

Introduction

Jefferson County is Colorado's second most populous county and located immediately to the west of metropolitan Denver. With 527,056 inhabitants, Jefferson County is one of Colorado's fastest growing counties and finds 33% of its population living in the wildland urban interface (CSFS 2003). Jefferson County covers 774 square miles and is home to a large portion of the Pike National Forest, as well as smaller areas of the Roosevelt and Arapahoe National Forests. The median home value is \$187,900 with a median household income of \$57,339 (US Census 2000). The county is comprised mainly of full-time residents, with only 0.7% seasonal homes (US Census 2000).

Ponderosa pine, lodgepole pine, Douglas fir and gamble oak make up the vegetative profile of Jefferson County, and it receives an annual precipitation of 15.4 inches per year (Jefferson County 2003). Starting in 1996 Jefferson County began having a number of large wildfires that threatened homes: Buffalo Creek (1996), Hi Meadow (2000), Snaking and Black Mountain (2002), Schoonover (2002) and Hayman (2002) (Gallamore 2003). The fires provided a powerful incentive for County Commissioners and the Jefferson County staff to address their wildfire threat (Gallamore 2003). After the Hi Meadow fire in 2000, the County Commissioners commissioned a Wildfire Safety Study. Three recommendations came from that study. One was for an education effort, which is now supported by Rocco Snart, the County's Wildfire Mitigation Specialist. The second recommendation was for a review of the wildfire regulations including the class A roofs, defensible space, and the land development code. The third recommendation was to reassess at a later date the degree of non-compliance with new regulations and alternatives available to resolve non-compliance (Small 2003; 2004a). The first two recommendations were obtainable in a timely manner, but the third has been more troublesome (Small 2004b).

The Board of County Commissioners has been very supportive of various efforts to mitigate the wildfire risk in Jefferson County. The Commissioners have provided grant money and staff positions to support mitigation efforts (Peratt 2003). They have also given great support for regulatory changes (Carl 2003). "I would say what makes Jefferson County unique amongst most of the counties along the Front Range is a commitment by the County Commissioners and its staff to provide a sustained effort to educate the public, provide incentives to the public, in other words forest management and fuels mitigation planning on a community basis" (Gallamore 2003).

While Jefferson County has been proactive in some areas, many challenges remain. Keeping the public interested in actively pursuing wildfire mitigation is difficult (Gallamore 2003). Disposing of the slash and hauling the mulch is another great challenge to the county (Peratt 2003). "Without a doubt the lack of biomass utilization is probably the biggest challenge we're dealing with right now" (Gallamore 2003).

While the County, Colorado State Forest Service (CSFS) and United States Forest Service (USFS) all work on the wildfire problem in Jefferson County, there is no single forum that allows various participants to come together on a regular basis to mitigate the problem. Rather, one-on-one interaction among agency employees is the dominant means of interaction. One exception to this is a stakeholder group that meets to coordinate fire suppression and response

work. There are many facets to the work on-going in Jefferson County. Chuck Dennis, CSFS Golden District forester from 1975-1994, was behind many efforts to get the county and CSFS to work together initially. “I tried to look at [wildfire mitigation] holistically. In fact, I had a thing that I called the mitigation wheel. The spokes are all the different activities that go towards mitigation, land using planning, county regulation, wildfire training, education” (Dennis 2003). All of these facets are present in Jefferson County but could benefit from greater synergies among them rather than their continued independent operation.

Improve Fire Prevention and Suppression

- 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

In 1996 the County experienced its first in a spate of recent major forest fires and began to address its wildfire threat in earnest (Carl 2003; Gallamore 2003). The 12,000-acre Buffalo Creek fire nearly destroyed the small mountain community of the same name. A series of flash floods followed the fire and caused extensive infrastructure damage to roads, bridges, water lines, and other utility lines. Numerous homes, outbuildings, and vehicles were damaged or destroyed as well (Benight and Harper 1997). In June 2000, the Hi Meadow Fire burned 10,800 acres and destroyed 58 structures, including 51 homes. Property loss was estimated at between \$5-10 million. Costs for suppression were nearly \$5.5 million, with rehabilitation costing approximately \$2.5 million (USFS n.d.). In 2002, the Hayman Fire, burned 137,760 acres, 41,600 of which were in Jefferson County. The Hayman Fire was Colorado’s worst fire to date and destroyed 133 homes and 447 other structures and significantly impacted the Upper South Platte Watershed in Jefferson County. These fires provided great incentive for Jefferson County to take action to address its wildfire threat.

JEFFERSON COUNTY

Jefferson County Office of Emergency Management

After the Hi Meadow Fire in 2000, the sheriff assigned a Wildfire Task Force and discovered that communications were a big problem. The use of an emergency preparedness network (EPN), which is a reverse 911 system, was supported by the Task Force. They acquired incident command radio interface boxes (ICRIs) to give them the ability to patch radio frequencies in the field. They also realized they needed stronger incident command structure, better training and standardization (McSherry 2003).

To notify residents about a fire, the Jefferson County uses the EPN through a process of pre-notification and evacuation preparation messages. If an evacuation order comes, then residents are notified and their families will be prepared. They can reach 2,300 homes in 30 seconds with the EPN, and the system will recall up to five times if it gets a busy signal. The system will report back to let them know how many homes were reached successfully (McSherry 2003). Evacuation notification also is distributed rapidly in person in areas of immediate danger by way of patrol cars with bullhorns and public announcement systems. All-clear notifications are delivered via the EPN when specific areas are no longer in potential danger (McSherry 2003; Fincher 2003).

There is no Jefferson County Fire Plan, but there is an annual operating plan with direction on how to operate in event of a fire. Fires are coordinated with all communications going between county dispatch and Pueblo Interagency Dispatch Center (Patten 2003). In case of a fire, local fire departments are the first to respond. They will call upon mutual aid from neighboring counties and if the fire goes beyond these capabilities, then they will call in a Type 3 Incident Management Team (McSherry 2003). The Type 3 Team is comprised of 85 people from over 20 different agencies. The Type 3 Team meets quarterly and has monthly command and general staff meetings.

All 23 fire departments within the county, State Forestry, Denver Open Space and the USFS Forest Service attend the Wildfire Coordinating Group every other month (Snart 2003, 2004). The Wildfire Coordinating Group is a subset of the Jefferson County Fire Council, which addresses all types of fire and emergency issues in the county (McSherry 2003). They meet specifically for the dissemination of current information, training opportunities, coordination between fire departments, and organization of local fire crews and task forces of engines and are coordinated by CSFS. They have a very proactive coordination effort to educate and bring the local county resources up to a common interagency standard (Gallamore 2003). Mostly they discuss suppression, training, equipment and readiness (McSherry 2003).

The Flood and Fire Task Force meets every two weeks during fire season and is organized by the OEM. The Task Force began in 1996 to address flooding issues, but expanded to cover fire. It is a proactive forum to address resource availability and make fire restriction and fire ban recommendations to the sheriff (Peratt 20003). Members include the OEM, sheriff, open space, public information, health department, urban drainage and flood control district, USFS, CSFS and fire district representatives (Peratt 2003).

