

## 3 Access and Travel Patterns

This chapter discusses current and potential access issues in each of the Cibola National Forest Ranger Districts. The analysis considers current traffic patterns along major routes and future trends, including planned capital outlays, to identify potential limitations as well as expansions to future access.

The analysis is based wholly on secondary data, including information from the New Mexico Department of Transportation (NMDOT). The data on average annual daily traffic come from the Highway Performance Monitoring System (HPMS), maintained by the Federal Highway Administration (FHWA). These data can be accessed online at the Bureau of Transportation Statistics<sup>42</sup>. Estimates of the projected growth of vehicle miles traveled for counties in the assessment area are provided by the Environmental Protection Agency (EPA) and are based on 1996 HPMS data.<sup>43</sup> Geographical data on national roads are obtained from the ESRI ArcGIS® StreetMap USA 2004.

### 3.1 Location of Major Transportation Routes

**Figure 3.1** presents a map of the principal highways and airports that serve the larger region. The two interstate highways which serve as major thoroughfares for the entire state are Interstate 40 (I-40), which is a major east-west cross-national shipping route, supporting high levels of heavy truck traffic, and Interstate 25 (I-25) which runs generally north-south through New Mexico, continuing into Colorado to the north, and ending in Las Cruces, NM in the south, where it also connects to Interstate 10. Interstates I-40 and I-25 intersect in Albuquerque at the “Big-I” interchange.

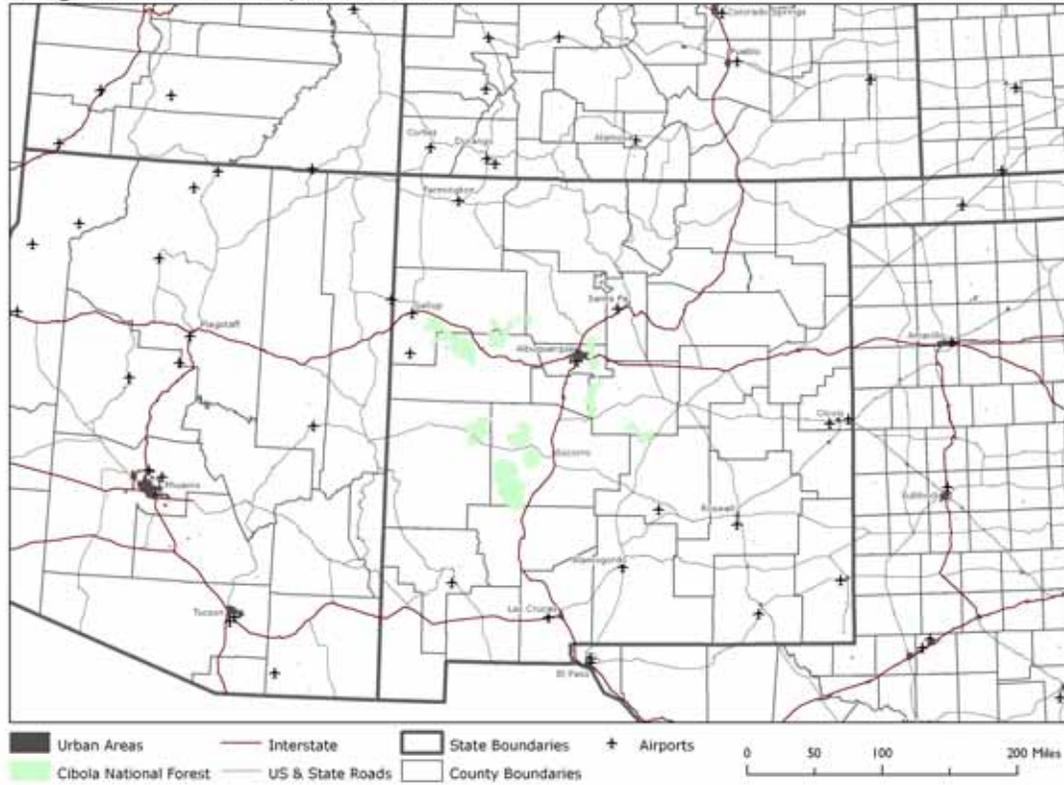
I-40 provides direct access to both the Mt. Taylor and Sandia RDs, which lie along its length. Though Interstate I-25 does not provide direct access to any of the forest areas, it does provide secondary access to the Sandia RD through the town of Placitas via State Highway 165, and to the Magdalena RD via State Highway 169, which comes in to Magdalena from the north. However, Magdalena RD is most readily accessed from Highway 60 (west), which meets I-25 in Socorro. Socorro is about 70 miles south of Albuquerque, and it’s an additional 35 miles from Socorro to the town of Magdalena (from I-25). The Mountainair RD can be accessed by taking I-25 to Highway 60 (east), connecting in Bernardo. The town of Mountainair is about 48 miles away from I-25. The Mountainair RD can also be accessed from I-40, connecting to NM Route 41 near Tijeras. The distance between the Mountainair RD and I-40 is about 40 miles. the town of Magdalena (from I-25). The map in Figure 3.1 shows the relative distance between the Mountainair and Magdalena Ranger Districts and the major Interstates and highways.

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<sup>42</sup> Bureau of Transportation Statistics: The Intermodal Transportation Database, TranStats. (2006). Highway Performance Monitoring System - Core Data. <http://www.transtats.bts.gov/databases>.

<sup>43</sup> U.S. Environmental Protection Agency. (2000, March 24) VMT Growth Factors by State, Website: Technology Transfer Network Ozone Implementation. <http://www.epa.gov/ttn/naaqs/ozone/areas/vmt/stindex.htm>.

### Regional Transportation



**Figure 3.1 Map of Principal Highways and Airports in Region**

**Table 3.1** shows the distance of each ranger district to the major Metropolitan Statistical Areas (MSAs) in the southwestern region of the United States. The only major population bases within reasonable driving distance are Albuquerque, Santa Fe and Las Cruces, implying that most visitors to the forest come from within the state. Many of the cities listed below have a national forest located nearer than the Cibola NF, such as the Gila and Santa Fe NFs.

**Table 3.1 Distance from Major Cities to Cibola National Forest Ranger Districts**

<b>(Miles by Ranger District)</b>				
<b>City</b>	<b>Mt Taylor</b>	<b>Mountainair</b>	<b>Magdalena</b>	<b>Sandia</b>
Albuquerque, NM	80	82	105	24
Amarillo, TX	364	292	392	277
Denver, CO	522	475	551	460
El Paso, TX	345	282	216	289
Farmington, NM	184	261	287	203
Las Cruces, NM	301	238	173	245
Lubbock, TX	398	281	426	310
Phoenix, AZ	391	545	348	487
Pueblo, CO	411	364	439	348
Roswell, NM	276	159	191	189
Santa Fe, NM	138	94	166	82
Tempe, AZ	405	558	337	500
Tucson, AZ	396	519	454	526

Source: <http://www.mapquest.com>

**Table 3.2** is a list of roadways around the four ranger districts.

**Table 3.2 Roadways Around Cibola National Forest**

	<b>Mt Taylor</b>	<b>Magdalena</b>	<b>Mountainair</b>	<b>Sandia</b>
<b>Interstate</b>	<b>I-40</b>	<b>I-25</b>		<b>I-40</b>
<b>US Route</b>		<b>US 60</b>	<b>US 54</b> <b>US 60</b>	
<b>State Road</b>	<b>NM 53</b> <b>NM 602</b> <b>NM 117</b>	<b>NM 1</b> <b>NM 107</b> <b>NM 12</b> <b>NM 163</b> <b>NM 52</b> <b>NM 36</b>	<b>NM 337</b> <b>NM 42</b> <b>NM 55</b> <b>NM 41</b>	<b>NM 14</b> <b>NM 165</b> <b>NM 333</b> <b>NM 337</b> <b>NM 44</b> <b>NM 536</b> <b>NM 285</b> <b>NM 550</b>

**Table 3.3** shows lane miles in each county in the assessment area by road classification. Except for Bernalillo County, all counties are mostly rural. NMDOT defines rural areas as areas where the population is under 5,000 persons; any area with more than 5,000 people is defined as an urbanized area.<sup>44</sup> According to the NMDOT Strategic Plan, the primary function of interstate and arterial roads is to move people and goods efficiently. The function of collector and local roads is to provide access to homes and businesses.

<sup>44</sup> Bureau of Transportation Statistics: The Intermodal Transportation Database, TranStats. (2006). Highway Performance Monitoring System - Core Data. [http://www.transstats.bts.gov/Tableinfo.asp?Table\\_ID=1102](http://www.transstats.bts.gov/Tableinfo.asp?Table_ID=1102).

**Table 3.3 Lane Miles of Road by County and Classification**

<i>Rural</i>					
County	Interstate	Other Principal			County Total
		Arterial	Minor Arterial	Collector & Local	
Bernalillo	191	1	0	1,112	1,304
Catron	0	171	121	3,481	3,773
Cibola	223	0	0	3,890	4,113
Lincoln	0	294	113	2,845	3,252
McKinley	235	103	159	5,320	5,818
Sandoval	103	388	94	4,280	4,865
Sierra	195	0	2	1,690	1,887
Socorro	307	102	157	3,419	3,986
Torrance	194	152	123	3,123	3,592
Valencia	88	19	0	662	769
<b>Total</b>	<b>1,537</b>	<b>1,231</b>	<b>768</b>	<b>29,822</b>	<b>33,358</b>
<i>Urban</i>					
County	Interstate	Other Principal			County Total
		Arterial	Minor Arterial	Collector & Local	
Bernalillo	230	876	401	3,092	4,599
Catron	0	0	0	0	0
Cibola	29	28	16	139	211
Lincoln	0	0	0	0	0
McKinley	42	63	9	173	287
Sandoval	10	75	55	105	245
Sierra	12	21	2	21	57
Socorro	18	18	2	123	160
Torrance	0	0	0	0	0
Valencia	6	8	3	88	104
<b>Total</b>	<b>346</b>	<b>1,090</b>	<b>488</b>	<b>3,739</b>	<b>5,664</b>

Source: US Department of Transportation HPMS Database

Five of the Cibola NF counties have Interstates passing through them: McKinley, Cibola, Bernalillo, Valencia, Socorro, and Sandoval. Bernalillo County has, by far, the most urban lane miles. McKinley County has the highest number of rural miles in the assessment area, and is second highest in urban miles, although well below Bernalillo County, primarily because of the I-40 corridor. Sandoval County is in a similar situation. However, Sandoval is growing much faster than McKinley. Catron and Lincoln Counties are not served by an interstate, but forest areas are still accessible by collector and local roads in Lincoln County, and by rural roads in Catron County. Catron, which is only served by rural roads, is home to the Datil Mountains of the Magdalena RD, as well as having a majority of the Gila National Forest within its boundaries.

### 3.2 Airports

The largest airport in the vicinity of the Cibola NF is the Albuquerque International Sunport in Albuquerque, New Mexico. It is the largest and busiest airport in New Mexico with roughly six million travelers a year.<sup>45</sup> Albuquerque is where two of New Mexico's major Interstates (I-25 and I-40) intersect, facilitating access to other areas of the state. Albuquerque Sunport is only 24 miles away from the Sandia RD, and it is also the closest major airport to the Magdalena and Mountainair RDs, 104 and 85 miles, respectively.

There are also a number of municipal airports near the RDs that can serve as access points to the Cibola NF. The nearest one to Sandia RD, besides Albuquerque International, is the Santa Fe Municipal Airport located about 9 miles west of Santa Fe and about one hour drive from Albuquerque. There are two airports near the Mt. Taylor RD, the Gallup Municipal Airport and the Crownpoint Airport. There are several other municipal airports throughout New Mexico (Socorro, Belen, Carrizozo), but the airports mentioned above are those that have regularly scheduled flights accessible to visitors. Refer back to **Figure 3.1** to see the airport locations on a map.

### 3.3 Traffic Flows

**Table 3.4** shows estimated daily vehicle miles traveled (VMT) and VMT per lane mile by county for all counties in the assessment area. VMT are calculated by multiplying the Average Annual Daily Traffic (AADT)<sup>46</sup> by road length in an area. VMT per lane-mile offers a useful measure of the intensity of road traffic and is strongly correlated with population density. The measure is also useful in comparing traffic density among geographical areas.

**Table 3.4 Daily Vehicle Miles Traveled**

County	Estimated VMT	VMT per Lane-Mile
Bernalillo	6,467,424	1,096
Catron	37,588	10
Cibola	466,178	108
Lincoln	228,320	70
McKinley	728,337	119
Sandoval	716,562	140
Sierra	135,976	70
Socorro	208,162	50
Torrance	279,080	78
Valencia	545,156	624

Source: US Department of Transportation (2001), HPMS Database, Calculated by UNM-BBER

As expected, traffic is much heavier in Bernalillo than in other counties in the assessment area, with about 1,000 vehicles crossing any given stretch of road per day. Valencia County also has heavy traffic, with about 624 vehicles per day crossing any given stretch of road. Contributing to

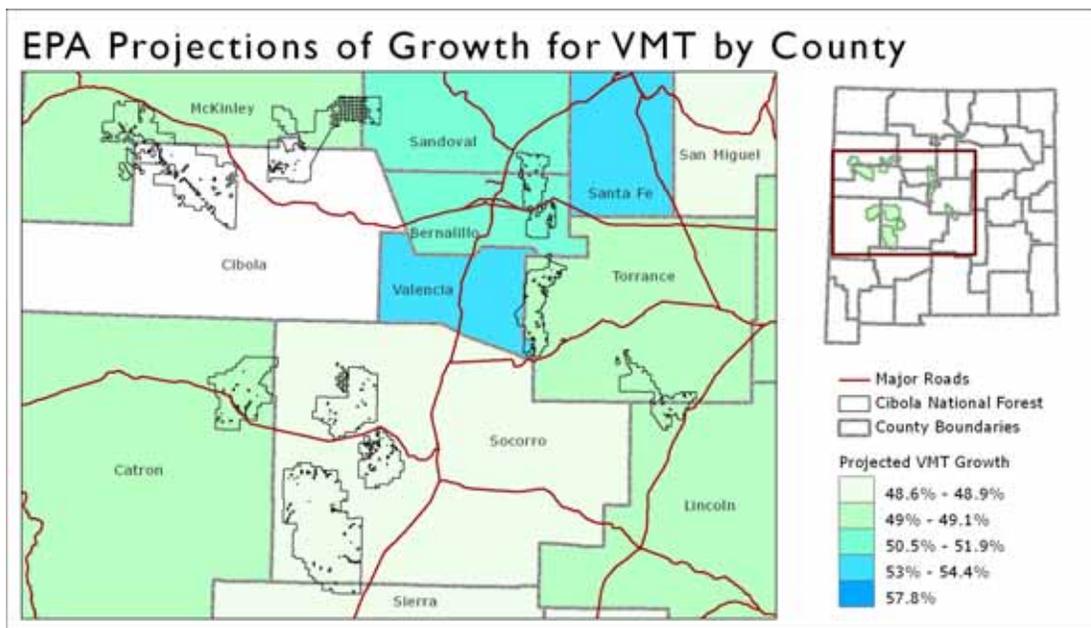
<sup>45</sup> Albuquerque International Sunport Website. <http://www.cabq.gov/airport/>.

<sup>46</sup> The Average Annual Daily Traffic (AADT) is the daily flow of motor traffic averaged out over the year, providing a useful and simple measurement of how busy a given road is.

this heavy traffic are the many Valencia County residents who commute to and from Albuquerque.

Socorro County has relatively light traffic considering I-25 runs right through the county. Mountainair and Torrance Counties are the furthest away from the two major interstates in New Mexico, and are served mostly by less traveled highways and local roads.

The Environmental Protection Agency (EPA) estimates VMT growth factors using population projections for each county. **Figure 3.2** shows how traffic flows are expected to increase in the state's urban areas and in the areas near the Cibola NF between 2007 and 2030.<sup>47</sup> Growth rates are estimated to be moderately high in Bernalillo and Sandoval Counties. The Sandia RD is located in Bernalillo County, while Sandoval contains much of the Santa Fe NF. Torrance County is projected to have less growth in traffic than Bernalillo. Growth is also expected to be less dramatic in Socorro County, even though U.S. Highway 60, which is often used by travelers going between New Mexico and Arizona, meets I-25 in Socorro.



**Figure 3.2 EPA Projections VMT Growth Through 2030**

### 3.4 Capital Outlays and Transportation Infrastructure Improvements

As part of Governor Richardson's Investment Program (GRIP), monies have been programmed for transportation infrastructure improvements throughout New Mexico. Many of the projects are along Interstate 40, which is a major access route for both the Mt. Taylor and Sandia Ranger Districts. An exhaustive list of the projects can be found in the **Appendix Table A.2**. Below is a list and brief description of the major GRIP projects around the Cibola NF<sup>48</sup>.

