

Introduction and Background

Mesa County, on the western slope in Colorado, covers 3,309 square miles, much of which is owned and controlled by the Bureau of Land Management and the U.S. Forest Service (Mesa County 2003). One million acres of BLM covers Mesa County with an additional 600,000 acres in the Grand Mesa and Uncompahgre National Forests. There are 340,000 private land acres in the WUI in Mesa County (Denison 2004b). At 4,386 to 10,800 feet in altitude, the vegetation varies from dry and desert-like to dense forests. Pinyon, juniper, sage grass and gambel oak brush occupy the lower areas transitioning to aspen, mountain mahogany, oak brush, service berry, and ponderosa pine. Higher elevations see Engelmann spruce and subalpine fir (Foley 2004).

Mesa County boasts a population of 116,255 (US Census Bureau 2000) people scattered in 15 communities with Grand Junction as the largest city (Mesa County 2003). Mesa County's median household income is \$35,864 with a median home price of \$118,900 of which only 1% are seasonal homes (US Census Bureau 2000). Glade Park, Unaweep Canyon Corridor, and Plateau Valley are the areas at greatest risk in Mesa County (Rogers 2003). Glade Park is especially hazardous given the mix of hazardous fuels, homes and occurrence of lightning strikes (Denison 2003).

Recent fires have raised awareness of the wildfire hazard. In 2002 the Dierich Fire in Glade Park necessitated the evacuation of 230 homes and burned 2,500 acres (Miller 2002). In 2003, the Maverick Fire burned 1,400 acres south west of Grand Junction and the JB fire burned 1,007 acres on Bureau of Land Management land.

Mesa County coordinates its response to the wildfire threat through several local, state and federal agencies and organizations. The Interagency Fire Advisory Board (IFAB) is the main coordinating body in Mesa County. IFAB was established in 1996 and is made up the USFS, BLM, NPS, CSFS, the sheriff's office, and County Emergency Management (Parker-Bullen 2003). IFAB provides a forum for discussing fire issues, potential and on-going projects, training opportunities and reviews of fire (Parker-Bullen 2003). "Typically we get information as to what projects BLM, Forest Service, State Forest Service have with regards to fuel mitigation, and then maybe fuel reduction and the sort of the prescribed burns of fuels treatment plans" (Parker-Bullen 2003). IFAB has met inconsistently since its inception with periods of meeting in regular monthly sessions interspersed with long periods of no meetings. At present IFAB meets monthly during the winter season and the meeting locations are rotated among the agencies (Denison 2003). While IFAB may not provide a consistent means of contact and communication among the various agencies and organizations in Mesa County, it is clear that good relationships and ad hoc communication exist between the county employees and the federal and state agencies that must coordinate when wildfire occurs.

Improve Wildfire Prevention and Suppression—Firefighting Readiness & Prevention Through Education

- Improve firefighting capability/readiness to protect communities.
- 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.

Wildfire Response in Mesa County

By statute, the sheriff is in charge of forest and prairie fires on all lands. This law, passed in 1903, predates the USFS, BLM and any concept of a taxing district or even income taxes. Originally it included all of what are now federal lands. Since the establishment of federal lands and fire protection districts, lands with their own fire protection funding are considered to be excluded from this law. Now the sheriff serves in a coordinating role in many counties, assisting fire departments in getting the manpower, equipment and funding for fires that exceed their capability (Denison 2004b). If a wildfire occurs within an existing fire district, then that fire department is responsible for the first response. If a wildfire occurs outside of a fire district, then the sheriff's office responds. Mesa County is unique because a greater portion of the population resides outside of covered fire districts than in most places (Anderson 2003). The past two sheriffs have taken their wildfire role very seriously and so Mesa County is seen as more responsive than some other counties (Foley 2003). In Mesa County, they have a designated fire warden and developed their own fire response unit to coordinate fire response on private lands.

