

7 Economic Impacts

7.1 Cibola National Forest Region Economy

The importance of the Cibola National Forest for the local region is intimately related to the economic composition of the region itself. The economic region in this case includes all counties that contain or lay adjacent to the Cibola NF. This includes Bernalillo, Catron, Cibola, Lincoln, McKinley, Sandoval, Sierra, Socorro, Torrance and Valencia counties. The most prominent feature of the region is Bernalillo County, which contains the city of Albuquerque, and by far is the largest economy in the ten county area, accounting for three-quarters of the employment in the region. Sandoval and McKinley Counties, the second and third largest economies in terms of employment, contain just 11 percent of the region's employment. The disparity between counties in terms of economic activity has substantial ramifications in terms of measuring the impact of the Cibola NF on each county. In cases where the local economy is robust and well developed, the economic contribution of the Cibola NF is less significant, while communities with smaller and less diverse economies may depend more heavily on the economic resources of the forest. This is true in its simplest form because the activity generated by the forest makes up a larger percentage of the total economic activity of the county. However, there are subtleties at work here as well, in that the population of small economy counties may be quite poor and more likely to depend on forest related products as a source of income or subsistence. Additionally, the large economy of Bernalillo County is largely service oriented, while the economies of the other counties consist of relatively large primary industry and government sectors.

Table 7.1 shows total employment and per capita income for 2000 by county. Bernalillo has 76 percent of the region's employment, and a per capita income that is nearly double that of smaller economy counties. The Sandia RD is unique among the Cibola districts in that much of it lies within Bernalillo County next to Albuquerque, and enjoys a substantially large degree of recreational use by the metropolitan area residents. As such, it sustains a high degree of recreational use and very small degrees of forest product-based uses, such as logging or grazing.

Table 7.1 Total Employment by County, 2000

	Employment	Percent Employment	Per Capita Income	PCI Relative to Bernalillo
Bernalillo	394,104	76%	27,046	1.00
Catron	1,456	0%	14,377	0.53
Cibola	8,656	2%	14,935	0.55
Lincoln	10,536	2%	18,999	0.70
McKinley	27,417	5%	13,549	0.50
Sandoval	32,379	6%	23,932	0.88
Sierra	4,603	1%	17,168	0.63
Socorro	7,237	1%	15,424	0.57
Torrance	15,918	3%	17,631	0.65
Valencia	18,801	4%	20,511	0.76
Total	521,107	100%	18,357	0.68

Source: Bureau of Economic Analysis

From **Table 7.1**, we get a sense that the Cibola NF region contains very little economic activity, except in the region's one large metropolitan center, which accounts for a huge portion of the regions economy. In order to understand the industrial differences between counties in the region, **Table 7.2** shows the industry composition of employment for the regional counties in 1980, 1990 and 2000. The largest sector in Bernalillo County is the service sector, which also

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shows the largest growth of any sector from 1990 to 2000. Federal, state, and local government also make up a substantial portion of Bernalillo's economy. This is true for all counties, but the government sectors in general are substantially larger in counties with smaller economies. This is particularly true in Catron, Cibola, and Socorro Counties. These counties are significantly dependent on the federal government as a source of employment, and the USDA FS is one of these sources.

Over the last 20 years, the trend has been a shift from primary industries to service industries as local economies have grown and the national economy transitions to a service-based economy. This is particularly true in large economy counties such as Bernalillo, where the service sector has more than doubled since 1980.

Table 7.2 Total Employment in Primary Industry Sectors by County in 1980, 1990, and 2000

Bernalillo	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	223,621	313,738	394,104	100%	100%	100%	0.00%	0.00%
Farm Employment	787	587	624	0%	0%	0%	-0.16%	-0.03%
Non-farm Employment	222,834	313,151	393,480	100%	100%	100%	0.16%	0.03%
Private Employment	174,574	252,047	328,254	78%	80%	83%	2.27%	2.95%
Agricultural services, forestry, and fishing	915	2,025	3,485	0%	1%	1%	0.24%	0.24%
Mining	462	947	768	0%	0%	0%	0.10%	-0.11%
Construction	14,689	16,759	25,351	7%	5%	6%	-1.23%	1.09%
Manufacturing	17,934	22,895	22,082	8%	7%	6%	-0.72%	-1.69%
Transportation and utilities	12,060	14,298	19,553	5%	5%	5%	-0.84%	0.40%
Wholesale trade	13,239	15,889	18,535	6%	5%	5%	-0.86%	-0.36%
Retail trade	38,404	54,125	68,693	17%	17%	17%	0.08%	0.18%
Services	58,122	100,809	138,926	26%	32%	35%	6.14%	3.12%
Government and government enterprises	48,260	61,104	65,226	22%	19%	17%	-2.11%	-2.93%
Federal, civilian	12,575	13,889	13,362	6%	4%	3%	-1.20%	-1.04%
Military	6,842	7,543	5,951	3%	2%	2%	-0.66%	-0.89%
State and local	28,843	39,672	45,913	13%	13%	12%	-0.25%	-0.99%
State government	11,843	16,687	21,020	5%	5%	5%	0.02%	0.01%
Local government	17,000	22,985	24,893	8%	7%	6%	-0.28%	-1.01%

Catron	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	1,059	1,246	1,456	100%	100%	100%	0.00%	0.00%
Farm Employment	349	282	274	33%	23%	19%	-10.32%	-3.81%
Non-farm Employment	710	964	1,182	67%	77%	81%	10.32%	3.81%
Private Employment	418	607	825	39%	49%	57%	9.24%	7.95%
Agricultural services, forestry, and fishing	(D)	(D)	(D)	--	--	--	--	--
Mining	(L)	(D)	(L)	--	--	--	--	--
Construction	40	64	(D)	4%	5%	--	1.36%	--
Manufacturing	117	106	58	11%	9%	4%	-2.54%	-4.52%
Transportation and utilities	12	46	69	1%	4%	5%	2.56%	1.05%
Wholesale trade	(L)	(L)	(L)	--	--	--	--	--
Retail trade	86	110	160	8%	9%	11%	0.71%	2.16%
Services	127	188	287	12%	15%	20%	3.10%	4.62%
Government and government enterprises	292	357	357	28%	29%	25%	1.08%	-4.13%
Federal, civilian	127	151	129	12%	12%	9%	0.13%	-3.26%
Military	12	13	12	1%	1%	1%	-0.09%	-0.22%
State and local	153	193	216	14%	15%	15%	1.04%	-0.65%
State government	34	66	63	3%	5%	4%	2.09%	-0.97%
Local government	119	127	153	11%	10%	11%	-1.04%	0.32%

Cibola	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	(N)	6,202	8,656	--	100%	100%	--	0.00%
Farm Employment	(N)	222	194	--	4%	2%	--	-1.34%
Non-farm Employment	(N)	5,980	8,462	--	96%	98%	--	1.34%
Private Employment	(N)	4,053	5,285	--	65%	61%	--	-4.29%
Agricultural services, forestry, and fishing	(N)	30	(D)	--	0%	--	--	--
Mining	(N)	210	(D)	--	3%	--	--	--
Construction	(N)	150	344	--	2%	4%	--	1.56%
Manufacturing	(N)	699	370	--	11%	4%	--	-7.00%
Transportation and utilities	(N)	303	347	--	5%	4%	--	-0.88%
Wholesale trade	(N)	124	211	--	2%	2%	--	0.44%
Retail trade	(N)	1,211	1,540	--	20%	18%	--	-1.73%
Services	(N)	1,073	2,071	--	17%	24%	--	6.62%
Government and government enterprises	(N)	1,927	3,177	--	31%	37%	--	5.63%
Federal, civilian	(N)	369	420	--	6%	5%	--	-1.10%
Military	(N)	120	85	--	2%	1%	--	-0.95%
State and local	(N)	1,438	2,672	--	23%	31%	--	7.68%
State government	(N)	536	639	--	9%	7%	--	-1.26%
Local government	(N)	902	2,033	--	15%	23%	--	8.94%

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Lincoln	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	5,970	7,219	10,536	100%	100%	100%	0.00%	0.00%
Farm Employment	523	440	476	9%	6%	5%	-2.67%	-1.58%
Non-farm Employment	5,447	6,779	10,060	91%	94%	95%	2.67%	1.58%
Private Employment	4,423	5,590	8,719	74%	77%	83%	3.35%	5.32%
Agricultural services, forestry, and fishing	85	126	172	1%	2%	2%	0.32%	-0.11%
Mining	47	143	(D)	1%	2%	--	1.19%	--
Construction	560	510	843	9%	7%	8%	-2.32%	0.94%
Manufacturing	117	191	336	2%	3%	3%	0.69%	0.54%
Transportation and utilities	190	213	332	3%	3%	3%	-0.23%	0.20%
Wholesale trade	51	66	(D)	1%	1%	--	0.06%	--
Retail trade	1,023	1,768	2,390	17%	24%	23%	7.36%	-1.81%
Services	1,589	1,965	3,235	27%	27%	31%	0.60%	3.48%
Government and government enterprises	1,024	1,189	1,341	17%	16%	13%	-0.68%	-3.74%
Federal, civilian	171	133	135	3%	2%	1%	-1.02%	-0.56%
Military	51	62	64	1%	1%	1%	0.00%	-0.25%
State and local	802	994	1,142	13%	14%	11%	0.34%	-2.93%
State government	286	363	197	5%	5%	2%	0.24%	-3.16%
Local government	516	631	945	9%	9%	9%	0.10%	0.23%

McKinley	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	21,210	21,784	27,417	100%	100%	100%	0.00%	0.00%
Farm Employment	258	243	251	1%	1%	1%	-0.10%	-0.20%
Non-farm Employment	20,952	21,541	27,166	99%	99%	99%	0.10%	0.20%
Private Employment	15,364	15,493	20,064	72%	71%	73%	-1.32%	2.06%
Agricultural services, forestry, and fishing	25	56	(D)	0%	0%	--	0.14%	--
Mining	4,651	808	716	22%	4%	3%	-18.22%	-1.10%
Construction	902	794	(D)	4%	4%	--	-0.61%	--
Manufacturing	947	1,379	1,523	4%	6%	6%	1.87%	-0.78%
Transportation and utilities	932	864	879	4%	4%	3%	-0.43%	-0.76%
Wholesale trade	505	1,289	3,174	2%	6%	12%	3.54%	5.66%
Retail trade	4,188	5,234	6,131	20%	24%	22%	4.28%	-1.66%
Services	2,685	4,384	5,835	13%	20%	21%	7.47%	1.16%
Government and government enterprises	5,588	6,048	7,102	26%	28%	26%	1.42%	-1.86%
Federal, civilian	2,493	2,370	2,409	12%	11%	9%	-0.87%	-2.09%
Military	264	312	247	1%	1%	1%	0.19%	-0.53%
State and local	2,831	3,366	4,446	13%	15%	16%	2.10%	0.76%
State government	251	532	728	1%	2%	3%	1.26%	0.21%
Local government	2,580	2,834	3,718	12%	13%	14%	0.85%	0.55%

Sandoval	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	5,583	14,723	32,379	100%	100%	100%	0.00%	0.00%
Farm Employment	448	416	411	8%	3%	1%	-5.20%	-1.56%
Non-farm Employment	5,135	14,307	31,968	92%	97%	99%	5.20%	1.56%
Private Employment	3,851	12,052	26,710	69%	82%	82%	12.88%	0.63%
Agricultural services, forestry, and fishing	141	230	308	3%	2%	1%	-0.96%	-0.61%
Mining	34	44	110	1%	0%	0%	-0.31%	0.04%
Construction	596	1,063	2,531	11%	7%	8%	-3.46%	0.60%
Manufacturing	643	2,831	(D)	12%	19%	--	7.71%	--
Transportation and utilities	201	397	2,306	4%	3%	7%	-0.90%	4.43%
Wholesale trade	74	288	(D)	1%	2%	--	0.63%	--
Retail trade	698	2,835	5,368	13%	19%	17%	6.75%	-2.68%
Services	1,063	3,474	6,719	19%	24%	21%	4.56%	-2.84%
Government and government enterprises	1,284	2,255	5,258	23%	15%	16%	-7.68%	0.92%
Federal, civilian	212	389	347	4%	3%	1%	-1.16%	-1.57%
Military	159	323	298	3%	2%	1%	-0.65%	-1.27%
State and local	913	1,543	4,613	16%	10%	14%	-5.87%	3.77%
State government	130	106	206	2%	1%	1%	-1.61%	-0.08%
Local government	783	1,437	4,407	14%	10%	14%	-4.26%	3.85%

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Sierra	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	2,774	3,334	4,603	100%	100%	100%	0.00%	0.00%
Farm Employment	390	302	328	14%	9%	7%	-5.00%	-1.93%
Non-farm Employment	2,384	3,032	4,275	86%	91%	93%	5.00%	1.93%
Private Employment	1,731	2,299	3,315	62%	69%	72%	6.56%	3.06%
Agricultural services, forestry, and fishing	63	50	(D)	2%	1%	--	-0.77%	--
Mining	63	61	(D)	2%	2%	--	-0.44%	--
Construction	164	191	320	6%	6%	7%	-0.18%	1.22%
Manufacturing	36	(D)	(D)	1%	--	--	--	--
Transportation and utilities	163	166	124	6%	5%	3%	-0.90%	-2.29%
Wholesale trade	34	(D)	(D)	1%	--	--	--	--
Retail trade	533	669	879	19%	20%	19%	0.85%	-0.97%
Services	504	832	1,252	18%	25%	27%	6.79%	2.24%
Government and government enterprises	653	733	960	24%	22%	21%	-1.55%	-1.13%
Federal, civilian	146	104	120	5%	3%	3%	-2.14%	-0.51%
Military	39	51	44	1%	2%	1%	0.12%	-0.57%
State and local	468	578	796	17%	17%	17%	0.47%	-0.04%
State government	186	221	297	7%	7%	6%	-0.08%	-0.18%
Local government	282	357	499	10%	11%	11%	0.54%	0.13%

Socorro	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	4,899	6,576	7,237	100%	100%	100%	0.00%	0.00%
Farm Employment	513	527	589	10%	8%	8%	-2.46%	0.12%
Non-farm Employment	4,386	6,049	6,648	90%	92%	92%	2.46%	-0.12%
Private Employment	2,428	3,611	4,293	50%	55%	59%	5.35%	4.41%
Agricultural services, forestry, and fishing	24	64	(D)	0%	1%	--	0.48%	--
Mining	57	20	(D)	1%	0%	--	-0.86%	--
Construction	207	264	302	4%	4%	4%	-0.21%	0.16%
Manufacturing	76	308	194	2%	5%	3%	3.13%	-2.00%
Transportation and utilities	136	156	142	3%	2%	2%	-0.40%	-0.41%
Wholesale trade	111	39	(D)	2%	1%	--	-1.67%	--
Retail trade	678	1,096	946	14%	17%	13%	2.83%	-3.59%
Services	1,006	1,476	2,223	21%	22%	31%	1.91%	8.27%
Government and government enterprises	1,958	2,438	2,355	40%	37%	33%	-2.89%	-4.53%
Federal, civilian	378	256	238	8%	4%	3%	-3.82%	-0.60%
Military	72	75	60	1%	1%	1%	-0.33%	-0.31%
State and local	1,508	2,107	2,057	31%	32%	28%	1.26%	-3.62%
State government	981	1,517	(D)	20%	23%	--	3.04%	--
Local government	527	590	(D)	11%	9%	--	-1.79%	--