<sup>47</sup> U.S. Environmental Protection Agency. (2000, March 24). VMT Growth Factors by County: New Mexico. <http://www.epa.gov/ttn/naaqs/ozone/areas/vmt/vmtmgf.htm>.

<sup>48</sup> Information and descriptions obtained from the NMDOT Strategic Plan 2004-2005

***I-40 West of Gallup (4 miles) and I-40 Thoreau East (4 miles).*** The improvements will reconstruct east and west bound lanes with sub-grades designed to withstand heavy traffic. The original roadway was constructed on a clay sub-grade, not intended to maintain 56% heavy truck traffic (10,000 to 15,000 trucks daily).

***I-40 Between Carlisle and Juan Tabo, in Albuquerque.*** This major undertaking will replace six miles of deteriorating road that is 15 to 20 years beyond its design life.

***I-40 at Moriarty in Torrance County.*** This section serves truck traffic as well as daily commuters through Moriarty. The aim of the project is to reconstruct the road and add drainage and guardrail improvements.

***US Route 54 Tularosa to Vaughn.*** This 120-mile stretch of road is part of a highway that connects Alamogordo to Santa Rosa. This portion of Route 54 passes immediately west of the Lincoln NF and runs along the southeastern edge of the Mountainair RD. The construction will include resurfacing, restoration and rehabilitation of the roadway.

***US Route 54 Vaughn to Santa Rosa.*** This 38-mile stretch of road between Vaughn and Santa Rosa allows westbound travelers from I-40 a more immediate access to Mountainair RD.

***Rail Runner.*** The Rail Runner is a new commuter rail project running between Belen, Albuquerque, and Bernalillo to ease traffic congestion and offer a commuter alternative. Its service will be extended to Santa Fe in mid-2008.

The GRIP program illustrates the state's investment to improve and expand the traffic capacity of I-40 near population centers like Albuquerque and Gallup. These improvements could result in more people accessing the forests, especially in the Sandia and Mt. Taylor RDs.

### 3.5 Forest Roads and Trails

Forest roads provide access for both forest users and FS officials and staff to areas within the Cibola NF. Access to the forest becomes critical in the event of a forest fire or other catastrophic event.

The Cibola NF features about 5,257 miles of roadways on forest-managed land.<sup>49</sup> About 78 percent of the total road miles are covered with "native materials," meaning a dirt road in most cases.<sup>50</sup> The next most common road treatment (165 miles) is crushed aggregate, which is composed of mostly gravel or other screened materials. Less than one percent of the roads are paved with asphalt. **Table 3.5** breaks down road types by ranger district. Magdalena RD clearly has the most forest road miles, probably due to its size of area in comparison to the other districts.

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<sup>49</sup> Estimates of forest roads are based on data provided in the INFRA database. Any estimation errors inherent in the data (such as missing records) are not accounted for in this report. Duplicates were removed. This data includes all roads, including decommissioned roads.

<sup>50</sup> USDA Forest Service INFRA Data Dictionary.

**Table 3.5 Lengths of Forest Roads and Road Types in Cibola National Forest**

Surface Type	Segment Length Miles	Surface Type	Segment Length Miles	Surface Type	Segment Length Miles
<b>District Not Identified</b>		<b>Mt Taylor</b>		<b>Magdalena</b>	
Unidentified Type	1	Unidentified Type	273	Unidentified Type	1
Asphalt	2	Asphalt	0	Asphalt	5
Crushed Aggregate	52	Crushed Aggregate	81	Crushed Aggregate	0
Bituminous Surface	28	Bituminous Surface	4	Bituminous Surface	0
Improved Native	17	Improved Native	14	Improved Native	8
Native Material	140	Native Material	1,420	Native Material	1,813
Other	16	Other	0	Other	0
Paved	473	Paved	0	Paved	0
<b>TOTAL</b>	<b>729</b>	<b>TOTAL</b>	<b>1,792</b>	<b>TOTAL</b>	<b>1,827</b>
<b>Mountainair</b>		<b>Sandia</b>		<b>Total Cibola Districts</b>	
Unidentified Type	64	Unidentified Type	18	Unidentified Type	357
Asphalt	0	Asphalt	0	Asphalt	7
Crushed Aggregate	25	Crushed Aggregate	7	Crushed Aggregate	165
Bituminous Surface	1	Bituminous Surface	9	Bituminous Surface	42
Improved Native	47	Improved Native	1	Improved Native	87
Native Material	618	Native Material	119	Native Material	4,110
Other	0	Other	0	Other	16
Paved	0	Paved	0	Paved	473
<b>TOTAL</b>	<b>755</b>	<b>TOTAL</b>	<b>154</b>	<b>TOTAL</b>	<b>5,257</b>

Source: USDA Forest Service Infra Roads Database. Calculations done by UNM-BBER.

The FS maintains designated areas of forest wilderness as roadless areas - areas where roads cannot be constructed or reconstructed. See discussion in Chapter 6, "Special Areas."

The National Forest road and building infrastructure management systems (INFRA) database defines a trail as "a linear feature constructed for the purpose of allowing the free movement of people, stock or OHVs."<sup>51</sup> Cibola NF features nearly 300 developed trails, totaling almost 700 miles.<sup>52</sup> **Table 3.6** provides information on the linear miles and the number of forest trails in each ranger district. Magdalena RD and Mountainair RD each have high numbers of trail miles, but each has a very small number of actual trails. Sandia RD has the highest number of trail-miles (345), accounting for more than half of all trail miles in the Cibola NF. Sandia RD is the smallest district in area, but has the most visitors and developed recreational sites. A complete list of all trails in the Cibola NF is provided in the **Appendix Table A.3**.

<sup>51</sup> USDA Forest Service (2003, June). Official Trail Designations. USDA FS Website. <http://www.fs.fed.us/r3/measures/Inventory/Trails.htm>.

<sup>52</sup> Estimates of forest trails are based on data provided in the INFRA database. Any estimation errors inherent in the data (such as missing records) are not accounted in this report. Duplicates were also removed.

**Table 3.6 Trail Types and Lengths in the Cibola National Forest<sup>53</sup>**

Trail Type	Segment Length (Miles)	Trail Type	Segment Length (Miles)
<b>District Not Identified</b>		<b>Mt Taylor</b>	
Snow Trail	0	Snow Trail	4
Standard/Terra Trail	5	Standard/Terra Trail	17
<b>TOTAL</b>	<b>5</b>	<b>TOTAL</b>	<b>21</b>
<b>Mountainair</b>		<b>Sandia</b>	
Snow Trail	0	Snow Trail	55
Standard/Terra Trail	104	Standard/Terra Trail	290
<b>TOTAL</b>	<b>104</b>	<b>TOTAL</b>	<b>345</b>
<b>Magdalena</b>		<b>Total Cibola Districts</b>	
Snow Trail	0	Snow Trail	55
Standard/Terra Trail	189	Standard/Terra Trail	583
<b>TOTAL</b>	<b>189</b>	<b>TOTAL</b>	<b>638</b>

Source: USDA Forest Service Infra Trails Database. Calculations done by UNM-BBER.

One issue regarding roads and trails relates to the access. Private property owners within or along the boundary of the forest may decide to put up a fence, lock a gate, and/or post no trespassing signs to curtail public access through their property.<sup>54</sup> Securing a permanent public right of way may be time-consuming and expensive.

The roads and trails catalogued above do not include all the roads and trails that have been created in the forest by people taking their motorized vehicles, including off-highway vehicles (OHVs) “off road”. In part to address the problem of OHVs, the National Forest Service has promulgated a new management directive, the Travel Management Rule, requiring each of the NF’s to designate those roads, trails, and areas that are open to motor vehicle use.<sup>55</sup> (See discussion in the next section.)

### 3.6 Off-Highway Vehicles and the Travel Management Rule

One of the most heated multiple-use debates is over the use of OHVs. The FS acknowledges that unmanaged recreation, primarily OHV use, is one of the four largest threats facing the National Forest System. According to the National Forest Service, OHV ownership has grown from 5 million in 1972 to 36 million in 2002.<sup>56</sup> On November 2, 2005, the FS announced its Travel

<sup>53</sup> Definitions of Trails as outlined in “USFS Trail Planning and Management Fundamentals”:

Standard/Terra Trail: The predominant foundation of the trail is ground (as opposed to snow or water); and that is designed and managed to accommodate ground-based trail use.

Snow Trail: The predominant foundation of the trail is snow (as opposed to ground or water); and that is designed and managed to accommodate snow-based trail use.

<sup>54</sup> This happened, for example, when the private owners decided to deny public access via the road to the Canyoncito picnic ground and trail heads in the Sandia RD. Incident as recounted by BBER Director Lee Reynis.

<sup>55</sup> USDA FS. (2005, November 9). *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>.

<sup>56</sup> Jeffers, A., (2006). *Four Threats to the Health of the Nation’s Forests and Grasslands*, USDA FS Website: Four Threats. <http://www.fs.fed.us/projects/four-threats/>.

Management Rule on OHV use in National Forests and Grasslands.<sup>57</sup> New guidelines provide different strategies to deal with the growing consequences of OHV use in the forests. The new rules went into effect on December 9, 2005.<sup>58</sup> Overall, these policy revisions call for the re-designation of trails and routes, including creating designated route maps to show which trails are designated for different types of uses.

Responses to the legislation, however, are mixed. OHV advocates, such as the Southwest Four Wheel Drive Association, believe the regulations leave too many unanswered questions about OHV use.

*Our major concerns ... include failure to provide a time period for which emergency closures can be effective; confusion over the use of the term OHV, 4-wheel drive vehicle, and SUV; lack of clarity that a "trail" can be used for 4-wheel drives and other vehicles over 50" in width; lack of clarity that non-street legal vehicles may be used on "roads" where appropriate; and lack of certainty that the agency will conduct a robust route inventory.*<sup>59</sup>

Aside from recreational vehicle users, ranchers are concerned the rules do not go far enough in limiting the use of recreational vehicles. Adams and Russell-Adams described the concerns of ranchers who graze livestock.<sup>60</sup> The ranchers wanted stricter limits on OHV use, including use permits, speed limits and enforcement of rules. They were concerned that remapping is not enough to curtail what they see as dangerous behavior. OHVs have practical uses, and many ranchers use them in their own work. Local residents, however, perceive non-resident OHV users as a problem and want to promote "responsible use."<sup>61</sup>

In another study by Adams and Russell-Adams, representatives from New Mexico's indigenous populations raised other concerns about OHV use.<sup>62</sup> Native American representatives said they felt left out of the decision-making process on OHV use. They perceived the FS as opening and creating trails that would increase access to lands adjacent to tribal lands and to sacred areas within the forest. They claim "first-among equals" as a right to "more authority" in guiding the decision-making process.<sup>63</sup>

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<sup>57</sup> USDA FS. (2005, November 2). "USDA Forest Service Releases Final Rule for Motorized Recreation in National Forests & Grasslands," US Forest Service Press Release.

<http://www.fs.fed.us/news/2005/releases/11/travel-management.shtml>.

<sup>58</sup>USDA 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>.

<sup>59</sup> Southwest Four Wheel Drive Association. (2004). Land Use Issues. SFWDA Website. <http://www.swfwda.org/index.php?des=landuseinfo>.

<sup>60</sup> 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, p. 27.

<sup>61</sup> Ibid.

<sup>62</sup> Russell, J. C., & Adams-Russell, P. A. (2005b). *Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 11, 2005, p. 24, 41.

<sup>63</sup> Ibid., p. 21.

Environmental groups have posed the strongest opposition saying that the new maps legitimize user-created trails.<sup>64</sup> In a 2004 article in the *Albuquerque Journal*, an environmental activist is quoted “it’s a great first step ... what needs to come with it is some ... enforcement capability.”<sup>65</sup>

The same article reports on OHV use within the Sandia RD.

*"There is an influx in motor vehicles in the forest and on trails. They are fast, loud, and go wherever they please," said Elaine Morrell, volunteer trails coordinator for Bernalillo County Parks and Recreation. "I know a lot of equine people who won't even ride in the Cedro Peak area anymore because they are too scared of potential accidents with these people."*<sup>66</sup>

The president of a local mountain biking group said many of the existing single-track trails in the Sandias and Manzanos Mountains were built and maintained by motorized two-wheelers, but it is the four-wheelers that end up ruining the single-track trails. The majority of the discussion group was agreeable with OHV users riding where they are legally allowed to ride or having their own designated area, but signs spelling out rules and regulations are lacking, according to Morrell.<sup>67</sup>

Since legislation was finalized so recently, all interested parties are waiting to see the results before issuing formal statements on the new laws. OHV remains a volatile debate among users in the National Forest.

### 3.7 Opportunities, Risks, and Special Circumstances

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. 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. Capital outlays for infrastructure improvements along I-40 will invite more traffic as some roads are being expanded from 2 lanes to 4 lanes. This could translate to more forest visitors. 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 one lives in an adjacent community.

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<sup>64</sup> Associated Press. “Forest Service to corral off-road vehicles: Regulation aims to stop proliferation of illegal trails by motor enthusiasts”. MSNBC, November 3, 2005. Washington. <http://www.msnbc.msn.com/id/9899401>.

<sup>65</sup> Soussan, T. “U.S. Plans To Limit Off-Highway Vehicles,” September 9, 2004, *Albuquerque Journal*, Main Section.

<sup>66</sup> Ibid.

<sup>67</sup> Ibid.

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Cibola NF will be most impacted by growth in population and associated traffic in Bernalillo, Sandoval and Valencia Counties. The greatest impact is likely to be on Sandia RD, already the busiest area in the Cibola NF.

New housing development in areas adjacent to FS lands may affect access to the forest. 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.<sup>68</sup> Some landowners have blocked access to the forest with locked gates and “No Trespassing” signs to protect their privacy and 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 Tijeras Canyon of the Sandia RD. Private groups such as the Trust for Public Land may also be willing to partner in helping to preserve access.<sup>69</sup>

Finally, there is the new Travel Management Rule, requiring 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 reducing potential damage to the forest, as well as limiting the conflicts with other users. The FS could set aside areas specifically for OHV use, but it is important to note that OHVs are not only used for recreation purposes but have considerable utility in ranching, enabling one to access quickly problem areas and substituting for horses in a range of tasks, including hauling materials. OHV’s can also have utility in forest uses such as collecting firewood and hunting.

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<sup>68</sup> 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.

<sup>69</sup> 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.”  
[http://www.tpl.org/tier2\\_kad.cfm?folder\\_id=805](http://www.tpl.org/tier2_kad.cfm?folder_id=805).

## 4 Land Cover, Ownership and Forest Health

This chapter examines the land cover types and related land ownership and use patterns in the Cibola NF, and discusses threats both to the health of the forest and to the specific plants and animals that live therein. The first section examines land cover and ownership in each of the ranger districts. The second section discusses recent land exchanges and the policy environment around future conveyances. The third section takes up the issue of forest health, discussing major developments threaten forest health.

### 4.1 Land Cover on Cibola National Forest

Data on land cover are derived from the United States Geological Survey National Land Coverage Data set (NLCD), raster based Landsat imagery. The data were obtained for each county with a 30-meter resolution. The ESRI ArcInfo Geographic Information Systems (GIS) software was used to extract the necessary data for each contextual geographic area.

**Table 4.1** below provides land cover classifications for each ranger district based on data compiled in the NLCD.<sup>29</sup> (The landcover definitions used are summarized in Appendix 4.) Table 4.1 covers the gross Cibola NF acreage, and therefore includes both FS administrated acreage and other acreage.<sup>30</sup>

For the most part, the four ranger districts have little variety in the types of land cover. About 60 percent of the Cibola NF is evergreen forest, encompassing 1,254,520 acres. Shrubland and herbaceous grasslands make up most of the remaining 40 percent. Over half of the forest's shrubland (293,843 acres) is in the Magdalena Ranger District. Herbaceous grassland covers 233,889 acres in the Magdalena RD, accounting for 58.9 percent of the Cibola NF's total herbaceous grassland, while 31.5 percent is in the Mountainair RD. These three land cover types make up almost 99 percent of the forest. **Figure 4.1** is a map of the different types of land cover in the Cibola NF.