Jefferson County Office of Planning and Zoning.

The Office of Planning and Zoning has been proactive in passing and enforcing requirements for County residents in the wildland urban interface. For instance, Jefferson County has required special roofing materials for County residents since 1994. All homes in the red zone need to have 1 hour rated roofs (Short 2003). After the Buffalo Creek Fire in 1996, the County realized it needed to make some changes to its regulations and required defensible space for new additions to homes. Initially the requirement did not apply to non-residential development such as a church or office buildings. It only applied to residential development for new construction that was adding 400 square feet of habitable space or a rebuild (Carl 2003).

In 2002, the County Commissioners called for wider application of rules requiring defensible space and approved stronger enforcement for these regulations (Hartman 2003; Carl 2003). In 2002, the habitable space provision requirements were removed. Now if a homeowner expands a building by 400 square feet or more it is subjected to defensible space requirements (Carl 2002). As a consequence of the 2002 changes, “We have an ability to ask for defensible not just in the habitable area, but any additional space” (Carl 2003). The other change was to de-couple the defensible space requirement from the issuance of the building permit. Initially, homeowners had to have the site inspected and verified by Colorado State Forestry as being defensible. Now homeowners have to have their property marked, but not necessarily treated, to get their building permit. The final inspection now is tied to the issuance of the certificate of occupancy (Carl

2003). To enforce the provisions, the permit tracking system notifies the Office of Planning and Zoning to let them know if the homeowner hasn't completed their final inspection. If a homeowner doesn't complete the process, they will be issued a zoning violation (Carl 2003). In 2001 and 2002 the Office of Zoning and Planning issued no zoning violations, but in 2003 they issued seven (Carl 2004). While the Office of Zoning and Planning is not aware of people moving into homes without their certificates of occupancy, it does not preclude them from doing so. The regulatory program for new homes and new additions has averaged about 500 new homes or additions per year (Parsons 2003).

To create defensible space, the Office of Planning and Zoning follows Colorado State University Cooperative extension guidelines number 6.302, "A National Resources Series Creating Wildfire Defensible Zones." Due to complications arising out of the need for Colorado State Forestry to include a wildlife habitat analysis in their defensible space recommendations, it became increasingly complicated for CSFS to do the inspections. In 2002, Planning and Zoning made arrangements to certify "alternates" to the CSFS to do inspections for defensible space. Four individuals currently meet the criteria established to be an alternate. It is up to the homeowner to hire one of these contractors to take them through the process and the homeowner pays the cost—a set fee of \$350 (Wasielewski 2004). Prior to the change from CSFS to private contractors, CSFS assessed 329 regulatory defensible spaces in 2001 and 123 in 2002 (Wasielewski 2004b).

While Jefferson County has been successful in passing some regulations, it has experienced trouble with others. After the Hi-Meadow Fire people raised the issue of upgrading some 60 existing cul-de-sacs to assist in access for emergency vehicles (Small 2004b). Some of these are on private roads and people don't want to improve them, others are built according to 40, 50 or 60 feet standards, which don't meet current standards. Secondary access and limits on the lengths of cul-de-sacs have been more controversial than the other proposed changes that were suggested and adopted in 2002 (Carl 2003).

In the mid 1990s CSFS began reviewing proposals for new subdivisions and submitting their comments on them. "I thought that there was not much we could do with the older development, but perhaps we can influence things in the county. I began very faithfully working with the county and then, under Colorado regulations, the county is supposed to submit to us plattes for review from a wildfire hazard standpoint. So I began working closely with the county to review those and make comments and try to start bringing about change at the county level" (Dennis 2003). Today CSFS provides comments on all new subdivision in the WUI. CSFS charged \$35-75, and as of August 2003 now charges \$100-250 for reviewing plans for new subdivisions, rezoning, special use and plattes in general at the County's request. These are non-regulatory comments that area approved or rejected by the County Case Manager. In general, almost all of the recommendations are required (Parsons 2004). In 2001 CSFS reviewed 74 cases, 21 in 2002 and 33 in 2004. The reductions in numbers for 2002 and 2003 do not reflect lack of interest, but rather CSFS's workload did not permit them to do more (Parsons 2004).

Jefferson County Wildfire Mitigation Specialist

In 2000 the County Commissioners recommended hiring a Wildfire Mitigation Specialist to help with education and outreach efforts. In 2001 Rocco Snart took this position. Located within the

Office of Emergency Management, the Wildfire Mitigation Specialist is meant to educate the public and mitigate potential problems with wildfire (Peratt 2003). “My position provides technical support for [planning and zoning] for different fire behavior or any other mitigation aspects that have to do with emergency management” (Snart 2003). Snart finds that his time is divided on a seasonal basis to meet community needs across a wide variety of activities. He works on homeowner assessments, prescription burning, wildfire response, coordinating the slash program, developing educational materials and promoting wildfire mitigation in general (Snart 2003, 2004).

Community meetings are the main focus of the education effort. They are based on the FIREWISE model. In August 2003, the Wildfire Mitigation Specialist will start 6,000 sixth grade students in a FIREWISE program in outdoor education labs. They are targeting every sixth grader in Jefferson County. In addition to these types of outreach efforts, the Wildfire Mitigation Specialist attends meetings and is visible in different communities. For instance, the Wildfire Mitigation Specialist attends the sheriff’s open house or a community fair. While they do a lot of outreach, it is difficult to know how effective their education efforts have been in terms of encouraging properties to be treated (Snart 2003).

JeffCo Fire Minder Program The Jefferson County Public Information department sponsored a contest where citizens were asked to submit slogans that would appear on roadsides to educate travelers about fire hazards. The concept is six signs placed an appropriate distance apart on the roadway for travelers to view in succession. Twelve slogans were chosen. Examples include: “Aspen groves and ponderosa pine look better without a fire line” and “Don’t fling your butt beside the trail and we won’t fling your butt in jail” (Jefferson County 2003b).

COLORADO STATE FOREST SERVICE

In the state of Colorado, the county sheriff has responsibility for managing wildland fire suppression on unincorporated, non-federal lands. The CSFS role is to provide technical support in coordination to the sheriffs and local fire protection districts or fire departments. The county can choose to turn a local wildfire over to the CSFS for management and they have agreements that spell out how that happens. CSFS is involved in two ways in fire suppression activities. First, they are involved at the county level by providing technical support and assistance to the county. They don’t provide fire crews or resources to put out fires because this is the county sheriff’s purview. Second, they have resources available through the interagency system. For instance, they have three fire engines in the Golden District. Their primary mission is to use these engines to assist with fire training and prescribed fire activities. CSFS also provides training for Jefferson County. They put on FIREWISE workshops to train local fire department personnel and facilitate more advanced training activities in conjunction with Jefferson County Office of Emergency Management.

