

## **Overview**

Santa Fe is a medium sized city of over 70,000 people located in north central New Mexico. According to the 2000 census, the median home value is \$187,182 with 5% of the homes occupied seasonally. The median household income is \$42,624. A high desert region, the area receives only 14 inches of rain each year. Santa Fe sits at 7,000 feet in elevation bordering the Sangre de Cristo Mountain Range to the east. The surrounding area is comprised of a variety of forests with pinon-juniper transitioning to ponderosa pine which transitions to mixed conifer. The city is headquarters for several environmental groups that are vigorous in their efforts to preserve public lands and environmental values.

## **The Santa Fe Watershed**

Northeast of the city resides the Santa Fe Watershed, an almost entirely uninhabited site closed to all public use. In the watershed, the Santa Fe River flows through the Pecos Wilderness to fill two reservoirs, Nichols and McClure, which supply Santa Fe with approximately 40% of its water. Today the watershed is densely overpopulated with ponderosa pine, white fir, and douglas fir. The fire hazard in the watershed poses a formidable risk to the city's water supply. In 2000 one fire started in the watershed and a helicopter put it out. In 2000, two large fires, the Viveash and Cerro Grande, occurred near the Santa Fe Watershed. In 2001, 100 acres burned in a drainage in the wilderness on the east side of the Municipal watershed, with its head on the watershed boundary. These fires demonstrate the palpable and immediate threat faced by the Santa Fe in the watershed.

Out of the 17,520 acres encompassing the watershed, the Santa Fe National Forest (SFNF) is responsible for 15,493. Half of the SFNF acreage is located in the Pecos Wilderness, where thinning is banned, and therefore off limits to any treatment. The City of Santa Fe owns 1,124 acres. The Randall Davey Audubon Society owns 135 acres and The Nature Conservancy owns 290 acres. The remaining 478 acres are owned by private entities.

The density of trees in the watershed places it at risk from catastrophic wildfire. There is a high probability of a large crown fire burning the entire watershed during drought conditions, which have been prevalent in the last few years and are projected for the coming year. A large stand-replacing fire likely could have some, if not all, of the following effects: 1) heavy flooding into Santa Fe; 2) movement of soil, mud and woody debris into the canyon bottom and reservoirs; 3) damage to or loss of homes, habitats and drinking water supply; 4) spread of fire into residential and developed recreation areas; 5) major smoke infiltration into urban areas, resulting in health problems. Wildfire would denude the slopes creating conditions for sedimentation and erosion to fill the reservoirs thereby compromising the short and long-term water supply of Santa Fe. In addition to the risk posed to the water supply, the overly dense vegetation suppresses herbaceous plants reducing biological diversity and compromising soil stability.

## **Addressing the threat**

The Santa Fe Municipal Watershed Project (SFMWP) has been the main focus for addressing this problem. The process to develop the SFMWP began in 1998 when the City of Santa Fe funded an existing conditions study to investigate the Watershed. The Environmental Impact Statement (EIS) Team began the NEPA process in June 2000. The EIS was developed by the Santa Fe National Forest. There was active participation by the "Partners' Group", which

included the City of Santa Fe, the Santa Fe Watershed Association, NM State Forestry, NM Environment Department (Surface Water Quality Section), other community and environmental groups, and the academic community. The Partners' Group met for over a year while the Environmental Assessment and then the EIS was prepared. The Summary Draft EIS was completed in March 2001 and was unsuccessfully appealed. The Santa Fe Municipal Watershed Project was approved as NEPA-ready in January 2002. While the EIS has been actionable for more than a year, little thinning has taken place on site. Consequently, the Santa Fe Watershed continues to face great risk from catastrophic wildfire.