Torrance	1980	1990	2000	1980%	1990%	2000%	Change in % 1980-1990	Change in % 1990-2000
Total	8,351	11,434	15,918	100%	100%	100%	0.00%	0.00%
Farm Employment	432	472	494	5%	4%	3%	-1.04%	-1.02%
Non-farm Employment	7,919	10,962	15,424	95%	96%	97%	1.04%	1.02%
Private Employment	6,355	9,402	13,173	76%	82%	83%	6.13%	0.53%
Agricultural services, forestry, and fishing	46	124	188	1%	1%	1%	0.53%	0.10%
Mining	737	362	271	9%	3%	2%	-5.66%	-1.46%
Construction	519	780	1,330	6%	7%	8%	0.61%	1.53%
Manufacturing	440	594	410	5%	5%	3%	-0.07%	-2.62%
Transportation and utilities	207	333	363	2%	3%	2%	0.43%	-0.63%
Wholesale trade	86	218	226	1%	2%	1%	0.88%	-0.49%
Retail trade	1,563	2,379	3,310	19%	21%	21%	2.09%	-0.01%
Services	2,400	4,005	5,944	29%	35%	37%	6.29%	2.31%
Government and government enterprises	1,564	1,560	2,251	19%	14%	14%	-5.08%	0.50%
Federal, civilian	295	318	312	4%	3%	2%	-0.75%	-0.82%
Military	91	118	99	1%	1%	1%	-0.06%	-0.41%
State and local	1,178	1,124	1,840	14%	10%	12%	-4.28%	1.73%
State government	206	147	365	2%	1%	2%	-1.18%	1.01%
Local government	972	977	1,475	12%	9%	9%	-3.09%	0.72%

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Valencia ¹							Change in %	Change in %
	1980	1990	2000	1980%	1990%	2000%	1980-1990	1990-2000
Total	17,898	12,479	18,801	100%	100%	100%	0.00%	0.00%
Farm Employment	1,015	654	845	6%	5%	4%	-0.43%	-0.75%
Non-farm Employment	16,883	11,825	17,956	94%	95%	96%	0.43%	0.75%
Private Employment	13,085	8,181	13,537	73%	66%	72%	-7.55%	6.44%
Agricultural services, forestry, and fishing	92	173	(D)	1%	1%	--	0.87%	--
Mining	3,244	63	(D)	18%	1%	--	-17.62%	--
Construction	1,429	860	1,590	8%	7%	8%	-1.09%	1.57%
Manufacturing	339	393	1,139	2%	3%	6%	1.26%	2.91%
Transportation and utilities	1,080	664	1,020	6%	5%	5%	-0.71%	0.10%
Wholesale trade	381	315	250	2%	3%	1%	0.40%	-1.19%
Retail trade	2,788	2,256	3,833	16%	18%	20%	2.50%	2.31%
Services	2,719	2,684	4,078	15%	22%	22%	6.32%	0.18%
Government and government enterprises	3,798	3,644	4,419	21%	29%	24%	7.98%	-5.70%
Federal, civilian	299	116	167	2%	1%	1%	-0.74%	-0.04%
Military	280	230	219	2%	2%	1%	0.28%	-0.68%
State and local	3,219	3,298	4,033	18%	26%	21%	8.44%	-4.98%
State government	1,015	1,613	1,504	6%	13%	8%	7.25%	-4.93%
Local government	2,204	1,685	2,529	12%	14%	13%	1.19%	-0.05%

¹In 1980, Valencia County included Cibola County, so comparisons between 1980 and later years are inaccurate.

Notes: (D) Non-disclosure of confidential information, but included in totals, (L) Less than 10 jobs, and (N) Data not available for this year.

Source: Bureau of Economic Analysis

Table 7.2 suggests that the counties of the Cibola NF region are divided not only in terms of the size of the economy and per capita income, but also in terms of a service orientation of the economy. The picture is a typical one, in which the larger economy is able to support both a larger degree of wealth as well as a more specialized economy, consisting of service industries that would not be sustainable in smaller economies.

Table 7.3 provides data on the occupational distribution of residents in each of the assessment counties in 2000. Note that there is much less variation among the counties than is seen when looking at employment by place of work and by industry. Bernalillo County has a higher proportion of people in management and professional services, but does not differ greatly from the other counties in terms of other service occupations. However, the smaller economy counties do have a larger proportion of residents in construction, production, and transportation occupations than Bernalillo County. In Bernalillo County, management and other professional occupations make up 38 percent of resident occupations. Within Catron and Sierra Counties, the two smallest economies, management and other professional occupations make up just over 30 percent of the jobs held by residents, but these counties have higher proportions in construction, production and transportation occupations, with 17 and 22 percent of male residents, respectively, in these jobs in the labor force, compared to 10 percent for Bernalillo County.

These differences in economic makeup are as we would expect, with a larger economy being capable of supporting a wider range of more specialized positions. The importance of the forest to the local economy is then not only affected by the relative size of the economic contribution of the forest to the region, but also by its occupational and industrial makeup. Those counties that rely heavily on primary industries, such as mining, logging, or ranching, are more heavily dependent on the resources of the Cibola NF.

Table 7.3 Occupational Distribution for Region Counties in 2000

	Bernalillo County	Catron County	Cibola County	Lincoln County	McKinley County	Sandoval County	Sierra County	Socorro County	Torrance County	Valencia County
Management and Professional	38%	31%	30%	28%	32%	36%	27%	37%	30%	27%
Professional and related	24%	19%	20%	16%	24%	23%	15%	26%	16%	17%
Education, training, and library	6%	8%	10%	6%	11%	5%	5%	9%	5%	6%
Healthcare practitioners and technical	5%	2%	4%	3%	6%	4%	5%	3%	3%	4%
Service	16%	16%	24%	20%	17%	15%	23%	18%	17%	17%
Sales and office	28%	22%	21%	28%	25%	28%	22%	20%	22%	26%
Farming, fishing, and forestry	0%	5%	1%	2%	1%	0%	3%	3%	2%	1%
Construction, extraction, and maintenance	9%	16%	13%	14%	12%	10%	16%	14%	15%	14%
Production and transportation	9%	10%	12%	9%	14%	11%	9%	9%	14%	15%
Total Private Employment	262,588	1,270	8,703	8,539	21,940	38,870	4,470	7,127	6,786	27,063

Source: US Census 2000. Calculations by UNM-BBER.

In **Table 7.4**, we see annual unemployment rates for the regional counties. Here again we see a distinction between the larger economies of Bernalillo County, where unemployment has been relatively low, and Catron and other small economy counties, where unemployment has, at least until the last few years, been quite high. This distinction further emphasizes the importance of the forest for the smaller economies in the region. In cases where wage and salary job opportunities are limited, unemployment is high and incomes low, the resources of the forest continue to support subsistence activities (hunting, gathering of edible plants, firewood for heat and cooking), as well as providing the resource base for activities that can provide cash income (e.g., selling Christmas trees).

Table 7.4: Average Annual Unemployment Rates for Region Counties, 1995-2004

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Bernalillo	4.1	4.5	3.8	3.7	3.0	3.4	4.2	4.8	4.8	4.6
Catron	15.3	14.5	13.0	10.9	11.0	6.7	6.2	7.1	8.1	7.9
Cibola	12.0	14.0	10.2	7.0	7.2	5.7	5.4	6.3	5.3	5.2
Lincoln	10.7	8.3	6.4	4.5	4.1	4.3	3.9	4.0	3.9	4.0
McKinley	8.0	9.9	8.1	7.3	5.8	6.0	5.3	6.4	6.8	7.0
Sandoval	4.1	5.0	4.0	4.8	2.8	3.6	4.7	5.5	5.1	4.9
Sierra	5.4	3.6	4.4	3.1	3.2	3.8	5.0	5.0	5.1	5.3
Socorro	8.3	7.7	6.7	5.7	4.7	4.9	5.0	4.9	4.7	4.6
Torrance	7.2	7.4	5.9	4.2	4.6	4.4	3.9	4.6	5.3	5.3
Valencia	4.4	4.6	4.9	4.5	3.8	4.2	4.8	5.3	5.4	5.1
NM TOTAL	6.4	7.4	7.1	6.3	6.0	5.2	4.8	5.2	5.8	5.9

Source: Bureau of Labor Statistics, Local Area Unemployment Statistics (LAUS).

The ten counties that comprise the region containing the Cibola NF fall into two groups: those that contain significant metropolitan areas and correspondingly larger economies, and those that have sparser populations and less economic activity. Albuquerque is by far the largest metropolitan area, but other counties, such as McKinley and Sandoval, and to a lesser extent Lincoln, Torrance, and Valencia, have enough of an economic base to provide higher per capita income and lower unemployment levels. For all counties except Bernalillo, but especially those counties with very small economies, the combination of low per capita income, high unemployment rates and a larger reliance on primary industries serves to make those counties more reliant on forest derived products and economic activity.

7.2 Methodology and Organization of the Cibola National Forest Impact

In estimating the contribution of the Cibola NF to the regional economy, we consider both the operations of the USDA FS in the region as well as the various uses of forest related products. The IMPLAN software is used to determine total economic value of each activity and the operations of the USDA FS. IMPLAN uses county-level input-output (I-O) data to determine the extent to which these activities contribute to the local economy. In doing so, IMPLAN distinguishes between direct, indirect, and induced impacts, where:

Direct impacts include the economic value generated by the activity itself, such as the value of cattle grazed on land in the Cibola NF. This also includes employment and labor income derived directly from the activity.

Indirect impacts include the value generated by purchases to support that activity and the corresponding purchases to support those activities, in perpetuity. For example, indirect impacts would include the value of fencing purchased for ranching, the value of steel purchased to make the fencing, and so on.

Induced impacts capture the value of economic activity generated from spending by employees that produce the direct and indirect goods. The ranch employees will purchase food, pay for electricity, etc., all of which generates additional value from the purchases, as well as sparking new rounds of indirect and induced value.

The IMPLAN region is the same region used throughout this report, consisting of all counties containing or bordering any of the Cibola NF districts. These counties include: Bernalillo, Catron, Cibola, Lincoln, McKinley, Sandoval, Sierra, Socorro, Torrance and Valencia. This single region, containing the above 10 counties, makes up the area considered as “local,” and the results shown from IMPLAN are for this region of 10 counties as a whole.

As discussed in Chapter 6: **Users and Uses**, the principal economic value generating activities related to the forest land itself include ranching, timber harvests, and recreation and wildlife visits. For each activity, we estimate the direct impact, and use IMPLAN to estimate the total economic value by direct, indirect, and induced impacts. The FS is unusual in that it does not directly produce a good or service, and so there is no easy measure of its direct economic value, except perhaps the direct employment provided. Instead, we look at FS expenditures on goods and services purchased locally and on payroll to estimate the first round of indirect and induced impacts of the FS, and the corresponding economic activity generated by each. The indirect activity begins with FS expenditures on goods and services; and the induced activity, with the disposable income of FS employees.

This analysis draws on a wide range of data and information sources. Data on the structure of the local economies and characteristics of the workforce come largely from the 2000 Decennial Census Summary File 3 and US Department of Labor Local Area Unemployment Statistics. The USDA FS provided data on the specific activities that occurred in the Cibola NF. Specific sources included INFRA (grazing), NVUM (recreation and wildlife), and the Cibola NF Supervisor’s office (procurement, wages & salaries). The US Department of Agriculture National Agricultural Statistics Service (NASS) was the source of data on agricultural land values and cattle stocking rates.

7.3 Direct Impact of the Cibola National Forest on Local Economies

The principal economic activities in the Cibola NF include ranching, timber harvests, recreation and wildlife visits, and the operation activities of the FS. To maintain consistency, data for 2004 were used wherever possible. However, if data for that year did not exist, or more recent data were more easily available, those were utilized instead, adjusting values back to 2004. Data for recreation and wildlife visitors were from 2000, and data for FS salaries and wages were from fiscal year 2005. All other data are from 2004.

The USDA FS provided data on cattle grazing from the INFRA database in terms of Animal Unit Months (AUMs). Estimates of the number of employees needed per AUM were derived from the IMPLAN model. Together these values provide an estimated number of employees needed to produce the 2004 AUMs. Using IMPLAN output per employee, we derive a ranching output for grazing on the Cibola NF. This is the direct value of ranching on Cibola NF land.

Similarly, timber harvesting data were derived from the TIMS database provided by the FS. The total value of cut timber provides a measure of the direct value of timber harvesting in the Cibola NF. The 2004 total value of cut timber is derived from 2004 timber prices.

For recreation and wildlife visitors, estimates of visitors from NVUM data were used, broken out into several categories based on locality (local or non-local), the type of trip (day, overnight on the forest, overnight off the forest), and the reason for the visit (recreation or wildlife). The USDA FS also provided an average expenditure profile for each type of visitor, which estimates the direct economic value of visitor spending to the local economy. These estimates include a variety of recreational activities such as skiing, hiking, camping, and other uses.

Finally, for FS operations, the USDA FS provided data on salaries and wages for its Cibola NF employees and total spending with an associated expenditure profile for use in IMPLAN. Since the direct economic value associated with the FS is unknown, we use expenditures to capture the first round indirect impacts and salaries and wages to capture the first round induced impacts. In both cases, the associated later round indirect and induced impacts are calculated by the IMPLAN model.

Table 7.5 is a summary of the output, employment, and labor incomes directly associated with these activities.¹⁶¹ These local direct inputs are, in effect, ‘what you see’ – a measure of activities and their economic value as they actually occur in the Cibola NF. For example, there is the equivalent of 2,193 full-time annual jobs that directly supply goods and services supported by the local spending of recreation and wildlife visitors, and 71 full-time annual jobs in the ranching industry. In the case of the FS, employment is the number of employees directly employed by the FS in the Cibola NF, and labor income is the wages paid to those employees. Output for the FS is actually local FS spending on operations, not including the costs of fighting wildfires, which involve large amounts of non-local labor and business and hence are excluded altogether.

The direct impacts indicate that visitor spending is by far the largest contributor to economic activity generated by the Cibola NF. Ranching and USDA FS operations contribute a much smaller but significant amount, and timber harvesting plays only a minor role.

¹⁶¹ Labor income is the sum of employee compensation and proprietor income.

Table 7.5 Direct Impacts of the Cibola National Forest, 2004**(000s of 2002 \$, except employment)**

	Output	Employment	Labor Income
Ranching¹	5,051	71	709
Timber Harvesting	1,314	5	305
Visitors & Recreation	135,213	2193	48,286
Forest Service Operations²	6,442	233	7,559
Total	148,020	2,502	56,860

¹ For Ranching, we use proprietor income from 2001, since proprietor income for 2002 is negative

² Forest service operations output is actually the first round of local indirect spending, while labor income is disposable employee income

7.4 Economic Impacts and Multipliers

The direct activities associated with the Cibola NF create indirect and induced impacts as businesses and workers make expenditures and purchases, and these funds cycle through the local economy. The sum of the direct, indirect, and induced expenditures constitutes the total impact the Cibola NF has on the economies of the neighboring communities. These impacts, in terms of employment, income and total output, are summarized in **Table 7.6**. Economic multipliers are shown in **Table 7.7**. Economic multipliers, equal to the total impact divided by the direct impact, indicate the effectiveness of the industry in generating growth in the local economy.

In total, the Cibola NF contributes directly or indirectly an estimated 3,454 jobs and \$85 million in income to the economies of the ten counties included in this study. This is equivalent to about 0.85 percent of the 405,756 total jobs in these areas in 2004. As noted, recreational spending is by far the largest contributor to this activity, accounting for 85 percent of the jobs and 83 percent of the labor income created by forest related activities. Ranching and FS operations also contribute significantly. This varies by ranger district, with the Sandia RD facing a much higher degree of recreational use as discussed above, and the Magdalena and Mount Taylor districts having a larger degree of grazing, as discussed in Chapter 6.