CSFS initially promoted the County Fire Forum Concept, which was a one-day workshop to pull together homeowners, neighborhood associations and fire departments. The goal was to provide quality information to the public at low cost in a condensed time frame. The County Fire Forums lasted from 1999 to Spring 2002. To encourage participation, they would send mailers to all neighborhood associations and ask them to send a representative to one of the Forums, but this was not very successful. They had trouble attracting interest and CSFS now is taking a more

localized approach and tries to target specific areas (Gallamore 2003). In Jefferson County, CSFS puts on wildfire mitigation programs to homeowners associations upon request, but charges a fee for their time to do the presentation (Wasielewski 2004). Typically, CSFS charges \$75 for the first hour of consultation and \$26 for each additional hour (Wasielewski 2004). Unfortunately, the fee often deters individual homeowners from requesting the presentations so CSFS encourages groups of homeowners to request the presentation and defray the cost. In 2003, CSFS did three wildfire mitigation/defensible space presentations in Jefferson County. No presentations were done in 2002 due to the various fires (Wasielewski 2004). Since Jefferson County Office of Emergency Management does not charge to do wildfire mitigation/defensible space presentations, much of the interest gets channeled to them.

USFS

Terry McCann is the Public Affairs Officer at Pike NF and does outreach to the public. He works actively on public involvement, public participation and public notification of various projects and activities (McCann 2003). For example, he will notify Front Range residents near the Arapahoe and Pike National Forests about the Front Range Treatment Partnership. In general he works through newspapers and news releases, media opportunities and meets with community groups at their request.

As the Public Affairs Officer, McCann also works with the public when the agency plans a prescription burn. He uses the reverse 911 system to notify the public and also goes door-to-door within the immediate area affected by the burn (McCann 2003). In general, the USFS has a good working relationship with the public and this is due in part to promoting their successes along the Front Range. Citizens have high expectations with regard to government activity and they watch very closely (McCann 2003).

STATE FARM INSURANCE AGENCY

State Farm Insurance currently is experimenting with a wildfire mitigation pilot program in six western states. In the late 1990s, insurance companies began to get involved in wildfire mitigation (Niccolai 2004). The leverage insurance companies have is through their policies. In January 2002 State Farm began to work CSFS to identify residential areas that had great wildfire risk. Using GIS technology, a program was launched in May 2003. State Farm does home assessments through Survey Associates, a survey company trained in wildfire mitigation and hazards. In Colorado State Farm identified 12,000-14,000 most at risk homes. Out of this group, State Farm insures 20-25% (Niccolai 2004).

State Farm/Survey Associates focuses on defensible spaces needs. They also look at home construction. An assessment is conducted by Survey Associates and then sent to State Farm underwriters. The underwriter analyzes the photos and forms and sends a letter to the homeowner with recommendations. While they will make recommendations about home construction, these are not recommendations that must be acted on for maintaining their insurance. Recommendations for vegetative treatment, however, do need to be acted upon (Niccolai 2004). The policyholder is given 18-29 months to complete the work. If they do not do the work, insurance premiums can be raised or the policyholder could be dropped altogether (Niccolai 2004). Since June 2003, State Farm has completed 5,000 of the 12,000-14,000 home assessments in Colorado (Niccolai 2004).

In their work, State Farm has worked collaboratively with the Office of Emergency Management and CSFS. Their partnership started in the aftermath of the Buffalo Creek and Hi Meadow fires. It is essential for State Farm to collaborate with agencies already going mitigation work to utilize resources effectively (Niccolai 2004).

Reduce Hazardous Fuels

- 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

JEFFERSON COUNTY

Office of Emergency Management (OEM)/Wildfire Mitigation Specialist

To encourage the reduction of hazardous fuels, the county does some of its own defensible space work, shaded fuel breaks and other fuel management projects on a cost-share basis, as well as engages in planning activities (Snart 2003). These programs are funded through Colorado State Forestry and are coordinated by the Wildfire Mitigation Specialist, Rocco Snart.

Slash Disposal Program

The slash program started in 1995 under the initiation of the previous Colorado State Forest Service Golden District Forester, Chuck Dennis. Dennis met with the county and initiated a partnership with the fire districts. There are two aspects to the program—a central disposal site and remote locations throughout Jefferson County. The first year the central disposal site, located on Rooney Road in Golden, was only open on Saturdays during the summer. “People would load up their trucks and unload it and then we would pay a contractor to come in and grind it and then make it into chips and mulch. Then the mulch was free for the taking” (Peratt 2003). Over time, the site was opened longer periods of time as demand increased. The central location worked well for everyone except those in the mountains, who had to transport their slash longer distances. In 1998 to accommodate the mountain dwellers, they began to have remote sites on Saturdays and Sundays during the summer (Peratt 2003; Snart 2003). The fire districts identify remote locations and the county provides the manpower and the vendor, A-1 Organic to grind material and remove it from the sites. The Office of Emergency Management coordinates the labor for these remote sites, which move from place to place throughout the summer.

Since 1995, the total costs of the slash program have increased as has the amount of material treated. In 1995, the central site operated for nine days at a cost of \$10,029 and treated 4,000 cubic yards of material. In 2002, the central site operated for 48 days, processed 20,000 cubic yards of material. In 2002, OEM received \$50,000 for privatizing the slash disposal program (Snart 2003c). In 1995 the remote sites operated for 16 days, processed 9,005 cubic yards of material and cost \$28,804. In 2002, the remote site operated for 24 days, processed 46,715 cubic yards and cost \$113,372. Grants from the USFS and Colorado State Forestry and fee collection

offset the costs of the program in 2001 and 2002. Fees charged are \$5-12 at the remote sites as opposed to \$30-35 per pick up truck load, which they would be charged if they took it to the landfill (Snart 2003). Fees at the central site range from \$5.00-15.00 depending on the amount of slash in a small or large pick up truck (Snart 2004).

In 2002, Jefferson County began to think about privatizing the arrangement under encouragement from the Forest Service (Peratt 2003). In 2002, the Rooney Road Recycling Center in Golden became the central site disposal area and is now run by Curbside. The Rooney Road arrangement was subsidized with \$15,000 in grant monies from the USFS during their first year. In 2003, the prices were raised to allow Curbside to break even. The Rooney Road site is open from Thursdays to Sunday every week from March until October (Snart 2004).

Utilization of the biomass continues to be a challenge for the county. The County Commissioners are currently discussing how they might set up a portable biomass facility to better utilize the small diameter material (Snart 2003).

JeffCo Open Space Fuels Reduction

JeffCo Open Space has a separate fuels reduction program on their 50,000 acres. They have a small staff of 6-8 employees and use volunteers to deal with slash and burn projects. They broadcast burn about 150-200 acres per year, burn about 300-400 slash piles per year, and thin approximately 100-150 acres per year (Frank 2003). One of their biggest challenges is finding markets for their merchantable materials. In ponderosa pine they use a prescription that mimics mature to old-growth forest. CSFS helped them write and implement prescribe fire plans and they have a contract agreement with CSFS to develop and implement the broadcast burn program. This partnership started in 1996 and has been updated over the years. They use CSFS's Creating Defensible Space Guidelines for their fuel breaks. They supply the data, goals and objectives for the broadcast burn plans as they are written by CSFS. They do all pile burning in-house. Open Space generally does not prioritize their treatment areas. They tend to complete work in one park before opening it totally to the public and then move onto another park. (Frank 2003). CSFS also works with them on cross-boundary activities that involve private lands or other agency lands.