### **National Fire Plan (NFP) Community Assistance Programs**

In New Mexico, NFP Community Assistance Programs incentivize communities to address their wildfire threat through five grant programs; 1) 20 Communities Cost-Share Program, supports thinning on private land, 2) Economic Action Programs, develops economic opportunities related to traditionally underutilized wood products 3) Volunteer/Rural Fire Assistance, improves firefighting capabilities of rural fire departments 4) Four Corners Sustainable Forest Partnerships, promotes community development through forest restoration and 5) Collaborative Forest Restoration Program, supports projects to restore forests on public lands.

Santa Fe has used the NFP Community Assistance Programs on a limited basis. In 2001, Santa Fe was funded \$50,000 through NFP Community Assistance Programs.

### **Why is the Santa Fe Watershed at such high risk of a catastrophic wildfire?**

Prior to 1900 the ponderosa pine in the area experienced a fire on average every 5 to 15 years. Frequent surface fires favored a grassy understory and kept the pine density and fuel accumulation in check. The 1890s brought changes to the landscape. The transcontinental railroad was built which made large-scale livestock grazing economical. Livestock grazing reduced the grassy surface fuels resulting in de facto fire exclusion, which was followed by institutionalized fire suppression. The most obvious effects of fire exclusion on area ponderosa pine forests have been increases in tree densities and fuel loading and a decrease in understory herbaceous vegetation. The changes in forest structure and fuel accumulations over the past hundred years have made these forests not only susceptible to crown fires but also from insect and disease outbreaks. The Santa Fe Watershed was closed to the public in 1932 to protect the water quality from the effects of grazing and undesirable human activities.

### **WGA Goal - Improve Fire Prevention and Suppression**

Actions to meet goal

- Improve firefighting capability/readiness to protect communities and the environment
- Reduce incidence of injury to life and property resulting from catastrophic wildland fire
- Expand outreach and education to homeowners
- Develop a consistent preparedness model among partners

### **Two neighborhoods at risk**

Santa Fe has not experienced a wildfire in its wildland urban interface in recent years. Federal, state and local efforts to convey to homeowners the need to thin and create defensible space around homes has been a difficult endeavor. Two neighborhoods are at the greatest risk in the event of a wildfire in the Watershed—the Upper Canyon Road and Hyde Park Estates

### **Upper Canyon Road**

Upper Canyon Road follows the Santa Fe River east, ending at the only access road leading into the Watershed. Houses are built close to the road with little to no room left for expansion. At present, the width of Upper Canyon Road does not meet city specifications of a legal road. An emergency situation along Upper Canyon Road makes access into and out of the area challenging for emergency vehicles to respond.

Little to no effort or interest has been put forth by the neighborhood to create defensible space around homes. Residents do not want to cut down trees. One longtime resident knew of no planned evacuation route for the neighborhood. Moreover, the Canyon Neighborhood Association, which has represented the homeowners on Upper Canyon Road for 25 years, has been mostly inactive since the 1990s. There has not been interest from the association regarding the Santa Fe Municipal Watershed Project (SFMWP) except to oppose the transportation of timber out of the watershed on trucks via Upper Canyon Road.

### **Hyde Park Estates**

Hyde Park Estates is a rapidly growing residential area that borders the watershed. The USFS selected Hyde Park Estates as a FIREWISE pilot community based on the Santa Fe County WUI Assessment categorizing the subdivision at very high risk of catastrophic wildfire. The USFS, NMSF and Santa Fe County Fire Department completed a FIREWISE workshop in 2001 with residents within Hyde Park Estates. When Jack Cohen from the USFS's Fire Science Lab in Montana visited Hyde Park, he said it was one of the worst communities he had seen in terms of potential to burn.

The neighborhood conducts FIREWISE meetings every quarter or as often as needed. Clean up days are very popular and are scheduled twice a year. The USFS provides a chipper and residents can dispose of slash and thinning debris.

A limited number of homes in this subdivision have performed thinning work and created defensible space. Out of 69 lots in Hyde Park Estates, about seven homeowners have created defensible space around their homes. Some residents are vehemently opposed to thinning because they feel the aesthetics of the subdivision are compromised through the thinning work. Claudia Standish is the USFS WUI Specialist working with the Hyde Park residents and coordination of FIREWISE activities. Her hope is that little by little people will come around, "I, for one, feel very passionately about making some difference in the communities we serve but it is ultimately the responsibility of the homeowner to be responsible for his or her structure ignition zone."