Table 7.6 Direct, Indirect, and Induced Impacts of the Cibola National Forest, 2004

TOTAL OUTPUT IMPACTS (000s of 2002 \$)				
	Direct	Indirect	Induced	Total
Ranching	5,051	3,672	872	9,594
Timber Harvesting	1,314	361	220	1,895
Visitors & Recreation	135,213	35,567	31,300	202,081
Forest Service Operations	--	7,965	6,679	14,644
Total	141,578	47,565	39,071	228,213

TOTAL EMPLOYMENT IMPACTS (#)				
	Direct	Indirect	Induced	Total
Ranching	71	38	11	120
Timber Harvesting	5	2	3	10
Visitors & Recreation	2,193	374	381	2,948
Forest Service Operations	233	63	80	376
Total	2,502	477	475	3,454

TOTAL LABOR INCOME IMPACTS (000s of 2002 \$)				
	Direct	Indirect	Induced	Total
Ranching	709	910	290	1,909
Timber Harvesting	305	96	73	474
Visitors & Recreation	48,286	11,585	10,403	70,273
Forest Service Operations	7,559	2,630	2,155	12,344
Total	56,859	15,220	12,921	85,000

The comparatively large contribution of recreational and visitor spending to the economy is the result of the fact that the Cibola NF contains the Sandia RD near Albuquerque. This RD has a high number of visitors due to its proximity to the large population base of Albuquerque and due to the fact that it includes the Sandia Ski Area and Tramway. Many local residents recreate in the district, and many visitors to New Mexico, who fly in and out of the Albuquerque Sunport, visit the Sandia RD, generating large amounts of visitation and spending. In fiscal year 2001-2002, the Tram had 235,359 riders and the Sandia Peak Ski Area had 44,405 skiers. Using NVUM estimates for skier spending, the direct economic contribution of skier visitors is \$6.4 million¹⁶². **Table 7.7** shows the direct, indirect, and induced impacts of skier spending.

¹⁶² The figure for skier spending is based on the number of skiers provided by Sandia Ski Area and Tramway, and uses NVUM spending estimates. USDA FS NVUM estimates of the number of skiers are much higher (309,998), and lead to a spending contribution of \$44 million. Here we use the more conservative number.

Table 7.7 Direct, Indirect, and Induced Impacts of Sandia Ski Area Skier Spending, 2001

	Direct	Indirect	Induced	Total
Output	4,226	1,040	1,106	6,372
Employment	73	11	14	98
Labor Income	1,775	344	368	2,487

The economic multipliers shown in **Table 7.8** offer additional insights into the economic dynamics of the Cibola NF. The initial observation is that the multipliers are fairly low, though typical of New Mexico in general, indicating that direct activities either require few inputs or, more likely, that the small local economies are unable to provide many of the inputs, forcing purchases from outside the region.

Table 7.8 Economic Multipliers for the Cibola National Forest, 2004

	Output	Employment	Income
Ranching	1.90	1.68	2.69
Timber Harvesting	1.44	1.95	1.55
Visitors & Recreation	1.49	1.34	1.46
Forest Service Operations	--	1.61	1.63
Total	--	1.38	1.49

7.5 Discussion of Results

The examination of the economic impact of the Cibola NF on the ten county region results in some interesting insights.. Although the contribution of Cibola NF to the regional economy seems small, its importance for small communities is obscured by the economic dominance of Bernalillo County.

For small communities, the presence of the Cibola NF supports the local economy in a number of crucial ways. As discussed earlier, in low income and high unemployment areas, a significant portion of the population can depend on the forest as a source of food, heat, and income. In this sense, the impact of the forest is underestimated, since there is a significant degree of unmeasured gathering of fuel wood and hunting or fishing. These products, if used at home, never enter the market, or are not captured because no permit was issued. Additionally, the substantial recreational spending by visitors is an important source of income and employment in these rural small economy areas.

In the case of tourist spending as a result of visitors to the forest, the comparatively large impacts are almost certainly underestimated, since their role as an attraction extends beyond the direct visitors of the forest to creating an atmosphere or “buzz.” Tourism plays an important role in all local communities, especially in New Mexico. The importance of the Cibola NF as a recreational and cultural site for locals and in contributing to the perceptions of New Mexico that encourage tourism should not be underestimated. There are certainly contributions from the forest in terms of scenery and other aesthetic values that further encourage visitors, even if they are not explicitly visiting the region for the forest.

In looking at the impacts of logging, the extremely small number of employees is due to the seasonal and temporary nature of logging operations. These operations have a very high output to employee ratio, especially since employment is measured in full-time equivalents on an annual basis. The number of employees is certainly much larger, but that isn't reflected here because of their temporary nature.

Ranching is an important part of the New Mexico economy as a whole, and its importance should not be overlooked. Cattle products are the largest animal commodity produced in the region, and the use of the Cibola NF lands for grazing plays a significant role in making that production possible. Additionally, ranching plays important cultural and historical roles that extend beyond its economic value, especially in rural communities.

7.6 Opportunities, Risks, and Special Circumstances

The geographic region containing the Cibola NF consists largely of small communities with low income and a lack of job opportunities. Bernalillo County contains the city of Albuquerque, the region's only large metropolitan area, and the largest city in New Mexico. These two quite distinct areas have characteristics that are consistent with other urban or rural areas. The metropolitan area in Bernalillo County has a much higher degree of economic activity and higher per capita income. It is increasingly dependent on the growth of the service sector. The rural area comprising the rest of the region is generally characterized by extremely low incomes, higher unemployment levels, and a stronger dependence on primary and tourist industries for employment.

In examining forest planning and management issues, we are left with the difficulty of assessing the relevance of the Cibola NF in two distinct areas for which the forest plays very different roles. In Bernalillo County, the Sandia RD abuts the city of Albuquerque, and is used by a large number of trail runners, day hikers and other city residents. Additionally, the Sandia RD contains a number of additional attractions that also contribute to the local economy, such as the Sandia Ski Area and Tramway. As strongly as the urban area in Bernalillo County makes use of the recreational properties of the Sandia RD, the economic contribution of the Cibola NF is a very small portion of the economy in the Albuquerque metropolitan area, but a much larger portion of the economy in small rural communities. As noted above, the presence of the large economy of Bernalillo County creates the illusion that the forest is relatively inconsequential to the region's economy, but the more rural areas of the region depend heavily on the economic contribution of the forest.

In contrast, the large rural area comprising most of the Cibola NF region makes use of the Cibola NF districts in a very different way. The low income and stronger dependence on primary industries and tourism, as well as dependence on the use of forest products for heating and food leads to a stronger reliance on tangible forest products, such as fuel wood, and grazing. Forest visitors also play an important role in this case by providing a valuable flow of dollars into the rural communities.

Recognizing this division and the different needs of communities in the Cibola NF assessment area is important in managing the resource. For example, efforts to develop timber harvesting in the Sandia RD may encounter significant objection from Bernalillo County residents, while meeting a large degree of approval in the rural areas of the region. The urban area of Bernalillo County almost certainly makes much stronger use of the forest for recreation, while the rural

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communities are more dependent on the economic benefits derived from forest products. Any attempt to curtail these activities may have ramifications beyond reducing the availability of timber or grazing land, since a reduction in fuel wood gathering or hunting would negatively impact people in these rural areas dependent on the forest for subsistence as well perhaps as their livelihood.

Given the importance of visitor spending in all areas, future planning should ensure that management policies do not disrupt the flow of visitors to the forests, as this could remove a significant source of income in rural communities, and a major attractor in the Bernalillo County area.

8 Community Relationships

This chapter describes the relationships between communities surrounding the Cibola NF and the Forest Service. **Appendix Table A.8** provides population counts and decade growth rates for all those incorporated municipalities and designated places within the Cibola NF counties. Data are arranged by Forest District.

The FS has an extensive history of working with local communities on various projects, ranging from economic development to forest health and sustainability. Partnerships are an indispensable method of managing operations and conducting business. They are a vital means of achieving goals that might not be met by the FS alone. Data provided by the FS show that over 200 community organizations and businesses partner with the FS on various projects. **Table 8.1** below lists the types of partners the FS worked with in 2005.

Table 8.1 Partnership Types for All New Mexico Forests, 2005

Partner Type	Example	Number of Partnerships
Federal	Department of Energy	15
State Government	NM Human Services Dept.	22
Local Government	Torreon Land Grant	38
Tribal	Pueblo of Acoma	19
Non Governmental Org.	Albuquerque Wildlife Federation	48
Private	The Corona Group	36
Universities/ Public Schools	Mountainair High School	28

Source: USDA Forest Service

The most common partners are non-governmental organizations, typically non profit organizations such as neighborhood associations and agricultural sustainability groups. State agencies are also common partners, including the Department of Children, Youth and Families and the New Mexico State Land Office. The partnerships work to benefit both the forest land and the users.

Partnerships not only help the FS meet its objectives, but they help local communities as well. The 1990 Farm Bill allowed the Mountainair RD to provide economic development assistance through grants and challenge cost share agreements. Torrance County has been working with the Mountainair RD to promote the area as a tourist attraction for recreation. Some of the smaller land grant communities are working with the RD to pursue opportunities in wood products that are beneficial to the health of the forest.

Residents of communities surrounding the Magdalena RD wanted to increase their partnership agreements with the FS, especially with the goal of economic development. Participants in a focus group study expressed an interest in capitalizing on historic and natural resources found in the area.³

³ Russell, J. C., & Adams-Russell, P. A. (2005a). *Values, Attitudes and Beliefs Toward National Forest System Lands: The Cibola National Forest* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 23, 2005, discussion of focus group regarding the Magdalena RD, pp. 32-38.

8.1 Collaborative Forest Restoration Program (CFRP)

One way the FS has been teaming up with community groups is through Collaborative Forest Restoration Program (CFRP). The Community Forest Restoration Act of 2000 (Title VI, Public Law 106-393) established a collaborative forest restoration program in New Mexico. The program provides cost-share grants to stakeholders for forest restoration projects which are designed through a collaborative process. Projects must address specific issues, such as wildfire threat reduction, ecosystem restoration, preservation of old and large trees, and increased utilization of small diameter wood products. The CFRP grants aim to encourage utilization of small diameter tree materials in local economies by means of training, job creation and marketing. The program seeks to encourage multiparty monitoring and collaboration among diverse stakeholders with a goal of restoring forests to “healthy forests.” The Act authorizes up to \$5 million annually for the projects.⁴ State, local, and tribal governments, educational institutions, landowners, conservation organizations, and other interested public and private entities can apply for funds.⁵

In New Mexico, about 75 projects were funded between 2001 and 2005; eighteen were in the Cibola NF. An example of a funded CFRP project is managed by P&M Plastics, a private business in Mountainair. The project proposed to treat 1,500 and 3,000 acres of Ponderosa pine forest over three years in the Mountainair RD. The forest treatments were designed to reduce the risk of catastrophic fire and improve forest and watershed health and wildlife habitat. The project also addressed issues of economic development by providing six jobs related to harvesting and 65 jobs in and around Mountainair related to a biomass utilization industry creating composite wood products from small diameter wood removed from treatment areas. The use of small-diameter wood offers great potential for economic development, improving forest health, and creating working relationships between the FS and local communities.

While this project was managed by a private business, other partners on the project include The Forest Guild, The Nature Conservancy, the Pueblo of Isleta and the Youth Conservation Corps.

8.2 Volunteers

According to data collected from the Forest Service, the Cibola NF benefited from the work of over 800 volunteers in 2005. There is no doubt that volunteers comprise a major source of labor for the FS, allowing the agency to take on more projects than it could without volunteers. Volunteers perform a long list of tasks, including maintaining recreation sites and trails, litter pick up and wildlife restoration. The relationships between volunteers and the forest service not only benefit the national forest, but the volunteers themselves are provided opportunities learn about the forest, wildlife and forest health.

Table 8.2 shows the gender and age breakdown of all the Cibola NF volunteers in 2005. Sixty-three percent of all Cibola NF volunteers were over 55 years of age, which implies older people are more likely to have the time, willingness and interest to volunteer with the FS.

⁴ USDA FS (2006). Collaborative Forest Restoration Program (CFRP). USDA FS Website: Southwestern Region, State and Private Forestry. <http://www.fs.fed.us/r3/spf/cfrp/>.

⁵ Southwest Area Forest, Fire and Community Assistance Grants. (2006). “Collaborative Forest Restoration Program: Working together for New Mexico’s Forests and Communities.” Southwest Area Grants Website. <http://www.southwestareagrants.org/nm/cfrp.php>.

Table 8.2 Age and Gender of Cibola National Forest Volunteers, 2005

Age	Male	Female	Total
Under 18	83	41	124
18-54	104	72	176
55+	307	206	513
TOTAL	494	319	813

Source: USDA Forest Service

The USDA FS estimates the appraised value of 27,414 volunteer hours at over \$400,000 in 2005, as shown in **Table 8.3**. The estimates account for the “skill-level” of volunteers, adjusting appraised value to the Government Pay Grade scale. The “person years” column illustrates how many years worth of work was subsidized by the efforts of volunteers. The benefits thus calculated to the FS are greatest for volunteer efforts related to recreational activities and facilities (campground and trail maintenance). Volunteers provide almost \$200,000 worth of time and about 8 person-years worth of work. Volunteers also contribute substantially to heritage programs and wildlife related projects. The benefits go both ways, and people living in Albuquerque and other communities are able to find satisfying volunteer opportunities through the FS.

Table 8.3 Value of Volunteers on Cibola National Forest

Resource Category	Accumulated Hours	Appraised Value (Dollars)**	Person Years*
Recreation	13,594	\$187,152	7.55
Heritage Program	3,127	\$59,120	1.74
Wildlife, Fish & Rare Plants	2,630	\$48,445	1.46
Range Management	32	\$0	0.02
Forest Management	0	\$0	0.00
Watershed & Air Management	0	\$0	0.00
Protection	361	\$8,676	0.20
Research	0	\$0	0.00
Business & Finance	69	\$788	0.04
Facilities Construction (Off-Center)	0	\$0	0.00
Facilities Construction (On-Center)	0	\$0	0.00
Other Facilities	0	\$0	0.00
Other	7,601	\$107,728	4.22
TOTALS	27,414	\$411,909	15.23

* Accum. Hours/1800 Hours (Expressed in years)

** Accum. Hours*Estimated Government Pay Grade

Source: USDA Forest Service

8.3 Opportunities, Risks, and Special Circumstances

The direct benefits of the forest are concentrated mostly in the communities surrounding the forest areas. For example, many visitors to the Sandia RD are residents from the Albuquerque metropolitan area who are visiting for a day of hiking or wildlife watching.⁶ Proximity is one of

⁶ USDA FS NVUM Visitor data do not show where forest visitors originate.

the greatest benefits offered by the Sandia RD, providing one-third of the state's population access to forest and wilderness and all of the associated amenities. People who utilize the forest for economic purposes, such as ranchers, are typically residents of the areas surrounding the forest.

Native American tribes view much of the land surrounding and within the National Forest as their ancestral homeland, and the NF has great importance for their traditional cultural and religious activities. The Cibola NF contains many sites that are culturally significant to these indigenous people. The ability of the tribes to work with FS personnel in maintaining the integrity of these sites is of utmost importance to them.