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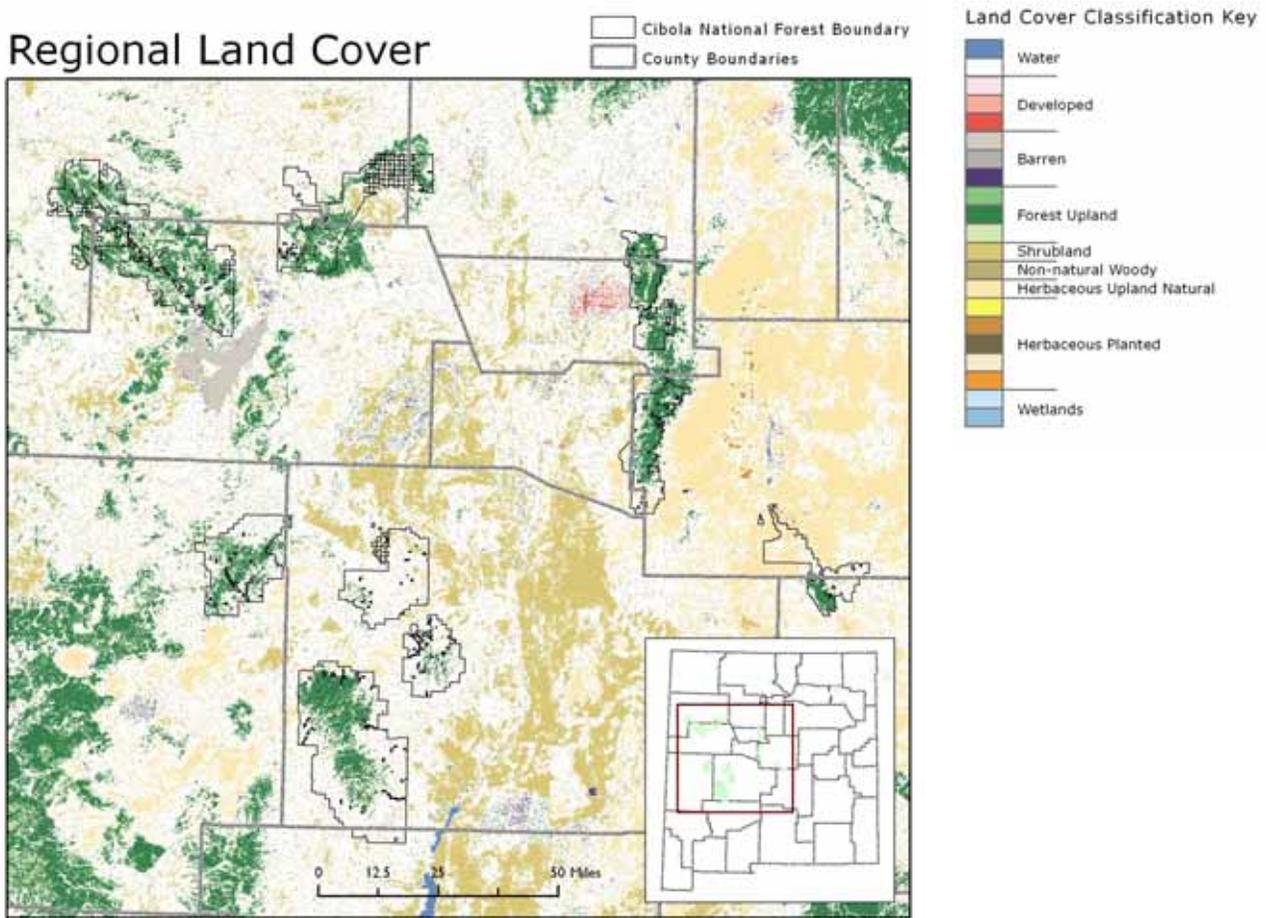
<sup>29</sup> See Appendix Table A10 for Landcover descriptions and definitions.

<sup>30</sup> See USDA FS Website [http://www.fs.fed.us/land/staff/lar/definitions\\_of\\_terms.htm](http://www.fs.fed.us/land/staff/lar/definitions_of_terms.htm) for terminology.

**Table 4.1 Land Cover on Cibola National Forest (Acres)**

	<b>Mt Taylor</b>	<b>Magdalena</b>	<b>Mountainair</b>	<b>Sandia</b>	<b>Total CNF</b>
<b>Bare Rock/Sand/Clay</b>	1,718	1,218	1	26	2,962
<b>Commercial/Industrial/Transportation</b>	24	94	-	154	272
<b>Deciduous Forest</b>	2	10	3,833	4	3,849
<b>Emergent Herbaceous Wetlands</b>	24	-	-	-	24
<b>Evergreen Forest</b>	498,957	543,957	111,592	100,108	1,254,614
<b>Fallow</b>	-	-	0	0	0
<b>Grasslands Herbaceous</b>	29,987	233,889	125,213	8,058	397,147
<b>High Intensity Residential</b>	-	-	-	-	-
<b>Low Intensity Residential</b>	3	4	-	157	164
<b>Mixed Forest</b>	7,493	4,051	-	1,654	13,198
<b>Open Water</b>	362	-	-	0	362
<b>Pasture/Hay</b>	-	-	-	-	-
<b>Quarries/Strip Mines/Gravel Pits</b>	101	31	-	382	514
<b>Row Crops</b>	-	-	469	-	-
<b>Shrubland</b>	115,589	293,843	14,094	11,098	434,624
<b>Small Grains</b>	-	-	21	-	-
<b>Urban/Recreational/Grasses</b>	0	-	-	8,058	8,058
<b>Woody Wetlands</b>	0	0	-	0	1
<b>Total</b>	<b>654,262</b>	<b>1,077,097</b>	<b>255,223</b>	<b>129,699</b>	<b>2,116,281</b>

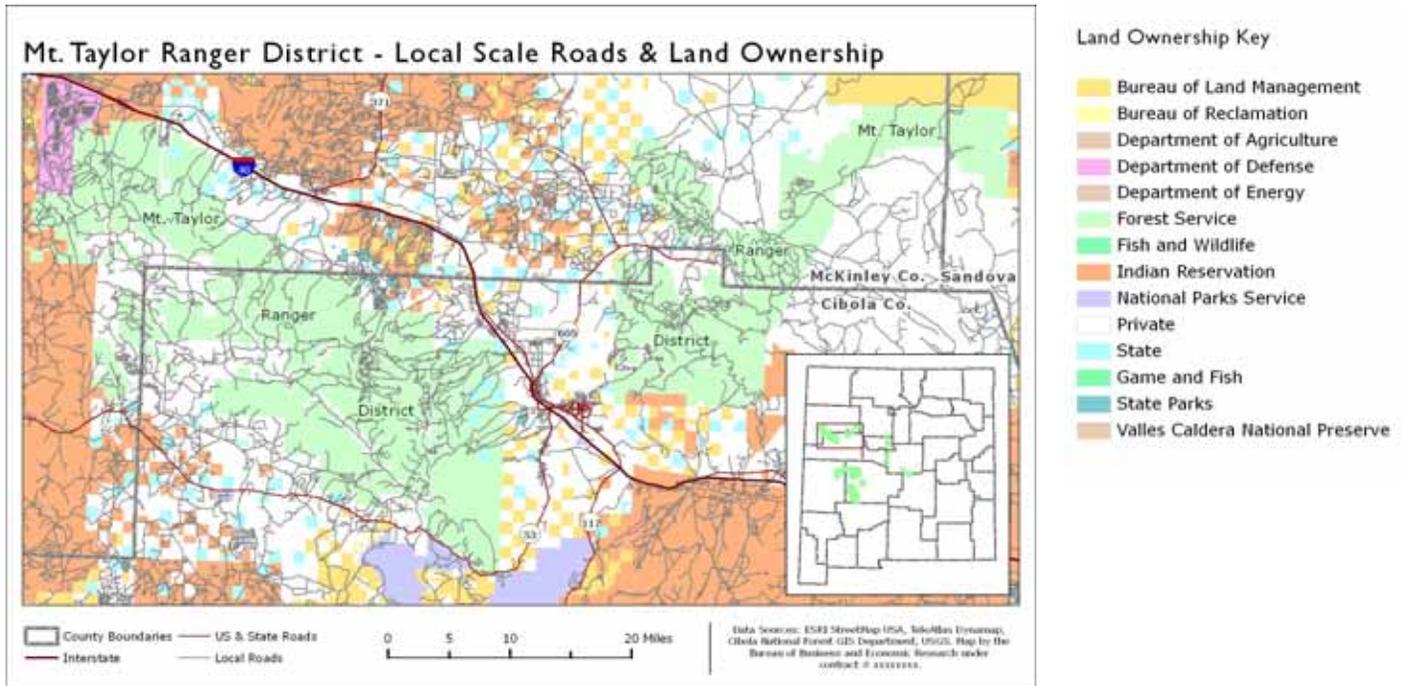
Note: Small errors in calculations are the result of 'edge rounding' associated with the use RASTER based NLCD.  
Source: USGS EROS, National Land Cover Data (NLCD), Date 1992 (New Mexico). Calculations by UNM-BBER.



**Figure 4.1 Land Cover on Cibola National Forest**

In addition to land cover, land ownership is an important consideration in land use and planning policies. There are about 497,445 acres of privately owned land within the exterior boundaries of the Cibola NF, making up about 24 percent of the entire forest. **Figures 4.2 through 4.5** illustrate the land ownership of each ranger district in great detail. **Figure 4.2** considers land ownership on the Mt. Taylor RD. Note the checkerboard pattern of land ownership between the mountain ranges, illustrating a mix of tribal, private and federal land ownership. Each land may have differing interests for the public and private land managers, causing potential land use debates. Land exchanges and conveyances are a common way to “swap” parcels of land so the NF is able to manage continuous areas rather than isolated parcels. This can be a lengthy and difficult process, as is discussed in greater detail in Section 4.2.

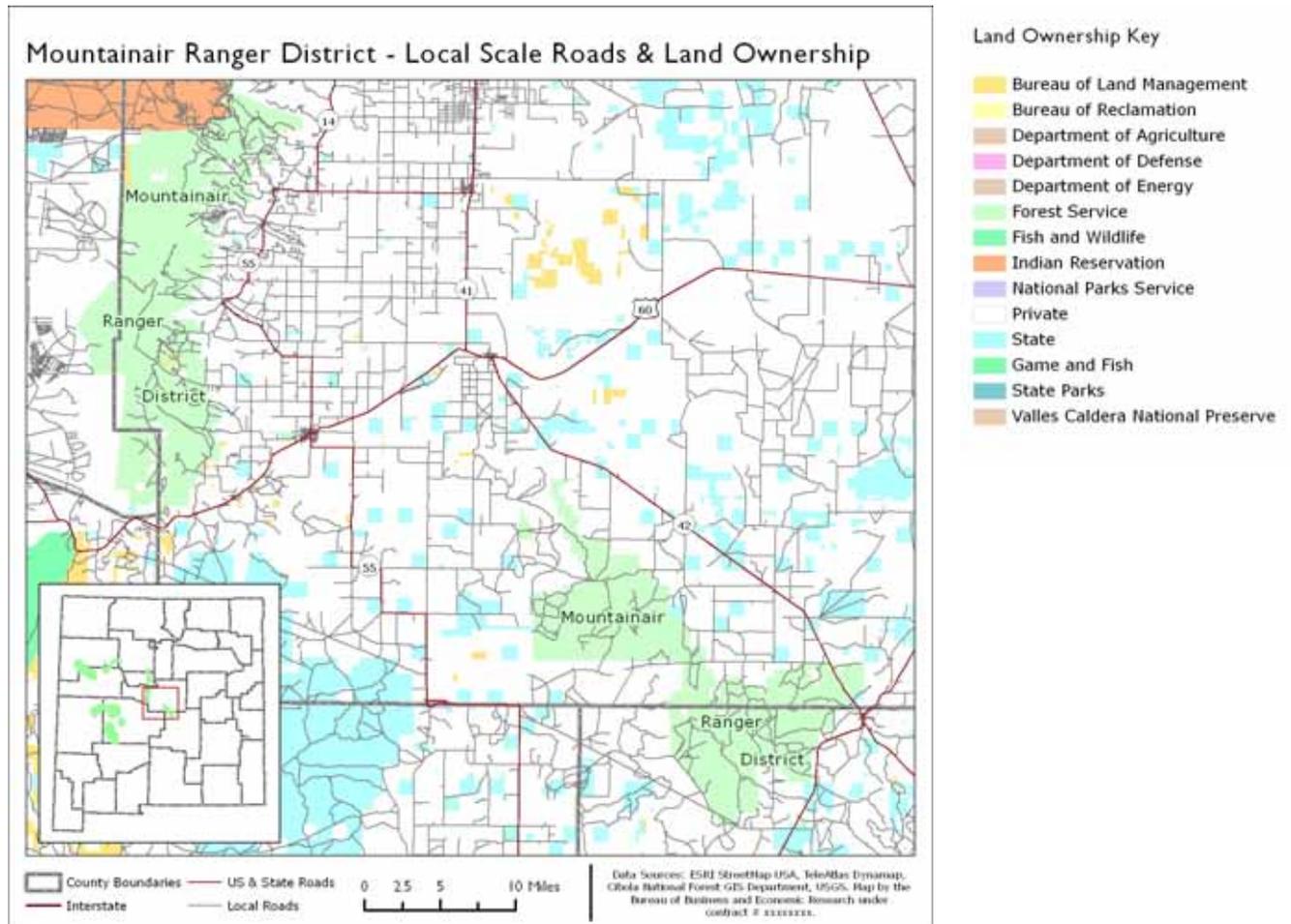
Mt. Taylor RD is three-fourths evergreen forest. The Cibola NF has 362 acres of open water, virtually all of which is contained in the Mt. Taylor RD. Mt. Taylor RD, therefore, hosts the only substantial fishing opportunities available in the Cibola NF.



**Figure 4.2 Land Ownership on Mt. Taylor Ranger District**

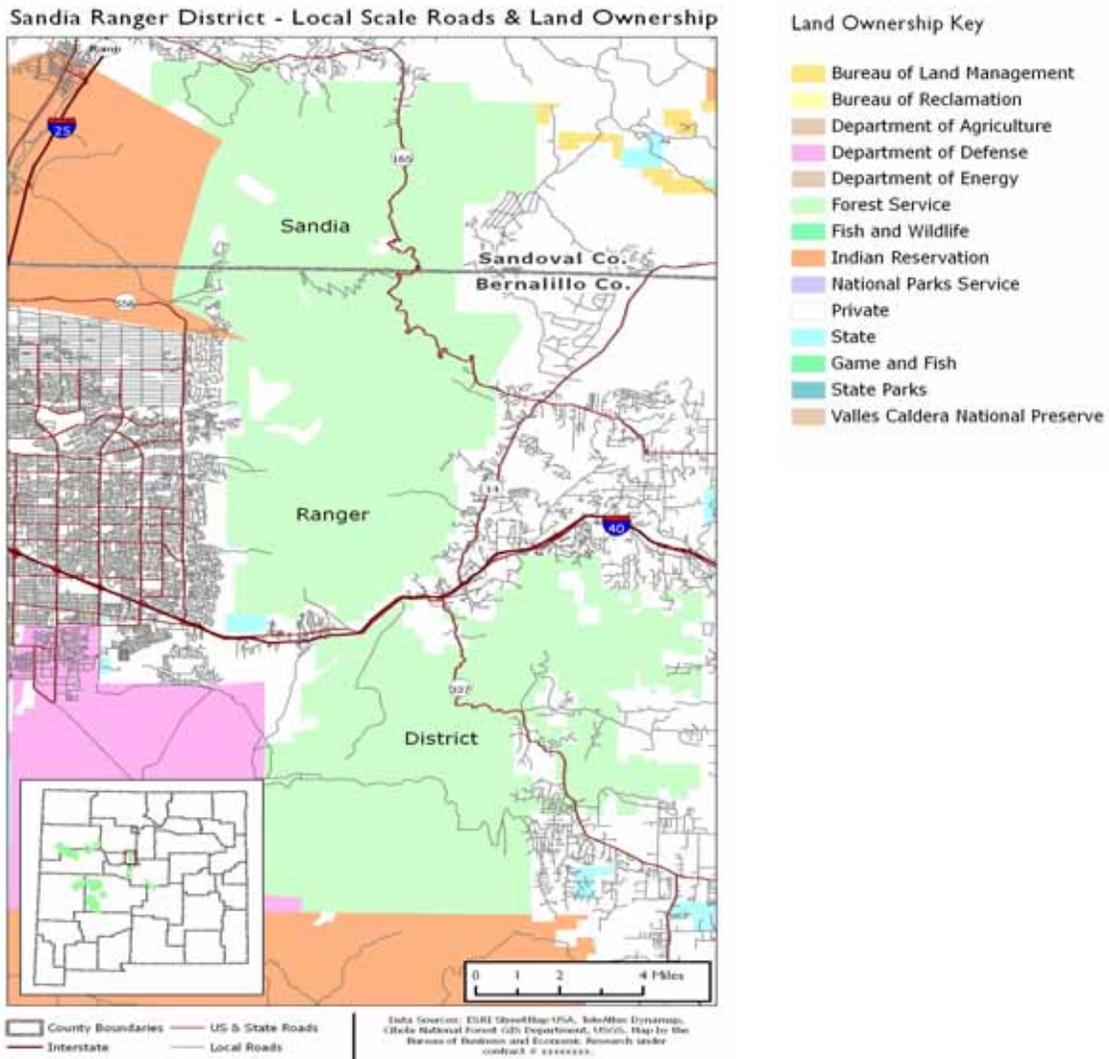
Magdalena has the largest amount of evergreen forest land coverage, as well as having substantial areas of shrubland (27.3%) and grasslands (21.7%), making the area suitable for grazing. **Figure 4.3** examines land ownership in the Magdalena RD. Sixty seven percent (293,867 acres) of the Cibola NF's shrubland is in Magdalena RD. However, private landowners own 40 percent of this shrubland. Fifty eight percent (233,904 acres) of the Cibola NF's herbaceous grasslands are in Magdalena RD and 28 percent of these are privately owned. Within the Cibola NF, Magdalena RD has the highest concentration of privately held land (27%).