The Mesa County Sheriff's Office Fire Team is run by Lt. John Anderson, the County Fire Warden. Anderson oversees his own internal fire team and also the other county employees who volunteer to fight fire (Parker-Bullen 2003). They have three fire engines and two support vehicles at their disposal (Anderson 2003). In addition to coordinating his own fire response team, Anderson is credited with increasing the professionalism of the volunteer fire departments throughout the county (Parker-Bullen 2003). Anderson has made a push to get many volunteers red carded and cross trained in 130 and 190 fire behavior and firefighter training classes and now about 75% are red carded (Anderson 2003; Parker-Bullen 2003). Every year the county budgets \$10,000 to send members to the Colorado Wildfire Academy (Anderson 2003). Working with CSFS, Anderson applies for Rural Fire Assistance (RFA, from the BLM) and Volunteer Fire Assistance (VFA, from CSFS) cost sharing assistance every year and the fire departments rely heavily on that money for equipment (Anderson 2003). In 2001, Glade Park, Plateau Valley and Gateway VFD received assistance from BLM through the RFD program for equipment purchases (Foley 2004). Curiously, Glade Park, Gateway and Plateau Valley did not apply for RFA/VFA funding in 2003 but have in past years (Denison 2004b).

Mesa County has ten fire districts and four volunteer fire departments—Gateway/Unaweep, Lands End, Glade Park, and Debeque. As of 2004 Gateway/Unaweep and Lands End are fire protection districts (Denison 2004b). The volunteer fire departments fall under the jurisdiction of the sheriff, because they are not recognized local governments (Parker-Bullen 2003). There is one full-time paid fire department, located in Grand Junction. All of the other fire districts are a combination of a few paid people with the majority volunteer (Parker-Bullen 2003). The county underwrites \$4,000 per year for insurance for volunteer fire departments, because when a wildfire occurs they are working on behalf of the sheriff (Anderson 2003).

There are great pressures on the local and volunteer fire departments. They have to be qualified for four things. They have to have state certification for different categories of Emergency Management Service, hazardous material management, structural firefighting National Fire Protection Association qualifications, and National Wildfire Coordinating Group wildfire qualifications (Denison 2003). Wildfire is a small percentage of what they do (Denison 2003).

Additional burdens have been put on fire departments with the Homeland Security Act (Denison 2004b).

When a fire occurs, a call will come into the BLM/USFS Grand Junction Regional Communications Center and they will dispatch to the appropriate agency. The Communications Center determines whether the fire is on public or private land. If it is on BLM or USFS land, the Mesa County Sheriff's Office Fire Team or fire districts may respond to assist in initial attack if there is confusion about the jurisdictional boundary of the fire. Once the jurisdiction is confirmed, Mesa County will continue to support the fire or be called off depending on the situation (Parker-Bullen 2003). A Type III incident team would be called in if the fire became too large for county resources to handle. Tim Foley, BLM, is the Type III Incident Commander for Mesa County's Type 3 incident team (Bear 2004). A Type II team would be called in if all the local resources were insufficient (Denison 2003). CSFS makes the call as to whether the fire qualifies for Emergency Fire Funds (EFF). An EFF declared incident does not have to have a Type II or I team called in (Denison 2004b). There is no set mechanism that would require a Type II team, but the complexity dictates that a Type II team is needed in most situations (Foley 2004).

The Annual Operating Plan lays out how to order air resources, who has suppression responsibility, and how everything should take place in case of a wildfire (Rogers 2003). The Annual Operating Plan is written up by CSFS, who also calls the annual meeting to review the plan (Rogers 2003). The County Annual Operating Plan is agreed to and signed by all the agency partners, even the federal agencies. In 2003, they did a tabletop wildfire exercise to combat a fire if one originated on the national monument (Parker-Bullen 2003).

In case of a fire, the Mesa County Communications Center has an Emergency Preparedness Network (EPN) that can telephone schools, businesses and homes. This is a reverse 911 system that can call up to 2,000 calls a minute and will call back up to three times to make sure the message gets through. The system cost \$50,000 to install and also entails a monthly fee to maintain the database. The money for the network comes from the \$.70 911 surcharge on all county residents' cellular and landline phone bills (Wiggins 2002). Mesa County also has an Emergency Alert System that is linked to radio stations to notify residents of an emergency or hazardous situation (Parker-Bullen 2003).