The Cibola NF offers much to the communities of the assessment area, but it also draws on the resources these local communities. First, there are formal working agreements between community partners, such as CFRP grants. With the help of these agreements, the FS is able to facilitate innovative projects aimed at improving forest health and reducing threats, such as fires and non-native species. The local communities provide a healthy supply of volunteers for the forest. The Sandia RD, in particular, is next to a population of people who experience the Sandia Mountains as part of their everyday life. Volunteers are often eager to help the Forest Service maintain facilities and protect wildlife.

In addition to direct-service benefits, Native American tribes and generational ranchers hold a traditional wisdom about the land and its health, which can be a resource for forest management. As people who have lived with the land and have depended on it for their livelihood, they believe they know when forest health is being compromised. They also can help predict possible outcomes of forest planning initiatives. Tribal groups and other communities are often eager to share their concerns and knowledge about the forest land.

The relationships held between the FS, as an agency, and the local communities are also important. Communities often look to the FS to make decisions regarding land use conflicts. Native American tribes can easily view the FS as an advocate and also as a threat, especially when it comes to protecting special areas. Locals fear that environmentalists can influence FS decisions more than landowners and local forest users can, and these groups often have opposing interests. Continued communication between the FS, local communities and other agencies can promote relationships and facilitate cooperation among all those involved.

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“Success of the Forest Service in the 21st century will be measured by the Agency’s ability to sustain the flow of social and economic benefits to the American people while also ensuring that the capacity of the nation’s forests and grasslands to provide ecological benefits is undiminished.”⁷

Initially started in 1905, the mission of the USDA Forest Service was to manage and allocate the resources of the National Forests. Today the mission is *“to sustain the health, diversity, and productivity of the Nation’s forests and grasslands to meet the needs of present and future generations”*.

The last forest plan for the Cibola National Forest was completed in 1986. While there have been periodic addendums to this plan, it reflects a mission that is different from the current FS mission. In the past, the FS has been focused on managing the Cibola NF as a resource – defining what could be extracted and in what quantities. The new mission focuses on sustainability with the intention of preserving the forest assets for both current users and for future generations. The new mission of the FS is also more inclusive, requiring more community involvement in the decision making process. The FS will need to seek common ground among groups who may have very different views about NF lands and how they should be managed.

In providing a context for this major planning effort, this final chapter discusses the opportunities and risks as well as the special circumstances faced by the Cibola NF.

9.1 Socio-Economic Diversity

The Cibola NF consists of scattered “islands” of mountainous terrain that are under FS management and that span 10 New Mexico counties widely divergent in their socioeconomic characteristics. The assessment area, which includes Native American and Land Grant communities as well as Albuquerque and fast-growing Rio Rancho, is a study in contrasts and includes a dynamic mix of peoples from different socioeconomic circumstances and with different histories and cultural traditions. These diverse communities have differing (and often conflicting) perspectives on the Cibola NF and how land is used, and may be expected to make different (also often conflicting) demands on the resources of the NF.

The assessment area for Cibola NF mountain ranger districts includes the largest metropolitan area in the state, the Albuquerque MSA, with a population now exceeding 800,000. It includes some of the fastest growing communities in the country, among them Rio Rancho, which experienced a 4-fold increase in population between 1980 and 2000 and now has a population approaching 70,000. Move away from Sandia RD, which is surrounded by the MSA, however, and the picture changes from that of a dynamic fast growing urban center to that of small rural communities, many of which have experienced little if any growth over the past few decades. The contrast is sharp. Bernalillo County, with a population that today exceeds 600,000 had a population density approaching 500 people per square mile in 2000; Catron County, with 3,400 people (estimated in 2005, down from 3,543 in 2000) had a population density of 0.5 people per square mile in 2000. The large and growing population base in the Albuquerque MSA is a special

⁷ USDA FS. (2006, October). *Four Threats: Questions and Answers*. <http://www.fs.fed.us/projects/four-threats/questions-answers.shtml>.

circumstance that affects management decisions not simply in the Sandia RD but throughout the Cibola NF.

The diverse size, differing growth patterns and contrasting demographics of the communities in the assessment area, however, also create a special set of circumstances for the Cibola NF. The large and relatively affluent population living in Bernalillo County has growing demands for recreation. By contrast, those living in small rural communities, and particularly Native American populations, may have very high rates of poverty. Traditional activities such as hunting and fuel gathering are critical subsistence activities. Forest activities, such as fuel wood gathering and cutting down trees for sale as Christmas trees, also provide communities with important sources of cash income. As Chapter 7 demonstrates, rural communities are often very dependent on economic activities based on forest resources. Now, an increasing number of small communities are looking to the forest for economic development opportunities and to the FS to assist in these efforts.

9.2 Population Growth and Changing Demographics

The Albuquerque MSA, which has a population of 800,000 today, is expected to have 1.1 million residents by 2030. By that year, population in the 10-county assessment area will be more than 1.3 million, accounting for more than half the people in the state. The proximity of the Cibola NF to this large and growing population means that the Cibola NF will experience increasing pressures and demands – and more threats to forest health -- on an accelerated time table. Population growth assures that more people, with differing needs and attitudes about the lands managed by the FS, will now compete for those resources.

Although the population in each of the assessment area counties is growing, the population pressures will be felt very differently from one RD to another. The proximity of the Cibola NF is major asset for the Albuquerque MSA and is a big draw for in-migrants. Most impacted by the MSA's large and growing population is the Sandia RD, which is surrounded by the MSA. This district provides an abundance of recreational opportunities all year-round as well as offering distinctive mountain vistas enjoyed by visitors, by newcomers as well as by long-time residents.

The population increased in all counties between 1990 and 2000, as did per capita income, and these changes may be expected to impact forest use, particularly the demand for recreation. Poverty rates fell dramatically in some areas, particularly in McKinley and Cibola Counties, although there were slight increases in both Sierra and Socorro counties. Despite these improvements, people in rural economies will continue to be dependent on agriculture and other traditional uses, such as grazing, hunting, wood gathering and piñon harvesting. Management decisions that curtail these uses could significantly impact the well-being of certain populations.

The changing demographics of the assessment area generally follow the patterns for the US as a whole: the population is aging, the population is becoming more racially and ethnically diverse and educational attainment has increased. More households are headed by women or are single person households. As discussed below, these trends may have important implications for forest use.

On a national level, America is aging and life spans are increasing as well.⁸ The leading edge of the Baby Boomers has reached age 60. As this massive cohort moves into their retirement years, they will have more leisure time to spend on various recreational pursuits, including travel, but also on volunteer activities, from which the Cibola NF could benefit.⁹ The aging of the US population and of the population in the assessment area counties can be expected to place new demands on Cibola NF for recreation as well as for more cultural and heritage displays and interpretive events. Serving this population may require investments in infrastructure to make areas of the forest more accessible to those with limited mobility. Many retirees become amenity migrants, and many come searching for sunshine, mountain vistas and opportunities for outdoor recreation -- all of which can be found in communities near the Cibola NF. Finally, the aging of the US population is already placing a heavy demand on federal entitlement programs, such as Medicare, Medicaid, and Social Security, intensifying the competition for federal dollars. Discretionary spending on Forest Service programs is at risk.

Rising incomes are associated with increased demand for outdoor recreation.¹⁰ Cordell, Green and Betz explored how the changing demographics may affect the demand for different types of outdoor recreation as well as environmental attitudes. Changing demographics and the attitudes and beliefs of various cohorts (whether age, race, income, or educational level), can result in differing expectations of how the lands should be managed.

9.3 Travel and Access

Two of the ranger districts, Mt. Taylor RD and Sandia RD, lie along or near one of the state's major thoroughfares, Interstate 40. Sandia RD is surrounded by the large and growing Albuquerque MSA, which features the state's only international airport and the "Big-I," where Interstates 40 and 25 intersect. Automobile traffic in the areas adjacent to the Sandia RD is the busiest and most intense in the state, and this traffic will continue to increase as the population grows and as the State attracts more visitors. Traffic in the Mt. Taylor RD is moderate, but might be less if not for the proximity of I-40, a major trucking and shipping route. Use of the Mt. Taylor RD is expected to increase in the future.

While the other RDs within the Cibola NF are served by the interstate system, the access points are more distant from the interstate system, requiring additional travel along state highways and other roads – unless, of course, one lives in an adjacent community. Nevertheless, in addition to the Mount Taylor RD, the Mountainair and Magdalena RDs are all likely to attract more visitors in the future, including many who will seek new experiences in less traveled, perhaps less crowded, areas and the tranquility offered by more remote locations.

⁸ U.S. Census Bureau. (October 2001). *Age: 2000, Census 2000 Brief*, Washington, D.C. <http://www.census.gov/prod/2001pubs/c2kbr01-12.pdf>.

⁹ The relationship between age and pursuit of outdoor recreational activities is generally found to be an inverse relationship, with younger people more active in their pursuit of outdoor recreational activities. However, the importance of age varies depending upon the type of activity. See H. Ken Cordell, Gary T. Green, and Carter J. Betz, "Recreation and the Environment as Cultural Dimensions in Contemporary American Society," *Leisure Sciences* Vol 24, No 1 / January 01, 2002, pp. 13 – 41.

¹⁰ John C. Bergstrom, and H. Ken Cordell, "An Analysis of the Demand for and Value of Outdoor Recreation in the United States," *Journal of Leisure Research*, v23 n1 p67-86 1991. Also see, H. Ken Cordell, Gary T. Green, and Carter J. Betz, "Recreation and the Environment as Cultural Dimensions in Contemporary American Society," *Leisure Sciences* Vol 24, No 1 / January 01, 2002, pp. 13 – 41.

The State's GRIP program is bringing \$1.6 billion to bear on improving transportation infrastructure around the state. The program includes monies for infrastructure improvements along Interstate 40, a major access route for the Cibola NF, as mentioned above. Other improvements, especially in the northwest part of New Mexico and in Albuquerque, will allow increased traffic capacity, possibly inviting even more visitors to the Cibola NF.

Access to NF road and trail systems may be impeded by the development of private land that previously provided access points used by residents and others. However, new residences also mean new roads, and this can increase traffic into and around the forest. Many forest users, and especially those living in close proximity to the forest, fear increased access will result in damage through overuse, neglect and deliberate vandalism.¹¹ Some landowners have blocked access to the forest with locked gates and "No Trespassing" signs to protect their privacy and their property.

The issue of access and right-of-way is long-standing and difficult to resolve. One way the FS has attempted to address right-of-way issues is through land-exchanges. If the FS lacks the resources to acquire right of way, partnerships with public and private groups may provide other options. The City of Albuquerque and Bernalillo County have sometimes acted to maintain public access through their Open Space purchases. A good example is the City's acquisition of lands providing access to Three Gun Canyon in the Sandia RD. Private groups such as the Trust for Public Land may also be willing to partner in helping to preserve access.¹²

9.4 Unmanaged Recreation

The FS acknowledges that unmanaged recreation, primarily OHV use, is one of the four largest threats facing the National Forest System. The new Travel Management Rule, which went into effect on December 9, 2005¹³, requires each of the NF's to designate those roads, trails, and areas that are open to motor vehicle use. Such designation provides a way of restricting OHV use in much of the forest and thus of reducing potential damage to the forest as well as limiting the conflicts with other users.

Unmanaged recreation is a contentious issue, defying simple solution. Local responses to the legislation have been mixed. OHV advocates believe the regulations leave too many unanswered questions about OHV use. Ranchers are concerned the rules do not go far enough in limiting what they see as dangerous behavior and want stricter limits on OHV use, including use permits, speed limits and enforcement of rules. Native Americans are concerned that the FS is opening and creating trails that would increase access to lands adjacent to tribal lands and sacred sites. Environmental groups have posed the strongest opposition saying that the new maps legitimize user-created trails. OHVs have practical uses, and many ranchers use them in their own work.

¹¹ Russell, J. C., & Adams-Russell, P. A. (2005a). *Values, Attitudes and Beliefs Toward National Forest System Lands: The Cibola National Forest* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 23, 2005, pgs 19, 28.

¹² In Southern California, for example, the Trust for Public Land has "permanently protected thousands of acres..." adding "land to all of Southern California's national forests, protected important wildlife corridors, provided fantastic recreational opportunities, and increased public access to open space." See descriptions of local programs at http://www.tpl.org/tier2_kad.cfm?folder_id=805.

¹³USDA FS. (2005) Travel Management; Designated Routes and Areas for Motor Vehicle Use. The Federal Register / Vol. 70, No. 216/ Wednesday, November 9, 2005/ Rules and Regulations, P. 68264. <http://www.fs.fed.us/recreation/programs/ohv/final.pdf>.

Local residents, however, perceive non-resident OHV users as a problem and want to promote “responsible use.”¹⁴

9.5 Forest Health

Forest health is a central concern to the FS and forest users. Healthy forests provide important resources, such as clean water and air, to villages, towns, and cities. FS research shows that 80 percent of fresh groundwater in the United States originates from federal forestlands. The role of forests in absorbing carbon from the air is also well documented.¹⁵ Forests also provide safe refuge for wildlife and some of the most endangered species of plants and animals. However, the strategies implemented to protect forest health are often at the center of conflicts. For example, environmental groups heavily advocated the end of logging in order to protect endangered wildlife, such as the Mexican Spotted Owl. After the reduction of heavy logging, many forest users became concerned that the forests were overgrown and that this overgrowth created dangerous wildfire conditions.

Continuing drought conditions compromise forest health and create significant fire dangers. Campground and trail closures due to fire danger and lack of snowfall for winter recreation reduce the economic benefits of visitor spending. Drought poses special problems for ranchers, who must be concerned about adequate forage and water for livestock.

Activities to promote forest health and create conditions where fire can once again play a salutary role can have the additional benefit of providing jobs and income and may even foster meaningful economic development in neighboring communities. Rural communities typically offer limited employment opportunities, so residents may engage in subsistence activities as well as a variety of activities that bring cash into the household. Training local residents to be crews for managed burns or to fight fires can provide the FS with a local workforce for these efforts as well as providing cash, much of which is likely to be spent within the surrounding area. Clearing the forests of brush and small diameter trees could create work for local residents as well as providing inputs to support various forest product industries. Small diameter wood can be used to make a variety of products, including heater pellets and sustainable building supplies. With rising energy costs caused by high oil and gas prices, many households are converting to pellet-burning stoves and heaters, creating a large and immediate demand.

The FS mission of sustainability is a long-term objective overlaid on a society that tends to think in short-term objectives. While Americans have become more environmentally conscious, they also exhibit paradoxical behaviors that can create environmental damage. Many of the issues tied to forest health are directly related to the public's desire to obtain short-term benefits (e.g., housing at the WUI, unmanaged OHV use). Thus, it is increasingly desirable that the public be educated and informed about the fragility of the Forest system and the impacts associated with its misuse. FS Partners and volunteers help to mediate some of this, and these efforts should be encouraged. It may also be useful to reach out to and educate the communities of special interest groups, such as hunting, fishing, and OHV user organizations. Participants in these types of organizations tend to be less inclined to violate rules and regulations once they are familiar with them and aware of the consequences. The education of these groups also provides a capacity for policing and reporting of those who violate these rules.

¹⁴ For more discussion on these views see Chapter 2, section 2.6.

¹⁵ Ibid.

9.6 Loss of Open Space in the Wildland-Urban Interface

There is strong market for residential properties in the wildland-urban interface (WUI). This is particularly true in WUI of the Sandia RD, where housing permit data obtained from the Mid-Region Council of Governments (MRCoG) indicate considerable new housing development. The homes are often more expensive houses built on land that is sold at premium prices, and their owners have a stake in NF policies. Housing in the WUI can alter access and impact forest use. Traditional access points may be blocked. New roads built to developments can create runoff and air pollution problems as well as providing access to new areas where unmanaged recreation can occur. In addition to the access issues raised by this type of development, housing at the WUI impacts Cibola NF policies about fire and the reduction of fuel loads. Strategies for fighting fires when there are dwellings in or near the forest now must devote additional resources to the protection of those houses and the lives of their residents. Residents at the forest edge may oppose thinning and the smoke generated by programs to clean-out brush and other kindling.