**Figure 4.4 Land Ownership on Mountainair Ranger District**

The Sandia RD is the smallest ranger district with 121,656 acres, of which 82 percent is covered by evergreen forest. Figure 4.5 shows land ownership in the Sandia RD. Less than 18 percent of the land in the Sandia RD is privately owned, the smallest proportion among the districts in the Cibola NF. This district's recreation potential, its accessibility and its proximity to the largest population center in New Mexico all contribute to the Sandia RD being visited by more people than all the other ranger districts combined. Population pressure and high levels of use make this area more susceptible to forest health issues, including fire.



**Figure 4.5 Land Ownership on Sandia Ranger District**

The above tables and maps discussed land cover and ownership separately. **Table 4.2** provides data for both land cover and ownership status for each district. As previously stated, the majority of the Cibola NF is covered with evergreen forest, most of which is National Forest System land. The Magdalena RD has the highest number of evergreen forest acres under private ownership, with Mt. Taylor RD a close second.

**Table 4.2 Land Cover of Publicly and Privately Owned Land in Cibola National Forest**

	Mt Taylor			Magdalena			Mountainair			Sandia			Cibola NF TOTAL		
	FS	Private	Total	FS	Private	Total	FS	Private	Total	FS	Private	Total	FS	Private	Total
Bare Rock/Sand/Clay	1,488	224	1,712	491	725	1,215	1	-	1	21	4	25	2,002	956	2,957
Commercial/ Industrial/ Transportation	4	16	20	18	76	94	-	-	0	11	143	153	33	240	273
Deciduous Forest	-	2	2	10	-	10	3,616	218	3,834	4	-	4	3,632	219	3,852
Emergent Herbaceous Wetlands	10	14	24	-	-	0	-	-	0	-	-	0	10	14	24
Evergreen Forest	395,662	103,345	499,006	440,041	103,880	543,921	99,876	11,715	111,592	85,095	15,042	100,136	1,020,591	233,952	1,254,543
Fallow	-	-	0	-	-	0	0	-	0	-	0	0	0	0	0
Grasslands Herbaceous	23,590	6,395	29,985	168,091	65,813	233,904	90,740	34,488	125,228	4,775	3,279	8,054	287,229	109,966	397,196
High Intensity Residentl	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0
Low Intensity Residentl	0	3	3	-	4	4	-	-	0	1	156	157	2	163	165
Mixed Forest	6,190	1,306	7,496	4,019	32	4,051	-	-	0	1,643	11	1,655	11,852	1,347	13,199
Open Water	191	171	362	-	-	0	-	-	0	-	0.4	0.4	191	171	362
Pasture/Hay	-	-	0	-	-	0	-	-	0	-	-	0	-	-	0
Quarries/ Strip Mines/ Gravel Pits	26	77	103	1	30	31	-	-	0	66	316	382	93	424	517
Row Crops	-	-	0	-	-	0	78	404	482	-	-	0	73	403	476
Shrubland	86,097	29,453	115,549	178,874	114,993	293,867	11,506	2,584	14,090	8,648	2,437	11,085	285,142	149,445	434,587
Small Grains	-	-	0	-	-	0	22	-	22	-	-	0	16	-	16
Urban/ Recreational/ Grasses	-	0	0	-	-	0	-	-	0	0	3	3	0	3	3
Woody Wetlands	0	-	0	0	-	0	-	-	0	0	-	0	1	-	1
<b>Total</b>	<b>513,257</b>	<b>141,006</b>	<b>654,263</b>	<b>791,546</b>	<b>285,553</b>	<b>1,077,099</b>	<b>205,839</b>	<b>49,409</b>	<b>255,248</b>	<b>100,265</b>	<b>21,391</b>	<b>121,656</b>	<b>1,610,867</b>	<b>497,304</b>	<b>2,108,171</b>

Note: Small errors in calculations are the result of 'edge rounding' associated with the use RASTER based NLCD.  
 Source: USGS EROS, National Land Cover Data (NLCD), Date 1992 (New Mexico). Calculations by UNM-BBER.

**Table 4.3** presents the data in a manner that takes into account the role of public and private land managers in promoting particular land uses within the Cibola NF. Because the privately, or other, owned acreage within the Cibola NF boundaries is relatively small, an index is used. The index values in the table indicate what land cover type the land owners/administrators are concentrating on. If private land-owners have a disproportionately high percentage of their holdings of a particular land type in a particular district relative to the totals for the district, this suggests a greater interest in and use of this land type by private owners.<sup>31</sup> Conversely, no holdings or a disproportionately small percentage of their holdings in a particular land type suggests little or no interest.

Note the relatively high values of the index across the districts among private land owners for all land classified as “Residential”, “Commercial/Industrial/Transportation”, “Quarries, Strip Mines

**Table 4.3 Public and Private Land Use in Cibola National Forest**

	Mt Taylor		Magdalena		Mountainair		Sandia		Cibola NF Total	
	FS	Private	FS	Private	FS	Private	FS	Private	FS	Private
<b>Total (acres)</b>	<b>78%</b>	<b>22%</b>	<b>73%</b>	<b>27%</b>	<b>81%</b>	<b>19%</b>	<b>82%</b>	<b>18%</b>	<b>76%</b>	<b>24%</b>
Bare Rock/Sand/Clay	1.1	0.6	0.5	2.2	1.2	*	1.0	0.9	0.9	1.4
Commercial/Industrial/Transportation	0.3	3.7	0.3	3.0	*	*	0.1	5.3	0.2	3.7
Deciduous Forest	*	4.6	1.4	*	1.2	0.3	1.2	*	1.2	0.2
Emergent Herbaceous Wetlands	0.5	2.7	*	*	*	*	*	*	0.5	2.5
Evergreen Forest	1.0	1.0	1.1	0.7	1.1	0.5	1.0	0.9	1.1	0.8
Fallow	*	*	*	*	1.2	*	*	5.7	0.7	2.1
Grasslands Herbaceous	1.0	1.0	1.0	1.1	0.9	1.4	0.7	2.3	0.9	1.2
High Intensity Residential	*	*	*	*	*	*	*	*	*	*
Low Intensity Residential	0.2	4.0	*	3.8	*	*	0.0	5.6	0.0	4.2
Mixed Forest	1.1	0.8	1.4	0.0	*	*	1.2	0.0	1.2	0.4
Open Water	0.7	2.2	*	*	*	*	*	5.7	0.7	2.0
Pasture/Hay	*	*	*	*	*	*	*	*	*	*
Quarries/Strip Mines/Gravel Pits	0.3	3.5	0.0	3.7	*	*	0.2	4.7	0.2	3.5
Row Crops	*	*	*	*	0.2	4.3	*	*	0.2	3.6
Shrubland	0.9	1.2	0.8	1.5	1.0	0.9	0.9	1.3	0.9	1.5
Small Grains	*	*	*	*	1.2	*	*	*	1.3	*
Urban/Recreational/Grasses	*	4.6	*	*	*	*	0.1	5.3	0.1	4.0
Woody Wetlands	1.3	*	1.4	*	*	*	1.2	*	1.3	*

Source: USGS EROS, National Land Cover Data (NLCD), Date 1992 (New Mexico). Calculations by UNM-BBER.

and Gravel Pits”, and “Row Crops”. By contrast, the FS has values higher than 1 for the various forest types and woody wetlands. This suggests, along with the extensive acreage, that the land cover type on which the FS focuses its management is the vast evergreen forest and mixed forest, which today is typically used for recreational purposes. Therefore, recreation would be considered the primary land use for the Cibola NF. The Index<sub>NF</sub> values for Grasslands Herbaceous show that this land cover type, used primarily for grazing, has slightly higher values for private

<sup>31</sup> The index number is calculated in the following manner for FS administrated land within each district:

$$\text{Index}_{NF} = (\text{LC}_{FS} / \text{Total Acreage FS}) / (\text{LC Dist} / \text{Total Acreage Dist})$$

The index number for privately owned land within the NF boundaries is calculated similarly:

$$\text{Index}_{Priv} = (\text{LC}_{Priv} / \text{Total Acreage Priv}) / (\text{LC Dist} / \text{Total Acreage Dist})$$

where,

LC<sub>FS</sub> = Acreage for a given land cover type that is administrated by the FS

LC<sub>Priv</sub> = Acreage for a given land cover type that is privately or other owned

LCDist = Total acreage for a given land cover type within a Ranger District

Total Acreage FS = Total FS administrated land within a Ranger District

Total Acreage Priv = Total privately or other owned land within a Ranger District

Total Acreage Dist = Total Acreage for a given District

land than NF administered lands. Grazing occurs on both privately owned and federally managed lands. The values are close, because ranchers may have an interest in grazing on public land, as the fees are less costly than fees for grazing on private land.<sup>32</sup>

## 4.2 Land Conveyance and Exchanges

The Forest Service provided BBER with data concerning land conveyances and exchanges in the Cibola NF. Generally speaking, isolated parcels of forest land scattered around the boundaries of the forest are often costly and difficult to manage and pose significant right-of-way issues. However, these parcels can still hold leverage. FS officials have often expanded contiguous forest areas by trading isolated parcels for land more desirable to the FS on the edge of or inside FS boundaries. **Table 4.4** below lists three exchanges in the Cibola NF<sup>33</sup> over the past 17 years. The “Federal Acres” and “Federal Values” columns list the values of property that were transferred to private ownership. The “Non-Fed” columns show values of property that were conveyed to the United States government.<sup>34</sup>

Clearly, the L-Bar land exchange with Caprock Pipe and Supply is the largest and most substantial land exchange in the Cibola NF in the last 20 years. The exchange conveyed 11,319 acres of federal land to private ownership. In turn, the federal government acquired about 12,252 acres of land.<sup>35</sup> The exchange area is located in the northeast corner of the Mt. Taylor RD, approximately 30 miles northeast of Grants, New Mexico. According to the FS, the exchange consolidated forest system lands, simplified property boundaries and addressed right of way and access issues. The land exchange was initiated to address the “checkerboard” patterns of land ownership in the area. While the large transfer may seem beneficial for the forest and its management, some users argue that the exchange resulted in the loss of prime elk hunting land, and that the transfer was pushed through without public input.<sup>36</sup>

**Table 4.4 Land Conveyance and Exchanges for Cibola National Forest**

CASE NAME	FY YEAR	FED ACRES	FED \$VALUE PLUS CASH	NON-FED ACRES	NON-FED VALUE PLUS CASH
UTRUP NM NM 84101	FY91	114.9	\$396,000	791.0	\$396,000
BROWN, JAMES B. NM NM 88952	FY94	691.0	\$525,000	487.5	\$525,000
CARPROCK PIPE&SUPPLY L-BAR NM NM 103229	FY02	11,319.3	\$7,400,000	12,250.0	\$7,300,000

**US Forest Service**

<sup>32</sup> United States Government Accountability Office. (2005, September). Report to Congressional Requesters, “Livestock Grazing,” GAO-05-869. Washington, D.C. Retrieved October 2006, from <http://www.gao.gov/cgi-bin/getrpt?GAO-05-869>.

<sup>33</sup> This does not include the National Grasslands.

<sup>34</sup> USDA FS: personal communication, 21 March 2006.

<sup>35</sup> USDA FS. L-Bar “*Land Exchange is Completed.*” News Release, *Cibola News*, Cibola National Forest Website. [http://www.fs.fed.us/r3/cibola/news/01news\\_releases/lbar.htm](http://www.fs.fed.us/r3/cibola/news/01news_releases/lbar.htm).

<sup>36</sup> The Independent, Gallup.

The potential sellable land includes up to 2,930 parcels of national forests and national grasslands in 34 states. The parcels vary in size from less than one acre to a 900 acre parcel of forest in Virginia. Through this sale of small parcels, the FS hopes to raise \$800 million to turn over to rural school districts and to counties to maintain roads. This is to compensate areas that have been hurt by logging cutbacks on federal land, mostly in the state of Oregon.<sup>37, 38</sup> Critics of the plan argue that it is “a dollar of forest for a dime of education,”<sup>39</sup> implying that it is inappropriate to sell the land to address an ongoing need. According to newspaper reports, 7,447 acres in the Cibola and Lincoln National Forests are slated for sale.<sup>40</sup> The USDA FS Website shows 7,373 acres of “lands potentially eligible for sale” by the National Forest in the State of New Mexico.<sup>41</sup>

### 4.3 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.<sup>42</sup> 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, other forest users became concerned with the resulting overgrowth and fire danger.

At the national level, the USDA FS has indicated four areas of major concern that are overarching issues for all NF lands. Presented as the “Four Threats,” these areas are: fire and fuels, invasive species, loss of open space, and unmanaged recreation. Growing populations and increased use adds to the difficulty of reducing these threats on public lands. All of these critical management issues are relevant to the Cibola NF, and some are discussed in more detail in other chapters. The specific threats and possible impacts in the Cibola NF are briefly described below.

#### 4.3.1 Fire and Fuels

Much of the West has been under drought conditions for the past several years. Continued drought conditions in addition to high fuel loadings have created dangerously potential fire conditions for much of the West.<sup>43</sup> Some 26 million acres in the West have been identified as fuels treatment “hot spots” or high priority areas. Many of these areas are classified as FRCC3, “significantly altered from the normal range.” These are areas that have missed multiple periodic cleansing fires. FRCC3 areas where there is a high risk of large and destructive fires that can be dangerous and difficult to control.

<sup>37</sup> USDA FS. (2006). Spotlight: President's FY 2007 Budget Proposal for the Forest Service – “Secure Rural Schools and Community Self-Determination Act Extension.” <http://www.fs.fed.us/>.

<sup>38</sup> Bismarck Tribune Staff. (2006, February 24). *The Bismarck Tribune*. Bismarck, North Dakota.

<sup>39</sup> Sam Hananela. “Missouri Legislators Line Up in Opposition to Sale of Mark Twain Forest Lands,” March 19, 2006. *The Associated Press*.

<sup>40</sup> Includes Kiowa National Grasslands.

<sup>41</sup> USDA FS Website. (2006) *Lands and Realty Management*.

<http://www.fs.fed.us/land/staff/spd.html#Newmexico>.

<sup>42</sup> *Ibid.*

<sup>43</sup> USDA FS. (2004, June). *Fire and fuels*. <http://www.fs.fed.us/projects/four-threats/documents/firefuels-fs.pdf>.

Uncontrolled fires can result in substantial environmental and economic impacts. Wildfire devastation impacts lives, property, wildlife habitat, fragile ecosystems, water, and soils, and timber resources.<sup>44</sup> Fires and the corresponding reduction of tree cover can result in deterioration of fresh water supplies and collateral damage because of increased runoff, increased flooding, and aquifer depletion.<sup>45</sup>

Of the 21 million acres of National Forest lands in the Southwestern Region, more than 80 percent is at moderate to high risk of “uncharacteristic” wildfire. These fires are larger and more intense than naturally occurring wildfires. They can alter soils, reducing their ability to retain moisture, accelerate erosion, and compromise water quality. Further, wildlife habitats and the forests’ aesthetic quality are damaged. Prevention strategies are not inexpensive and are not always well received by the public. An article in the Albuquerque Journal in September 2005 describes a scaling back of a thinning project because of community resistance.<sup>46</sup> However, others are concerned with the heavy undergrowth and dry brush which are major fuels.