Prescribed Fire and Controlled Burns

Burning in Jefferson County is fraught with difficulty due to regional airshed issues and proximity to the Denver metropolitan area (Gallamore 2003). Visibility impacts and particulate emissions are the limiting factor in the airshed, which is already close to or out of compliance with federal air quality regulations. CSFS and USFS are limited in the amount of burning that they can do due to particulate constraints imposed by EPA in the regional airshed. The air control division of the Colorado Department of Health issues the permits that allow burning.

Controlled burns in Jefferson County have been delayed due to the record-setting March blizzard in 2003. Controlled burns in parks and opens spaces are some of the state's worst danger zones. Usually the burns are done in the early spring when the mountains are at their wettest, but there is too much snow to allow access this year. This has affected both Jefferson County Open Space and the USFS. USFS had planned a 400-acre controlled burn in Pike National Forest, near Lake George, that had to be rescheduled (Anonymous 2003b).

COLORADO STATE FOREST SERVICE

Defensible Space and Fuel Reduction

Colorado State Forest Service's mission is "to provide technical assistance, as well as educational assistance, to the public, specifically the homeowners and landowners that live in the wildland urban interface" (Gallamore 2003). The Golden District has 8-13 employees in the office depending on the season (Gallamore 2003). Golden District is unique because it has a larger number of employees and it is also self-funds a number of these positions—meaning CSFS generates income to support its own positions. In practice, this means that CSFS charges for defensible space assessments and other dealings with the public such as hazardous fuel reduction presentations and forestry work. CSFS charges \$75 for the first hour of work and \$26 per hour for any additional hours (Wasielewski 2004). A typical defensible space marking takes two hours and costs \$101 (Wasielewski 2004). Demand for defensible space assessments has not been too great for CSFS to handle.

In Jefferson County, CSFS has three major mitigation programs (Wasielewski 2004b). First, CSFS acts as a pass through agency for homeowner's associations and individual homeowners that want to pursue fuels treatment projects—namely defensible space and fuel break projects. In working with homeowner's associations and individual homeowners, CSFS also marks the defensible spaces around homeowner properties when they are contracted to do. In 2001 CSFS assessed a total of 341 defensible spaces, in 2002 143 and in 2003 60 (Wasielewski 2004b). In 2002 they created 21 defensible spaces through their cost share program and 29 in 2003 (Wasielewski 2004b). Second, CSFS applies for and receives grant money to implement projects with landowners who will make a cash or in-kind match. For instance, CSFS works in partnership with the Division of Wildlife, Denver Mountain Parks, Colorado State Parks, Jefferson County Open Space and the Denver Water Board in various capacities to do fuel treatment (Gallamore 2003). Third, CSFS funds other organizations, like Jefferson County Office of Emergency Management, to do work. For instance, CSFS provides money to Jefferson County to do fuel breaks, defensible space and their slash collection program (Gallamore 2003). In Jefferson County CSFS mechanically treated 350 acres in 2001, 90 in 2002 and 17 in 2003. They prescribed burned 392 acres in 2002 and 195 in 2003 (Golden District 2001, 2002 2003).

Genesee Foundation

Genesee is part of unincorporated Jefferson County. The development has its own fire department, water/sewer district, open space and pay for this through annual assessments (FIREWISE 2003). The Genesee Foundation is the governing body for the community and coordinates wildfire mitigation through its Stewardship Committee. A portion of the annual assessment goes toward mitigation activity, about \$50,000 each year (Andrews 2003). Genesee totals about 2,200 acres of land and 1,200 acres of it is unbuildable open space (Andrews 2003). There are approximately 900 homes in the area.

Genesee has been dealing with forest health issues for years. Beetle infestation has been a problem and resulted in 10-15 acres of the open space land being treated on a yearly basis. More recently they have been concerned about the wildfire problem and they hired Anchor Point wildfire specialists to come in and do an assessment for them. In 2001 Genesee was able to get a grant through CSFS Western Grants Program to pay for the planning and wildfire hazard

analysis (Babcock 2003). Since then they have received a national technology award through FIREWISE for their planning (Andrews 2003). The majority of the mitigation work they have been able to implement to date has been in the open space areas and working on an evacuation route. Out of the 900 homes in the area, approximately 5-10% have done defensible space work (Daviss 2003). Genesee Foundation received \$7,930 through the Fuels Treatment Grants program of CSFS in FY 2002 for the construction of a 100-foot fuel break. Genesee Foundation received \$8,280 in FY2002 to create a demonstration site on community property (Homann 2002). It requires a 50/50 match. In 2002 they did a restoration demonstration site with their own funding on 10 acres. In FY 2003 Genesee Foundation applied for \$15,000 for slash treatment and \$5,000 for thinning, which was completed on 5 acres.

One of the goals of the community is to manage not only for wildfire threat but ecological health. Consequently, they have tried to work with contractors like Joe Snyder that can appreciate the values of the community (Andrews 2003). Joe Snyder is doing educational seminars so people can understand what constitutes a healthy versus unhealthy forest. The Foundation sponsored a seminar in March 2003 that was open to all homeowners and they could sign up for property evaluation at a reduced rate after the seminar. Out of 50 people in attendance, many of which were couples, 20 people signed up (Andrews 2003).

In August 2003, they will try a pilot program to target specific subdivisions within Genesee. There will be a series of meetings presented by Anchor Point and Joe Snyder. The private contractors tend to be more effective than the CSFS and tend to understand and work with people's values more (Andrews 2003). Genesee homeowners have been somewhat frustrated with CSFS's defensible space process since it tends to be inflexible in how it applies its prescription and it really depends on the individual CSFS sends out to do the marking. With some, "There is no negotiation room" (Belter 2003b). "One of the reasons we are working with private contractors a little bit more is because of their ability to look at more environmental issues instead of strictly fire" (Andrews 2003). They will do meetings with people in vicinities they want to target—approximately 75 homeowners—and push the forest health aspect. Part of this strategy is to provide money for homeowners to do the work. They will need \$250,000 for cost-share work in this next phase (Andrews 2003). They are moving toward doing more concentrated education efforts aimed at specific communities. In addition to providing stronger financial incentives and education for homeowners to thin and create defensible space, they are trying to make slash removal easier.

Genesee competes for the same pool of money as CSFS and this creates some problems because they are treating only smaller acreages and CSFS tends to favor the treatment of larger acreages (Andrews 2003). State Forestry has funded them through the Western Grants program for their slash removal program, the fuel break and the thinning along the evacuation route (Andrews 2003). From the perspective of the Genesee residents CSFS over emphasizes the treatment of acreage and discount the potential for economic impact, "The focus should be on impact, interface impact. They need to look at values at risk. We identified lives and structures" (Andrews 2003). Genesee is trying to protect homes and people in the interface, but they can address only a small part of the acreage at a time, and this works against them when working with CSFS.

