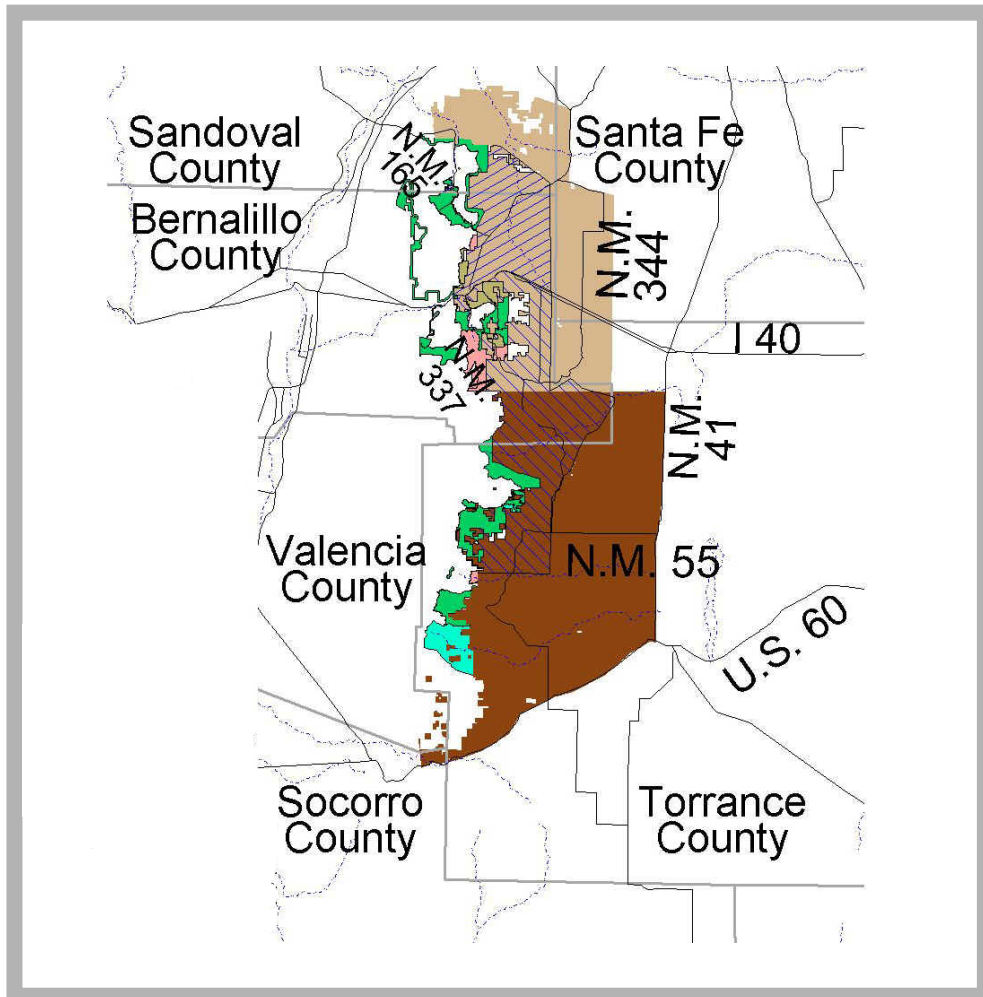


# An Evaluation of Fuel Reduction Projects in the Eastern Cibola National Forest

Mapping as Monitoring

by Jeff Morton



**National Community Forestry Center**  
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## SUMMARY

Las Humanas is an organization that represents low income, forest-dependent land grant communities in the Manzano Mountains in central New Mexico. Long concerned about the threat of wildfire to forest communities, Las Humanas helped convince Congress to establish a grant program that provides funding to reduce fuels on private land. As the only grants program available for private lands, Las Humanas became concerned when it perceived that the program was funding projects in communities north of the Manzano Mountains but not in the communities that it represents. The perception was especially troublesome given that communities of the East Mountains to the north are wealthier, bedroom communities of Albuquerque whereas those of the Manzano Mountains are predominantly economically distressed and forest-dependent. The average median income of the East Mountains communities is \$45,300, and the percent of families below the poverty line is 6.38%. In contrast, the Manzano Mountains communities average a median income of \$28,537 and 25% of its families are below the poverty line.

In order to establish a complete picture of funding, all grants awarded to communities within the area were studied. The findings of this project reveal that Las Humanas' concerns were well founded. In the fiscal years 2001 and 2002, all of the \$685,000 awarded for private land went to reduce fuels in three East Mountains bedroom communities. The grant distribution is particularly notable given the socioeconomic profiles of the East Mountains and Manzano Mountains communities. Suggestions for a more equitable funding process are made.

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## INTRODUCTION

Las Humanas was founded in 1996 as a community based cooperative that supports land grant communities of the Manzano Mountains in central New Mexico (Figure 1). Las Humanas is engaged in forest restoration and creates value added products from small diameter material. Its mission is to create local employment, improve the condition of the watershed, and reconnect local people to forest resources.