The sheriff's office and fire warden have great relationship with all players, especially the federal agencies (Anderson 2003). Planning and building relationships have been two of Anderson's foci as county fire warden. Others recognize the fruits of this relationships building. "We have probably one of the best relationships in the state with the federal agencies" (Parker-Bullen 2003). The county coordinates very well with the USFS/BLM Grand Junction Regional Communications Center. The Communications Center sends out daily sheets about resources that are committed and where they are committed during fire season (Parker-Bullen 2003). Anderson has tried to work with federal agencies and local fire districts to help cover the unusually large amount of land for which the sheriff's office is responsible.

Mesa County Office of Emergency Management

Kimberly Parker-Bullen is the County Emergency Manager and her main duties for the county include disaster planning. Parker-Bullen has a wildfire background which makes her more attuned to wildfire risk than other emergency managers. She works closely with the sheriff's office and the Fire Warden, who has responsibility for fire on private property in Mesa County (Parker-Bullen 2003).

Mesa County Emergency Management works with American Red Cross on Firewise community meetings and projects and identifies areas of homeowners to target. They have not undertaken any fuel reduction on their own. "The American Red Cross has been going out and doing the community meetings and doing the Firewise program for us... that's primarily due to just manpower and time" (Parker-Bullen 2003). The County OEM now is trying to identify areas in the county that coincide with USFS and BLM properties where they can work with adjacent homeowners. These would be high priority areas for joint private and federal land coordinated fuels treatment (Parker-Bullen 2003).

Mesa County Fire Planning

Under encouragement from the BLM and American Red Cross, Mesa County is now in the process of developing a fire plan (Bear 2003). CSFS has been contracted by the County Office of Emergency Management to create a county fire management plan that details Mesa County's policy on fire management for prescribed burns, fuels management and natural ignition burns on lands owned by the state or county (Rogers 2003). The BLM is paying for the creation of the plan to assist them in their burn policies (Anderson 2003). The goal by the federal agencies is to allow wildfire to resume its natural role as a landscape modifying force when possible (Denison 2004). The plan uses the polygon approach to categorize areas for suppression activity. There are four classifications of polygons. A-polygons are areas where wildland fire is highly undesirable. B polygons are areas where wildland fire is undesirable under current conditions. Fire prevention and suppression efforts will be aggressive in A and B areas. C-polygons are areas where wildland fire is acceptable and often desirable. D-polygons are areas where wildland fire is acceptable or desirable and where the potential for damage is insignificant. However, since Mesa County does not have the manpower, training, equipment, or funding for a "managed fire" program that their federal land partners do, full suppression of wildland fires on private and state lands will be the policy. The plan will identify areas of private land where indirect suppression may be considered as a suppression tactic (Denison 2004b). Phase 2 of the planning process would go beyond the polygon classification, in which CSFS will also include interagency agreements, annual operating plans and mobilization plans, as well as a comprehensive review of all state laws regarding wildfire and several scenarios of escalating wildfire as "guidelines for interaction" for the sheriff's department, but that has not yet happened (Rogers 2003; Denison 2004b). Often the primary reason counties want a fire plan is so they have the flexibility to manage fires, as opposed to having only the option to suppress them, but that is not the case in Mesa County. The sheriff's office doesn't have the resources to manage wildland or prairie fires and will continue with full suppression policies. The criteria for Mesa County is safety and cost saving rather than resource benefit (Anderson 2003, Denison 2004). At this stage, the county fire plan will mainly be a tool for BLM's burn policies (Anderson 2003), and a guide for where the highest hazard and highest value private lands are in the urban interface (Denison 2004b). Phase 2 would extend beyond suppression into mitigation planning.

In Colorado, the county sheriff has a statutory responsibility (CRS 30-10-513) for the suppression of “forest and prairie” fires on private and state lands. However, fire departments and fire protection districts tax for suppression and have suppression capability. In 2000, private land grazing interests passed a law that allows the sheriff to manage or suppress wildfires, if the county has fire management plan. In other words, sheriffs no longer had a statutory responsibility only to suppress fires if there is a plan in place that categorizes how fire can burn in the county. Federal land management agencies have allowed wildfire to play its function as a natural force in vegetation management on their lands. The change in the Colorado law was thought particularly useful for fires that originate on federal land and cross onto private land, where the landowner considers the fire to be a benefit to the vegetation. However a problem arises in Mesa County, and others, due to the inequity of funding for fire suppression and management between federal, private and state lands. Federal land management agencies do not have a restricted budget for fire suppression, but counties and the state of Colorado are restricted. Moreover, several liability issues complicate who would be responsible for fires that escape, if they are allowed to burn. For these reasons, CSFS in Mesa County recommends a full suppression policy for wildfires on private and state lands (CSFS n.d.). This approach may be modified by using an indirect attack method. Direct attack involves line building and other tactics such as aerially applied water and retardant directly on the fire’s edge. Indirect attack uses natural or man-made fuel breaks or topographic features to reinforce before the fire arrives. Direct attack is more expensive and used when high value area are endangered. Indirect attack can be used as a cost-conserving tactic (CSFS n.d.).