CSFS sees Genesee as a success story. “Genesee Foundation [is] probably the leading example along the front range of a community and homeowner’s association that has applied consistently for funding, shows accomplishment because they have financial support within their own financial arrangements, and staff support to make it happen” (Gallamore 2003). Individual homeowners come to CSFS or to Jefferson County Emergency Management (Rocco Snart) to get financial or technical assistance. The defensible space that has been done within the Genesee Foundation typically are related to the regulatory program (Gallamore 2003). Only a few individual homeowners ask for voluntary defensible space marking. “As a community, they have been more proactive in dealing with the common lands and common fuel breaks and access route marking” (Gallamore 2003).

Genesee’s successes are their extensive GIS mapping and wildfire hazard analysis, shaded fuel break, emergency evacuation route, and mitigation planning. This is what they are recognized nationally for from FIREWISE. The treatment work accomplished has been on the open space lands at approximately 10-15 acres treated per year, with not much happening on private property, approximately only 5-10% of the homes have defensible space. There is no reliable way to track how many member of the Genesee community are actively working on creating defensible space. But if a homeowner removes a tree, the homeowner has to get approval from the Architectural Review Committee. Applications for tree removal were 20 in 1999, 34 in 2000, 19 in 2001, 70 in 2002 and 32 in 2003 (through 7/03) (Balter 2003). New home construction or new additions require defensible space certification and 54 homes have been certified as defensible at the time of their construction (Balter 2003).

USFS

There are 282,226 acres within Pike National Forest that need hazard fuels treatment. The USDA Forest Service currently has in operation three projects within Jefferson County for hazard fuels reduction. They are the 1,066 acre Spring Creek mastication project, the 455 acre Dell mastication project, and 326 acre Kelsey mastication project. During 2002 in the South Platte Ranger District, was able to treat 915 acres within Douglas County (Patten 2004).

The goal for the Upper South Platte Watershed Restoration and Protection project is to restore the forest to the historic vegetative state. The restoration prescription being used in the montane zone has four components they are: openings at 25 - 30%, pure ponderosa pine stands at 35-40% (temporal) persistent old growth stands at 20%, and 15-20% Ponderosa pine-Douglas-fir stands. The prescription calls for taking all young trees up to 12 inches in diameter and maintenance will require prescribed fire (Patten 2004).

Work is prioritized by needs in the red zone. The USDA Forest Service is doing approximately 15% of its own treatment work and contracting out the other 85%. In 2002, the average cost was \$850 per acre – of that \$346.00 is the direct contract cost, plus \$149.00 pile slash, \$65.00 – 70.00 per acre for pile burning (Patten 2004).

In September-October 2001 the USFS completed an 8,000-acre prescribed burn, the Polhemus Prescribed Burn. This prescribed burn is credited with slowing down the north east finger of the Hayman Fire (Hessel, 2002). Prescribed fire has been easier since the Polhemus Burn. The

USDA Forest Service is working with the State Air Pollution Control Division to assist with smoke management.

Front Range Fuels Treatment Partnership

USFS Regional Forester Rick Cables and State Forester Jim Hubbard identified the need for a concentrated effort to address the wildland-urban interface problems along the Front Range of Colorado. This 10-year \$225 million effort began in 2003 (Stein 2003). The USFS now has discretionary money for the Pike and Arapahoe National Forests to do fuels mitigation work on USFS lands in close proximity to communities identified as high risk (Gallamore 2003). Colorado State Forest Service is completing a hazard fuels analysis on the private lands adjacent to the National Forest. The results of this analysis will be used to comment on the Forest Service proposed action (Patten 2004). USFS Officials estimate they need \$26.1 million for FY 2003 and \$30.6 million in FY2004 for the Front Range Fuels Treatment Partnership. They have secured \$16.2 million for FY 2003 and \$18.7 million in FY 2004 (Stein 2003).

CSFS will provide funds for fuel mitigation work on private and state lands. They will prioritize by homeowners associations that have the greatest interest and demonstrate the greatest activity (Gallamore 2003). CSFS has received an increase of \$3 million in Federal State and Private Forestry funding for the Front Range Fuels Treatment Partnership in FY2003. The Forest Service's Rocky Mountain Region shifted \$5 million to the Pike, Arapahoe and Roosevelt National Forests to also address this priority (Hubbard 2003). The strategy for implementing the Front Range Fuels Partnership involves "focusing state time and expertise on building partnerships that facilitate landscape-scale, cross-boundary fuels treatment and that provide significant protection to both people and natural resources" (Hubbard 2003). Partners in the project include USFS, BLM, NPS, and CSFS. Issues that the partners need to address include smoke management, long term stewardship contracting, biomass utilization and funding (Hubbard 2003).

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

Upper South Platte Watershed Protection and Restoration Project (USPWRPP)

The South Platte Watershed, located southwest of Denver, supplies 80% of Denver's water and is a major recreational attraction. The Upper South Platte Watershed Protection and Restoration Project encompasses 645,000 acres southwest of Denver, and includes 525,000 acres in the USFS Pike and San Isabel National Forests, 100,000 acres of private lands, 16,000 acres owned by Denver Water, and 4,000 acres managed by State Forestry. There are 13 watersheds in the project area. In 1996 the Buffalo Creek Fire burned 11,900 acres of this watershed, destroyed 12

homes and created erosion in the granitic soils common to this area. Heavy rains in the months that followed resulted in flooding an additional damage to property and infrastructure in the region. The Upper South Platte Watershed Restoration Project was initiated in August 1998 as a response to these threats (USFS 2003; CSFS 2003).

The Project is a comprehensive watershed-level restoration effort involving public and private ownership. The USFS, Denver Water Board, CSFS, EPA, and Rocky Mountain Forest and Range Experiment Station have formed an interagency partnership to address the problems in the Upper South Platte Watershed. The Core Team consists of CSFS and USFS employees, each working on and coordinating their own projects (Patten 2003). Since the Project began in 1998, CSFS has completed treatment on approximately 5,000 acres, while USFS has completed treatment on 815 acres (Dennis 2003; Patten 2004). It has been easier to get work done on Denver Water lands, which CSFS oversees, because there are fewer constraints with environmental planning and purchasing and bidding systems that are found when working on USFS lands (Dennis 2003).

In 1999 a landscape assessment for 13 separate watersheds and prioritized individual watersheds in greatest need of improvement. Consequently, the actual project area for the Upper South Platte Project is approximately 17,000 acres. These areas were selected based on proximity to private lands and what can be accomplished on 30-40 degree slopes or less. The 17,000 acres is estimated to take 5-6 years and \$12,000,000 to complete (Patten 2003). The goal is to restore the area to pre-settlement conditions. "We are trying to create the conditions of what the forest was like in the mid 1850s to 1870s because those conditions are more sustainable. It was very open, clumpy, a lot of very low density forest with many, many openings, perhaps as much as 25-40% of the landscape in openings that range from perhaps from an acre up to 80-100 acres" (Dennis 2003). Ideally they will bring back the pre-settlement characteristics and introduce fire back into the ecosystem (Dennis 2003). The treatment prescription is to a historic vegetative state. They are creating openings on 25-30% of the land, promoting pond pine stands, 20% old growth stands and 20% Douglas Fir and ponderosa pine. They are taking trees up to 12 inches in diameter and will maintain areas with prescribed burning (Patten 2003).