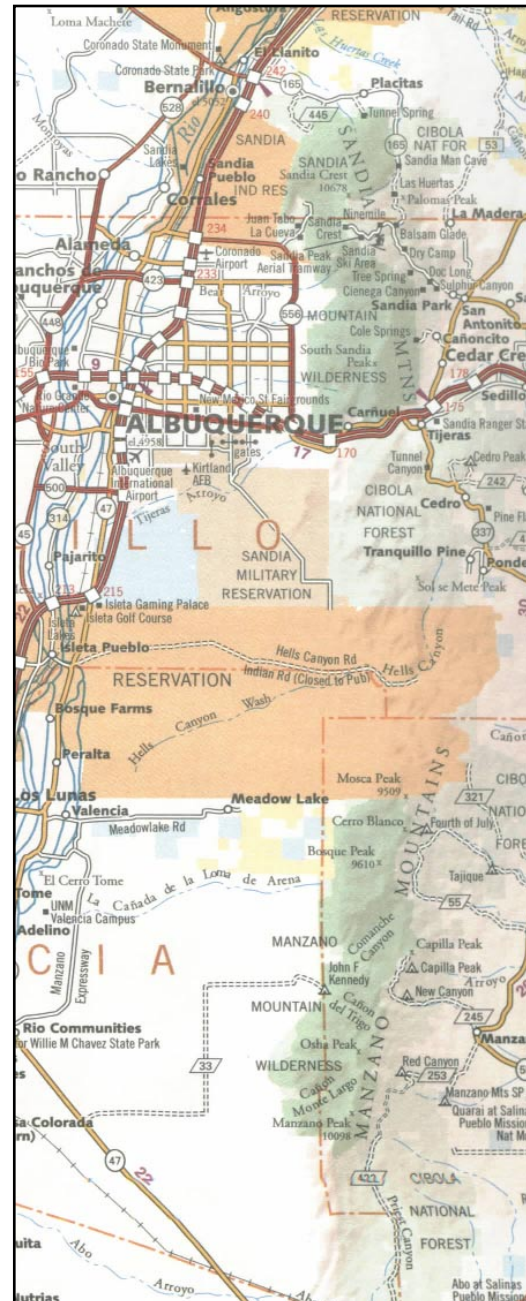
The project presented here was conceived when George Ramirez, president of Las Humanas, attended a National Fire Plan workshop co-hosted by the Southwest Community Forestry Research Center and the Forest Trust in April of 2002. At the workshop, the Forest Trust presented a mapping process to monitor Forest Service fuel reduction projects. George Ramirez saw additional ways the maps could be used to help Las Humanas document issues that are important to the population it represents. Specifically, Las Humanas perceived that defensible space grant money was funding projects to protect homes in wealthy communities to the north while none of the money had found its way to the poorer, and arguably more vulnerable communities it represents.

This project set out to test the validity of Las Humanas' perception by exploring potential vulnerability to wildfire, utilizing town-specific socioeconomic data and locating defensible space grant awards in relation to those measures. Other federal grants that are designed to address fire related issues and target forest-dependent communities were also mapped in order to present a more complete picture of funding in the area. The objectives devised to meet the overall goal were:

1. Locate and map area fire stations;
2. Establish socioeconomic attributes of the communities in and adjacent to the eastern Cibola National Forest;
3. Identify the amounts and exact locations of federally funded grants offered to forest-dependent communities, including defensible space grant awards, within the eastern Cibola area for the fiscal years 2001 and 2002.

Because defensible space grants were the primary concern of Las Humanas, much greater attention is given to this funding than to the other grants identified in this study.

Figure 1. An area map of the Sandia and Mountainair Ranger Districts.



From: Benchmark Maps; 1997; *New Mexico Road & Recreation Atlas, 2nd edition*. Map images are c 2003 Benchmark Maps. Used by permission.

## BACKGROUND

In the wake of drought and severe fire seasons in the west, Congress and federal agencies have created several funding sources to protect and build the capacities of forest-dependent communities. Among these are the following:

1. Collaborative Forest Restoration Program. The program funds public or tribal land forest restoration efforts and projects in New Mexico that use small diameter trees removed from those lands.
2. Economic Action Program. The EAP supports pilot projects that utilize small diameter, hazardous fuels removed from forests adjacent to the wildland-urban interface.
3. Rural Community Assistance Grants. An EAP grant that supports collaborative planning efforts or projects that will stimulate improvements in the communities.
4. Community Planning for Fire Protection Grants. This grants program provides for community planning to meet the challenges of protecting against wildfires in the near and far terms.
5. Four Corners Grants. A grant provided through the Four Corners Sustainable Forestry Partnership, the program provides help to locally owned forest-based businesses.
6. Defensible Space Grant (Hazardous Fuels Mitigation). The defensible space grant is federally funded and available to 17 western states and the Western Pacific Territories. The grant is administered by recipient state's individual forestry agency and can be used to reduce hazardous fuels on private land and to inform and educate communities at risk of wildfire (USDA Forest Service 2003a).

