%	11.1%	7
Nature Center Activities	3.2%	0.2%	6.3%	8
Nature Study	5.9%	0.3%	5.1%	9
Relaxing	39.9%	7.5%	18.8%	10
Fishing	11.4%	4.6%	40.4%	11
Hunting	9.7%	9.4%	96.9%	12
OHV Use	6.0%	2.0%	33.3%	13
Driving for Pleasure	15.4%	3.9%	25.3%	14
Snowmobiling	12.6%	11.1%	88.1%	15
Motorized Water Activities	2.0%	0.1%	5.0%	16
Other Motorized Activities	0.2%	0.1%	50.0%	17
Hiking/Walking	33.9%	13.0%	38.3%	18
Horeseback Riding	3.2%	1.1%	34.4%	19
Bicycling	13.2%	8.8%	66.7%	20
Non-motorized Water	6.7%	4.7%	70.1%	21
Downhill Skiing	25.0%	24.0%	96.0%	22
Cross-country Skiing	7.9%	3.9%	49.4%	23
Other Non-motorized	5.2%	1.1%	21.2%	24
Gathering Forest Products	3.7%	1.6%	43.2%	25
Viewing Wildlife	46.5%	2.0%	4.3%	26
Total	331.1%	117.1%		

Table 13. Use of Facilities and Areas on Bridger-Teton NF

Facility	Visitor Use	Order
Developed Campground	7.0%	1
Swimming Area	4.3%	2
Hike/Bike/Horse Trails	31.3%	3
Scenic Byway	13.3%	4
Designated Wilderness	3.8%	5
Visitor Center/Museum	2.7%	6
FS Office/Info Site	1.2%	7
Picnic Area	3.3%	8
Boat Launch	2.4%	9
Designated ORV Area	0.1%	10
Other Forest Road	10.9%	11
Interpretive Site	2.5%	12
Organization Camp	0.7%	13
Developed Fishing Site/Dock	2.6%	14
Designated Snowmobile Area	7.0%	15
Downhill Ski Area	18.4%	16
Nordic Ski Area	4.1%	17
Lodges/Resorts on NF	3.8%	18
FS Lookouts/Cabins	0.1%	19
Designated Snow Play Area	1.7%	20
Motorized Developed Trails	2.6%	21
Recreation Residences	1.9%	22
Total	125.7%	

Source: Bridger-Teton NF NVUM

References

American Farmland Trust. *Strategic Ranchland in the Rocky Mountain West: Mapping the Threats to Prime Ranchland in Seven Western States*. American Farmland Trust. Washington, D.C. 2002. Available: http://www.farmland.org/programs/states/documents/StrategicRanchlandin20thRockyMountainWest.pdf. Accessed: November, 2007.

Blevins, A., K. Jensen, & M. Leighty. *Forest Service Social Assessment for the Medicine Bow National Forest 15 Year Revision Plan*. Unpublished. 2003.

Blevins, A., K. Jensen, & M. Leighty. *Social Assessment of the Four County Area*. Unpublished. 2002.

Dearian, C., Hintz, J. & Rudzitis, G. *The role of wilderness and public land amenities in explaining migration and rural development in the American Northwest.* In "Amenities and Rural Development". Edited by Green, G.P, Deller, S.C., and Marcouiller. D.W. New Hampton, Massachusetts: Edward Elgar. 2005.

Dechsel, Colby. Wyoming Pipeline Authority. Personal communication, January 2007.

Ellingson, Lindsey, Andrew Seidl, and C.J. Mucklow. *Tourists' Value of Routt County's Working Landscape, 2005*. Economic Development Report, Department of Agricultural and Resource Economics, Fort Collins, CO, EDR 06-05, May, 2006.

Foulke, Thomas, Roger H. Coupal and David Taylor. *2005 Payment in Lieu of Taxes to Wyoming Counties*. University of Wyoming, Cooperative Extension Service Bulletins B-1174TE, SU and LE. Laramie Wyoming. April, 2006.

Goe, R.W. & Green, G.P. *Amenities and change in the well-being of nonmetropolitan localities.* In Amenities and Rural Development. Edited by, Green, G.P, Deller, S.C., and Marcouiller. D.W. New Hampton, Massachusetts: Edward Elgar. 2005.