Each agency retains the final decision making authority for their own land but CSFS and USFS try to share information through a steering committee that initially held pretty formal meetings (Dennis 2003). Initially they had monthly meetings to share project status and information. Since the Hayman Fire in 2002 they have not met on a regular basis, but they communicate via telephone frequently.

USFS Land Treatments

Waterton/Deckers and Horse Creek received the highest priority due to the combination of high fire risk, erodible soils and the potential to impact water quality (USFS 2003b). Two Decision Notices were rendered in August 2001 for vegetation restoration. The first was for management of up to 12,200 acres in non-roadless areas in the Waterson/Deckers and Horse Creek Watersheds and the second enabling management on 5,200 acres in Inventoried Roadless Areas (Hessel, 2002).

The Decision Notice for management in the non-Roadless areas went un-appealed, enabling work to begin early in FY 2002. The Decision Notice for management in the Inventoried Roadless Areas was appealed by a coalition of environmental groups, including the American Lands Alliance, the Aspen Wilderness Workshop, Center for Native Ecosystems, Colorado Wildlife, the Land and Water Fund of the Rockies, The Wilderness Society, The Wildland Center for the Prevention of Roads and the Upper Arkansas—South Platte Project (Patten 2003). The basis of the appeal was opposition to vegetative treatments in the inventoried roadless areas. This appeal resulted in additional economic analysis and the prescription was altered. Language that was perceived to having a potential threat to the wilderness character was changed, mechanical treatment was reduced from 1,000 to 250 acres, openings were reduced from 40 to 5 acres, tree diameter for thinning was reduced from 18 to 14 inches, basal areas were increased from 60 to 80 and a more aggressive plan for reclaiming roads was devised (Patten 2003). A new Decision Notice was issued in January 2002 with a Finding of No Significant Impact. This decision also was appealed by the same coalition of environmental groups as well as by an association representing timber interests. In April 2002 the decision was issued upholding the January 2002 Decision Notice (Hessel, 2002).

In December 2002 the USFS was scheduled to begin treatment on a total of 5,200 acres in the “roadless” portions of the Upper South Platte River Basin, but fires during the summer of 2002 delayed this work (USFS 2003b). The Hayman, Schoonover and Snaking Fires consumed 6,726 of the 17,400 acres of National Forest land that had been planned for treatment. NEPA project layout work was lost, fuels treatments done on Denver Water properties around Cheesman Reservoir and monitoring studies and research in the Cheesman Reservoir were lost. The USFS now is trying to reallocate those acres along the areas around and adjacent to communities. A Changed Condition Analysis was completed in October of 2003. The new round of planning has given the USFS an opportunity to re-prioritize areas for treatment as part of the Front Range Fuels Treatment Partnership. In the original project planning the USFS detailed their own projects and they were driven mostly by slope. They also looked at projects they had been thinking of doing in order to generate the 17,000 acres. Consequently, many communities were not being protected by these efforts. “That is why we are trying to reallocate those 6,000 acres and [use] the Good Neighbor Agreement so that we can do implementation near communities” (Dennis 2003).

The South Platte project will contribute to this larger Front Range Fuels Treatment Partnership. The Front Range Fuels Treatment Project will provide additional funds to the South Platte Project (Patten 2003). The number of acres to be treated has been doubled from 2,000 to 4,000 acres per year (Patten 2003).

In the fall of 2002, the USFS completed its first fuel treatments on 815 acres through contracts awarded prior to the Hayman Fire and they have about 3,000 additional acres ready to go to contract. The 645 acres have been treated on Trumbull and 170 acres on Russell Ridge (Patten 2003). The bulk of the thinning was completed through a performance-based, end-result Forest Service contract to mechanically thin dense mixed conifer forest. The contractor used a track-mounted excavator with a hot saw to masticate most of the trees less than nine inches in diameter. The USFS also completed a 12-acre demonstration site with a Hydro-Ax using a micro-purchasing authority.

USFS has funded the USPWP in 1999, 2000, 2001, 2002 and 2003 at \$850,000 annually (Patten 2003). There is an additional \$100,000 allocated on an annual basis for the Rocky Mountain Research Station for research. In 2002 the Upper South Platte Watershed Project was funded through a combination of public funds and in-kind matches. Fuels Management \$399,000, Vegetation and Water Management 291,863, Trails Construction \$120,000, State and Private Forestry (CSFS) \$95,000, Research \$80,000, Recreation Management \$8,200, Timber Management \$7,090.

Monitoring for the South Platte Project is happening on a large scale at the watershed level and also at the project level (Dennis 2003). The USFS has taken the lead on the monitoring of the project (Patten 2003). USDA Forest Service is doing vegetative monitoring in house. USFS has contracted with Colorado State University to do soil and watershed monitoring, U.S. Fish and Wildlife Service is monitoring threatened and endangered species. Wildlife monitoring was increased in 2002 to document fire effects on wildfire and habitat, though the Hayman Fire disrupted planned monitoring efforts in the Trumbull and Saloon Gulch treatment areas. The fires also had significant impacts on the watershed vegetation monitoring program. Active vegetation monitoring was occurring in three areas of the watershed, Saloon Gulch, Upper Spring Creek and Trumbull. (Hessel 2002).

Private Land and Denver Water Treatments

CSFS also is working on portions of the Upper South Platte Project. They have two primary areas in which they are working—Lower Elk Creek and Denver Water lands. The Lower Elk Creek project has treated 376 acres of fuelbreaks, defensible spaces and thinning since it began in 2000. Fuelbreaks have been created on 170 acres, while 61 defensible spaces have been created on homeowner property (CSFS 2003b). CSFS also has worked closely with Denver Water and treated 5,000 acres of thinning and prescribed burning around Cheesman Reservoir and Trumbull area, which was credited with saving the structures during the 2002 fires (Hessel, 2002).

There is one Good Neighbor Agreement on the South Platte Project with more being planned. South of Deckers is a small one—six acres that protects houses. They are getting ready to sign off on a broader scale GNA at a watershed scale. CSFS will take on the responsibility for implementation up to one half mile outside of private lands in this watershed area (Dennis 2003).

Lower Elk Creek

CSFS has carved out the roughly 12,000-acre Lower Elk Creek management unit, which is all state and private land, no USFS land (CSFS 2003b). Work began on the Lower Elk Creek in 2000 and is run by Jennifer Chase, CSFS Forester (Chase 2003). The purpose of the project is to get private landowner's land mitigate through defensible space cost-share program and to do fuel breaks on private land (Chase 2003). The area is not comprised of established communities, rather it is a handful of subdivisions and stand-alone homes on different size lots ranging from 1-20+ acres.