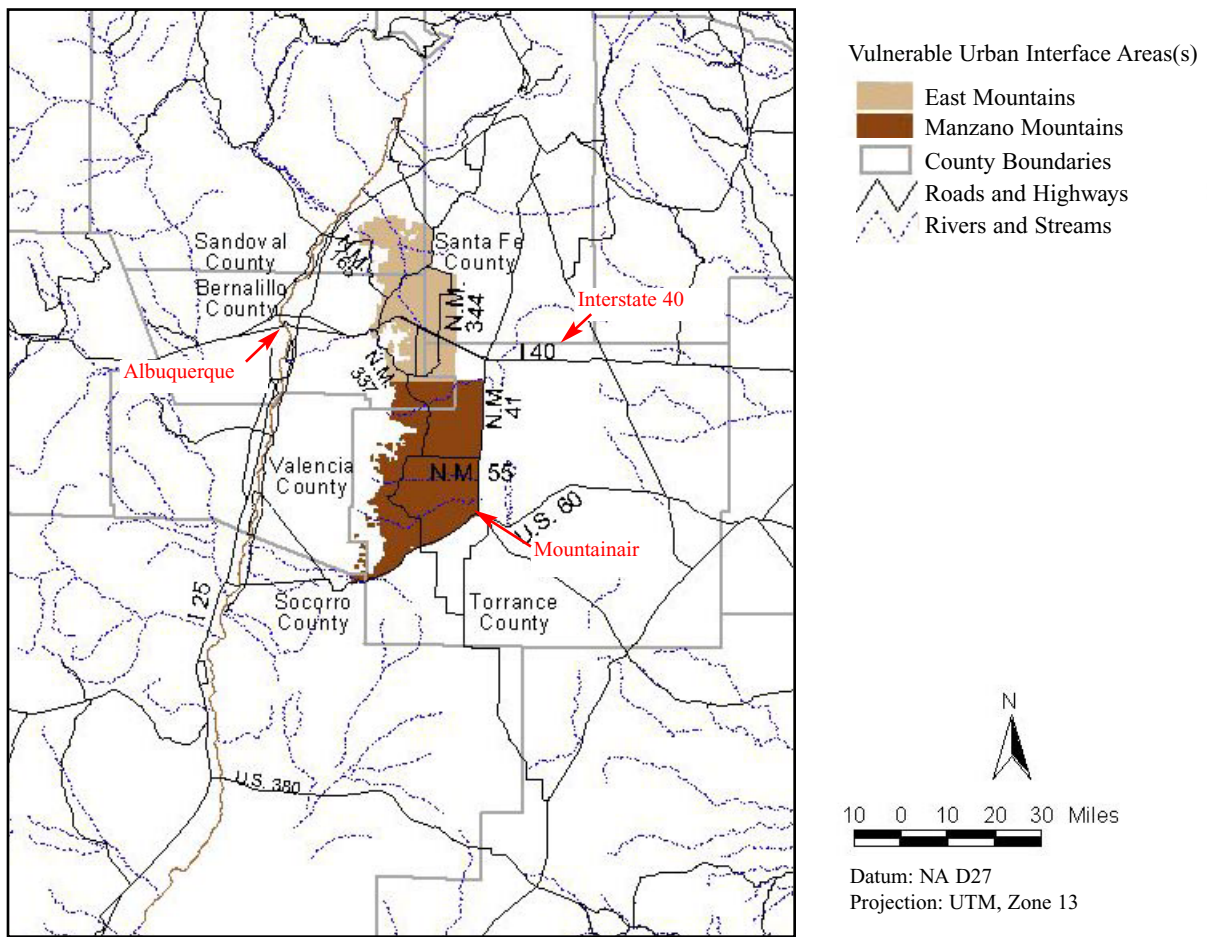
### *Defensible Space Grants*

Defensible space refers to an area immediately surrounding homes and buildings that has been cleared of potential fuel. This clearing serves as a fuel break and provides a safe point of attack for firefighters. Defensible space offers significant protection for homes from a wildfire and has long been of interest to the Manzano Mountains communities. Many families live directly adjacent to the national forest and feel vulnerable to the risk of fire, but federal funding for projects that reduce hazardous fuels on private land was not available until 2000.

Established in part due to testimony provided to Congress by Las Humanas in 1999, the Forestry Division of the New Mexico Energy, Minerals and Natural Resources Department began distributing defensible space grants in FY 2000. For the first two years of the program's life, NM State Forestry has awarded grants according to its '20 Community Strategy,' which identified the twenty most vulnerable communities to wildfire in the state. Defensible space grants are available to counties, municipalities and local non-profit community entities that represent the interests of the 20 vulnerable communities. The East Mountains and Manzano Mountains communities are both eligible (Figure 2).

Other stipulations of the program include that eligible expenditures include labor, supplies, travel and materials but do not include the purchase of land, equipment and buildings. A 50/50 match for federal funds is required, which may be consolidated at the state level with a combination of all State Fire Assistance programs. "In-kind services may be considered part of the match" (USDA Forest Service 2003b). A pool of about six crews who implement the private land projects is created at the beginning of each grant cycle, and the crew is allowed to keep all but eight cords of the wood removed (Ramirez, personal communication). Projects are limited to five acres in size and cost between \$950 and \$1700 per acre. An average thinning costs \$1100 per acre (Rich, personal communication).

Figure 2. A Map of the East Mountains and Manzano Mountains Vulnerable Communities.



Source:

[http://www.emnrd.state.nm.us/forestry/20communities/ManzanoMtns/Central\\_Bern\\_%20WUIVicinity.html](http://www.emnrd.state.nm.us/forestry/20communities/ManzanoMtns/Central_Bern_%20WUIVicinity.html)

### *Defensible Space Projects of the eastern Cibola National Forest*

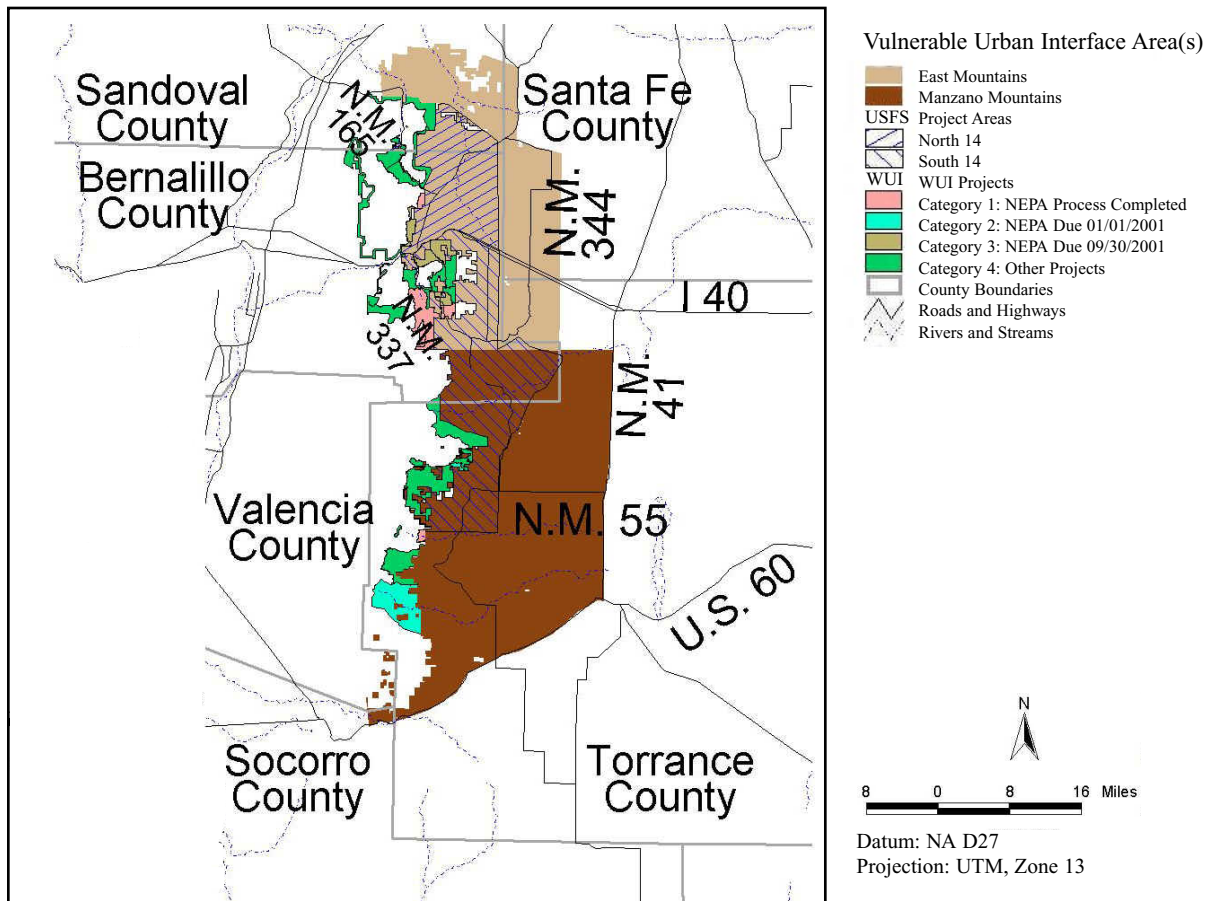
As reported by NM State Forestry, there are two project areas that impact the East and Manzano Mountains communities (Figure 3). The North 14 project is wholly within the East Mountains while the South 14 covers parts of both the East and Manzano Mountains vulnerable communities. The community descriptions given to both project areas are “primarily bedroom and retirement communities for the greater Albuquerque area” (New Mexico EMNRD, Forestry Division 2003). Awards to the North and South 14 projects in FY 2000 and 2001 total \$215,000 and \$470,000 respectively. Specific locations of projects funded by the grant money were not listed.