It is critical to understand the roles those lands in the WUI now being subdivided have had in the larger ecological systems of the Cibola NF, e.g., their role providing forage and other sustenance for wildlife.¹⁶ The new uses of the land may threaten the health of the forest, by introducing non-native species, by disrupting the territory and migration patterns of fragile forest species.

Agriculture in and around the Cibola NF has supported a way of life that spans centuries. Recent storm-related road closures and transportation shut-downs have placed renewed emphasis on the importance of buying food locally. There may be an opportunity to protect the WUI by working with farmers and ranchers to increase the viability of their enterprises. There may also be opportunities for the FS to work collaboratively – with local governments, conservancy groups and others – to acquire, for open space, lands that will otherwise be subdivided and sold for residential or other incompatible uses and/or to purchase development rights from ranchers. Additionally, there may be opportunities to work with communities to place reasonable restrictions on existing (where possible) and on future residential subdivisions within the WUI. The above could be combined with public education campaigns regarding the importance of farming/ranching and open space to the NF and to the quality of life in the assessment counties. Resort development on the periphery of the forest may or may not be a compatible use, depending upon the nature and extent of the development. However, there should be opportunities to work with local governments and citizen groups to put reasonable restrictions on this development to ensure compatibility for forest needs.

9.7 Different Economies, Different Uses for the Forest, Different Impacts, Different Prospects

The geographic region containing the Cibola NF consists of many small rural communities that are generally characterized by their low incomes, high unemployment, and continued dependence on natural resource-based and tourist industries. But ,it also contains the largest metropolitan area

¹⁶ See, for example, Jack Ward Thomas and Stephanie Lynn Gripne, “*Maintaining Viable Farms and Ranches Adjacent to National Forest for Future of Wildlife and Open Space*,” *Rangelands* 24(1) February 2002, pp. 10-16.

in the state, the Albuquerque MSA, which has a per capita income that is approaching the national average.¹⁷

The Cibola National Forest makes a substantial and significant contribution to the socioeconomic and cultural well-being of the assessment area, representing many elements of a superior quality of life. One of the principal finding of this study is that visitor spending in Sandia RD is the largest and most significant contributor to the economic impact of Cibola NF, but surely such spending only hints at the value of this amenity to economic development in the Albuquerque MSA and to the potential development of surrounding rural areas. Ranching and FS operations remain important sources of jobs and income to rural areas adjacent to the Cibola NF, with timber harvesting now playing a diminished role. However, there may be opportunities associated with harvesting small diameter trees. Mining was once important, particularly in the Mount Taylor RD, and there is renewed interest in mining uranium, although the Navajo and others recall a legacy of health and environmental problems. There are opportunities for partnerships between the FS and rural communities that promise benefits in terms of local economic development.

The Sandia RD abuts the city of Albuquerque, and is used extensively for recreation -- by trail runners, day hikers, skiers, bikers and others. Additionally, the Sandia RD contains a number of additional attractions that also contribute to the local economy, such as the Sandia Ski Area and Tramway, and High Finance Restaurant. As much recreational use as is made of the Sandia RD by residents of the urban area and visitors, the total estimated economic contribution of the Cibola NF is small relative to the economy of the Albuquerque MSA. The dominance of the Albuquerque MSA within the economy of the assessment area may create an illusion that the Cibola NF is relatively unimportant to the assessment area's economy. However, the small rural economies of the region are heavily dependent on primary industries, like ranching, FS operations (employment and local procurement), and on forest visitors who provide a valuable inflow of dollars into the rural communities. While many depend on the forest for their livelihood, residents in rural communities also use the forest for such subsistence activities as hunting and wood gathering.

As the population in the Cibola NF assessment area has increased and the regional economy has grown, economic activities have shifted from natural resource-based industries, like agriculture, timber and mining, to recreation and service industries. Cibola NF's primary economic activity today is recreation, reflecting increasing education and affluence. The "resource intensive" jobs and the communities dependent on natural resource industries may continue to decline, while the opportunities for recreation-based tourism increase. Small rural communities may attract investments in second homes. Some of these small communities may also attract retirees and those "knowledge workers" who are less tied to a specific place of work.

There are opportunities for the FS to work with rural communities to strengthen their economies. One set of opportunities involves harvesting small diameter trees. Timber is no longer a major economic force in the region, but wood products industries based on harvesting small diameter trees hold promise, both for the health of the forest and as an economic development strategy for some rural communities.

¹⁷ According to the US Bureau of Economic Analysis preliminary estimates, Albuquerque MSA per capita income in 2005 was 88.4% of the US average.
http://www.bea.gov/newsreleases/regional/spi/sqi_newsrelease.htm.

A second set of opportunities relates to recreation. Many remote areas of Cibola Forest have tremendous recreational potential, but investments may need to be made to provide better visitor access and to turn sites of historical and other interest into visitor attractions. Newly developed and lesser-known recreation sites may also require more advertising and other efforts to attract visitors. Thus, active partnership between the FS and local residents and businesses and other organizations may be critical to turning these opportunities into successful economic development enterprises. While some may readily embrace the idea of becoming a “travel destination”, others will have concerns about increased visitor traffic. Communication is critical if communities are to get visitor traffic on their own terms.

9.8 Importance of Volunteers and Partnerships

With the increased demand for services and increasing competition for limited federal resources, the Cibola NF can benefit from new ways of leveraging its limited resources. Volunteers can be enlisted to help with various work projects and to be the “eyes and ears” of the FS, patrolling popular trails as well as those in more remote areas. Volunteers can also help with public education. The majority of the Cibola NF’s volunteers are over 55 years of age. Over the next few years, more and more Baby Boomers will retire, with many seeking meaningful ways to contribute to society. The cohort is healthier, wealthier, and bigger than any 60 year + age group in history. Outreach and involvement of this group could ameliorate some of the problems created by shrinking budgets in the face of growing forest use. In 2005, volunteers provided over \$400,000 in unpaid labor hours in the Cibola NF alone. Volunteers can also provide access to groups who would not normally be reached by other FS programs.

Partnerships are an essential aspect to accomplishing FS objectives. Partnering with local communities and local government agencies can provide additional resources for the FS. Partnerships also further the FS mission which calls for inclusiveness in the decision making process. The demographic breadth and the needs of Cibola NF’s constituency are daunting. The democratic approach to decision-making is rife with inherent dangers of excluding underrepresented groups and over-emphasizing the interests of small, special interest groups that are well-organized and “loud.” The staff of Cibola NF, with its deep expertise and understanding of sustainability and forest health, must retain the capacity to make the final decisions on the lands it manages. Reaching out to and educating partners from local and tribal governments could provide the Cibola NF assistance in managing the lands that abut FS lands.

Partnering with State and local government bodies will become an increasingly important opportunity for the Cibola NF. State and local governments have the capacity to influence building and sprawl at the WUI where forest health could be most adversely affected. They can also advocate for more development near the forest as a way of increasing in-flow of money into the area. Additionally, they can also provide the labor (volunteer and paid) to help in forest maintenance.

The collaborative efforts of the Cibola NF with local community groups on projects concerning forest health and economic development have great potential, especially in rural areas. Programs such as the Collaborative Forest Restoration Program (CFRP) offer examples of how both the forest and surrounding communities can benefit from collaborative arrangements. By expanding projects to include tourism development, for example, Cibola NF may benefit from increased visitors in rural areas.

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Appendices

Table A1 Net Migration for Counties in Assessment Area Where Lived 5 Years before 1990 and before 2000

	New Mexico				Total All Counties				Bernalillo County				Catron County			
	1990	2000	% of Total		1990	2000	% of Total		1990	2000	% of Total		1990	2000	% of Total	
			1990	2000			1990	2000			1990	2000			1990	2000
TOTAL	1,390,048	1,689,911	100	100	663,759	821,452	100	100	443,989	518,381	100	100	2,403	3,394	100	100
Same House	719,628	919,717	52	54	333,691	434,441	50	53	209,479	253,614	47	49	1,237	1,960	51	58
Different House	670,420	770,194	48	46	330,068	387,011	50	47	234,510	264,767	53	51	1,166	1,434	49	42
in the United States	645,519	731,488	46	43	319,796	370,681	48	45	225,998	251,788	51	49	1,166	1,430	49	42
Same County	345,469	400,128	25	24	169,509	201,851	26	25	130,495	154,634	29	30	388	307	16	9
Different County	300,050	331,360	22	20	150,287	168,830	23	21	95,503	97,154	22	19	778	1,123	32	33
Same State	107,289	126,093	8	7	57,633	69,214	9	8	27,147	31,592	6	6	258	344	11	10
Different State	192,761	205,267	14	12	92,654	99,616	14	12	68,356	65,562	15	13	520	779	22	23
Northeast	14,311	15,329	1	1	8,068	8,674	1	1	6,016	5,846	1	1	73	17	3	1
Midwest	28,270	29,457	2	2	16,143	15,831	2	2	12,367	11,261	3	2	29	48	1	1
South	73,548	72,497	5	4	29,978	30,614	5	4	22,924	20,712	5	4	13	85	1	3
West	76,632	87,984	6	5	38,465	44,487	6	5	27,049	27,743	6	5	405	629	17	19
Puerto Rico	110	398	0	0	59	229	0	0	54	210	0	0	0	0	0	0
Elsewhere	24,791	38,308	2	2	10,213	16,101	2	2	8,458	12,769	2	2	0	4	0	0

	Cibola County				Lincoln County				McKinley County				Sandoval County			
	1990	2000	% of Total		1990	2000	% of Total		1990	2000	% of Total		1990	2000	% of Total	
			1990	2000			1990	2000			1990	2000			1990	2000
TOTAL	21,857	23,585	100	100	11,420	18,448	100	100	53,144	67,873	100	100	57,103	83,382	100	100
Same House	13,669	15,894	63	67	5,882	9,268	52	50	34,999	47,405	66	70	29,383	47,166	51	57
Different House	8,188	7,691	37	33	5,538	9,180	48	50	18,145	20,468	34	30	27,720	36,216	49	43
in the United States	8,075	7,556	37	32	5,466	8,870	48	48	17,798	19,985	33	29	27,202	35,258	48	42
Same County	4,634	3,883	21	16	2,509	3,549	22	19	11,201	12,751	21	19	6,269	9,710	11	12
Different County	3,441	3,673	16	16	2,957	5,321	26	29	6,597	7,234	12	11	20,933	25,548	37	31
Same State	2,203	2,200	10	9	1,156	2,205	10	12	2,536	2,097	5	3	11,842	13,325	21	16
Different State	1,238	1,473	6	6	1,801	3,116	16	17	4,061	5,137	8	8	9,091	12,223	16	15
Northeast	46	40	0	0	22	99	0	1	147	281	0	0	1,312	1,607	2	2
Midwest	148	124	1	1	100	354	1	2	536	436	1	1	1,762	2,054	3	2
South	251	313	1	1	1,219	1,910	11	10	673	956	1	1	2,167	3,392	4	4
West	793	996	4	4	460	753	4	4	2,705	3,464	5	5	3,850	5,170	7	6
Puerto Rico	5	0	0	0	0	0	0	0	0	0	0	0	0	14	0	0
Elsewhere	108	135	0	1	72	310	1	2	347	483	1	1	518	944	1	1

	Sierra County				Socorro County				Torrance County				Valencia County			
	1990	2000	% of Total		1990	2000	% of Total		1990	2000	% of Total		1990	2000	% of Total	
			1990	2000			1990	2000			1990	2000			1990	2000
TOTAL	9,359	12,668	100	100	13,587	16,854	100	100	9,489	15,725	100	100	41,408	61,142	100	100
Same House	4,818	6,411	51	51	7,101	9,863	52	59	5,377	8,425	57	54	21,746	34,435	53	56
Different House	4,541	6,257	49	49	6,486	6,991	48	41	4,112	7,300	43	46	19,662	26,707	47	44
in the United States	4,467	6,107	48	48	6,155	6,684	45	40	4,067	7,196	43	46	19,402	25,807	47	42
Same County	1,846	2,085	20	16	2,798	3,068	21	18	1,269	1,754	13	11	8,100	10,110	20	17
Different County	2,621	4,022	28	32	3,357	3,616	25	21	2,798	5,442	29	35	11,302	15,697	27	26
Same State	1,186	1,694	13	13	1,678	2,034	12	12	1,872	3,171	20	20	7,755	10,552	19	17
Different State	1,435	2,328	15	18	1,679	1,582	12	9	926	2,271	10	14	3,547	5,145	9	8
Northeast	82	159	1	1	92	166	1	1	71	101	1	1	207	358	0	1
Midwest	273	392	3	3	263	153	2	1	98	316	1	2	567	693	1	1
South	457	699	5	6	571	632	4	4	449	727	5	5	1,254	1,188	3	2
West	623	1,078	7	9	753	631	6	4	308	1,127	3	7	1,519	2,906	4	5
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Elsewhere	74	150	1	1	331	302	2	2	45	104	0	1	260	900	1	1

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

Table A2 Capital Outlays for Transportation Projects near the Cibola National Forest