Treatments to reduce fuels and restore ecosystems involve various techniques, including thinning, prescribed burning, and clearing the forest of debris. Treatments can be biological, mechanical, or chemical.<sup>47</sup> Costs for treatment in 2004 were roughly \$120 per acre although estimates of costs using mechanical means are cited in a range of \$500 to \$1,000 per acre (USDA FS, 2003). Nevertheless, the costs of responding to and controlling a fire can be hefty as well. In May of 2004, the Albuquerque Journal reported that the Lookout Fire in the Sandia and Mountainair Ranger Districts had burned 5,100 acres, required 565 firefighters and personnel, three helicopters, eleven fire engines, and four bulldozers. The total cost was estimated at just over \$1 million.<sup>48</sup>

One major complicating factor related to fire management in the Cibola NF has been the increased number of people living at the forest’s edges – the wildland-urban interface (WUI). Many urban subdivisions are being situated closer and closer to forested areas for their aesthetic and economic values. Extensive residential development expands the set of concerns for FS officials confronting the prospect of an early and intense fire season. In late February 2006, Cibola NF officials issued fire restrictions for all ranger districts. Fire restrictions are not usually issued until much later in the year. A record-breaking dry winter resulted in forest officials planning for forest fires and implementing extensive fire restrictions on forest lands.<sup>49</sup> There was concern entering the 2006 fire season, as the Cibola NF’s “energy release components” level had reached the same level as the May 2000 level when the Cerro Grande fire occurred.

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<sup>44</sup> USDA FS. (2006, October). *Fire and fuels: Quick facts*. USDA FS Website: Four Threats. <http://www.fs.fed.us/projects/four-threats/facts/fire-fuels.shtml>.

<sup>45</sup> Sedell, J., Sharpe, M., Apple, D. D., Copenhagen, M., & Furniss, M. (2000, January). “Water and the forest service.” USDA FS Document FS-660. <http://www.fs.fed.us/publications/policy-analysis/water.pdf>.

<sup>46</sup> Journal Staff. “Cibola Forest Trims Thinning Project Near Tajique,” September 15, 2005. *Albuquerque Journal*.

<sup>47</sup> USDA FS. (2003). Position paper: *Fire and fuels build up*. <http://www.fs.fed.us/publications/policy-analysis/fire-and-fuels-position-paper.pdf>.

<sup>48</sup> Telegraph Staff. “\$5,000 Reward Offered In Lookout Fire,” May 27, 2004. *Albuquerque Journal*.

<sup>49</sup> Mygatt, M. “Dry Winter Landscape Prompts New Mexicans to Brace for Grim Fire Season,” March 8, 2006. *Associated Press*.

### 4.3.2 Invasive Species and Insects

Invasive species have been characterized as a “catastrophic wildfire in slow motion.”<sup>50</sup> Non-native, invasive plants and insects can cause major disruptions in ecosystem function. Invasive species can reduce biodiversity and degrade ecosystem health in forest areas. The damage caused by invasive organisms affect the health of not only the forests and rangelands but also of wildlife, livestock, fish, and humans.<sup>51</sup>

Invasive plant life, such as bull thistle, bindweed and salt cedar, is a concern complicating forest management all over New Mexico. However, some forest managers have come under heated criticism for the use of herbicides to kill these noxious weeds.<sup>52</sup> Critics argue that herbicides pose risks to fragile aquatic life and sensitive wildlife pollinators, such as butterflies.

Salt cedar (tamarisk) is a tree that grows along rivers and streams, absorbing and transpiring large amounts of water making it an invasive species that greatly impacts watersheds and riparian systems. FS personnel mechanically remove the tamarisk in sensitive areas or where infestations are small. However, mechanical removal is considered unpractical for infested areas with many miles of stream or covering hundreds of acres. Unfortunately, the use of herbicides over large areas means more herbicides in the watershed. Tribal and pueblo peoples have also expressed concern over the use of herbicides that can make their way onto their lands.<sup>53</sup>

The fire danger in the Cibola NF is often times intrinsically linked to the bark beetle. Forests are at risk of beetle infestations due to recent drought conditions in the area.<sup>54</sup> Bark beetles infest piñon and other pine varieties distressed from already existing drought conditions. The result is rapid mortality of large stands of trees, resulting in higher fuel levels. The beetles typically have a two-year life cycle and regulate their own population. However, they can cause extensive damage to forests. Traditional wisdom dictates “once you see the beetles, it’s already too late.”

### 4.3.3 Loss of Open Space and Pristine Areas

Forest areas located at the edges of growing towns and cities, or in prime recreation areas popular for second-home development are the most at-risk of losing open space. Increases in housing density and associated development (such as power lines, septic and sewer systems, and shopping centers) can result in changes in wildlife habitats, changes in forest health, reduced opportunities for outdoor recreation and greater loss of life and property to wildfire. The development of private lands in and surrounding the Cibola NF can result in a decrease in open space. In the Sandia RD houses are being built closer to the base of the mountains and access to trails and forest lands may be limited. Also at risk are the traditional uses of forest land as newcomers have different interests in the land as compared to local residents who depend on the land for their livelihood.

<sup>50</sup> Fred Norbury, Assoc. Deputy Chief, FS. (2005). Statement before the Subcommittee on Public Lands and Forests, Committee on Energy and Natural Resources. [http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing\\_ID=1500&Witness\\_ID=4269](http://energy.senate.gov/public/index.cfm?FuseAction=Hearings.Testimony&Hearing_ID=1500&Witness_ID=4269).

<sup>51</sup> USDA FS. (2006, March 24). Invasive Species Program. USDA FS Website. <http://www.fs.fed.us/invasivespecies/definition.shtml>.

<sup>52</sup> Berdie, J. Letter to Editor, January 14, 2006. *Santa Fe New Mexican*.

<sup>53</sup> Russell, J. C., & Adams-Russell, P. A. (2005). *Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People* (Issue Brief). Placerville, CA: Adams-Russell Consulting.

<sup>54</sup> Sharpe, T. “Preparing for the worst,” February 21, 2006. *The Santa Fe New Mexican*.

Road construction in wilderness areas is a potential threat to pristine forest areas. The debate over the preservation of inventoried roadless areas (IRAs) and the wilderness areas represents active and current struggles over the conservation of pristine areas. Community and activist groups advocate for the preservation of “pristine” forest areas that are not permanently altered by human interference. Other stakeholders argue that roads are needed to provide access for resource extraction as well as for fire prevention and control.

#### **4.3.4 Unmanaged Recreation**

Off-highway vehicle (OHV) use is the primary form of unmanaged recreation in the Cibola NF. The growing use of OHVs has major implications for forest planning and management. The effects of OHV use include miles of unplanned trails and roads, erosion, recreational use conflicts, spread of invasive species, damage to cultural resources and historical sites, disturbance to wildlife, destruction of habitats, and risk to public safety.

As discussed in Chapter 2, the FS implemented the Travel Management Rule for OHV use in National Forests and Grasslands which went into effect in December of 2005.<sup>55</sup> New guidelines provide re-designation of trails and routes for different types of uses. Response to the plan has been mixed, and it has been suggested that there may be a need for more clarity in the designations.

### **4.4 Opportunities, Risks, and Special Circumstances**

The majority of the Cibola NF is covered with evergreen forests, and maintaining the health of those forests is a major consideration. Forests users and forest planners have been concerned with the overstocked forest conditions. Some areas of federal land were once open and park-like, supporting between 5 and 15 trees per acre.<sup>56</sup> Today, these areas are straining under 150 trees per acre, which is described by some as “choking to death.”<sup>57</sup> Some forest users perceive the need for logging, or at least forest thinning to promote forest health and economic development.<sup>58</sup> This was most clear in a focus group of Sandia RD land users who identified the most prominent issue regarding forest vegetation and timber is the perception of too many trees per acre, resulting in increased fire danger.<sup>59</sup> Some participants suggested that traditional activities such as wood gathering and grazing can help control fire danger. While not all users would agree on the effect of traditional uses on fire danger, it is clear that users are concerned with the seemingly intense density of trees. The fire danger is especially of concern in the Sandia RD, where over 100,000 acres of evergreen forest are very close to major population centers. The risks just described also provide an opportunity: the concerns that diverse populations in the assessment communities have about the fire hazard and generally about the health and continued vitality of the forest

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<sup>55</sup> USDA FS. (2005). “USDA Forest Service Releases Final Rule for Motorized Recreations in National Forests & Grasslands.” FS Press Release. <http://www.fs.fed.us/news/2005/releases/11/travel-management.shtml>.

<sup>56</sup> Southern Regional Water Program, A Partnership of USDA Cooperative State Research, Education, and Extension Service (CSEERS) & Land Grant Colleges and Universities. *Environmental Restoration in New Mexico*. <http://srwqis.tamu.edu/states/newmexico/environment.aspx>.

<sup>57</sup> Oversight Field Hearing before the Subcommittee of Resources, 108<sup>th</sup> Congress, December 15, 2003.

<sup>58</sup> 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. 30-31.

<sup>59</sup> *Ibid.*, p. 24.

provide a common ground and a basis for bringing diverse groups together in the search for workable solutions.

The mountain systems of the Cibola NF are assets to the surrounding communities with potential in stimulating economic development. Thus, for example, residents in the communities near the Magdalena RD identified their forest vistas and landscapes as an asset in making the area into more of a travel “destination.” The Torrance County Comprehensive Land Use Plan specifically promotes more partnerships with the FS to work on projects to increase access and improve trails. Projects to remove brush and small diameter trees reduce the fire hazard and also have the potential of spawning new forest product industries.

The checkerboard pattern of land ownership continues to present challenges to FS management, including right-of-way and access issues. Land exchanges, such as the L-Bar exchange, help to address these issues, but it is important to consider public reactions, especially when grazing and recreational interests are involved. Recreation is the primary use and principal economic activity of the Cibola NF, and grazing is the next most significant land use and economic activity.<sup>60</sup> A federal program to sell the scattered plots of land and give the revenues to rural public schools and to counties for road maintenance has been controversial. Among the various questions raised by the sell-off is the appropriateness of using one time revenues to meet ongoing needs. As mentioned at the end of the previous chapter, there may be ways of partnering with local communities and nonprofit organizations to address right-of-way and public access issues.

The strong market for residential properties on the wildland-urban interface has stimulated housing development. New housing inside or on the forest’s perimeter creates a whole series of complex management issues: what kind of road access to allow to properties inside the forest; what to do about the denial of traditional local access to the forest as the new owners put up fences and no trespassing signs; how to protect these new properties from fire and other threats – and how to pay for this protection. It is critical to understand the roles those lands 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.<sup>61</sup> It is also critical to understand how the new uses of the land may threaten the health of the forest, e.g., by introducing non-native species. The new residents create new demands that may be incompatible with managing for multiple uses: e.g., they don’t like the smoke generated by programs to clean-out brush and other kindling. They also put new demands on limited local government resources.

This chapter discussed the relationship between the Cibola NF’s land cover and its uses. The next chapter delves further into issues regarding forest uses and users.

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<sup>60</sup> Refer to Chapter 7 for the details on the economic activity in the Cibola NF.

<sup>61</sup> 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.



## 5 Forest Uses and Users

This chapter discusses how different parts of the forest are used, in terms of land cover and land use, as well as the users themselves. The Forest Service manages the land for a variety of purposes from recreation and tourism to grazing and resource extraction. The Forest Service also manages scenic resources for the neighboring communities and visitors. Many diverse individuals and groups own, manage, and use forest resources, and they interact with the forest environment in a broad assortment of ways that have significant consequences for forest ecosystems and the people who depend on them.<sup>62</sup>

While traditionally the national forests supported resource-based industries, like wood-products, mining, and grazing, recreational use of the forest is growing. Recreational uses include activities such as hiking, picnicking, camping, skiing, bird-watching, hunting, OHV use, and rock climbing. Spending by recreational users is estimated to have the largest economic impact on the Cibola NF assessment area. (See Chapter 7) Moreover, these estimates do not include the substantial economic benefit derived by the individual recreational user.<sup>63</sup>

The FS is guided by a multiple-use mandate to administer lands for the purpose of recreation, grazing, timber, watershed, fish and wildlife.<sup>64</sup> However, the multiple-use principle is not without challenges. With increased usage from growing populations, an inherent dilemma in the multiple-use rule is clear. Inevitably, there is an increased likelihood that one type of use will impinge on another, creating the potential for conflict. Land-use conflict is a major challenge for FS officials because it is inherent in practically every forest planning decision. While many forest users are hesitant to suggest limiting access, increasing attention is being given to how some users, like those using recreational Off Highway Vehicles (OHVs), are degrading the land and the experiences of others.<sup>65</sup> See discussion on Off Highway Vehicles in Section 2.6 of the chapter on Travel and Access.

Multiple-use issues are especially sensitive when they involve Native American communities. FS managed lands are used by tribes for religious and cultural purposes. The Cibola NF contains archaeological sites, lands of cultural significance, traditional hunting grounds, and sacred sites, which are unequivocally important to tribes. Tribal communities are concerned with protecting sacred sites and with limiting outsider knowledge both of their special areas and of how these areas are used by the tribes.

### 5.1 Recreation

The major finding of this socio-economic assessment is that recreation is the primary use of the Cibola NF, and newer recreational activities, such as OHVs, mountain biking, rock climbing, geocaching, and trail running are adding to this trend. Some areas also attract visitors for winter

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<sup>62</sup> Dwyer, J. F. (1995). "Integrating Social Sciences in Ecosystem Management: People-Forest Interactions in the Urban Forest." In H. K. Cordell (Ed.), *Integrating Social Sciences and Ecosystem Management: A National Challenge*. Athens, GA: USDA Forest Service, Southern Research Station.

<sup>63</sup> See, for example Fix, P and J. Loomis (1997) *Journal of Leisure Research*. 23(3). P. 342-352. These researchers found that the economic benefit, as measured in terms of consumer surplus, for mountain bikers in Moab, Utah, was upwards of \$200 per visit. This means that mountain bikers would pay up to \$200 over and beyond actual travel expenses to ride the mountain trails, because of the benefits they gain from their recreation.

<sup>64</sup> *Multiple-Use Sustained-Yield Act of 1960*, 16 U.S.C. §§ 528-531, June 12, 1960.

<sup>65</sup> 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, p. 27.

recreation, such as snow-boarding, snowshoeing, skiing and a winter sport quadrathlon. While all ranger districts possess some forms of recreational sites, Sandia RD has the most developed sites and attracts the most visitors.

Data collected by the Forest Service indicate at least two million people visited the Cibola NF in 1999-2000. By far, most visitors are local residents taking day trips to the forest for recreational purposes. The FS estimates how many people access the forest with the National Visitor Use Monitoring (NVUM) survey. Using data from the NVUM project, **Table 5.1** provides an estimate of how many people visit the forest for recreation and wildlife related purposes. Recreational visitors access the forest for purposes such as hiking, camping (overnight and day-only) and picnics. It is important to note that many areas of the forest are not “fee areas,” meaning visitors can access the site without charge. The wildlife data include hunters, fishers, and wildlife “watchers” (photographers, birdwatchers, etc).

Unfortunately, the NVUM data neither provide the number of visitors for each ranger district nor identify where visitors are from. However, if most visitors to the Cibola NF are local residents taking day trips for recreational purposes, then it would follow that the district next to the largest population base and with the highest degree of transportation access would have the highest number of those visitors. The Sandia Ranger District is adjacent to the City of Albuquerque, with a metro area population of close to 800,000, and is accessible from Interstates 25 and 40. In addition, people from the Albuquerque area have access to the NF via the Sandia Peak Tramway, which also provides direct access to skiing on the Cibola NF. Numerous hiking trails also originate on the east side of Albuquerque, allowing visitors access directly from the city.<sup>66</sup> Sandia also offers the most recreational opportunities with more trailheads, picnic grounds and interpretive sites, than any other district. (See Chapter 6, Table 6.1 for a listing of recreational sites by RD.)

**Table 5.1 Number of Recreational & Wildlife Forest Visitors of Cibola National Forest**

Type of Visit	Recreation	Wildlife
Non-local Day Travel to Forest	95,066	8,267
Non-local Overnight Stay on Forest Land	0	0
Non- local Overnight Without Stay on Forest Land	342,238	29,760
Local Day Travel to Forest	1,140,792	99,199
Local Overnight With Stay on Forest Land	38,026	3,307
Local Overnight Without Stay on Forest Land	133,092	11,573
<b>Total CNF Forest Users</b>	<b>1,749,214</b>	<b>152,106</b>

Source: NVUM Cibola 2000. UNM-BBER Calculations are an estimation of visitors that do not include National Grasslands.