## **METHODS**

First and foremost, this was a participatory research project. As such, Las Humanas’ needs and interests were of critical importance in guiding the research (Whyte, 1991). While participatory research can take many forms, in this case, Las Humanas worked closely with Forest Trust research staff to frame the original research questions, determine the map layers that were generated, and interpret mapping results.



Figure 3. A map of the private land, defensible space project areas.



Source:

[http://www.emnrd.state.nm.us/forestry/20communities/ManzanoMtns/Central\\_Bern\\_%20WUIProj.html](http://www.emnrd.state.nm.us/forestry/20communities/ManzanoMtns/Central_Bern_%20WUIProj.html)

### Fire Stations

The locations and capacities of area fire stations was provided by NM State Forestry (Rossbeck, personal communication).

### Socioeconomic Characteristics

Socioeconomic attributes of the eastern Cibola National Forest communities were obtained from the most recent set of national census data. The socioeconomic variables chosen for comparison were population, median income, and poverty levels. Data for each of these variables were obtained from 2000 U.S. Census Reports by “census designated places” adjacent and within the Mountainair and Sandia Ranger Districts of the Cibola National Forest. If a village was not a “census designated place,” it was not possible to obtain any socioeconomic information and it was not included on the maps. A sufficient number of Manzano Mountains villages were recognized as “census designated places” in the 2000 Census to capture the overall character of the area. While there can be sampling problems with Census data, it provided the most current and accurate data available for communities in the study area. Data on population were obtained from the U.S. Census Bureau’s Quick Table DP-1 – Profile of General Demographic Characteristics: 2000. Data on Median Household Income and Poverty Status (percent families below poverty level) were obtained from the U.S. Census Bureau’s Quick Table DP-3 – Profile of Selected Economic Characteristics: 2000. Specific methods for obtaining these are described in Appendix A.

Census data were then mapped onto three overlays, one for each characteristic (population, median household income, and poverty level) by using scaled dots. Large dots indicate relatively high population, median household income, or poverty level. Income and poverty are thus inversely related: a poor community would have a smaller dot for median household income and a larger dot for poverty level (Appendices B, C and D).

#### *Grant Recipients*

Initial information about the grants was compiled from a variety of sources: Kunkel and Steelman (personal communication), local knowledge, and NM State Forestry (2003). Additional information about private land defensible space projects was compiled from interviews with NM State Forestry and the grant recipient for the North and South 14 projects, the Ciudad Soil and Water Conservation District (Ciudad).

## **FINDINGS**

#### *Fire Stations*

Two fire stations were identified in the study area. Both are volunteer fire departments and are located in Torreon and Mountainair. Two additional fire stations in Estancia, which is about 13 miles east of Tajique, and Bernalillo, about 6 miles west of Placitas, were also reported. In terms of response time and capacity, the Bernalillo department is considered to be the highest functioning (Rossback, personal communication).

#### *Socioeconomic Characteristics*

Census data show that both population and income are concentrated in the north of the study area, while poverty is focused in the south (Table 1). Data from two of the Manzano Mountains communities (Manzano and Tajique) ranked lowest in median household income and highest in poverty. Manzano, a village of 54 people, showed a median income of \$13,750 and a poverty level of 35%. Tajique, a village of 148 people, showed a median income of \$27,969 and a poverty level of 34%.

In comparison, towns to the north, such as Cedar Crest or Tijeras, had higher populations, higher median incomes, and lower poverty. Tijeras Village had a population of 474, a median income of \$34,167, and a poverty level of 9.6%. Cedar Crest had a population of 1060, a median income of \$50,865, and a poverty level of 5.1%. In general, communities in the southern part of the study area rely on the forests much more heavily for sustenance and employment than do the communities to the north.



Figure 4. A home in a Manzano Mountains community.



Figure 5. A home in an East Mountains community.

### *Capacity Building and Fire Protection Grants*

A total of six other grants, excluding defensible space awards, were received in the eastern Cibola region in FY 2001 and 2002 (Appendix F). Three grants funded an entrepreneurial effort based in Mountainair. Two additional grants were awarded to Las Humanas, one to purchase a viga peeler and the other for “Collaborative Forest Restoration Program” activities. Finally, a “Community Planning for Fire Protection” grant was awarded to the Chilili land grant. All recipients were within the Manzano Mountains vulnerable community area.