Counties	Road	Terminus	Year	Amount	Description
Catron	US180	9.1 Miles north Grant/Catron C/L - South	2009	3,000,000	Pavement Rehabilitation
Catron	US180	9.1 Miles north Grant/Catron C/L - South	2009	3,000,000	Reconstruction
Catron	US180	2.0 Miles north of Grant/Catron C/L - South	2009	2,000,000	Pavement Preservation
Catron	US180	2.0 Miles north of Grant/Catron C/L - South	2009	1,000,000	Reconstruction
Catron	US180	Guardrail Installation	2006	400,000	Guardrail, Safety
Catron	US180	Rockfall Mitigation	2006	292,000	Rockfall Mitigation
Catron	US180	Guardrail Installation	2006	150,000	Guardrail, Safety
Catron	US180	4 miles south of JCT nm0012 - south	2007	500,000	Alignment Study
Catron	US180	4 miles south of JCT nm0012 - south	2009	6,700,000	Reconstruction
Catron	US180	Rockfall Mitigation	2006	460,000	Rockfall Mitigation
Catron	US180	Rockfall Mitigation	2006	224,000	Rockfall Mitigation
Catron	US180	10 Miles South of JCT NM0012 - South	2010	6,700,000	Reconstruction
Cibola	LOCAL	3 miles east of refinery interchange - east	2008	2,000,000	Reconstruction
Cibola	I40	3 miles east of refinery interchange - east	2009	6,300,000	Reconstruction
Cibola	I40	MP 69 to 79	2011	5,600,000	Pavement Preservation
Cibola	I40	McCarty's Interchange - East	2010	3,000,000	Pavement Preservation
Cibola	I40	Acomita Interchange	2006	1,721,000	Right-of-Way Acquisition
Cibola	I40	Acomita Interchange	2007	2,500,000	Ramp Modifications
Cibola	I40	Acomita Interchange	2008	7,000,000	Interchange Rehabilitation
Cibola	I40	Seama Interchange	2007	6,500,000	Interchange Rehabilitation
Cibola	I40	I40 Exit 108 - Ram	2006	200,000	Bridge Rehabilitation
Cibola	I40	I40 Exit 108 - Ram	2006	1,000,000	Ramp Modifications
Cibola	I40	MP 114 to 117	2011	4,000,000	Pavement Preservation
Cibola	I40	Laguna Interchange (Formerly New Laguna Interchange)	2011	1,000,000	Bridge Deck Replacement
Lincoln	US70	US 70 in Ruidoso	2007	285,000	Pedestrian Facilities
Lincoln	US70	Ruidoso to Hondo	2006	2,497,843	Debt Service
Lincoln	US70	Ruidoso to Hondo	2007	2,493,519	Debt Service
Lincoln	US70	Ruidoso to Hondo	2008	2,494,273	Debt Service
Lincoln	US70	Ruidoso to Hondo	2009	2,494,528	Debt Service
Lincoln	US70	Ruidoso to Hondo	2010	2,497,068	Debt Service
Lincoln	US70	Ruidoso to Hondo	2011	2,493,441	Debt Service
Lincoln	US70	Chaves and Roosevelt C/L	2007	1,500,000	Pavement Preservation
Lincoln	US380	Capitan - East for 7 miles	2007	4,800,000	Pavement Rehabilitation
Lincoln	US380	1.5 Miles East of JCT NM0220 - East	2006	750,000	Bridge Replacement
Lincoln	US380	1.5 Miles East of JCT NM0220 - East	2006	2,250,000	3R & Reconstruction
Lincoln	US380	5.4 Miles West of JCT US 70 - East	2006	3,889,000	Overlay
McKinley	NM118	Rockfall Mitigation	2006	142,000	Rockfall Mitigation
McKinley	NM118	JCT Ford Ave east to Patton Drive	2011	2,000,000	Access Control
McKinley	NM118	East of Gallup - East of State Police to NM0566	2008	5,500,000	Reconstruction
McKinley	I40	4.0 Miles West of Gallup West Interchange - East	2006	5,000,000	Reconstruction
McKinley	I40	4.0 Miles West of Gallup West Interchange - East	2006	150,000	Right-of-Way Acquisition
McKinley	I40	I-40 Bridges over 2nd & 3rd Streets in Gallup	2006	1,200,000	Bridge Preventative Maintenance
McKinley	I40	Fort Wingate Spur Bridges	2009	550,000	Bridge Rehabilitation
McKinley	I40	Fort Wingate Spur Bridges	2010	650,000	Bridge Rehabilitation
McKinley	I40	Accel / Decel Lanes	2006	1,500,000	Auxiliary Lanes
McKinley	I40	Refinery Bridge Exit 39, and Others	2011	420,000	Bridge Rehabilitation
McKinley	I40	Refinery Interchange - East	2007	500,000	Ramp Modifications
McKinley	I40	Thoreau Interchange	2007	5,800,000	Reconstruction
McKinley	I40	Thoreau Interchange	2006	200,000	Right-of-Way Acquisition
McKinley	I40	Thoreau Interchange	2006	100,000	Bridge Rehabilitation
McKinley	I40	Thoreau Interchange	2006	500,000	Overlay
McKinley	I40	Thoreau Interchange	2006	100,000	Pedestrian Facilities
McKinley	I40	Thoreau Interchange	2006	2,191,500	Bridge Replacement
McKinley	I40	Thoreau Interchange	2006	2,817,000	Bridge Rehabilitation
McKinley	I40	Thoreau Interchange	2006	2,191,500	Interchange Reconstruction
McKinley	I40	Thoreau Interchange	2006	1,000,000	Reconstruction
McKinley	I40	Thoreau Interchange	2006	5,000,000	Reconstruction
McKinley	NM0053	Intersection Zuni 301 - East	2006	175,000	Road Improvements
Sierra	I25	I-25, MP 75 to MP 88	2011	7,000,000	Pavement Preservation
Sierra	I25	Truth or Consequences Interchange Structures	2008	2,500,000	Bridge Rehabilitation
Sierra	I25	Cuchillo Interchange- North	2009	1,800,000	Bridge Replacement
Sierra	I25	Cuchillo Interchange- North	2009	400,000	Bridge Rehabilitation
Sierra	I25	Cuchillo Interchange- North	2009	2,000,000	Pavement Rehabilitation
Sierra	I25	Cuchillo Interchange- North	2009	1,800,000	Reconstruction
Sierra	I25	Cuchillo Interchange- North	2009	70,000	Right-of-Way Acquisition
Sierra	I25	Montichello Canyon	2008	4,000,000	Reconstruction
Sierra	I25	Milepost 92 to Milepost 102	2007	1,750,000	Pavement Preservation
Socorro	I25	I-25 Bridges, 1.18 Miles South of Magdalena Interchange	2009	1,500,000	Bridge Rehabilitation
Socorro	I25	MP 115 to MP 139	2009	8,000,000	Pavement Preservation
Socorro	I25	I-25, MP 134 - MP 139	2008	3,000,000	Pavement Preservation
Socorro	I25	Cuba Road, AT&SF Manzanara Street and NM0439 Structures	2007	3,500,000	Bridge Rehabilitation
Socorro	I25	Bridges Over Ojitos	2010	2,000,000	Bridge Replacement

Table A3 Forest Trails and Types on Cibola National Forest

Mt Taylor District		Magdalena District	
TRAIL NAME	TRAIL TYPE	TRAIL NAME	TRAIL TYPE
Juan Tabo Canyon	Standard/Terra Trail	East Fork Sawmill	Standard/Terra Trail
Quad	Standard/Terra Trail	Mill Canyon	Standard/Terra Trail
Upper Salazar Ski	Snow Trail	Hop Canyon	Standard/Terra Trail
Quad	Snow Trail	Hardy Ridge	Standard/Terra Trail
Coal Mine Interpretive	Standard/Terra Trail	Hardy Spring	Standard/Terra Trail
Continental Divide	Standard/Terra Trail	West Fork	Standard/Terra Trail
Gooseberry	Standard/Terra Trail	Ryan Hill	Standard/Terra Trail
Water Canyon	Standard/Terra Trail	Sixmile	Standard/Terra Trail
Strawberry Canyon	Standard/Terra Trail	Mesa	Standard/Terra Trail
Mountainair District		Dead Horse	Standard/Terra Trail
TRAIL NAME	TRAIL TYPE	South Baldy	Standard/Terra Trail
Jaral	Standard/Terra Trail	Copper Canyon	Standard/Terra Trail
Encino Cnayan	Standard/Terra Trail	North baldy	Standard/Terra Trail
Ojito	Standard/Terra Trail	Timber Peak	Standard/Terra Trail
Yellowstone	Standard/Terra Trail	Drift Fence	Standard/Terra Trail
Vigil	Standard/Terra Trail	East Red	Standard/Terra Trail
Gavilan	Standard/Terra Trail	Arache Kid	Standard/Terra Trail
Fourth of July	Standard/Terra Trail	Cowboy	Standard/Terra Trail
Crimson Maple	Standard/Terra Trail	San Mateo	Standard/Terra Trail
Spring Loop	Standard/Terra Trail	Skeleton Ridge	Standard/Terra Trail
Albuquerque	Standard/Terra Trail	Indian Creek	Standard/Terra Trail
Bosque	Standard/Terra Trail	Milo	Standard/Terra Trail
Box Canyon	Standard/Terra Trail	Shipman	Standard/Terra Trail
Cerro Blanco	Standard/Terra Trail	Smith	Standard/Terra Trail
Cottonwood	Standard/Terra Trail	Whitewater	Standard/Terra Trail
Fourth of July (Spur)	Standard/Terra Trail	Maverick	Standard/Terra Trail
Kayser Mill	Standard/Terra Trail	Coffee Pot	Standard/Terra Trail
La Mosca	Standard/Terra Trail	Teepe Peak	Standard/Terra Trail
Manzano Crest	Standard/Terra Trail	Nave	Standard/Terra Trail
New Canyon	Standard/Terra Trail	Cold Spring	Standard/Terra Trail
Ox Canyon	Standard/Terra Trail	Post	Standard/Terra Trail
Pine Shadow	Standard/Terra Trail	Big Rosa	Standard/Terra Trail
Red Canyon	Standard/Terra Trail	Water Canyon	Standard/Terra Trail
Spruce Spring	Standard/Terra Trail	Potato Canyon	Standard/Terra Trail
Trail Canyon	Standard/Terra Trail	Chimney	Standard/Terra Trail
Commanche Canyon	Standard/Terra Trail	Hughes Mill	Standard/Terra Trail
Monte Largo	Standard/Terra Trail	Monica	Standard/Terra Trail
OSHA	Standard/Terra Trail	Rosedale	Standard/Terra Trail
Salas	Standard/Terra Trail	South Canyon	Standard/Terra Trail
Trigo	Standard/Terra Trail		

Table A 3: Forest Trails and Types on Cibola National Forest, Continued

Sandia District			
TRAIL NAME	TRAIL TYPE		
Upper Faulty	Standard/Terra Trail	Cedro Single Track	Standard/Terra Trail
Wolf Spring	Standard/Terra Trail	Challenge	Standard/Terra Trail
Tunnel Canyon	Standard/Terra Trail	Chimney Canyon	Standard/Terra Trail
Tunero	Standard/Terra Trail	Cienega	Standard/Terra Trail
Tierra Monte North	Standard/Terra Trail	Cienega Horse Bypas	Standard/Terra Trail
Old La Luz	Standard/Terra Trail	Cienega Nature	Standard/Terra Trail
Mighty Mule	Standard/Terra Trail	Cole Spring	Standard/Terra Trail
Manzanita	Standard/Terra Trail	Crest Nature	Standard/Terra Trail
Lorenzo Canyon	Standard/Terra Trail	Crest Spur	Standard/Terra Trail
Lone Pine	Standard/Terra Trail	Chuchilla Lupe	Standard/Terra Trail
Jaral Pueblo Basin	Standard/Terra Trail	Doc Long/Sulpher Li	Standard/Terra Trail
Jaral Cabin	Standard/Terra Trail	Domingo Baca	Standard/Terra Trail
Doude House	Standard/Terra Trail	Dump Canyon	Standard/Terra Trail
Capulin	Snow Trail	Embudito	Standard/Terra Trail
Old Highway	Standard/Terra Trail	Embudo	Standard/Terra Trail
Madera Alternate	Snow Trail	Embudo Bypass	Standard/Terra Trail
Las Huertas Picnic	Standard/Terra Trail	Faulty	Standard/Terra Trail
88A	Standard/Terra Trail	Foothills	Standard/Terra Trail
Las Huertas Overlook	Standard/Terra Trail	Foothills-Easement	Standard/Terra Trail
Las Huertas Overlook	Snow Trail	Gravel Pit	Standard/Terra Trail
Chamisiso	Standard/Terra Trail	Hawkwatch	Standard/Terra Trail
Mahogany	Standard/Terra Trail	Hobbies	Standard/Terra Trail
Ponderosa	Standard/Terra Trail	Jaral	Standard/Terra Trail
Rabbit Run	Standard/Terra Trail	Juan Tabo Cabin	Standard/Terra Trail
Bear Scat 2 Track	Standard/Terra Trail	Juan Tabo Canyon	Standard/Terra Trail
Lower Pine	Standard/Terra Trail	10K	Standard/Terra Trail
Meadow 2 Track	Standard/Terra Trail	Kiwanis Cabin Road	Standard/Terra Trail
Cedro-Ridge 2 Track	Standard/Terra Trail	La Cueva	Standard/Terra Trail
Coyote Split	Standard/Terra Trail	La Cueva Crossing	Standard/Terra Trail
Cedro Creek Mature	Standard/Terra Trail	La Luz	Standard/Terra Trail
Gambles Oak	Standard/Terra Trail	Meadow Ridge	Standard/Terra Trail
Coyote Split	Standard/Terra Trail	Mud Spring	Standard/Terra Trail
Aspen Loop	Snow Trail	Old Ccc	Standard/Terra Trail
Nine Mile	Snow Trail	Old Ccc	Standard/Terra Trail
Rocky Point	Snow Trail	Oso Corridor	Standard/Terra Trail
Rocky Point	Standard/Terra Trail	Tram Nature	Standard/Terra Trail
Pinyon	Standard/Terra Trail	Pino Canyon	Standard/Terra Trail
POWERLINE	Standard/Terra Trail	Powerline	Standard/Terra Trail
Pinyon 2 Track	Standard/Terra Trail	Rattlesnake	Standard/Terra Trail
Wild Cat	Standard/Terra Trail	Raspberry	Standard/Terra Trail
Shootin Marbles	Standard/Terra Trail	San Antonio	Standard/Terra Trail
Rocky Top	Standard/Terra Trail	Sandy Arroyo	Standard/Terra Trail
Juan's Trail	Standard/Terra Trail	Sunset Canyon	Standard/Terra Trail
Poker Chip	Standard/Terra Trail	Sunset Ridge	Standard/Terra Trail
GRANITE	Standard/Terra Trail	Switchback	Standard/Terra Trail
Kiwanis Cabin Road	Snow Trail	Tecolote	Standard/Terra Trail
Tram Nature Trail	Snow Trail	Tejon	Standard/Terra Trail
Crest Natrue Trail	Snow Trail	Three Gun Spring	Standard/Terra Trail
Crest	Snow Trail	Tierra Monte Cutoff	Standard/Terra Trail
Tree Spring	Snow Trail	Tram way	Standard/Terra Trail
Challenge	Snow Trail	Tree Spring	Standard/Terra Trail
Cienga Equestrian	Standard/Terra Trail	Waterfall	Standard/Terra Trail
#270	Standard/Terra Trail	Tin Shed	Standard/Terra Trail
Gravel Pit	Snow Trail	Strip Mine	Standard/Terra Trail
Capulin Peak	Standard/Terra Trail	Placitas West	Standard/Terra Trail
Capulin Peak	Snow Trail	Piedra Lisa	Standard/Terra Trail
La Madera Overlook	Standard/Terra Trail	Madera Alternate	Standard/Terra Trail
10K	Snow Trail	109E	Standard/Terra Trail
Ellis	Snow Trail	Piedra Lisa-La Luz	Standard/Terra Trail
Ccc Road	Standard/Terra Trail	109D	Standard/Terra Trail
Cajun Pine	Standard/Terra Trail	109C	Standard/Terra Trail
Otero Canyon	Standard/Terra Trail	Perdiz Link	Standard/Terra Trail
#56A	Standard/Terra Trail	109B	Standard/Terra Trail
#56B	Standard/Terra Trail	100	Standard/Terra Trail
#56C	Standard/Terra Trail	67A	Standard/Terra Trail
#56D	Standard/Terra Trail	67	Standard/Terra Trail
#87	Standard/Terra Trail	65	Standard/Terra Trail
#160	Standard/Terra Trail	62	Standard/Terra Trail
#161A	Standard/Terra Trail	Palomas Placitas	Standard/Terra Trail
Turkey Trot	Standard/Terra Trail	Survey	Snow Trail
#183	Standard/Terra Trail	Oso Corridor	Snow Trail
#183B	Standard/Terra Trail	Switchback	Snow Trail
#183C	Standard/Terra Trail	Buried Cable	Snow Trail
#183C	Standard/Terra Trail	Osha Spring	Standard/Terra Trail
#183E	Standard/Terra Trail	#252	Standard/Terra Trail
#207	Standard/Terra Trail	#252A	Standard/Terra Trail
San Antonio	Standard/Terra Trail	Agua Sarca	Standard/Terra Trail
Blue Ribbon	Standard/Terra Trail	Apache Canyon	Standard/Terra Trail
#246	Standard/Terra Trail	Apache Spur	Standard/Terra Trail
#252Aa	Standard/Terra Trail	Del Agua	Standard/Terra Trail
North Ski Area	Standard/Terra Trail	Del Orno	Standard/Terra Trail
#323A	Standard/Terra Trail	Ellis	Standard/Terra Trail
		Ellis	Standard/Terra Trail