Chase holds meetings with homeowners associations, neighborhood associations, and structure community meeting to talk about fire mitigation. During 2000, Chase conducted eleven

presentations to local groups, including the Kiwanis and Rotary, and wrote monthly articles for local newspapers and magazines. She also offered free site visits to the 100 Lower Elk Creek landowners that had more than 20 acres of land. She made presentations to local middle and high schools with letters going to parents about wildfire mitigation (Chase 2003; CSFS 2003b). In the spring of 2001, requests for assistance significantly increased when National Fire Plan funds were made available to landowners to help implement mitigation measures (CSFS 2003b).

Defensible space costs ranged from \$350 to \$4,000, depending on the lot size, tree density, slope and access. Chase organized the contractors to bid on the projects to get the most competitive rates. The project began in June 2000 and as of December 2002 they had treated 376 acres, about 150 acres per year, at a cost of \$410,000, \$315,000 of which was National Fire Plan money and \$95,000 was cost share money from homeowners (Chase 2003; 2004). Approximately 90 homes have done d-space for about 120 total acres, five projects were fuel breaks for about 200 acres and 50 acres of thinning. The Lower Elk Creek Project has been successful in garnering funds because it is part of the Upper South Platte Project. The availability of NFP funding raised the number of acres treated annually to more than 17 times than without the funds (CSFS 2003). When funding for fuelbreak implementation and cost share is no longer available, implementation will decrease (CSFS 2003).

The biggest challenge is getting landowners interested to do the mitigation work. The fuel breaks are her biggest success because they are large scale projects. In some limited cases CSFS pays 100% for these projects and even then some people aren't willing to do the work (Chase 2003; 2004). In Chase's opinion, a larger cost share of 80/20 might help with landowners strategically located near potential fuelbreaks to encourage them to treat important acres. While a larger cost might make a difference in encouraging more people to treat acres, CSFS has no way to create such a program given their current funding (Chase 2004).

Denver Water Lands

Chuck Dennis has specific responsibility for Denver Water lands. Denver Water has a contract with State Forestry for \$100,000 per year to provide management on their lands in the South Platte Project (Dennis 2003). Denver water has 70,000 acres in 7 counties, which Dennis also oversees. The Coalition for the Upper South Platte (CUSP) was formed during and after the Hayman fire. They helped disseminate information to the public via clearinghouse for needs and request to coordinate volunteer efforts. They received a National Forest Foundation matching grant to provide assistance to landowners within the watershed area. Denver Water chose to run their contract with CSFS through CUSP. In addition to the \$100,000 that Denver Water put in, there is an additional \$70,000 that has gone to fund another forester in the community. After salaries are paid, Dennis has \$30,000-40,000 a year for project implementation (Dennis 2003).

CSFS also has worked closely with Denver Water and treated 5,000 acres of thinning and prescribed burning around Cheesman Reservoir and Trumbull area, which was credited with saving the structures during the 2002 fires (Hessel, 2002). CSFS has created a 100-acre demo site within the 5,000 acre treatment area for education purposes. The site is located near roads and includes descriptive signs and an interpretive trail for the public. On this site they removed 60-70% of the trees and reduced basal areas from 80 to 48. The 100 acres is divided into two sites—60 and 40 acres. In 1999-2000 they did 60 acres where they used traditional logging with

a chainsaw, rubber tire skidder and lop and scatter slash up to 18 inches. Now there is an open timber stand, with high canopy, leaving old trees. In April 2002 they treated 40 acres using a hydroaxe and cat. On the USFS side of the demo site, they treated 800 acres at an initial cost of about \$400 per acre. Since the initial treatment, the USFS has spent more than \$400/acre on their side because they done additional tree felling and pile burning (Dennis 2004b). In addition, CSFS treated about 200 acres on the Trumbull parcel. On three of the projects at Trumbull CSFS completed the work by actually selling the timber, or giving it away for free. They "mulched" one 23-acre unit on very steep ground at around \$750/acre. Both CSFS the USFS are planning a joint prescribed burn across both ownerships for the fall 2004, with costs estimated at about \$75-100/ac. CSFS recently has had a harder time selling timber from projects, and their costs are about \$350-450/acre on the average (Dennis 2004b).

Promote Community Assistance

- 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

Jefferson County Cost Share Programs

In FY2002, Jefferson County Emergency Management received \$50,000 from CSFS Fuels Treatment Program to develop cost-share opportunities for the creation of defensible space (Homann 2002). Snart leveraged this \$50,000 for a total of \$113,000 in defensible space treatment (Snart 2003c). In 2003, Snart applied for and received \$75,000 in defensible space money, \$50,000 worth of shaded fuel break money and \$25,000 for fire planning from CSFS (Snart 2003c). Snart anticipates being able to treat 50-75 homes with the \$75,000 defensible space cost share money (Snart 2003b). All of this is matched at 50% with resources from the county. Hard-dollar matches, labor from Jefferson County residents and salary from Jefferson County employees comprise part of the cash and in-kind match (Snart 2003b).

Homeowners in Jefferson County can apply for the defensible space program in two ways. They can either go through county OEM or through State Forestry. The county uses the same treatment prescription as State Forestry (6.302). The Wildfire Mitigation Specialist runs the county program and uses State Forestry money. First come, first served is the primary way they have been running the program at the County level. The Wildfire Mitigation Specialist tries to focus work in a geographic area to the degree possible, but he can't turn anyone away. He can focus community fire planning activities and that can have an impact on a group of people applying for the defensible space program (Snart 2003). For instance he is currently working with two subdivisions in Golden Gate. Snart also follows up on contacts provided by State Forestry. The Wildfire Mitigation Specialist uses a few primary contractors including Bruce Coulter, retired from CSFS, Bjorn Dahl, retired USFS, Joe Snyder with Evergreen Tree Consultants, and Chris White from the Anchor Point Group. These are the four certified contractors who can do regulatory work for the County. In 2002 Snart visited over 100 homes and had 31 homeowners complete projects for reimbursement. The average cost of defensible space treatment was \$1,600 (Snart 2003c). Jefferson County reimburses up to a maximum of \$1,500 for defensible space work (Wasielewski 2004).

CSFS Cost Share Programs

CSFS operates two cost-share programs—one available to counties, communities or neighborhood associations and another available to individual homeowners (Gallamore 2003). CSFS makes money available to counties, communities or neighborhood associations that apply for multiple defensible spaces or common fuel breaks and slash treatment programs. To participate in the funding for hazardous fuel reduction, CSFS invites communities, counties or homeowner's associations to apply for funding. The grant requests go to the District offices where they are compiled and sent to the State office. The State office ranks them and then submits them to the Western States competition. Then the selected grants are forwarded to the USFS and the USFS will notify CSFS once funding becomes available. Then applicants are notified about the funds. When the work is completed, the county, homeowner's association or community notifies them with documentation.