Table 1. Economic Characteristics by Census Designated Place

	<b>Town</b>	<b>Population</b>	<b>Median Income</b>	<b>Poverty Status*</b>
State of New Mexico			34,133	14.5
The Northern East Mtn. Communities				
	Carnuel CDP	872	37,813	9.20
	Cedar Crest CDP	1060	50,865	5.1
	Placitas CDP	3452	60,597	2.6
	Tijeras Village	474	34,167	9.6
<i>% of Study Area Population</i>		78%		
<b>Averages</b>			45,299.60	6.38%
The Southern Manzano Mtn. Communities				
	Chilili CDP	113	43,571	23.8
	Manzano CDP	54	13,750	35
	Tajique CDP	148	27,969	34
	Torreón CDP	244	36,250	12.9
	Mountainair	1116	21,146	19.3
<i>% of Study Area Population</i>		28%		
<b>Averages</b>			28,537.20	25%

\* % of families below poverty level

### *Defensible Space Grants*

Despite that the South 14 project boundary extends into the Manzano Mountains vulnerable community area (Figure 3), all of the \$685,000 allocated to this unit went to treat private lands in the East Mountains communities. Defensible space projects were wholly focused within three bedroom communities of Albuquerque. No defensible space projects were being funded in the Manzano Mountains region (Appendix E).



## DISCUSSION

### *Fire Stations*

As a tool for defining community vulnerability, the presence or absence of fire stations makes sense. NM State Forestry, however, emphasized that distance from a fire station alone would be of questionable value (Rossback, personal communication). Instead, other attributes of the fire stations, including capacities, available equipment, and response time need to be considered. For the eastern Cibola, the Bernalillo fire department was reported as the highest functioning station and is often the first crew on a fire anywhere within the study area. Accordingly, despite that there are two stations in the vicinity of the Manzano Mountains communities, they would appear to be at a greater risk due to the distance from Bernalillo.

### *Defensible Space Grants*

Several factors play a role in explaining why defensible space grants have not been distributed to the more forest-dependent and economically stressed communities of the Manzano Mountains area. First and foremost among these are requirements that NM State Forestry and Ciudad have applied in administering the grants.

For the North and South 14 projects, the cost match required from the private landowner is set at 30%. Despite rules that would permit in-kind matches, the match is required to be cash. Reasons cited for requiring cash matches include the fact that the grants themselves are not outright cash outlays but reimbursements, and contractors are required to make deposits before they will begin work (Rich, personal communication). Another cited reason is that the logistics of administering in-kind grants is excessively burdensome (Neskauskas, personal communication). Cash matches of 30-50%, however, amount to approximately 10% of the forest-dependent communities' annual income. The fact that a cash outlay is required, therefore, is essentially prohibitive to the Manzano Mountains communities.

In Tajique, Torreon, Manzano and Mountainair, meeting the cash outlay for a 5-acre project would cost more than 7% of the average community member's annual income. For just Mountainair and Manzano, a 5-acre treatment cash match would require 10% of their annual income. The cash match requirement is prohibitively expensive for poorer communities. Second, to forest-dependent communities, thinned wood is a resource that they should be allowed to keep or be reimbursed for. Paying a crew to thin their land and giving the crew the wood is economically illogical and a disincentive to participate in the grant program.

Finally, while a few informational meetings were conducted early on, the primary means of publicizing the grant program is by word of mouth. Ciudad currently maintains a waiting list of private landowners who have applied for grant money on a first-come, first-serve basis. The vast majority of new applicants have learned of the grants from their neighbors or by observing a project in the neighborhood. (Rich, personal communication). In areas where grant funds have not been allocated, first hand observation is not possible.

A last point of discussion related to the placement of defensible space work is related to the risk of a wildfire spreading from public land onto private land. The US Forest Service is mandated to focus its fuel reduction efforts on areas of national forest that are adjacent to human populations. While Forest Service projects are not limited to defensible space project areas, the agency has developed projects to complement work being done on private land. If defensible space is only being created in a few wealthy neighborhoods, issues of equity are amplified.

## RECOMMENDATIONS

Full reduction grants are distributed by a wide array of agencies and organizations and can be difficult or even overwhelming to lower-capacity communities. The issues raised here depict the challenges specific to one group of economically stressed communities and in no way are meant to generalize about all communities or all grant processes. The following recommendations may allow these lessons to be applied to many grant programs designed for rural communities in implementing the National Fire Plan.

1. Consider prioritizing individual landowner grant applicants. While any work in a vulnerable community is valuable, NM State Forestry and the responsible agents for grants (in this case, Ciudad) should consider replacing a first-come, first-serve system with one that involves a prioritization process. Criteria that could serve as a basis for prioritization include proximity to effective fire stations (Rossback, personal communication). The ability of a community to recover should they suffer a catastrophic fire, based upon their economic stability, ability to afford fire insurance, and the relative length of time it would take to recover, could also help prioritize communities and individual land owners.
2. Allow for in-kind matches. At the federal level, in-kind matches are permissible, and organizations distributing the grant funds should do everything that they can to keep this provision in the granting process.
3. Consider expanding the contractor selection process. While soliciting bids from contractors for each small project would be an administrative debacle, refining the contracting system could yield real program benefits. A contracting system that drew from a larger pool or that allowed contractors to join the pool during the fiscal year could resolve some issues of a labor in-kind match. While the contractors are local to the East Mountains, the pool of six is not necessarily local to all communities within the Manzano Mountains vulnerable area. Crews that are local to the more economically distressed areas may be more flexible in dealing with the reimbursement nature of the grant program such that poorer communities would not need to provide 30% of the project cost up front.
4. Allow landowners to keep more of the cut wood and have greater input for work done on their land. To forest-dependent communities, it does not make sense to pay a contractor to harvest and lose their wood. The trees are valuable as a source of energy and for non-timber forest products. Their forested land is too important to have no say in which trees are cut and how they are harvested.