Visitor attractions in Sandia RD, such as the Sandia Tram, restaurants and the ski resort, attract millions of visitors each year. Visitor spending is the single largest contributor to the economic impact of the Cibola NF and most of that spending occurs in the Sandia RD. Spending profiles of various recreational visitors is discussed in Chapter 7, “Economic Impacts.”

<sup>66</sup> Access is in some instances provided through Open Space areas of the City of Albuquerque, e.g., Elena Gallegos.

## 5.2 Hunting and Wildlife

The wildlife in the Cibola NF attracts visitors, ranging from hunters to wildlife watchers. In 2001, 595,000 New Mexico residents participated in hunting, fishing, or wildlife watching, contributing about \$1 billion to the state's economy.<sup>67</sup> In the Sandia RD, the most popular for recreational activities, watchers are especially interested in birds, such as hawks, eagles and other raptors.

Under federal mandate, hunting is regulated by the states, which are responsible for issuing permits and licenses. In New Mexico, permits for elk, deer and antelope are issued on a lottery basis to New Mexico residents and non-residents. The seasons and hunting dates are highly regulated. A full description of elk and deer hunting regulations can be found in the **Appendix Table A.5**.

Elk is the premier big game in the state. During the autumn months, sportsmen and women make their way to the Gila National Forest and to the Magdalena and Mt. Taylor RDs of the Cibola NF for guided and unguided hunts. A later section in this chapter will provide data showing that hunting guides and outfitters purchase the greatest number of special use permits in the area. In New Mexico, small geographical areas on public lands are designated as hunting management "units." The units are used to divide hunting areas, as regulations regarding hunting dates and limits are set at the unit-level. Although areas of the Gila NF are best known for their elk hunts<sup>68</sup>, units 17 and 18 in the Cibola NF are also popular. Elk unit 17 is located in Socorro County, in the San Mateo Mountains. Elk Unit 18 is also in Socorro, but outside the Cibola NF boundary. The New Mexico Fish and Game Department issues up to 250 elk hunting licenses for bow hunters between September 1<sup>st</sup> and 24<sup>th</sup>. Additionally, the Department issues up to 500 licenses in unit 17 for muzzleloader hunters.<sup>69</sup>

For fishing, the Cibola NF offers limited opportunities. McGaffey Lake near Gallup in the Mt. Taylor RD, and Tajique Creek in the Manzano Mountains are places where fisherman and anglers can try their luck within the Cibola NF.

Mt. Taylor RD is home to many wildlife species, including deer, elk, wild turkey and bear. As mentioned, the Magdalena RD is prime elk hunting country. The Cibola NF supports numerous resident avian species, including vireos, nuthatches, and Blue Gambel's and Montezuma quail. Many species of raptors, such as red-tailed hawks, peregrine falcons, small kestrel falcons, and large golden eagles, can be viewed in the mountainous areas.

Available NVUM did not differentiate hunters from wildlife watchers. Consequently, it is difficult to confidently state how many people hunt or watch wildlife in the Cibola NF, but one can use the Wildlife counts of **Table 5.1** for an idea. According to the NVUM data, about 150,000 people visited the forest to watch or hunt wildlife.

<sup>67</sup> US Department of the Interior. (2002). *2001 National Survey of Fishing, Hunting and Wildlife-Associated Recreation* (Rep.). Fish and Wildlife Service: 50 State Reports. <http://fa.r9.fws>.

<sup>68</sup> Especially Elk Units 16A though 16E.

<sup>69</sup> New Mexico Game & Fish. (2006). *New Mexico Wildlife Big Game Rules & Information Booklet*. <http://www.wildlife.state.nm.us/publications/BigGameRulesandInformationBooklet.htm>.

### 5.3 Grazing

Approximately 95 million acres, accounting for 65 percent of the entire National Forest System, are used for grazing in the western states. Twenty-two percent of all grazing on public land occurs in the southwest region of the NF system. Grazing is the second most substantial commercial activity in the Cibola NF and has a significant economic impact on surrounding rural communities. (See Chapter 7, “Economic Impacts”) **Table 5.2** lists the number of grazing permits issued over the past several years <sup>70</sup> by each ranger district. As might be expected by examining the land cover, Magdalena RD has issued the most grazing permits (40), accounting for almost half of all allotments in the mountainous districts of the Cibola NF. An allotment is an area of land where one or more individuals graze their livestock. An allotment may have single or multiple permits in operation at the same time. The Magdalena RD has the most active allotments, followed by the Mt. Taylor RD.

**Table 5.2 Number of Grazing Permits Sold in Cibola National Forest**

	Number of Permits	Number of Allotments		
	# Permits	Active	Closed	Vacant
<b>Mt Taylor</b>	46	27	1	1
<b>Magdalena</b>	57	40	0	2
<b>Mountainair</b>	25	17	1	0
<b>TOTAL</b>	<b>128</b>	<b>84</b>	<b>2</b>	<b>3</b>

**Table 5.3** lists the number of animal unit months (AUMs) in the Cibola NF. The AUM is the amount of forage needed to sustain one cow and her calf, one horse, or five sheep or goats for a month. The table also provides BBER’s estimate of the number of employees needed to sustain each year’s level of grazing based upon estimates of man-hours derived from the IMPLAN<sup>®</sup> model.<sup>71</sup> Employment in grazing has a moderate economic impact, compared to the impact of employment in recreation and the FS itself. Again, this will be analyzed in greater detail in Chapter 7.

<sup>70</sup> FS staff indicated the data covered “the past several years,” personal communication 03/27/2006.

<sup>71</sup> IMPLAN<sup>®</sup> is a PC based regional economic analysis system, originally developed by the USDA Forest Service, it is now used by multiple federal agencies. The current IMPLAN database and model is maintained and sold by Minnesota IMPLAN Group, Inc., <http://www.implan.com>.

**Table 5.3 Animal Unit Months on Cibola National Forest, 2001-2005<sup>72</sup>**

Year	AUM's	Employees
1991	53,243	40
1992	0	0
1993	79,978	61
1994	95,413	72
1995	128,753	98
1996	118,372	90
1997	109,186	83
1998	29,078	22
1999	139,012	105
2000	149,725	114
2001	120,461	91
2002	129,456	98
2003	140,627	107
2004	96,274	73
2005	76,493	58

Source: USDA Forest Service Grazing INFRA Database

Grazing fees are charged per AUM. The grazing fee for Western public lands was raised to \$1.43 per AUM from \$1.35 in 2003.<sup>73</sup> The 2005 fee is \$1.79 per AUM.<sup>74</sup> Total permit values were not calculated in view of missing grazing fee data in the INFRA database.

The INFRA database also contains data indicating the acreage of grazing allotments. Since it was not clear whether the figures included acreage from other entities such as BLM or private in-holdings, BBER did not try to calculate the number of acres managed by the FS and used for grazing in each ranger district.

## 5.4 Timber

Timber has roots as a traditional use in the Cibola NF, but is not a commercial draw for this forest presently. There is interest in small diameter wood products, but there are concerns that the FS cannot provide a long term supply of wood.<sup>75</sup> **Table 5.4** shows the value of timber sales from 2000 to 2004, based on the Timber Information Manager (TIM) database.<sup>76</sup> The “Sales” column shows the amount collected by the FS for rights to harvest the forest, such as permits and other fees. When an entity purchases rights to the forest, it can access the forest for one year. The “Cut”

<sup>72</sup> Note: Data obtained from forest-level hard copy records. Reliability of the data is unknown as only available records were utilized. Records may be missing for any given year. Cells with data missing indicate data is not available.

<sup>73</sup> USDA Forest Service News Release: FS-0406 February 20, 2004

<sup>74</sup> US Dept of Interior, Bureau of Land Management. (2005, February 9). “The 2005 Grazing Fee, Surcharge Rates, and Penalty for Unauthorized Grazing Use.” Instruction Memorandum No. 2005-067. <http://www.blm.gov/nhp/efoia/wo/fy05/im2005-067.htm>.

<sup>75</sup> 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. p. 37.

<sup>76</sup> The Timber Information Manager (TIM) is a set of computer systems and database used by the U.S. Forest Service and the U.S. Department of Agriculture for managing technical and financial data about the sale of forest products and timber on U.S. Forest Service lands.

column indicates the dollar amount that was collected from the sales of the cut timber, not including fuel wood. The TIM database includes the cut and sales volume of a million board feet (MBF).<sup>77</sup>

**Table 5.4 Timber Sales on Cibola National Forest, 2000-2004**

Year	Sales	Cut
2000	\$80,837	\$93,000
2001	\$90,822	\$79,151
2002	\$68,430	\$86,761
2003	\$68,058	\$64,872
2004	\$76,075	\$68,304
<b>Total</b>	<b>\$384,223</b>	<b>\$392,089</b>

Source: TIMS Database, Cibola National Forest.

According to the TIM data, the most profitable forest product in 2004 was fuel wood, which accounted for about 88 percent (\$1,266,368) of the total timber cut value for 2004. In terms of special forest products, the major draw is Christmas trees, as can be seen in **Table 5.5**. The data show that the USDA FS collected about \$19,000 in permits, but there is no significant value in the cut products.

As will be shown in Chapter 7, the timber industry is not a major economic force in the area, nor does it provide many jobs. Outside of Christmas trees, there was low production. As an aside, New Mexico (Santa Fe NF) donated the Christmas tree for the United States Capitol tree-lighting ceremony in 2005. In 1991, the Carson NF donated a tree.<sup>78</sup>

<sup>77</sup> MBF is a measure of wood where one board foot equals the volume of a one inch thick board, 12 inches wide and 12 inches long.

<sup>78</sup> Coleman, M. "Have Yourself a Merry Little Christmas Tree," December 9, 2005. *Albuquerque Journal*. <http://www.abqjournal.com/news/washington/414862nm12-09-05.htm>.

**Table 5.5 Non-Timber (Special) Product Activity on Cibola National Forest, 2004**

Product	Cut Volume (MBF)	Sales Volume (MBF)	USFS Value (Permit)	Price per MBF or Cord	Cut Value
Misc. Convert	0.00	50.00	\$500	\$0.00	\$0
Christmas Trees	1,846.00	1,909.00	\$19,099	\$0.00	\$0
Misc. Not Convert	0.00	0.00	\$60	\$0.00	\$0
Transplant	0.00	0.00	\$1,208	\$0.00	\$0
<b>Total Non-Timber</b>	<b>1,846.00</b>	<b>1,959.00</b>	<b>20,867.00</b>	<b>0.00</b>	<b>0.00</b>

Source: TIMS Database, Cibola National Forest.

Timber resources are collected for traditional and cultural purposes as well. Wood gathering, piñon harvesting, and wildling gathering are important activities in local communities. The Cibola NF provides resources essential for local users in subsistence and religious purposes. Local and indigenous peoples gather wood for heating homes, and collect piñon nuts, herbs, and plants for subsistence and medicinal uses. Those who live in and near the forest have a traditional understanding of the forests health, and partake in gathering activities that they believe will benefit the forest by decreasing fire dangers caused by excessive overgrowth.<sup>79</sup>

Small-scale fuel wood harvesting is a form of subsistence for many residents near the forest areas, as they depend on the wood for heat. A twenty dollar permit allows the harvesting of a maximum of four cords of dead and down firewood as well as dead standing pine and juniper. Up to ten cords of wood for personal use are allowed per household.<sup>80</sup>

A potential source of economic development in timber products is the use of small-diameter wood to create products, such as heater pellets, mulch, panels, composite products, composite flooring, fence posts, round wood construction, and “character woods” for use in adobe-type housing construction. The Mountainair RD is collaborating with a small business in the town of Mountainair to clear small diameter wood that is perceived as excessive undergrowth within the forest, and that may pose a major fire hazard. Small diameter wood is often referred to as an underutilized resource because it can be used for a variety of products, including those used in sustainable house building.<sup>81</sup> If well managed, small-diameter wood harvesting can be a major economic resource for the small, rural communities.

The Collaborative Forest Restoration Program (CFRP) of the U.S. Forest Service is encouraging partnerships among stakeholders to develop and market products of small diameter trees as well as undertaking other forest restoration activities. The CFRP provides grants to eligible groups or tribes that are contributing to the forest restoration activities. The CFRP promotes forest sustainability across Forest Service boundaries, and is an opportunity to positively influence small timber harvesting and marketing.<sup>82</sup>

<sup>79</sup> Russell, J. C., & Adams-Russell, P. A. (2005). *Values, Attitudes and Beliefs Toward National Forest System Lands: The Cibola National Forest* (Issue Brief). Placerville, CA: Adams-Russell Consulting. P. 34.

<sup>80</sup> US Federal News, “Cibola National Forest to Offer Firewood Permits” January 24, 2006.

<sup>81</sup> Geiger, Owen. (n.d.). *Small Diameter Wood - An Underutilized Building Material*. Geiger Research Institute of Sustainable Building Website, Crestone, CO. <http://www.grisb.org/publications/pub2.htm>.

<sup>82</sup> USDA FS (2006). Collaborative Forest Restoration Program (CFRP). USDA FS Website: Southwestern Region, State and Private Forestry. <http://www.fs.fed.us/r3/spi/cfrp/>.

## Mining

Renewed interest in mining uranium in New Mexico and other areas in the southwest has been sparked by increasing energy costs and by the rising prices of uranium.<sup>83</sup> Alternative energy sources are coming into consideration more and more in view of high energy prices and the environmental issues surrounding the burning of fossil fuels. Nuclear power, which requires uranium, is one of those alternatives. Mining companies are seeking to reopen existing uranium mines and/or selling mining rights to smaller junior companies eager to profit from the rising price of uranium.

The Grants Minerals Belt, a name applied to a productive uranium area in New Mexico, covers an area from approximately 30 miles west of Albuquerque to 15 miles northeast of Gallup, from the Church Rock Mine to the Marquez Mine. This area was mined extensively during the boom period of the 1950's until demand for uranium collapsed after the nuclear accident at Three Mile Island in 1979 and the nuclear disaster at Chernobyl nuclear power plants in 1986. Communities surrounding the uranium mines may have benefited economically during the boom years, but faced, what Paul Robinson, from the Southwest Research and Information Center in Albuquerque, has described as a "legacy of busted uranium economies, health impacts from human exposures, and land and water contamination for past uranium exploration and production."<sup>84</sup> There is reluctance, especially in the Native American communities of that area, to allow the reopening of uranium mines or exploration of new mines, due to the threats to health and feared desecration of sacred lands. In April of 2005, the Navajo Nation President, Joe Shirley, Jr., signed the Diné Natural Resources Protection Act of 2005, a bill banning uranium mining and milling on Navajo Nation land.<sup>85</sup> Some areas proposed for uranium mining are within the Cibola NF boundaries, and some are in areas of the NF that are culturally sensitive to Native Americans. The Mt. Taylor Mine, for instance, is on a mountain that is significant in many of the cultural traditions to Native Peoples in the area and is sacred to the Navajo.

The Mount Taylor Mine in the Mt. Taylor RD, is the largest uranium mine in the U.S and includes a 4,000-ton-per-day uranium mill. "Operated between 1984 and 1990 by Chevron Resources, the 3,300-foot-deep Mt. Taylor Mine is the deepest underground mine in the U.S. containing an estimated 100 million pounds of yellowcake."<sup>86</sup> It is currently under the management of Rio Grande Resources Corporation. Though the mine has been placed on standby since 1989, and allowed to fill up with water, it "contains an in-place resource of over 100 million pounds U3O8 (38,500 mtU). Presently, the deposit is being evaluated for development as an in situ leach operation."<sup>87</sup>

There is question as to whether there truly is a need for renewed uranium exploration and mining at this time. The World Nuclear Association has released a report stating that, despite the rising market prices for uranium, there is enough uranium in known and existing supplies to power

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<sup>83</sup> Robinson, P. (2006). *Need or Greed? Uranium Prices & Demand: Is the sudden interest in new uranium mining a matter of real need or plain old-fashioned greed?* Voices from the Earth, Southwest Research and Information Center, Vol. 7, No. 3, Fall 2006. Albuquerque, NM. Pg 4.

<sup>84</sup> Ibid.

<sup>85</sup> Navajo Nation Council, *Diné Natural Resources Protection Act of 2005*.

<http://www.sric.org/uranium/DNRPA.pdf>.

<sup>86</sup> Shuey, C. (2006). *The New U-Boom: Speculation or Serious Development?* Voices from the Earth, Southwest Research and Information Center, Vol. 7, No. 3, Fall 2006. Albuquerque, NM. Pg 7.