Golden District also has an individual defensible space program for homeowners which has been funded at \$9,202 in 2002 and \$43,363 in 2003 (Gallamore 2003; Wasielewski 2004; 2004b). These defensible space grants are available on a 50/50 cost-share basis (Gallamore 2003). Funding through this program goes to existing homeowners who would like to create defensible space. In 2002 there was a lot of interest in doing wildfire mitigation work and CSFS had over 200 people on a waiting list. Everyone on the list was called and given an opportunity to apply for FY 2003 pool of funding (Wasielewski 2004). In 2002 they created 21 defensible spaces through their cost share program and 29 in 2003 (Wasielewski 2004b).

CSFS reimburses homeowners, counties and homeowner's associations for \$1,200 per homesite for defensible space, \$200 per acre for forest thinning, \$75 per acre for tree pruning, \$200 per acre for interface broadcast burning and \$100-300 per acre for slash disposal depending on whether it is being burned chipped or hauled. They also reimburse at \$1,000 per acre for fuel breaks (CSFS n.d; Wasielewski 2004). When the work is completed, the homeowner notifies CSFS and they go out and conduct a final inspection. The homeowners submit their receipts and then fill out the paperwork. CSFS submits this to headquarters in Ft. Collins and reimbursement can take anywhere from a few weeks to months (Wasielewski 2004).

Forest Management and Thinning Contracting Businesses

Joe Snyder manages and owns Evergreen Forest Management, which is comprised of Evergreen Tree Consultants and Evergreen Wildfire Consultants. Evergreen Forest Management does large-scale implementation, insect disease surveys, forest management plans for small and larger acreages. They cover work from 1-1,500 acres and have 4-6 employees (Snyder 2003). Evergreen Forest Management is unique because of the wide range of activities it undertakes. "I always want to be involved in the management planning side of things, whether it's traditional forest management plans, fire management plans, wildland urban interface planning, public education, I want to have that component. I would consider us to be a very unique hybrid [company]" (Snyder 2003). Snyder spends most of his time on consulting forestry and forestry management and has crews that do the implementation side of the plans. Snyder will do educational seminars for free, for instance like the ones in Genesee, and will get some consulting business out of that. Private landowners are his main clients. The cutting work they do is

exclusively by chain saw, rubber tire skidder, tractor grapple, whole tree chipper and dump truck. Costs range from \$1,500 to \$3,000 per acre for treatment depending on the terrain (Snyder 2003).

Snyder helps with the regulatory markings when new construction is going up in the county. He became involved after CSFS was seen to be too busy and too inflexible in some cases. Tim Carl with the Planning and Zoning Office wanted to have someone who could offer a second opinion in these cases (Snyder 2003). Snyder implements the 6.302 standard for the new development. The fee for the regulatory marking is paid for by the homeowner. Out of the homeowner markings that he completes, 80% are regulatory and 20% are voluntary (Snyder 2003). If you want to have voluntary defensible space you can call either the County OEM (Rocco's office) or CSFS, but they have long waiting lists and it is hard to accommodate people. Often Rocco and Gallamore won't refer these people to the private contractors and so people have to wait months to get their property treated (Snyder 2003).

Snyder also does prescription burning, but only on a limited basis. "The problem with prescription burning is that the money traditionally hasn't been there and the treatment per acre money is not very high, so I don't think from the private level it makes it worthwhile. And as you might imagine it is a huge liability issue" (Snyder 2003). Snyder does prescribed fire training in the county and sometimes can position a burn as a training exercise. Then the local fire agency or district takes responsibility for the burn.

Tree Musketeers, owned by Jason Bullis, is a small thinning contract business. Bullis is on the contractor's list for CSFS. He gets calls to do private property work and at peak times he can have 2 other guys working for him. Last year he treated 80-85 acres and the biggest job was 27 acres. Last year about 25% of Bullis' business was for the regulatory program and 60-75% of that was funded through the county cost share program. Jefferson County's Wildfire Mitigation Specialist has been sending business to Bullis. The slash has to be hauled off or burned. Bullis will take large diameter trees to the mill, but generally mills don't like trees that come from around homes because they have too many nails in them. Aspen is taken to furniture places like TEC Woodsmithing, Medicine Wolf and Lakewood Furniture. If the customer does not want the firewood, and it will fit through the chipper, generally it goes through the chipper. When it doesn't fit through the chipper then they have to deal with it some other way, which ends up being 30-40% of the timber. It costs anywhere from \$1,500-3,500 to treat an acre of property, depending on the size and other attributes. Most of the work (75%) is by word of mouth.

Darwin and Cindy Babcock are the owners and operators of Everlasting Tree Services. They treat 100% private landowners, and about 3-4% is cost share work. 50% of their work is on new property or rebuilds and 50% is tree service (Babcock 2003). There are 5 employees. Pikes Peak Lumber is a portable mill company that comes on site. Everlasting works with Pikes Peak, having them come to their treatment sites and try to salvage everything from 6 inches in diameter and up. Pikes Peak uses their portable mill and so only finished products are taken off the sites. Utilizing the lumber enables Everlasting Landscapes to save \$10,000 per year because they don't have to haul it away (Crowley 2003). They have backed off doing defensible space work because of lack of consistency in marking. Defensible space treatments cost \$2,500-3,500 per acre, depending on slope.

Competition is getting stiffer among all the operators in Jefferson County and there is growing concern about fly by night operators (Bullis 2003; Babcock 2003; Snyder 2003). Utilization of materials coming off treated property is another great concern. "Biomass disposal/utilization is the number one problem facing every small contractor. If you talk to thinning contractors that their number one problem" (Snyder 2003). They can't sell the small diameter stuff and you have to deck the logs so people can drive up, cut it and put it in a truck if you want to get rid of it as firewood. There is very, very limited utilization. "We will make a decision on some project that everything that's 18 inches and below is chipped" (Snyder 2003).

Biomass Utilization

Jefferson County, forest managers and the National Renewable Energy Laboratory in Golden are exploring a plan that would generate electricity with biomass. A semi-mobile facility, which could be placed in the forest, would generate 3-5 MW, enough for 5,000 households. Jefferson County Commissioner, Rick Sheehan, is spearheading the project. Federal and state agencies, Xcel Energy and the governor's office are considering a feasibility study, which would cost about \$60,000. If the project is feasible and if federal grants are available the first biomass generator could be generating power in late 2004 or 2005 (Anonymous 2003). In the summer of 2003, it appeared that Memorandum of Understanding would be signed between Jefferson County USFS, CSFS, NREL, PSCO (Xcel Energy), DOI, Colorado Office of Energy Management and Conservation, and DOE to undertake a feasibility study and pilot project. Each partner has been asked to contribute a minimum of \$5,000 to the project. A 3-megawatt semi-portable plant could consume enough dry mass from thinning projects on 5,200 acres per year (Jones 2003).

There are two small saw mills in Jefferson County, a number of firewood producers and some specialty wood product industry folks that are doing furniture, posts and beams, interior decorative wood specially used for home construction such as mantel pieces (Gallamore 2003). The specialty furniture folks are TEC Woodsmithing and David Greist. Wood also is bundled up for firewood and sold at the 7-11 stores by United Wood Products and Sweetman Enterprises, but these are non-Jefferson County operations.

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