## CONCLUSION

All of the money for reducing fuels on private lands has gone to communities in the East Mountains communities. While the population of the East Mountains vulnerable area is significantly larger than that of the Manzano Mountains, allocating 100% of defensible space funds to the former is clearly inequitable. The iniquity is especially sensitive when socioeconomic factors for the two communities are considered. Changes to the granting process are necessary if economically distressed communities are ever to reap benefits of the grant program.

## LITERATURE CITED

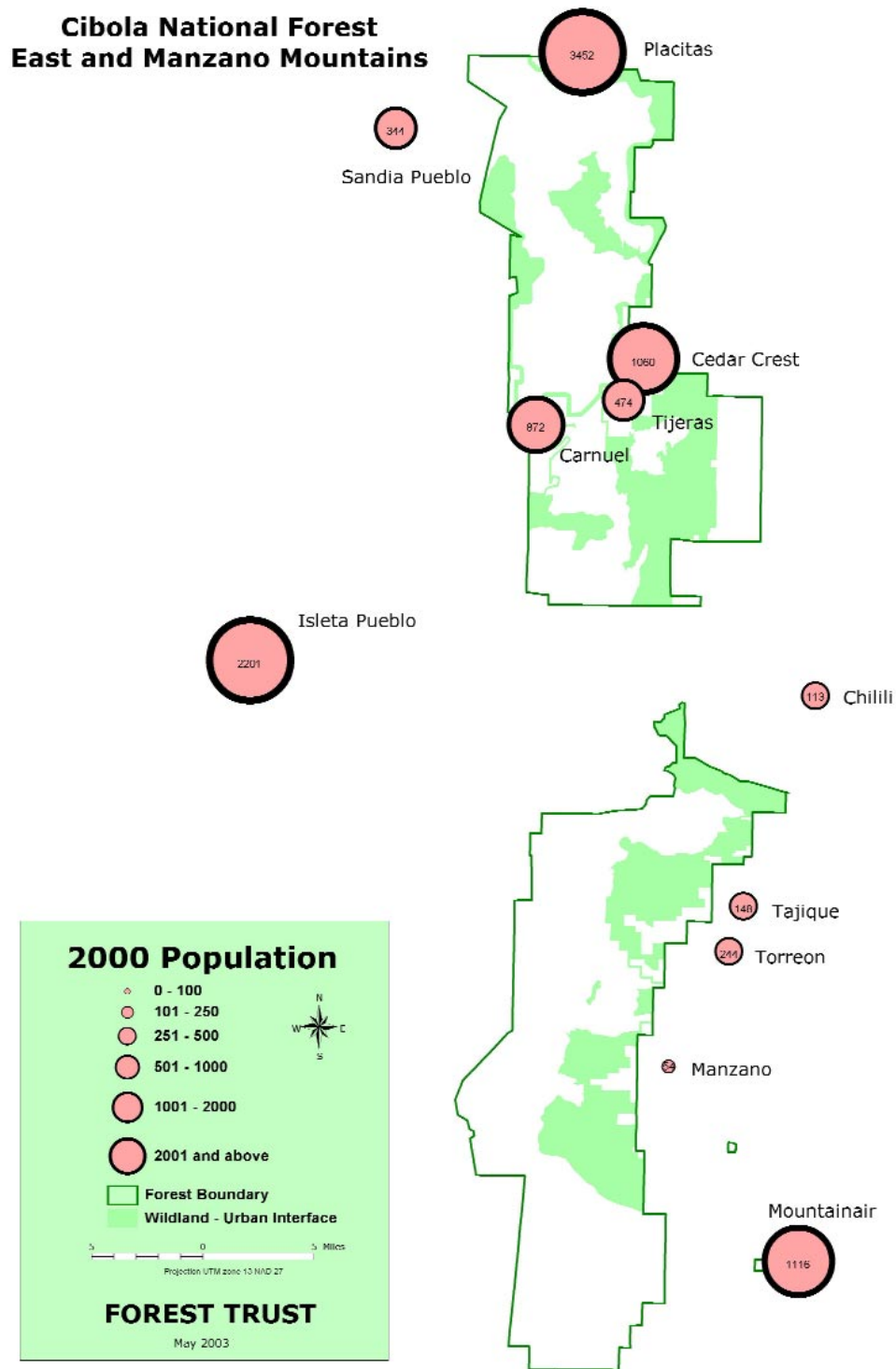
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## **Appendix A: Obtaining U.S. Census Data**

Many rural communities in New Mexico are unincorporated towns. This can make obtaining Census data a challenge. However, the 2000 U.S. Census reports provide a means to obtain information about “census designated places.” Census data were obtained through the following steps for each designated place:

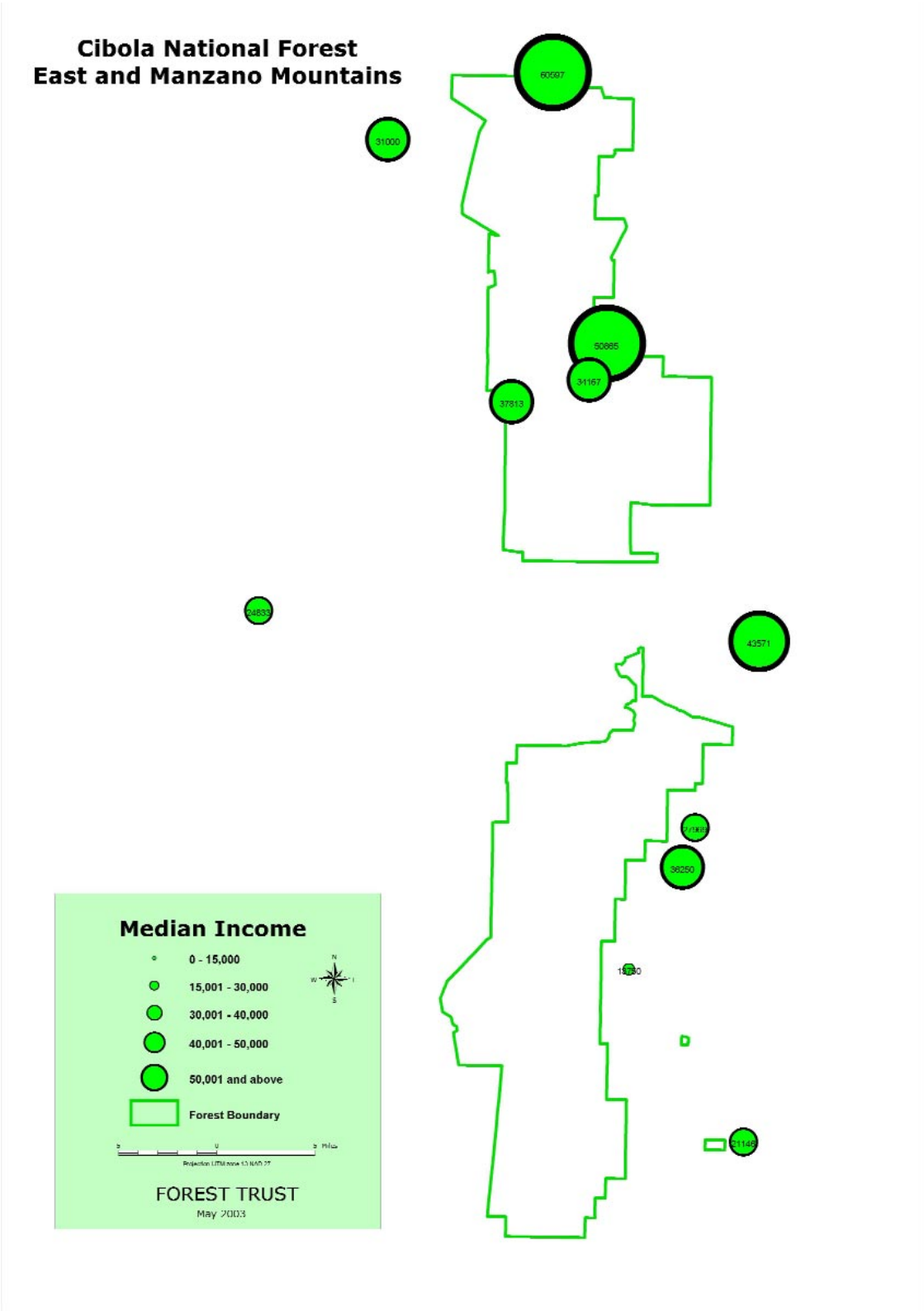
1. Go to [www.census.gov](http://www.census.gov)
2. Click on “your gateway to census 2000”
3. Click on “Enter a street address to find Census 2000 data”
4. At the prompt, “Choose a selection method,” click on “name search”
5. Restrict search to New Mexico
6. At the “Enter name” prompt, type the place name, e.g., Torreon, and enter “GO”
7. Select (click on) the place and Click “OK”
8. Once the data is retrieved, Scroll down to “Quick Tables and Demographic Profiles”
9. Select Table DP-1 – Profile of General Demographic Characteristics: 2000 for Total Population Numbers; Select DP-3 – Profile of Selected Economic Characteristics: 2000 for Median Household Income and Poverty Levels.
10. Obtain the numbers for each of the characteristics desired.