<sup>87</sup> General Atomics and Affiliated Companies. (2006). <http://www.ga.com/riogrande.php>.

present day nuclear plants for the next seventy years.<sup>88</sup> The present supply constitutes currently identified mines, existing stockpiles, and sources from disarmed nuclear weapons.

Regardless of existing supplies, the rising market price of uranium is attracting interest in reopening and exploring uranium deposits on or near the Mt. Taylor and Magdalena RDs. Some small communities are looking forward to the economic benefits. However, those benefits may come at the cost of potential adverse environmental impacts associated with deposits of radioactive mine tailings, radioactive mill waste, and contaminated surface and ground water supplies.<sup>89</sup>

*“In terms of both short and long term environmental impact, uranium mining is by far the most environmentally problematic of any mining activity because radioactivity of the ore presents an intangible that cannot be chemically mitigated.”<sup>90</sup>*

## 5.5 Special Use Permits

The Cibola NF sanctions the use of the national forest lands by issuing special use permits. Permits authorize occupancy, usage, rights to and privileges on the forest lands. The permits allow for a wide range of activity on the forest as a whole, but each district is utilized for only a few purposes. As **Table 5.6** shows, special use permits have been granted for mostly recreational and communications related uses. Also reported below is the amount of fees collected for each permit category.

In the Mt. Taylor RD, 119 special use permits have been issued since 1952, with a total of approximately \$17,770 in fees collected. One hundred fourteen of those permits are still active. The vast majority (96%) of permits have been issued for recreational purposes. Since 2000, 23 permits were issued for guides and outfitters, more than half of them being in 2005. While the greatest number of permits is for recreational purposes, they do not generate the highest amount of collected fees. Recreational permits have generated about \$4,800 since 1988. Most of the fees collected have been from permittees with communications-related uses such as cellular towers and private mobile radio service. Since 1962, these users paid about \$11,048 in fees, 62% of all fees collected in the district.

<sup>88</sup> World Nuclear Association (2006, June). *Supply of Uranium* (Issue Brief). <http://www.world-nuclear.org/info/inf75.htm>.

<sup>89</sup> U.S. Environmental Protection Agency. (2006, May). *Uranium Mines*. RadTown USA Website. <http://www.epa.gov/radtown/uranium-mines.htm>.

<sup>90</sup> Klauk, E. (2006). *Environmental Impacts on the Navajo Nation from Uranium Mining. Impacts of Resource Development on Native American Lands*. NSF, DLESE Website. [http://serc.carleton.edu/research\\_education/nativelands/navajo/environmental.html](http://serc.carleton.edu/research_education/nativelands/navajo/environmental.html).

**Table 5.6 Special Use Permits on Cibola National Forest (1949-2005)**

Permit Category	Mt Taylor District				Magdalena District				Mountainair District				Sandia District			
	# Active	# Closed	# Revoked	Rent Total	# Active	# Closed	# Revoked	Rent Total	# Active	# Closed	# Revoked	Rent Total	# Active	# Closed	# Revoked	Rent Total
Recreation	41	3	0	\$6,685	27	12	0	\$10,954	2	3	1	\$121	17	36	0	\$154,599
Agriculture	-	-	-	-	-	-	-	-	-	-	-	-	1	0	0	\$0
Community/Public Information	1	1	0	\$61	-	-	-	-	-	-	-	-	2	2	0	\$0
Feasibility, Research, Training, Cultural Resources, & Historical	*	0	0	\$0	3	1	0	\$0	4	0	0	\$0	10	2	0	\$59
Industry	2	0	0	\$61	-	-	-	-	1	0	0	\$0	0	4	0	\$2,520
Energy Generation/Transmission	9	0	0	\$2,157	2	0	0	\$0	7	0	0	\$596	6	0	0	\$1,483
Transportation	22	0	0	(\$2,253)	16	0	0	\$364	15	1	0	\$976	21	0	0	\$364
Communications	29	1	0	\$11,048	7	0	0	\$5,506	24	4	0	\$15,981	61	2	0	\$340,989
Water (Non-Power Generating)	5	0	0	\$121	9	0	0	\$546	8	0	0	\$182	4	0	0	\$182
<b>TOTAL SPECIAL USE PERMITS</b>	<b>109</b>	<b>5</b>	<b>0</b>	<b>\$17,880</b>	<b>64</b>	<b>13</b>	<b>0</b>	<b>\$17,370</b>	<b>61</b>	<b>8</b>	<b>1</b>	<b>\$17,856</b>	<b>122</b>	<b>46</b>	<b>0</b>	<b>\$500,197</b>

Notes: 1). Permits Issued Encompass Those from 1952-2005. 2). The Number of Active Permits were calculated as "the number of issued minus the number of closed and revoked permits for each district."

Source: USDA Forest Service 2005 Special Use Permit Database (SUDS). Calculations by UNM-BBER..

The Magdalena RD issued 77 total permits since 1941, with approximately \$17,370 in collected fees. Like the Mt. Taylor RD, most permits (51%) were for recreational uses. All 39 recreational permits were issued since 2000, 38 of which were for guides and outfitters, representing the largest increase in the number of special use permits issued in the entire forest. In 2005 alone, 30 permits were issued for guides and outfitters, 11 of which have been closed. Since 2000, \$10,954 has been paid in fees for guide and outfitter permits, accounting for 63% of all fees collected in the Magdalena District since 1941. As described in a previous section, the Magdalena RD is a popular elk hunting locale.

The Mountainair RD granted 69 total special use permits, with 28 being for communications related uses, specifically private mobile radio and commercial mobile radio services. Since 1976, the District has collected about \$15,981 in fees, accounting for 89% of the District's total collected fees. The Mountainair RD issued less recreational use permits than the other districts; only five since 2005.

Since 1952, The Sandia RD had issued 168 total special use permits, of which 122 were still active, and had collected over \$500 thousand in permit fees. Among the RDs in the Cibola NF, Sandia accounts for the largest number of recreational permits, 53 since 1988, but only 17 are still active. In 2004 and 2005, the District granted 39 permits for "recreational events," which was the most common type of recreational use permit. Sandia RD has collected \$154,599 in fees for recreational permits since 1988, but the biggest revenue producer has been communications-related uses (\$340,989), i.e., for radio towers on the Sandia Crest. Sandia RD has also issued four permits to authorize the filming of motion picture and television projects since 2004.

## 5.6 Illegal Uses

**Table 5.7** lists the most common violations on the Cibola NF. In 2005, the FS recorded 579 violations in their LEIMARS<sup>91</sup> database. The most common offense was non-compliance in fee areas, with 461 violations. In 2004, this violation was recorded 682 times. Other common

<sup>91</sup> Law Enforcement and Investigations Management Attainment Reporting System (LEIMARS).

violations include operating a vehicle carelessly and littering. A complete list of violations is provided in the **Appendix Table A.6**.

**Table 5.7 Violations on Cibola National Forest**

Offense Code	Total Violations	Violation Codes
36CFR26117	461	Non-compliance in Fee Areas (includes parking)
NA	29	Other, No code provided
36CFR26154F	19	Operating a vehicle carelessly, recklessly, or without regard to the rights or safety of other persons
36CFR26111D	16	Failing to dispose of all garbage in proper receptacles
36CFR2619B	14	Removing any natural feature or other property of the US (property)
36CFR2619A	10	Damaging any natural resource or other property of the US (property)
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

## 5.7 Opportunities, Risks, and Special Circumstances

The Cibola NF attracted over two million visitors in 1999-2000. When the associated expenditures are taken into account, recreation is the single largest economic contributor to the Cibola NF assessment area. The Cibola NF offers visitors a wide range of recreational opportunities, including hiking and trail running, picnicking, camping, mountain biking, rock climbing, geo-caching, snow-boarding, snowshoeing, both cross-country and down-hill skiing, OHV use, hunting and wildlife viewing. The close proximity of the Sandia RD offers mountain vistas as well as providing a multitude of conveniently accessible outdoor recreation options to the residents of the largest MSA in New Mexico. The Sandia RD is a unique and valuable asset for MSA residents and businesses. It is an asset that must be protected in the face of more and recreational use by the large and growing population in the Albuquerque MSA. Recreational over-use is less of a concern in the remaining mountain ranger districts, even though these are all accessible via major Interstates or Highways and offer New Mexican residents and visitors a wide variety of recreational opportunities, as well the chance to explore and enjoy a diversity of terrain, often encountering few other people.

In addition to recreation, the Cibola NF is utilized for its grazing resources, timber and mining. The multiple uses and opportunities that the forest offers can also result in conflict between the disparate groups of users.

Grazing is the second most important economic activity on the Cibola NF. A debate between ranchers and environmentalists (among others) is causing the public and the FS to evaluate the impacts of grazing on public land. Environmental groups (and even retired and former FS staff<sup>92,93</sup>) often argue that grazing causes soil compaction, reducing the absorption of rainfall and

<sup>92</sup> Fager, L. "Letter to Editor," July 10, 1998. *Albuquerque Journal*..

limiting the recharge of aquifers and affecting the water table. Others will argue that grazing allows livestock to trample much of the overgrown brush that has become such a fire danger. Ranching interests often perceive environmental groups as ‘non-local’ entities who do not understand the land and its condition as much as those who depend on it for their livelihood. Ranching and grazing are responsible for much of Cibola NF’s economic impact in rural areas.

Timber products are no longer a major industry in the Cibola NF, but timber products still have potential for economic development. The harvesting of small diameter wood can provide economic benefits for small rural communities. In a national economy where oil prices are above \$60 per barrel, alternative energy sources become more important. Wood-pellet stoves are becoming more and more popular, causing the demand for wood pellets to increase. Small-diameter wood can provide premium grade pellets that burn more efficiently and produce fewer emissions. Small diameter wood, however, can also be used to make composite wood products, small-diameter wood structures and decorative accents. The FS is already working to encourage economic development in this area with the Collaborative Forest Restoration Program (CFRP). (See Chapter 7 on CFRP programs.)

There is renewed interest in uranium mining in New Mexico and other areas in the southwest driven by the rising prices of uranium.<sup>94</sup> Though there are potential economic benefits for small communities in the Grants Mineral Belt area, there are also many environmental consequences to uranium mining and exploration. There are already numerous mines on the Cibola NF in the Mt. Taylor and Magdalena RDs. There may be some economic potential for the small communities surrounding these areas; however, history has shown that these benefits are not long term.<sup>95</sup> Renewed uranium mining activity in these areas may be expected to have environmental impacts on forest lands and watersheds.

In the Magdalena RD, the USDA FS is the longest-running employer in the area, serving as a substantial source of income and other economic activity. Going beyond this FS presence and grazing activities, there is interest in utilizing the resources of the forest for small-scale economic development.<sup>96</sup> The communities surrounding the Magdalena RD have been interested in exploring the economic development options offered by the forest. Assets such as Heritage Resource sites (interpreted historical and archaeological sites), Wilderness Areas, wildlife, scenic mountain vistas – these assets could all be used to develop the Magdalena RD into more of a destination for travelers, perhaps with the creation of a scenic by-way. In the Mountainair RD, residents of Torrance County and the land grant communities are participating in small-scale activities such as wood harvesting and local tourism.

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<sup>93</sup> Davis, T. “Staffers Say Their Agency Betrayed the Land,” March 31, 1998. *High Country News*. [http://www.hcn.org/servlets/hcn.Article?article\\_id=4044](http://www.hcn.org/servlets/hcn.Article?article_id=4044).

<sup>94</sup> Robinson, P. (2006). *Need or Greed? Uranium Prices & Demand: Is the Sudden Interest in New Uranium Mining a Matter of Real Need or Plain Old-Fashioned Greed? Voices from the Earth*, Southwest Research and Information Center, Vol. 7, No. 3, Fall 2006. Albuquerque, NM. p. 4.

<sup>95</sup> Shuey, C. (2006). *The New U-Boom: Speculation or Serious Development? Voices from the Earth*, Southwest Research and Information Center, Vol. 7, No. 3, Fall 2006. Albuquerque, NM. p. 7.

<sup>96</sup> 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, p. 37.

## 6 Special Areas, Recreational Sites, Heritage and Cultural Resources

This chapter describes the National Forest system's abundant offerings in the way of unique places for recreation, education, research, preservation, and quality outdoor experiences. The Forest Service inventories and manages sites as Special Areas, Recreational Sites, and as Heritage Resources. This section will discuss Special Areas and Recreational Sites and their benefits to visitors, researchers, educators, and to local communities.

### 6.1 Special Areas, Wilderness and IRAs

Special Areas are places designated by Congress or by top level administration within the National Forest Service, as unique because of the special characteristics and the opportunities they provide. The designations include Wilderness, National Historic Landmark (NHL), National Scenic Area (NSA), and National Monument (NM). Other Special Areas include Inventoried Roadless Areas (IRAs), Research Natural Areas, Wild and Scenic Rivers, National Recreation Trails, and National Scenic Byways, of which one example is the Sandia Crest National Scenic Byway in the Sandia RD.<sup>97</sup>

Wilderness areas, established by the Wilderness Act of 1964, are part of a system of wild lands that contribute significantly to the ecological, educational, and social health of its users and surrounding communities. The Wilderness Area designation protects water and other natural resources and culturally significant sites; as well as providing shelter for endangered species and offering a living laboratory for research. Beyond community benefits, Wilderness areas provide unique resources for individuals, such as an opportunity to explore personal values while experiencing risk, reward, and self-reliance.<sup>98</sup> The Act describes a wilderness as "*an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain.*"<sup>99</sup> Wilderness areas in the Cibola NF include the Sandia Mountain Wilderness in the Sandia RD, the Manzano Mountain Wilderness in the Mountainair RD and the Apache Kid Wilderness in the Magdalena RD. The Sandia Mountain Wilderness, which was established in 1978, includes 37,232 acres that are split to accommodate other uses at the top of Sandia Crest. The Manzano Mountain Wilderness was established in 1978 and covers 36,875 acres. The Apache Kid Wilderness was designated by Congress in 1980, and covers 44,626 acres.<sup>100</sup>

In January 2001, the Clinton administration enacted the Roadless Area Conservation Rule ("The Roadless Rule"), protecting 58.5 million acres of wild national forest land from most commercial logging and road building.<sup>101,102</sup> Since that time, The Roadless Rule has been challenged by nine lawsuits in U.S. Federal District Courts in Idaho, Utah, North Dakota, Wyoming, Alaska, and the

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<sup>97</sup> USDA FS (2004, February 4). Congressionally Designated Special Areas. USDA FS Website: *Recreational Activities*.[http://www.fs.fed.us/recreation/programs/facts/special\\_areas.shtml](http://www.fs.fed.us/recreation/programs/facts/special_areas.shtml).

<sup>98</sup> Recreation.gov. (2004, May 1). USDA FS Website, Apache Kid Wilderness.  
<http://www.recreation.gov/detail.cfm?ID=4476>.

<sup>99</sup> US Congress, *Wilderness Act of 1964*, Public Law 88-577 (16.S. C. 1131-1136), 88th Congress, Second Session. (1964, September 3).

<sup>100</sup> Wilderness.net. Manzano Mountain Wilderness.

<http://www.wilderness.net/index.cfm?fuse=NWPS&sec=wildView&wid=339>.

<sup>101</sup> NMPiRG. (2006). "Battle Over Roadless Areas Goes to States." *NMPiRG Citizen Update*.  
<http://nmpirg.org/newsletters/summer06/story4.html>.

<sup>102</sup> USDA FS (2005, May). Roadless Area Conservation Rule – Timeline.

<http://roadless.fs.fed.us/xdocuments.shtml>, and [http://roadless.fs.fed.us/documents/m-05/04\\_26\\_05\\_roadless\\_rule\\_timeline.html](http://roadless.fs.fed.us/documents/m-05/04_26_05_roadless_rule_timeline.html).

District of Columbia, and its implementation has been delayed by the Bush Administration.<sup>103</sup> In July of 2003, The Roadless Rule was deemed in violation of the National Environmental Policy Act and the Wilderness Act by the U.S. District Court. Consequently, in 2005, the USDA Forest Service announced a national Advisory Committee to help implement a “new” roadless rule.<sup>104</sup> This new rule, supported by the Bush Administration, was aimed to create a collaborative process with states on regulations specific to the needs and requirements of each state. This new rule created a petition process allowing governors to determine which areas would continue to be protected. Governors could also petition to open IRAs to mining and logging. If a governor chose not to petition, the area could be opened to development. Critics argued the bureaucratic requirements involved in the petition process provided little incentive for governors to participate, which could result in the opening of IRA lands to commercial interests. In May of 2006, New Mexico Governor Bill Richardson submitted the first western state petition, requesting protection of all IRAs within New Mexico. On September 20, 2006, a federal judge in California struck down the Bush Administration rules and reinstated The Roadless Rule established by the Clinton Administration.<sup>105</sup> It is unknown at this time whether this decision will be appealed by the current administration.