### **Santa Fe city fire department**

Santa Fe Fire Chief Sperling feels the city is behind in its actions to deal with the wildland fire threat as a whole. The city has not experienced interface wildfires, so it hasn't been on the radar

of the fire community or the public at large. The Cerro Grande fire in 2000 began to change attitudes.

The City Fire Department has 122 full time employees and five fire stations to support the area population of 70,000. Prior to January 2003 they were responding only to structural and EMS calls, but are now in the process of crosstraining. The City started training firefighters in 131-190 (basic wildland training) in January 2003. The goal is to have the training completed by March 2003, in time for fire season. They have reciprocal training agreements with Los Alamos, who provides the instructors for 131-190.

*Update* - Since the site visit, the Santa Fe Fire Department has completed 130-190 basic wildland training for all personnel.

Santa Fe hired a wildland urban interface specialist in January 2003 to prepare hazardous risk assessments, develop desirable future conditions, conduct community-wide education, design fire management activities, help with property protection and interface with the watershed.

### **Santa Fe county fire department**

Santa Fe County Fire Chief, Hank Blackwell, leads a force of 120 highly trained firefighters with 80 rolling apparatus. The County is part of the New Mexico Resource Mobilization Plan, a process which upgrades wildland fire fighting ability statewide. Santa Fe County was the first county in the state to meet the National Wildfire Coordinating Group standards and they have established a wildland fire fighting team. Santa Fe County Fire Department is the most deployed wildland fire fighting county in the state.

The county established the Santa Fe Wildfire Cooperators with the Santa Fe National Forest around 1997. This group brings together federal and local agencies with citizen's groups to facilitate information across organizations. It is a platform for federal and local agencies to collaborate with the public concerning fire danger, evacuation routes, fire preparedness, disseminates information, schedules meetings with the public and more.

The county, mostly through the efforts of Hank Blackwell, developed and passed the Urban Wildland Interface Ordinance in 2001. This code deals with interface issues, access, water supply, etc. When the process first began, the county met huge resistance. Blackwell organized a citizen's coalition group to work with him in drafting a workable and acceptable code. The group was extremely devoted and met once a week for five hours for over three months. The end product was a code that passed unanimously with the public.

### **WGA Goal - Reduce Hazardous Fuels**

Actions to meet goal Reduce acres at risk

- Ensure communities most at risk receive priority
- Expand and improve integration of hazardous fuels management program

- Incorporate public health and environmental quality considerations in fire management activities
- Develop smoke management plans in conjunction with prescribed fire planning
- Address fire-prone ecosystem problems
- Maintain areas improved by fuels treatment
- Conduct and utilize research to support the reduction of hazardous fuels in WUI communities
- Factor in local environmental conditions during fuels treatment planning

National Fire Plan Community Assistance Programs have not been used to address the wildfire risk in the Santa Fe Watershed or on private property bordering the watershed. Additionally, progress in reducing hazardous fuels in the Santa Fe Watershed has been slow. Both the City and the USFS have experienced numerous obstacles.

#### **Thinning on city property**

The city has treated 50 acres, or 4% of the approximately 1,200 owned in the watershed. La Montana, a locally owned company, was hired to thin approximately 400 acres. The La Montana crew of six people thinned the area with chainsaws and snaked the trees down to the road with four-wheel all terrain vehicles. La Montana was paid \$835/acre to thin City property. Treatment of the property was more expensive and labor intensive than initially expected. In the end La Montana thinned only 50 acres of the proposed 400 acres.