Keegan, Charles E. III. University of Montana, Bureau of Business Research. Missoula, MT. Personal Communication, February, 2007.

Likwartz, Don. Wyoming Oil and Gas Conservation Commission. Personal communication. February, 2007.

Lower Valley Energy. *Natural Gas Pipeline Update (January 24, 2007)*. Website: www.lvenergy.com/ArticlePSC072606.php Accessed, February, 2007.

Magnan, Nicholas, Andrew Seidl, C.J. Mucklow, and Deborah Alpe. *The Value of Ranchland to Routt County Residents, 1998-2005*. Economic Development Report, Department of Agricultural and Resource Economics, Fort Collins, CO, EDR 05-02, October, 2005.

Minnesota Implan Group, Inc. IMPLAN version 2.0.1025, (2003 structural matrices) http://www.implan.com/index.php?Base_Session=277ddc2e0e23c5d30707a8f5ecd38590

Monturo, James. Wyoming Department of Transportation. Personal communication February 2007.

National Science Foundation. Report *of the Workshop on the Terrestrial Carbon Cycle*. The National Science Foundation, Division of Earth Sciences, June 3, 2000.

Oakridge National Laboratory (2001) *The DOE Consortium for Research on Enhancing Carbon Sequestration in Terrestrial Ecosystems*, vol. 2007, Oakridge National Laboratory.

Oren, Adam and Andrew Seidl. *Winter Tourism and Land Development in Gunnison, Colorado*. Economic Development Report, Department of Agricultural and Resource Economics, Fort Collins, CO, EDR 04-10, August, 2004.

Pindell, Darla, David T. Taylor and Brett R. Moline. *Wyoming Payments in Lieu of Taxes*. University of Wyoming, Cooperative Extension Service Bulletin, B-1055. Laramie, Wyoming. February, 1998.

Potter, C., et al. *Estimating Carbon Budgets for US Ecosystems*. *EOS Transactions* 87, no. 8(2006): 85-96.

Public Opinion Strategies and Fairbanks, Moslin, Maulllin, & Associates, *Wyoming Statewide Survey*. PowerPoint Presentation. 2007.

Rhea, Darren and Rob Gipson, *Hoback River Stocking Evaluation: 2000-2006 Population Estimates, 2006 Programmed Creel, and 2000-2005 Spot Creel*. Administrative Report. Wyoming Game and Fish Department, Fish Division, Cheyenne, Wy. February 2007.

Taylor, David T., Roger H. Coupal, and Thomas Foulke. *The Economic Impact of Federal Grazing on the Economy of Park County Wyoming.* Unpublished report to Fremont County Commissioners. University of Wyoming Department of Agricultural & Applied Economics, Laramie, Wyoming. August, 2005.

Taylor, David T., Roger H. Coupal, Thomas Foulke and James G. Thompson. *The Economic Importance of Livestock Grazing on BLM Land in Fremont County, Wyoming*. Unpublished report to Fremont County Commissioners. University of Wyoming Department of Agricultural & Applied Economics, Laramie, Wyoming. October, 2004.

US Department of Energy. *Technical Guidelines: Voluntary Reporting of Greenhouse Gasses (1605(b)) Program*. Office of Policy and International Affairs, US Department of Energy, March 2006.

US Environmental Protection Agency. *Carbon Sequestration in Agriculture and Forestry, vol. 2007*, US Environmental Protection Agency.

United States Department of Commerce, Bureau of Economic Analysis. Available: https://www.bea.gov/. Last accessed, April, 2007.

United States Department of Interior, Bureau of Land Management. *Draft Supplemental Environmental Impact Statement for the Pinedale Anticline Oil and Gas Exploration and Development Project, Sublette County Wyoming*. BLM/WY/PL-07001+1310. Pinedale Field Office, Pinedale Wyoming. December 2006.

United States Department of Labor. *Bureau of Labor Statistics*. Available: http://stats.bls.gov/ . Last accessed, April, 2007.

Waddington, Steven. Wyoming Infrastructure Authority. Personal communication, March, 2007.

Wyoming Department of Employment, Office of the Mine Inspector. *Annual Report of the State Inspector of Mines of Wyoming, 2005.* Office of the State Inspector of Mines, Rock Springs, Wyoming. 2006.