In New Mexico, there are 1,102,000 acres of IRAs which do not allow road construction or reconstruction), making up about 12% of the National Forest System land in the state.<sup>106</sup> In addition, there are 66,000 acres of IRA that do not allow road construction and reconstruction that the FS Forest Plan recommends as wilderness.<sup>107</sup> Much of the inventoried roadless areas on the Cibola NF exist in established Wilderness Areas, such as the Apache Kid Wilderness in the Magdalena RD and the Manzano Mountain Wilderness in the Mountainair RD, which are illustrated in **Figure 6.1**.

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<sup>103</sup> Wilderness Society, The. (n.d.). *National Forest Roadless Areas: Background and History*. <http://www.wilderness.org/OurIssues/Roadless/background.cfm?TopLevel=Background>.

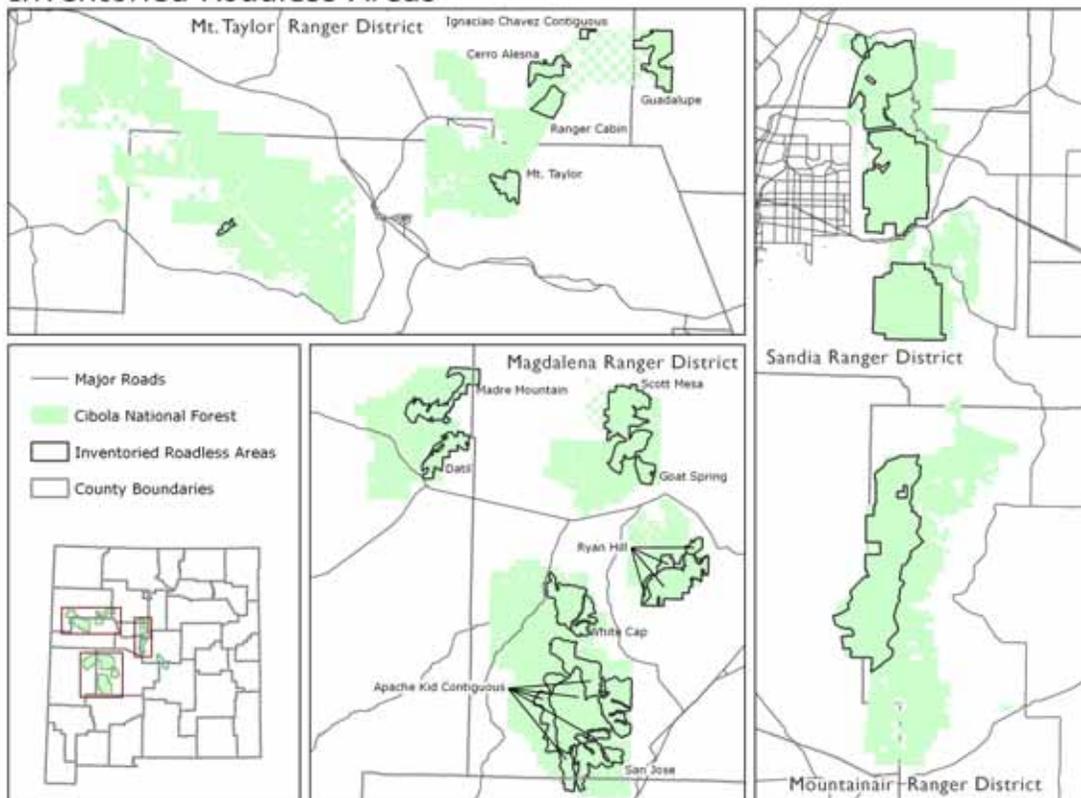
<sup>104</sup> USDA (2005, May 13). “USDA Forest Service Acts to Conserve Roadless Areas in National Forests.” USDA Newsroom, *News Release*. Release No. 0148.05. [http://www.usda.gov/wps/portal/!ut/p/\\_s.7\\_0\\_A/7\\_0\\_1OB?contentidonly=true&contentid=2005/05/0148.xml](http://www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?contentidonly=true&contentid=2005/05/0148.xml).

<sup>105</sup> Kenworthy, T. “Judge Reinstates Ban on Forest Development,” September 20, 2006. *USA TODAY*. [http://www.usatoday.com/news/washington/2006-09-20-forest-rule\\_x.htm](http://www.usatoday.com/news/washington/2006-09-20-forest-rule_x.htm).

<sup>106</sup> USDA FS map of NM Inventoried Roadless Areas on NF lands.

<sup>107</sup> USDA FS (2001, January). “Inventoried Roadless Area Acreage, Categories of NFS Lands Summarized by State.” [http://roadless.fs.fed.us/documents/feis/data/sheets/acres/appendix\\_state\\_acres.html](http://roadless.fs.fed.us/documents/feis/data/sheets/acres/appendix_state_acres.html).

### Inventoried Roadless Areas



**Figure 6.1** Inventoried Roadless Areas on Cibola National Forest

### 6.2 Recreational Sites and Heritage Resources

The Cibola NF features over 135 designated recreational sites. A complete list of recreational sites is in **Appendix Table A.7** at the end of this document. In the Mountainair District, The Red Canyon, Fourth of July and New Canyon campgrounds provide starting points for hikers and allow access into the 70 mile network of trails in the Manzano Mountain Wilderness. For motor home campers, the Mt. Taylor RD McGaffey campground is the only site in the Cibola NF with full hookups for RVs and motor homes.

**Table 6.1** lists the number of recreation sites in each district, as listed in the INFRA database. By far, the Sandia RD has the most with 71 sites, accounting for almost half of the sites in the Cibola NF. The Sandia RD also offers the most recreational opportunities with more trailheads, picnic grounds and interpretive sites of the four mountain ranger districts.

**Table 6.1 Recreation Site Type by Ranger District**

Recreation Site Type	Mt. Taylor	Magdalena	Mountainair	Sandia
Campground/ Picnic Site	8	5	14	22
Trailhead	5	1	19	37
Interpretive Site	2	0	1	8
Observation Site	3	1	0	0
Complex	2	0	0	1
Fishing Site	2	0	0	0
Winter Sports Site	1	0	0	1
Information Site	0	1	1	2

Source: USDA Forest Service INFRA Database

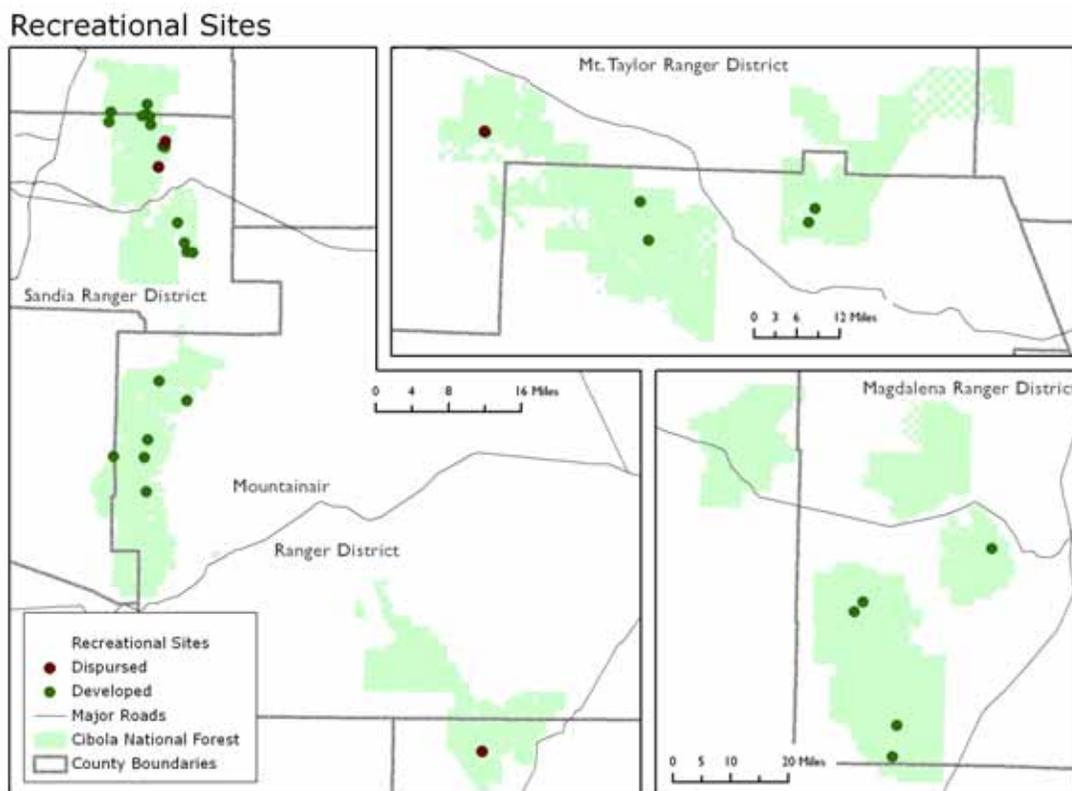
Magdalena RD has the fewest developed recreational sites, even though it is the largest ranger district. However, about 43% of Magdalena RD's land cover is a combination of Herbaceous Grassland and Shrubland – the type of land cover most suited for grazing -- and the ranger district has the greatest amount of privately owned land in-holdings within the FS exterior boundaries. By contrast, Sandia RD has the smallest proportion of grazing types of land cover, and the smallest proportion (18%) of privately owned land in-holdings.

Recreational sites are classified as either developed or dispersed sites. A developed site is a discrete place containing a concentration of facilities and services used to provide recreation opportunities to the public. Recreation sites are developed within different outdoor settings to facilitate desired recreational use. Developed sites include campgrounds, picnic areas, shooting ranges, and visitor centers. Dispersed recreation involves activities that occur outside of developed recreation sites, and includes such activities as boating, hunting, fishing, hiking and biking. In other words, dispersed sites are popular areas that have no facilities or services. **Figure 6.2** shows the approximate location of developed and dispersed recreational sites in the Cibola NF.<sup>108</sup>

The Forest Service also manages Heritage Resources under the Heritage Program. The purpose of the program is to “*protect significant heritage resources, to share their values with the American people, and to contribute relevant information and perspectives to natural resource management.*”<sup>109</sup> The FS manages over 5,000 pre-historic and historic sites. Some sites within this program have been investigated, documented and opened to the public as interpreted sites offering informational panels and brochures. Examples of these interpreted sites on the Cibola NF are the Kiwanis Cabin, the Tijeras Pueblo Archaeological site, Pueblo Blanco Archaeological site, and the Zuni Mountain Auto Tour.

<sup>108</sup> Data was obtained from USDA Forest Service INFRA database. The data was unclear as to which sites were developed and dispersed, so the map shows approximations.

<sup>109</sup> USDA FS (2006, March 20). “Programs: Heritage Resources.” USDA Website: Recreation, Heritage & Wilderness Programs. <http://www.fs.fed.us/recreation/programs/heritage/>.



**Figure 6.2 Developed and Dispersed Recreational Sites**

### 6.3 Cultural Resources

In addition to formally designated areas, there are areas of cultural significance to indigenous peoples. These places are of importance to Native American tribes for their traditional cultural and religious activities. Out of respect for the privacy of tribal activities and uses, the identity and other information about these places are kept strictly confidential. However, the location and nature of many of these sites are not revealed by the tribes, even to FS personnel, in an effort to protect their privacy and the sanctity of the site.<sup>110</sup> The fact that many of these sites are unknown complicates managing multiple uses of the forest and its resources.

### 6.4 Opportunities, Risks, and Special Circumstances

Key issues involving special areas are intrinsically linked to the cultural values and uses of the forest users, including tribal groups, ranchers and recreation-seekers. Special areas, places, and areas of cultural significance are often areas involved in the most heated multiple-use debates. With growing populations near the Sandia and Mountainair Ranger Districts, FS officials may need to evaluate the area's capacity for increased use. A large concern among users is that forest lands are being opened up to provide more access, including areas that have been historically

<sup>110</sup> Russell, J. C., & Adams-Russell, P. A. (2005b). *Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 11, 2005, pgs. 19-20.

protected as wilderness areas. Critics, such as the Public Interest Research Group (PIRG), argue new federal plans could exploit wilderness areas and make them vulnerable to commercial development.<sup>111</sup> While development may be beneficial for some, others are worried that increased access will be a detriment to the integrity and health of the forest landscapes, especially with OHV use. The situation is further complicated by the privacy concerns of the local tribal groups. Tribal uses of land can easily conflict with non-tribal users. In a study examining tribal attitudes and values regarding Forest Service managed lands, tribal representatives suggested that they should have a more active role in forest planning, management and decision-making processes. This would allow them to ensure their special areas are not compromised by other uses.<sup>112</sup>

At the heart of many debates regarding land use, there appears to be conflict over who has “more” rights to the land. While the National Forest is public land and everyone should have access, some believe they should have privileged status when it comes to forest planning and decision making. For instance, grazing interests in Magdalena RD are frustrated by the political pull of “non-local” environmental groups who do not have the level of knowledge and understanding of the land that the ranchers possess.<sup>113</sup> Residents near the Mountainair RD may perceive large numbers of visitors as potentially harmful to the integrity of the area.

The tribes and pueblos of New Mexico have ancestral ties to lands that lie within and adjacent to the National Forest, and therefore view these lands as their “Homeland.” This heritage provides Native peoples with what they believe as “first right,” or at the least, an active and influential role, in decision-making processes that involve the use of this land and its resources.<sup>114</sup>

Another common complaint regarding the management of these special places is the perception that decisions are made without adequately inviting comments from the public or other interested parties. This has certainly been the case with land exchanges and tribal land use conflicts, even though the FS has formal procedures for inviting public comments.<sup>115</sup> The Native tribes cultural value of “first right” can conflict with the formal procedures of communication and protocol on the federal agency’s side.<sup>116</sup> Native Americans prefer that their comments be solicited very early on in any decision-making process, rather than as a response to implemented plans.

*Participants emphasized the importance of coordination prior to a planned action rather than “after-the-fact” that can result in unproductive outcomes or “a splinter in the finger.” Meaningful coordination and consultation is believed to occur when an action is “a twinkle in the eye”*

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<sup>111</sup> U.S. PIRG. (2004, July 12). News Room: *Statement of U.S. PIRG Executive Director Gene Karpinski on the Bush Administration’s Proposal to Repeal the Roadless Rule*, U.S. Public Interest Research Group. <http://uspirg.org/uspignewsroom.asp?id2=13808&id3=USPIRGnewsroom&>.

<sup>112</sup> Russell, J. C., & Adams-Russell, P. A. (2005b). *Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 11, 2005, pgs 22-23.

<sup>113</sup> 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. 30-34.

<sup>114</sup> Russell, J. C., & Adams-Russell, P. A. (2005b). *Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 11, 2005, p. 21.

<sup>115</sup> *Ibid.*, pgs. 13-15.

<sup>116</sup> *Ibid.*, p. 21.

*or when the action is conceived (Russell and Adams-Russell, 2005b, pg 30).*<sup>117</sup>

Otherwise, the cultural differences in the approach to decision-making processes can create frustration and friction with the local tribes. Native American tribes and/or pueblos adjacent to the Cibola NF, particularly the Mt. Taylor RD, have provided positive comments regarding communications from the NF personnel in comparison to what other NM Tribes have experienced with other NF offices.<sup>118</sup> Despite this, it is impossible to know what areas may be at risk for the pueblos and tribes if they are unable to share the locations of the cultural places at stake.

With growing population pressures and increasing conflicts between government bureaucracy and forest users, the management of special areas promises to become more complicated. As stated in the Wilderness Act of 1964, with "*...increasing population, accompanied by expanding settlement and growing mechanization, [the Act helps to] secure for the American people of present and future generations the benefits of an enduring resource of wilderness.*"<sup>119</sup>

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<sup>117</sup> Russell, J. C., & Adams-Russell, P. A. (2005b). *Values, Attitudes and Beliefs Toward National Forest System Lands: The New Mexico Tribal People* (Issue Brief). Placerville, CA: Adams-Russell Consulting, September 11, 2005, p. 30.

<sup>118</sup> *Ibid.*, p. 15.

<sup>119</sup> *Wilderness Act of 1964*. <http://www.wilderness.net/NWPS/documents/publiclaws/88-577.pdf>.