#### **Thinning on USFS property**

The SFMWP was NEPA ready as of January 2002, yet as of January 2003, only 18 acres out of the 7000 acres in the SFMWP had been thinned. According to USFS Espanola District several factors have contributed to this delay. A delay occurred soon after completion of the EIS in September 2001. The State Historic Preservation Office (SHPO) halted the project due to what they considered inadequate documentation of historical features. USFS archeologist provided the additional information to ensure that SHPO requirements were addresses adequately to allow thinning to begin in 2002. Another delay occurred when the Santa Fe National Forest closed in May 2002 due to an increased wildfire threat and did not reopen until September 2002. No thinning can take place during a forest closure. Lastly, a Montana company, Forest Rehab, owned by Don Peterson, signed a contract in August 2002 to start work on a 760-acre site at \$945 an acre. However, previous contracts in Colorado and then snowy weather, which prevents Peterson from fueling his machinery, precluded work from commencing until late spring of 2003. \$700,000 was allocated and committed in FY 2002 to Peterson, even though he could not complete the work, meaning this money could not be used for any other thinning projects in his absence.

According to several people interviewed, the biggest impediment for the SFMWP has been the absence of a project manager. The Espanola District Office has been reluctant or unable to appoint a project manager to oversee the "on the ground details" in the watershed. Responsibility

for the project is divided among several different people within the Espanola District, none of whom have a consistent or integrated overview of the project.

Failure to provide consistent project management has resulted in several problems with the implementation of the Environmental Impact Statement (EIS) to date. Eight demonstration acres were thinned in the fall of 1999 using prison labor under the direction of New Mexico State Forestry. Cottonwoods and other riparian species were cut in one of the demonstration plots in violation of the EIS. Burning took place in the spring of 2001, instead of the fall as prescribed, resulting in the death of a large number of trees. The remaining trees, already under considerable stress, had broken dormancy and were susceptible to scorch.

Sam Hitt, through Wild Watershed, has indicated that he will file a summary judgment once the mechanical thinning begins in the Watershed.

*Update* - Since the site visit, approximately 200 acres, or 3% of the project area have been treated in the Santa Fe Watershed and a number of slash piles burned. The projection is that 700 acres will be treated by June 1, 2003.

### **How the Santa Fe Municipal Watershed Project began**

Mike Hamman instigated the need to address the fire hazard in the Watershed in 1996 after the Dome Fire in the Jemez Mountains. Hamman worked as the Director for the city of Santa Fe Water Department and made the connection between the fire threat in the watershed and the threat to the city's water supply. He wanted to start a dialogue with the USFS to address the wildfire threat in the Watershed. In 1997, Amy Lewis joined the city of Santa Fe Water Department as a hydrologist and Hamman delegated the task to Lewis. Lewis felt the public needed to be involved in the process to decide the appropriate direction to address the fire hazard in the Watershed. She called together the Sierra Club, Nature Conservancy, Wild Watershed, Audubon and some foresters to figure out what the forest might look like once it was thinned. This provided an incentive for the USFS to become involved.

### **The Process**

The process to develop the Santa Fe Municipal Watershed Project (SFMWP) began in 1998 when the city of Santa Fe funded an existing conditions study to investigate the watershed. The Environmental Impact Statement (EIS) Team began the NEPA process in June 2000. The EIS was developed by Santa Fe National Forest under the direction of Santa Fe Forest Planner, Susan Bruin. There was active participation by the "Partners' Group", which entailed the City of Santa Fe, the Santa Fe Watershed Association, NM State Forestry, NM Environment Department (Surface Water Quality Section), other community and environmental groups, and the academic community. The Partners' Group met over a year while the Environmental Assessment and then the Environmental Impact Statement was prepared. A total of 10-30 people met approximately every month to discuss the EIS. They held 17 meetings, held monthly public tours, provided demonstration and treatment sites, held a large community forum, held meetings with city residents and produced a brochure about the project and a website. The Summary Draft EIS was completed in March 2001.