# Appendix B: Population of the Study Area

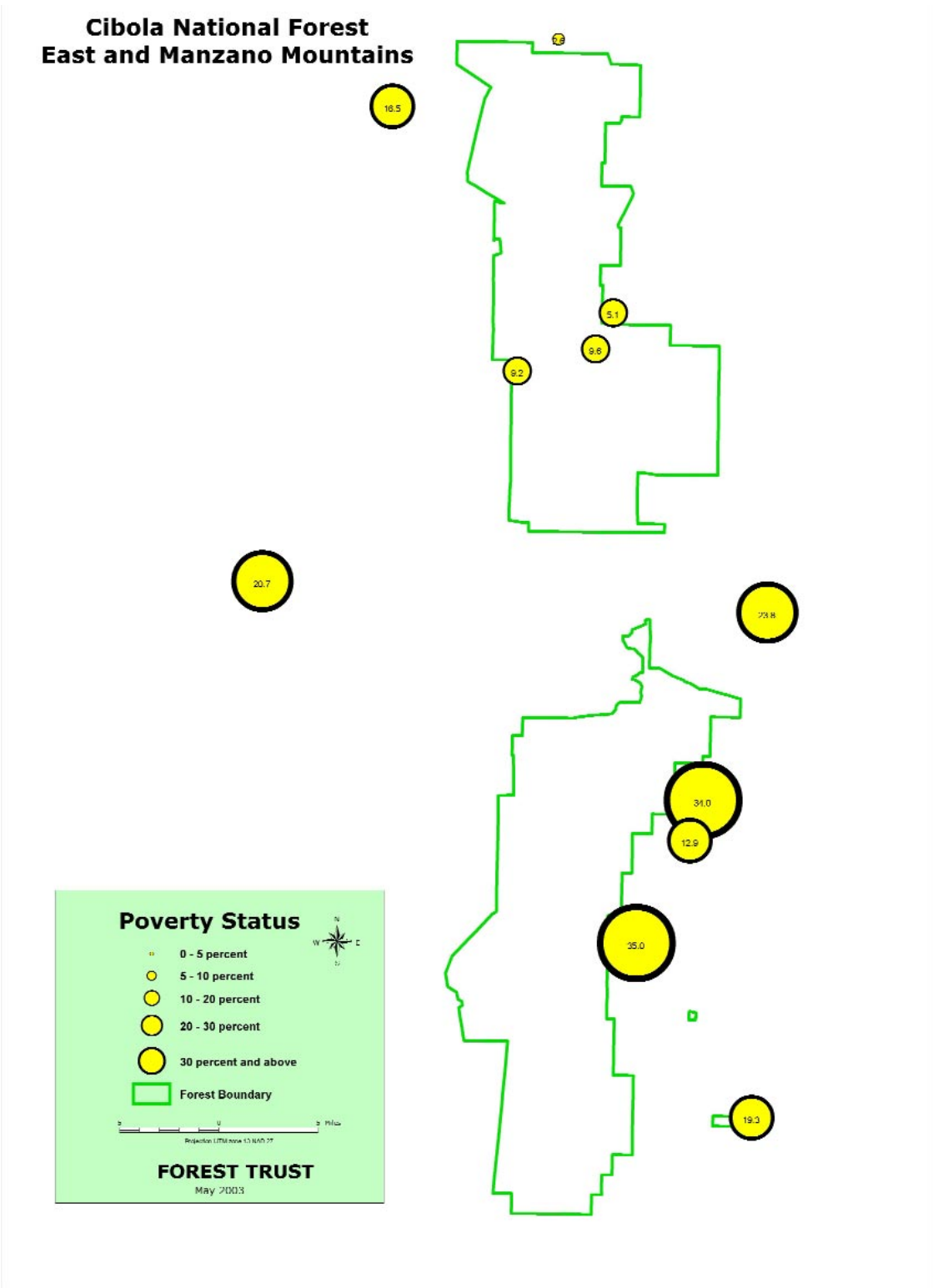




Appendix C: Median Incomes in the Study Area

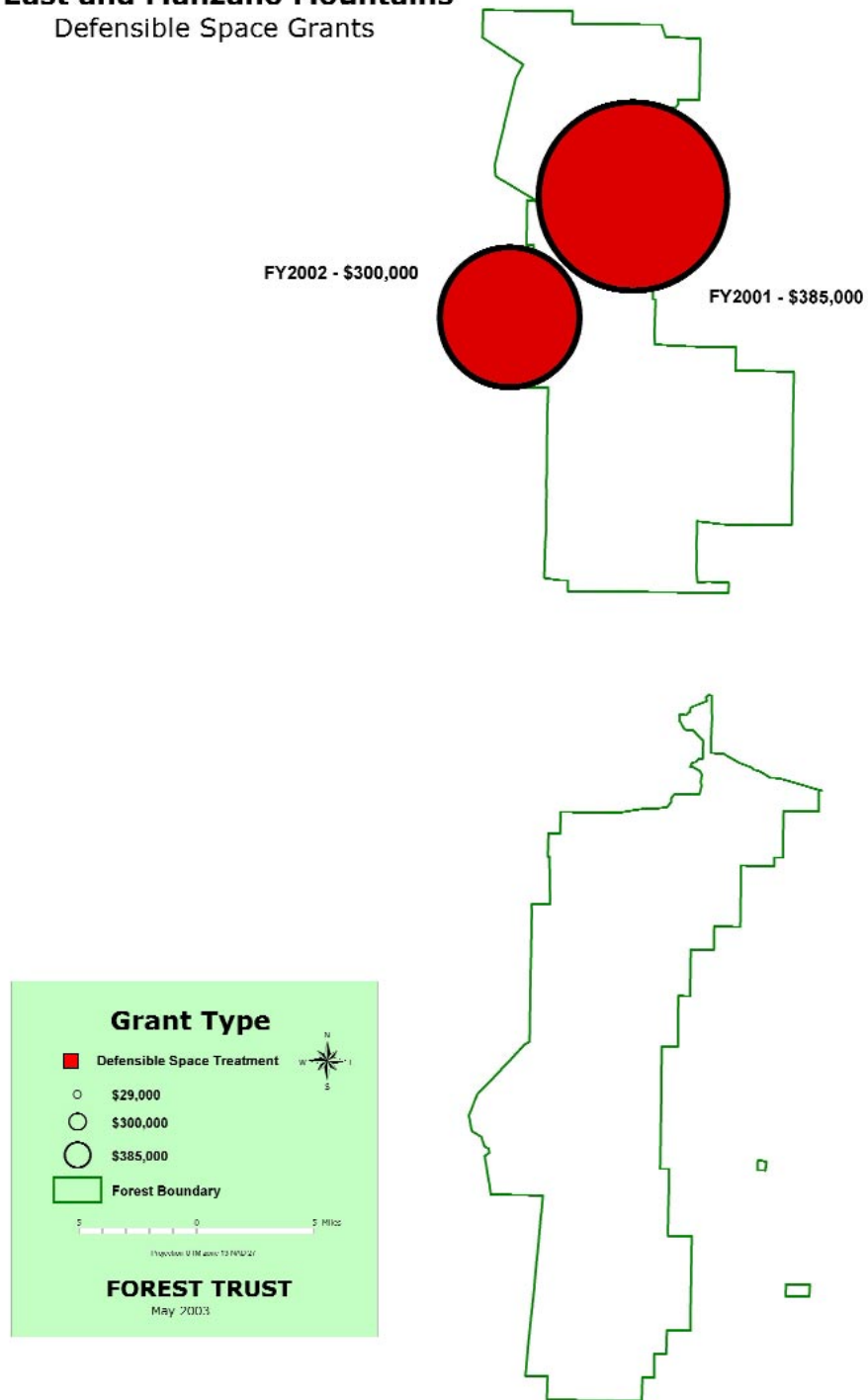


Appendix D: Poverty in the Study Area



## Appendix E: Defensible Space Grants in the Study Area

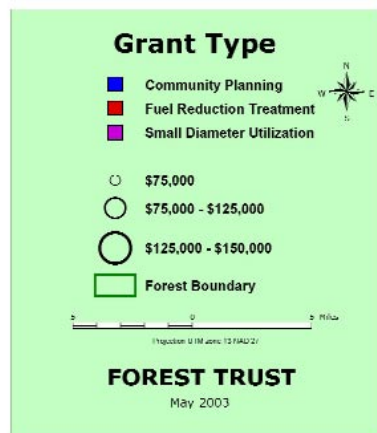
### Cibola National Forest East and Manzano Mountains Defensible Space Grants



## Appendix F: Capacity Building in the Study Area

### Cibola National Forest East and Manzano Mountains

Capacity Building and  
Fire Protection Grants



NOTES: \* A \$360,000 grant evenly distributed over 3 years  
 \*\* A \$360,000 grant distributed evenly over 3 years (FY02-04)