Table A 3: Forest Trails and Types on Cibola National Forest, Continued

Blue Ribbon	Standard/Terra Trail	Apache Spur	Standard/Terra Trail
#246	Standard/Terra Trail	Del Agua	Standard/Terra Trail
#252Aa	Standard/Terra Trail	Del Orno	Standard/Terra Trail
North Ski Area	Standard/Terra Trail	Ellis	Standard/Terra Trail
#323A	Standard/Terra Trail	Ellis	Standard/Terra Trail
#305	Standard/Terra Trail	Escondito Spring	Standard/Terra Trail
305A	Standard/Terra Trail	Fletcher	Standard/Terra Trail
Aps South	Standard/Terra Trail	Granite	Standard/Terra Trail
Armijo	Standard/Terra Trail	Hatchery	Standard/Terra Trail
Barro Canyon	Standard/Terra Trail	Historic Wagon	Standard/Terra Trail
Barts	Standard/Terra Trail	Movie	Standard/Terra Trail
Bear Canyon	Standard/Terra Trail	Osha Loop	Standard/Terra Trail
Bill Spring	Standard/Terra Trail	Palomas Peak	Standard/Terra Trail
Buried Cable	Snow Trail	Palomas Placitas	Standard/Terra Trail
Canoncito	Standard/Terra Trail	Penasco Blanco	Standard/Terra Trail
Cerro Pelon	Standard/Terra Trail	Perdiz Canyon	Standard/Terra Trail
Casa Loma	Standard/Terra Trail	Osha Spring	Standard/Terra Trail
Cedro Peak	Standard/Terra Trail	Pruella	Standard/Terra Trail
Rna Link	Standard/Terra Trail	Rincon	Standard/Terra Trail
Sandia Cave	Standard/Terra Trail		
Survey	Standard/Terra Trail		
Tunnel Spring East	Standard/Terra Trail		

Source: USDA Forest Service Infra Trails Database

Table A4 National Landcover Data (NLCD) Definitions

National Land Cover Data

Version 09-10-2000

This land cover data set was produced as part of a cooperative project between the U.S. Geological Survey (USGS) and the U.S. Environmental Protection Agency (USEPA) to produce a consistent, land cover data layer for the conterminous U.S. based on 30-meter Landsat thematic mapper (TM) data. National Land Cover Data (NLCD) was developed from TM data acquired by the Multi-resolution Land Characterization (MRLC) Consortium. The MRLC Consortium is a partnership of federal agencies that produce or use land cover data. Partners include the USGS (National Mapping, Biological Resources, and Water Resources Divisions), USEPA, the U.S. Forest Service, and the National Oceanic and Atmospheric Administration.

NEW MEXICO Version 09-10-2000

The New Mexico NLCD set was produced as part of a project area encompassing portions of Federal Regions 6. This data set was produced under the direction of the MRLC Regional Land Cover Characterization Project of the USGS EROS Data Center (EDC), Sioux Falls, SD. Questions about the data set can be directed to the MRLC Regional Team at (605) 594-6114 or mrlc@edcmail.cr.usgs.gov.

NLCD Land Cover Classification System Land Cover Class Definitions

Water - All areas of open water or permanent ice/snow cover.

11. Open Water - All areas of open water; typically 25 percent or greater cover of water (per pixel).

Developed - Areas characterized by a high percentage (30 percent or greater) of constructed materials (e.g. asphalt, concrete, buildings, etc).

21. Low Intensity Residential - Includes areas with a mixture of constructed materials and vegetation. Constructed materials account for 30-80 percent of the cover. Vegetation may account for 20 to 70 percent of the cover. These areas most commonly include single-family housing units. Population densities will be lower than in high intensity residential areas.

22. High Intensity Residential - Includes highly developed areas where people reside in high numbers. Examples include apartment complexes and row houses. Vegetation accounts for less than 20 percent of the cover. Constructed materials account for 80 to 100 percent of the cover.

23. Commercial/Industrial/Transportation - Includes infrastructure (e.g. roads, railroads, etc.) and all highly developed areas not classified as High Intensity Residential.

Barren - Areas characterized by bare rock, gravel, sand, silt, clay, or other earthen material, with little or no "green" vegetation present regardless of its inherent ability to support life. Vegetation, if present, is more widely spaced and scrubby than that in the "green" vegetated categories; lichen cover may be extensive.

31. Bare Rock/Sand/Clay - Perennially barren areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, beaches, and other accumulations of earthen material.

32. Quarries/Strip Mines/Gravel Pits - Areas of extractive mining activities with significant surface expression.

33. Transitional - Areas of sparse vegetative cover (less than 25 percent of cover) that are dynamically changing from one land cover to another, often because of land use activities.

Examples include forest clearcuts, a transition phase between forest and agricultural land, the temporary clearing of vegetation, and changes due to natural causes (e.g. fire, flood, etc.).

Forested Upland - Areas characterized by tree cover (natural or semi-natural woody vegetation, generally greater than 6 meters tall); tree canopy accounts for 25-100 percent of the cover.

41. Deciduous Forest - Areas dominated by trees where 75 percent or more of the tree species shed foliage simultaneously in response to seasonal change.

42. Evergreen Forest - Areas dominated by trees where 75 percent or more of the tree species maintain their leaves all year. Canopy is never without green foliage.

43. Mixed Forest - Areas dominated by trees where neither deciduous nor evergreen species represent more than 75 percent of the cover present.

Shrubland - Areas characterized by natural or semi-natural woody vegetation with aerial stems, generally less than 6 meters tall, with individuals or clumps not touching to interlocking. Both evergreen and deciduous species of true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions are included.

51. Shrubland - Areas dominated by shrubs; shrub canopy accounts for 25-100 percent of the cover. Shrub cover is generally greater than 25 percent when tree cover is less than 25 percent. Shrub cover may be less than 25 percent in cases when the cover of other life forms (e.g. herbaceous or tree) is less than 25 percent and shrubs cover exceeds the cover of the other life forms.

Non-natural Woody - Areas dominated by non-natural woody vegetation; non-natural woody vegetative canopy accounts for 25-100 percent of the cover. The non-natural woody classification is subject to the availability of sufficient ancillary data to differentiate non-natural woody vegetation from natural woody vegetation.

61. Orchards/Vineyards/Other - Orchards, vineyards, and other areas planted or maintained for the production of fruits, nuts, berries, or ornamentals.

Herbaceous Upland - Upland areas characterized by natural or semi-natural herbaceous vegetation; herbaceous vegetation accounts for 75-100 percent of the cover.

71. Grasslands/Herbaceous - Areas dominated by upland grasses and forbs. In rare cases, herbaceous cover is less than 25 percent, but exceeds the combined cover of the woody species present. These areas are not subject to intensive management, but they are often utilized for grazing.

Planted/Cultivated - Areas characterized by herbaceous vegetation that has been planted or is intensively managed for the production of food, feed, or fiber; or is maintained in developed settings for specific purposes. Herbaceous vegetation accounts for 75-100 percent of the cover.

81. Pasture/Hay - Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops.

82. Row Crops - Areas used for the production of crops, such as corn, soybeans, vegetables, tobacco, and cotton.

83. Small Grains - Areas used for the production of graminoid crops such as wheat, barley, oats, and rice.

84. Fallow - Areas used for the production of crops that are temporarily barren or with sparse vegetative cover as a result of being tilled in a management practice that incorporates prescribed alternation between cropping and tillage.

85. Urban/Recreational Grasses - Vegetation (primarily grasses) planted in developed settings for recreation, erosion control, or aesthetic purposes. Examples include parks, lawns, golf courses, airport grasses, and industrial site grasses.

Wetlands - Areas where the soil or substrate is periodically saturated with or covered with water as defined by Cowardin et al.

91. Woody Wetlands - Areas where forest or shrubland vegetation accounts for 25-100 percent of the cover and the soil or substrate is periodically saturated with or covered with water.

92. Emergent Herbaceous Wetlands - Areas where perennial herbaceous vegetation accounts for 75-100 percent of the cover and the soil or substrate is periodically saturated with or covered with water.

Table A5 Hunting Regulations for Cibola National Forest

Big Game Hunting					
Species	License/Permit Type	Hunt Dates/Season	Special Weapons	Units/Counties/Zones	
Elk	LOS	Varies per unit form 10/8-12/31	Any legal sporting arm	Units 9, 10, 36, 37, 16A, 16B, 16C, 16D, 21A, 21B, 24	
Elk	LOS	Varies per unit from 9/1-9/22	Bow only	Units 6A, 16A, 16B, 16C, 16D, 16E, 17, 21A, 21B, 24, 7.9 10, 18, 34, 36, 37	
Elk	LOS	Varies per unit from 10/1-11/15	Mobility Impaired	Units 16A, 16D, 9	
Elk	LOS	Varies per unit from 10/1-12/3	Muzzleloader	Units (9, 10, 36, 37, 7, 16E, 17, 24)	
Elk	DL	Varies per unit from 10/1-12/14	Any legal sporting arm	Units 6A, 7, 9, 10, 16A, 16B, 16C, 16D, 16E, 21A, 21B, 2436, 37	
Elk	DL	Varies per unit from 9/1-9/22	Bow only	Units 5, 6A, 7, 9, 10, 13, 15, 16A, 16B, 16C, 16D, 16E, 17, 18, 21, 24, 38, 39	
Elk	DL	Varies per unit from 10/8-11/9	Mobility Impaired	Units 9, 16A, 16D	
Elk	DI	Varies per unit from 10/1-12/15	Muzzleloader	Units 6A, 7, 9, 10, 15, 16E, 17, 24, 36, 37	
Antelope	DL	Varies per unit from 9/1-10/9	Any legal sporting arm	Units 3, 5, 6, 9-13, 18, 20, 34, 36-39	
Antelope	DL	8/20-8/28	Bow only	Units 5, 6, 8-10, 13, 17, 20, 34, 36-38	
Antelope	DL	Varies per unit from 8/6-9/10	Mobility Impaired	Units 3, 5, 6, 9, 10, 13, 19-20, 34, 36-39	
Antelope	LOS	9/17-9/18 or 9/24-9/25	Any legal sporting arm	Units 3, 5, 8, 10	
Deer	DL	11/11-11/15, 10/28-11/1, 11/4-11/6, 9/1-9/22, 1/1-1/15	Any legal sporting arm	Units 6A, 8, 16, 17, 18, 20, 21, 24	
Deer	DL	10/28-11/21	Muzzleloader	Units 6A, 7, 8, 10, 14, 15, 16, 17, 18, 20, 21, 24, 36, 37, 38	
Deer	DL	9/1-9/22, 1/1-1/15	Bow only	Units 6A, 7, 8, 10, 14, 15, 16, 17, 18, 20, 21, 24, 36, 37, 38	
Bear	OTC	Varies per zone from 8/16-11/15	Bow Only	Zones 1, 3, 4, 5, 6	
Cougar	OTC	10/1-3/31	Any legal sporting arm	Zones A, B, E, F, G, H, I, J, K, M, O	
Turkey	OTC	4/15-4/30	Any legal sporting arm	Unit 2	
Barbary Sheep	OTC	4/1/05-3/31/06	Any legal sporting arm	Units 9, 13, 19, 20, 21, 36, 37	
Javelina & Barbary Shhep	DL	1/15-3/15	Any legal sporting arm	Units 12, 13, 17, 20, 21	
Furbearers	OTC	Varies per furbearer from 4/1/05-3/31/06	Dogs, firearms, bows, traps/snares	Specific closed areas	

Small Game and Waterfowl Hunting					
Species	License/Permit Type	Hunt Dates/Season	Special Weapons	Units/Counties/Zones	
Quail	OTC	11/15-2/15	Any legal sporting arm	Statewide	
Pheasant	OTC	12/8-12/11	Any legal sporting arm	Statewide except Valencia County	
Pheasant	OTC	12/10	Any legal sporting arm	Valencia North & South Public Hunts	
Dove	OTC	9/1-10/30	Any legal sporting arm	North zone (McKinley, Sandoval, Cibola, Bernalillo)	
Dove	OTC	9/1-9/30, 12/1-12/30	Any legal sporting arm	South Zone (Catron, Socorro, Cibola, Bernalillo, Valencia)	
Band Tailed Pigeon	OTC	10/1-10/20	Any legal sporting arm	Southwest (Socorro, Catron, Sierra)	
Band Tailed Pigeon	OTC	9/1-10/30	Any legal sporting arm	Remainder of state	
Squirrel	OTC	9/1-10/31	Any legal sporting arm	GS-1, S-4	
Squirrel	OTC	10/1-11/20	Any legal sporting arm	GS-2	
Blue Grouse	OTC	9/1-10/15	Any legal sporting arm	GS-1	
Blue Grouse	OTC	10/1-10/31	Any legal sporting arm	GS-2	
Sandhill Crane	OTC	11/5-11/6	Any legal sporting arm	Estancia Valley Hunt (SCRO 101)	
Sandhill Crane	OTC	Varies per Hunt Area from 10/31/06-1/31/06	Any legal sporting arm	Middle Rio Grande Valley Hunt	
Sandhill Crane	OTC	Varies per Hunt Area from 10/31/06-1/31/06	Any legal sporting arm	Southwest Hunt	
Waterfowl	OTC	Varies across state from 12/31-1/23	Any legal sporting arm	Statewide	

License abbreviations:
 DL - Draw License
 LOS - Land-Owned Sign-up Issued Permit
 Harvest Limit abbreviations:
 MB - male bull
 A - antlerless elk
 APRE - an elk with 5 or more points on a least one antler
 ES - any on elk
 APRD - a deer with 3 or more points on at least one antler
 Hunt Code:
 GS -Both Grouse and Squirrel hunt; S - squirrel only

Sources:
 New Mexico Department of Game and Fish, *Big Game and Furbearer Rules and Information, 2005-2006*. <http://www.wildlife.state.nm.us/recreation/hunting/index.htm>, accessed July 5, 2005.
 New Mexico Department of Game and Fish, *Small Game and Waterfowl Rules and Information, 2004-2005*. <http://www.wildlife.state.nm.us/recreation/hunting/index.htm>, accessed July 5, 2005.