The Partners' Group had a definitive impact on the EIS. Because of their participation a monitoring component was added, they suggested demonstration plots, they changed the objective from concern about water quantity and water quality to focus only on water quality (because of the perverse incentive water quantity could have provided for cutting more trees). According to Paige Grant, Santa Fe Watershed Association Executive Director, there was "genuinely open discussion" during the process. The Partners' Group disbanded after the EIS was completed.

### **The Appeal of the EIS**

Sam Hitt, through Wild Watershed, Forest Conservation Council and Santa Fe Forest Watch remained dissatisfied with the EIS process and appealed it. The appeal was based on an ineffective monitoring strategy of management indicator species, as mandated through the National Forest Management Act. This legal strategy has been a mainstay of most appeals by environmentalists for years. On January 10, 2002, The Forest Service Appeals Deciding Officer in Albuquerque, Jim Gladden, upheld the decision and denied the appeal.

### **WGA Goal - Restore Fire Adapted Ecosystems**

Actions to meet goal

- Perform burned area stabilization and rehabilitation work in emergency areas
- Restore burned areas and repair and improve lands unlikely to recover
- Place priority on at risk watersheds that have been damaged by wildland fire
- Establish native seeds and other plant material
- Publicize and train in the use of minimum impact suppression activities
- Promote research of effective restoration practices
- Research interactions between fire, land management and other disturbances

### **The Restoration Prescription**

The prescription agreed upon by the various stakeholders in the Environmental Impact Statement (EIS) process is one that focuses predominantly on ecosystem restoration. The first phase entails various components: 1) no trees will be harvested commercially; 2) trees up to 16" in diameter will be cut and the trunks laid along slope contours to decompose; 3) trees will be cut by feller buncher, except on steep slopes where chainsaws will be used, no new roads will be constructed nor will skidding be allowed; 4) forest canopy cover in a variable density mosaic that mimics natural fire disturbance patterns in a ponderosa pine forest; 5) the southern ridge of the Watershed will be cut into fuel breaks up to one quarter mile wide to keep erosion out of the canyon and thinned to 20-30 large trees per acre or 20-30% canopy cover.

The second phase of the prescription entails burning slash piles once they have dried, approximately 3-12 months after the cutting takes place. The third phase calls for low intensity broadcast burns to reduce density of small trees and surface fuels. The fourth phase involves annual monitoring and evaluation to determine treatment effectiveness and environmental effects.

### **The Monitoring Plan**

A monitoring plan has been proposed to evaluate progress of the prescription on an annual basis. The Santa Fe Watershed Association (SFWA) has taken responsibility for implementing the monitoring plan. The USFS Rocky Mountain Research Station in Albuquerque is funding half of the monitoring plan (3,000 acres) and the SFWA is trying to find funding for the remaining portion of the plan. SFWA received \$45,000 from an Environmental Protection Agency (EPA) 319 grant to cover some of the expenses associated with the monitoring plan. The grant funds \$15,000 per year for three years and will end in 2003. Little monitoring has been accomplished on the ground to date due to the delays in thinning by the USFS.

### **The Technical Advisory Group**

The Technical Advisory Group (TAG) is a group of scientists with expertise in fields related to the evaluation of forest management activities in the Santa Fe Watershed. The TAG is convened by the Santa Fe Watershed Association to provide independent scientific guidance of the Santa Fe Municipal Watershed Project (SFMWP). Third-party peer review of monitoring and management activities in the Santa Fe Watershed by the TAG will develop and transfer reliable information on the effects of thinning and prescribed burning on ponderosa pine and mixed conifer ecosystems in the southern Rockies. This information will help to build public confidence that forest management activities can be conducted to protect ecosystem values while reducing the danger of crown fire. The Santa Fe Watershed Association will report interesting and significant findings to the Santa Fe National Forest, other agencies participating in the SFMWP, and to the public.

Initial thinning treatments in the watershed led to a re-evaluation of the technologies available to reduce fuel loads in the project area. Total reliance on piling and burning would significantly slow the pace of treatment since the anticipated burn "windows" would only allow the treatment of 200-300 acres per year, far less than the annual target of 700-1000 acres in the EIS. For the SFMWP the wood must be disposed of on site. As an alternative to burning, the USFS is now pursuing a complementary strategy of "chunking" the debris and leaving it on the ground. The use of the "chunking" technique will not completely replace prescribed burning, which will still be necessary to fully restore ecosystem function.

The Rocky Mountain Research Station is being funded through the Espanola District at \$75,000 per year for monitoring, but it is still unclear how the data will be cycled back into the management of the Project.

### **The Santa Fe Forum**

The Santa Fe Forest Forum was held in Santa Fe on June 27, 2000. It brought in researchers in ecology and management of fire-adapted Southwestern forests and woodlands, to engage in a

public dialogue about what should be done in the SFMWP. The forum consisted of a technical workshop from noon until 4 pm and public presentation from 6 to 9 PM, which was attended by over 250 people. The Forum was a collaborative effort of the Santa Fe Watershed Association, Nature Conservancy, Audubon Society, Sierra Club, City of Santa Fe, SFNF and State Land Office.

The Santa Fe Forest Forum began to coalesce support among some of the more skeptical environmentalists. The Forum provided environmentalists with a consistent message about the wildfire risk in the watershed and that taking an adaptive approach with a good monitoring and evaluation component would provide a sound basis for action in spite of the imprecise nature of science on the topic. A minority of environmentalists, including Wild Watershed and Forest Conservation Council, rejected this science claiming alternative viewpoints and noting that these scientists mostly were funded by the USFS and had little incentive to rock the boat or provide unconventional views.

### **WGA Goal - Promote Community Assistance**

Actions to meet goal

- Reduce losses to communities from wildland fire
- Promote markets for traditionally underutilized wood
- Promote opportunities to continue and enhance sustainable livestock grazing as part of restoration strategies
- Increase incentives for private landowners to address defensible space and fuels management needs on private property
- Promote local government incentives through fire-sensitive land use planning

Little has been done to incentivize Santa Fe property owners adjacent to the Santa Fe Watershed to treat their property for wildfire risks. There has been limited use of the 20 Communities Cost-share program in Santa Fe. NM State Forestry has played a rather passive role in Santa Fe with these grants and is waiting for people to apply for funding but has not actively promoted the program.

In 2001 Hyde State Park received a \$50,000 20 Communities Cost-share grant to create a fuel break between the Hyde State Park and the Santa Fe Watershed. According to Nancy Neskauskas, Bernalillo District Forester (NMSF), one of the biggest risks to the Santa Fe Watershed is from a fire in Hyde State Park.

### **Summary**

The USFS has developed an impressive plan to address the catastrophic wildfire risk facing the Santa Fe Watershed. Highlights of the Santa Fe Municipal Watershed Project (SFMWP) include a strong focus on restoration and a sound monitoring plan. In many ways the SFMWP is a poster child for collaboration between the USFS and the environmental community. The USFS created

a consensus based process that ultimately secured the support of the Santa Fe environmental community, not an easy task. However, the plan has been slow to be implemented leaving many to wonder if the USFS has the political and fiscal will to address the problem in the short and long term. Moreover, the threat of a wildfire in the Santa Fe Watershed is not a concern for many Santa Fe residents. The complacency of neighborhoods at the greatest risk demonstrates the need for education and outreach with these residents. Education and outreach efforts by the USFS and City ceased with the completion of the SFMWP. Residents closest to the Watershed know little about the project's progress. Without reliable information, rumors, speculation and conjecture have room to grow. More recently, the City of Santa Fe hired a Wildland Urban Interface Specialist to focus on outreach efforts.

Timely and accurate implementation of the SFMWP is the greatest challenge remaining in the Santa Fe Watershed. Progress of actual fuels reduction inches along, while the watershed remains at a high risk of catastrophic wildfire. When fuels have been reduced, there have been instances where prescriptions laid out in the SFMWP were not followed. On several occasions workers misapplied the prescriptions due to poor oversight and project management.