Table A6 Violations of Cibola National Forest, 2005

Venue	Offense Code	Total Violations	Violation Codes
FED	36CFR26117	461	Boundary Waters Canoe Area Wilderness
FED	36CFR26154F	19	a vehicle carelessly, recklessly, or without regard to the rights or safety of other persons
FED	36CFR26111D	16	Failing to dispose of all garbage in proper receptacles
FED	36CFR2619B	14	Removing any natural feature or other property of the US (property)
FED	36CFR2619A	10	Damaging any natural resource or other property of the US (property)
	NA	6	No code provided
FED	36CFR2616A	5	Cutting or otherwise damaging any timber, tree, or other forest product, except as authorized by a special-use authorization, timber sale contract, or Federal law or regulation is prohibited (timber and other forest products)
FED	FSMHS690000	5	No code provided Dumping of any refuse, debris, trash, or litter brought as such from private property or from land occupied under permit, except where a container, dump, or similar facility has been provided and is identified as such, to receive trash generated from priv
FED	36CFR26111E	4	Possessing a beverage (during occupancy) which is defined as an alcoholic beverage by State Law (occupancy and use)
FED	36CFR26158BB	4	No code provided
FED	FSM5300	4	No code provided
STA	30-16-1	3	No code provided
FED	36CFR26110F	3	of any person.
FED	36CFR26110K	2	Use or occupancy of National Forest System land or facilities without special use authorization
FED	36CFR26112D	2	Blocking, restricting, or otherwise interfering with the use of a road, trail, or gate
FED	36CFR26115G	2	No code provided
FED	36CFR26115H	2	No code provided
FED	36CFR26116M	2	No code provided
FED	FSM5100	2	No code provided
FED	16USC470EE	1	No code provided
FED	21USC841A	1	Unlawful possession or intent to distribute a controlled substance
STA	30-16-3 B	1	No code provided
STA	30-22-5	1	No code provided
FED	36CFR26110D	1	Discharging a firearm capable of taking life or damaging property
FED	36CFR26111B	1	Possessing or leaving refuse, debris, or litter in an exposed or unsanitary condition is prohibited (sanitation)
FED	36CFR2614A	1	Engaging in fighting
FED	36CFR26152A	1	Building, maintaining, attending, or using a fire, campfire, or stove fire (fire)
FED	36CFR26152B	1	Using an explosive
FED	36CFR26158B	1	Entering or using a developed recreation site
FED	36CFR26158I	1	Possessing, parking or leaving more than two vehicles per camp unit
FED	36CFR2615D	1	Leaving a fire to escape from control (fire)
FED	36CFR2617A	1	Placing or allowing unauthorized livestock to enter or be in the
FED	36CFR26154A	0	Using any type of vehicle prohibited by an order (on NFS roads)
FED	36CFR26154D	0	Operating a vehicle in violation of the speed, load, weight, height, length, or width specified in the order
FED	36CFR26158T	0	Possessing, storing, or transporting any part of a tree or other plant Other, No code provided

Table A7 Recreational Site Listing for Cibola National Forest

District	Designated Area Type	Name
Mt Taylor	Campground/Picnic Site	Ojo Redondo
Mt Taylor	Campground/Picnic Site/Fishing Site	McGaffey Campground
Mt Taylor	Fishing Site	McGaffey Lake
Mt Taylor	Campground/Picnic Site	Quaking Aspen
Mt Taylor	Campground/Picnic Site	Lobo Canyon
Mt Taylor	Campground/Picnic Site	Coal Mine
Mt Taylor	Fishing Site	Bluewater Creek
Mt Taylor	Interpretive Site (Major)	Northwest Multi Agency Visitors centers
Mt Taylor	Picnic Site	McGarrfey
Mt Taylor	Campground	McGaffey
Mt Taylor	Picnic Site	McGaffey Group
Mt Taylor	Other Winter Sports Site	Quadrathalon Run/Ski
Mt Taylor	Trailhead	Gooseberry
Mt Taylor	Trailhead	Water Canyon
Mt Taylor	Trailhead	Continental Divide
Mt Taylor	Trailhead	Coal Mine Nature
Mt Taylor	Trailhead	Strawberry Canyon
Mt Taylor	Interpretive Site (minor)	Zuni RR Toilet
Mt Taylor	Observation Site	Oso Ridge Lookout
Mt Taylor	Observation Site	La Mosca Lookout
Mt Taylor	Observation Site	McGaffey Lookout
Mt Taylor	Complex	Coal Mine
Mt Taylor	Complex	McGaffey
Magdalena	Campground/Picnic Site	Springtime
Magdalena	Campground/Picnic Site	Luna Park
Magdalena	Campground/Picnic Site	Hughes Mill
Magdalena	Campground/Picnic Site	Bear Trap
Magdalena	Campground/Picnic Site	Water Canyon
Magdalena	Information Site	Magdalena Ranger Station
Magdalena	Observation Site	Mt. Withington Lookout
Magdalena	Observation Site	Grassy Lookout
Magdalena	Observation Site	San Mateo Peak Lookout
Magdalena	Observation Site	Davenport Lookout
Magdalena	Trailhead	Mesa
Mountainair	Campground/Picnic Site	Capilla
Mountainair	Campground/Picnic Site	New Canyon
Mountainair	Campground/Picnic Site	Red Canyon
Mountainair	Campground	Tajique
Mountainair	Campground/Picnic Site	Fourth of July
Mountainair	Trailhead	Box Canyon
Mountainair	Interpretive Site (Minor)	Red Canyon Interpretive
Mountainair	Campground	Red Canyon
Mountainair	Trailhead	Albuquerque
Mountainair	Trailhead	Bosque
Mountainair	Trailhead	Capilla Peak
Mountainair	Trailhead	Cerro Blanco

Table A7 Recreational Site Listing for Cibola National Forest, Continued

District	Designated Area Type	Name
Mountainair	Trailhead	Comanche
Mountainair	Trailhead	Encino
Mountainair	Trailhead	Kayser Mill
Mountainair	Trailhead	Monte Largo
Mountainair	Trailhead	New Canyon
Mountainair	Trailhead	Ox Canyon
Mountainair	Trailhead	Pine Shadow
Mountainair	Trailhead	Red Canyon/Spruce Spring
Mountainair	Trailhead	Trail Canyon
Mountainair	Trailhead	Trigo
Mountainair	Trailhead	Fourth of July
Mountainair	Picnic Site	Fourth of July
Mountainair	Picnic Site	Red Canyon
Mountainair	Trailhead	Cottonwood
Mountainair	Information Site	Mountainair Ranger Station
Mountainair	Observation Site	Gallinas Peak Lookout
Mountainair	Trailhead	Crimson Maple Interpretive
Mountainair	Trailhead	Spring Loop Interpretive
Mountainair	Campground	Red Cloud (new)
Mountainair	Campground	Capilla Peak
Mountainair	Campground	Fourth of July
Mountainair	Campground	John F. Kennedy
Mountainair	Campground	New Canyon
Mountainair	Campground	Red Cloud
Mountainair	Observation Site	Capilla Peak Lookout
Sandia	Picnic Site	Juan Tabo
Sandia	Picnic Site/Trailhead	La Cueva
Sandia	Trailhead	La Luz
Sandia	Picnic Site	Las Huertas
Sandia	Trailhead	Tunnel Spring
Sandia	Trailhead	Doc Long
Sandia	Picnic Site/Nature trail	Sulphur Canyon
Sandia	Picnic Site/Trailhead	Cienega Canyon
Sandia	Trailhead	Tree Spring
Sandia	Picnic Site/Nature trail	Balsam Glade
Sandia	Trailhead	Ellis Trailhead
Sandia	Picnic Site/Snowpark	Capulin Springs
Sandia	Campground/Picnic Site	Capulin Snow play
Sandia	Picnic Site	Nine Mile
Sandia	Picnic Site	Dry Camp
Sandia	Trailhead	Cedro Trailhead
Sandia	Campground	Cedro Peak
Sandia	Picnic Site	Pine Flat
Sandia	Picnic Site	Oak Flat
Sandia	Campground	Dead Man
Sandia	Trailhead (Historic Register Site)	Sandia Cave
Sandia	Ski Area Alpine	Sandia Peak
Sandia	Interpretive Site (Major)	Four Seasons Visitor Center
Sandia	Information Site	Sandia Crest Information Center
Sandia	Information Site	Sandia Rangers Station Information Center
Sandia	Interpretive Site (Major)	Tijeras Pueblo Interpretive Trailhead

Table A7 Recreational Site Listing for Cibola National Forest , Continued

District	Designated Area Type	Name
Sandia	Interpretive Site (Minor)	Cienega Group Reservation Site
Sandia	Interpretive Site (Minor)	Summit Nature Trail
Sandia	Interpretive Site (Minor)	Crest Nature Trail
Sandia	Trailhead	Kiwanis Cabin
Sandia	Interpretive Site (Major)	Doc Long Interpretive Site
Sandia	Interpretive Site (Minor)	Kiwanis Cabin Interpretive Site
Sandia	Trailhead	La Madera Canyon Overlook
Sandia	Trailhead	Cienega
Sandia	Trailhead	Wolf Spring
Sandia	Trailhead	Doc Long- Sulphur
Sandia	Trailhead	Bill Spring
Sandia	Trailhead	10K
Sandia	Trailhead	Tecolote
Sandia	Trailhead	Crest
Sandia	Trailhead	Agua Sarca
Sandia	Trailhead	Trail 246 Spring Creek
Sandia	Trailhead	Del Agua
Sandia	Trailhead	Strip Mine
Sandia	Trailhead	Tramway
Sandia	Trailhead	Jaral Cabin
Sandia	Trailhead	Cienega Equestrian
Sandia	Trailhead	Pino- Elena Gallegos
Sandia	Trailhead	Chamiso
Sandia	Picnic Site	Doc Long Reservation Site
Sandia	Trailhead	Canoncito
Sandia	Trailhead	Mars Court
Sandia	Trailhead	Big Block
Sandia	Complex	Cienega
Sandia	Picnic Site	Error Balsam Glade
Sandia	Trailhead	Bear Canyon
Sandia	Trailhead	Cedro
Sandia	Picnic Site	Cole Springs
Sandia	Campground	Deadman Flat
Sandia	Picnic Site	Doc Long
Sandia	Picnic Site	Dry Camp
Sandia	Trailhead	Ellis
Sandia	Cua Trailhead	Embudito
Sandia	Trailhead	Embudo
Sandia	Cua Trailhead	Canyon Estates
Sandia	Trailhead	Otero
Sandia	Trailhead	Piedra Lisa- North
Sandia	Trailhead	Piedra Lisa- South
Sandia	Picnic Site	Pine Flat
Sandia	Trailhead	Three Gun Springs
Sandia	Trailhead	Tunnel Canyon
Sandia	Interpretive Site (Major)	Sandia Crest

Table A8 Communities Within The Cibola National Forest Counties

	Census Population			% Decade Growth	
	1980	1990	2000	1980-90	1990-2000
<u>MAGDALENA RANGER DISTRICT</u>					
Catron	2,720	2,563	3,543	-6	38
Reserve village	439	319	387	-27	21
Sierra	8,454	9,912	13,270	17	34
Elephant Butte city	.	.	1,390		
Truth or Consequences city	5,219	6,221	7,289	19	17
Williamsburg village	433	456	527	5	16
Socorro	12,566	14,764	18,078	17	22
Alamo CDP	.	.	1,183		
Magdalena village	1,022	861	913	-16	6
Socorro city	7,173	8,159	8,877	14	9
<u>MOUNTAINAIR RANGER DISTRICT</u>					
Lincoln	10,997	12,219	19,411	11	59
Capitan village	762	842	1,443	10	71
Carrizozo town	1,222	1,075	1,036	-12	-4
Corona village	236	215	165	-9	-23
Ruidoso village	4,260	4,600	7,698	8	67
Ruidoso Downs village	949	920	1,824	-3	98
Torrance	7,491	10,285	16,911	37	64
Edgewood town	.	.	1,893		
Encino village	155	131	94	-15	-28
Estancia town	830	792	1,584	-5	100
Manzano CDP	.	.	54		
Moriarty city	1,276	1,399	1,765	10	26
Mountainair town	1,170	926	1,116	-21	21
Tajique CDP	.	.	148		
Torreon CDP (Torrance County)	.	.	244		
Willard village	166	183	240	10	31
Valencia	61,115	45,235	66,152	-26	46
Belen city	5,617	6,547	6,901	17	5
Bosque Farms village	3,353	3,791	3,931	13	4
Casa Colorada CDP	.	.	56		
El Cerro-Monterey Park CDP	.	.	5,483		
Jarales CDP	.	.	1,434		
Los Chaves CDP	.	3,872	5,033		30
Los Lunas village	3,525	6,013	10,034	71	67
Los Trujillos-Gabaldon CDP	.	1,841	2,166		18
Meadow Lake CDP	.	1,590	4,491		182
Peralta CDP	.	3,182	3,750		18
Rio Communities CDP	2,089	3,233	4,213	55	30
Rio Communities North CDP	.	.	1,588		
Tome-Adelino CDP	.	1,695	2,211		30
Valencia CDP	.	3,917	4,500		15

Table A8 Communities Within The Cibola National Forest Counties, Continued

MT. TAYLOR RANGER DISTRICT					
Cibola	30,346	23,794	25,595	-22	8
Acomita Lake CDP	.	273	312		14
Encinal CDP	.	.	200		
Grants city	11,439	8,626	8,806	-25	2
Laguna CDP	.	434	423		-3
Mesita CDP	.	627	776		24
Milan village	3,747	1,911	1,891	-49	-1
North Acomita Village CDP	.	.	288		
Paguete CDP	.	492	474		-4
Paraje CDP	.	622	669		8
Pinehill CDP	.	.	116		
Seama CDP	.	403	333		-17
Skyline-Ganipa CDP	.	946	1,035		9
McKinley	56,449	60,686	74,798	8	23
Black Rock CDP	.	858	1,252		46
Brimhall Nizhoni CDP	.	.	373		
Church Rock CDP	.	.	1,077		
Crownpoint CDP	1,134	2,108	2,630	86	25
Crystal CDP	.	.	347		
Gallup city	18,161	19,154	20,209	5	6
Mexican Springs CDP	.	242	.		
Nakaibito CDP	.	.	455		
Navajo CDP	.	1,985	2,097		6
Pueblo Pintado CDP	.	.	247		
Ramah CDP	.	.	407		
Rock Springs CDP	.	.	558		
Thoreau CDP	1,099	.	1,863		
Tohatchi CDP	1,011	661	1,037	-35	57
Tse Bonito CDP	.	.	261		
Twin Lakes CDP	.	.	1,069		
Yah-ta-hey CDP	.	.	580		
Zuni Pueblo CDP	.	5,857	6,367		9
Sandoval	34,799	63,319	89,908	82	42
Algodones CDP	.	.	688		
Bernalillo town	3,012	5,960	6,611	98	11
Cochiti CDP	.	434	507		17
Corrales village	2,791	5,453	7,334	95	34
Cuba village	609	760	590	25	-22
Jemez Pueblo CDP	1,503	1,301	1,953	-13	50
Jemez Springs village	316	413	375	31	-9
La Jara CDP	.	.	209		
Pena Blanca CDP	.	300	661		120
Placitas CDP	.	1,611	3,452		114
Ponderosa CDP	.	.	310		
Pueblo of Sandia Village CDP	.	.	344		
Regina CDP	.	.	99		
Rio Rancho city	9,985	32,551	51,765	226	59
San Felipe Pueblo CDP	1,465	1,557	2,080	6	34
Santa Ana Pueblo CDP	.	476	479		1
Santo Domingo Pueblo CDP	2,082	2,866	2,550	38	-11
San Ysidro village	199	233	238	17	2
Torreon CDP (Sandoval County)	.	.	297		
Zia Pueblo CDP	.	637	646		1

Table A8 Communities Within The Cibola National Forest Counties, Continued

SANDIA RANGER DISTRICT						
Bernalillo	419,700	480,577	556,678	15	16	
Albuquerque city	331,767	384,736	448,607	16	17	
Carnuel CDP	.	.	872			
Cedar Crest CDP	.	.	1,060			
Chilili CDP	.	.	113			
Isleta Village	.	.	496			
Los Ranchos de Albuquerque village	2,702	3,955	5,092	46	29	
North Valley CDP	13,006	12,507	11,923	-4	-5	
Paradise Hills CDP	5,096	5,513	.	8		
Sandia CDP	5,288	6,742	.	27		
Sandia Heights CDP	.	3,519	.			
South Valley CDP	38,916	35,701	39,060	-8	9	
Tijeras village	311	340	474	9	39	
CIBOLA NF COUNTIES	644,637	723,354	884,344	12	22	
CIBOLA NF PLACES	495,535	615,544	740,698	24	20	
NM STATE	1,303,303	1,515,069	1,819,046	16	20	

US Bureau of the Census, Decennial Census for 1980, 1990, and 2000