American Red Cross Interagency Wildfire Mitigation Program

American Red Cross works in partnership with CSFS, BLM, and USFS, in Mesa County and surrounding western slope counties, to deliver wildfire preparedness and hazard mitigation education in Wildland Urban Interface neighborhoods. Bob and Merle Glenn, retired USFS and Red Cross volunteers, are responsible for developing and promoting a national wildfire disaster preparedness model for Red Cross, and piloted it in nearby Delta County where they reside. Red Cross deals with many kinds of hazardous situation but had overlooked wildfire. The Glens discovered a real need in Mesa and the surrounding western slope counties for education and outreach in terms of wildfire mitigation. In October 2003, John Bear, ARC Wildfire Mitigation Specialist, was successful in getting a Memorandum of Understanding signed between the American Red Cross, the National Fire Protection Association and Wildland Fire Management Agencies. This MOU created a formal partnership to educate homeowners and others who reside in the WUI to assume a greater personal responsibility and not to rely entirely upon emergency response organizations (Anonymous 2003). Through its network of nationwide local chapters, the ARC, in coordination with various wildland fire management agencies, will deliver community-based education programs that are designed to reduce the impacts of wildland fire on private lands (Anonymous 2003).

The development of the national program came about through trial and error learning in Delta and Montrose Counties, which neighbor Mesa County. The Glens realized the USFS, BLM, CSFS and local volunteer fire departments were already overworked and couldn’t take on additional wildfire mitigation responsibilities. They developed education materials in spring

2001 with \$18,000 in funding from the BLM under the encouragement of Red Cross national (Glenn 2003). They work through existing Red Cross volunteer networks to get the word out, do trainings and in some cases, help do actual home assessments and thinning work. Working with the homeowners is key and learning how to deal with potential negative reactions has been a large part of the training (Glenn 2003). The prevailing attitude within most communities they work with is denial or an inability to recognize the problem. The other prevalent attitude is, “I moved into the forest for the forest, not my house, I don’t care if my house burns” (Glenn 2003; Denison 2004b). In these cases, ARC is trying to emphasize forest health. “The axiom that we use is, ‘I used to look at the forest, now I look into it, from my house’. And it’s interesting, I thought I had seven wild turkeys, I found out now I have thirty. I thought I had three deer, I found out I have thirteen. It’s much better that I’m looking into the forest rather than at it, from my house.” (Glenn 2003).

Initially the fire chiefs were resistant to the program because they already had too much to do. When the Glens made it clear that ARC would do the training, assessments and help with mitigation, then their program was much more warmly received (Glenn 2003). In Colorado, Red Cross works under the supervision of the Colorado State Forest Service to do wildfire mitigation education. CSFS gave Red Cross \$7,000 for educational material in FY 2001 (CSFS 2001). Red Cross and Rural Fire Department volunteers wishing to help assess wildfire threat to property and help landowners identify mitigation opportunities are trained by the Colorado State Forest Service and Red Cross with assistance from the federal agencies.

On a more local scale, ARC is making headway in Mesa and the surrounding counties due to the hiring of John Bear to oversee education and outreach efforts. John Bear is the Emergency Services Director for the Western chapter of the ARC, which covers a ten county region. Part of his salary is funded through BLM to address wildfire mitigation issues (Bear 2003). Using the model developed by the Glens, Bear works mainly through CSFS or local volunteer or fire protection districts (Bear 2003). While the ARC program is aimed at a variety of activities, Bear says, “My primary role is to educate the homeowner” (Bear 2003). Bear has been trained on how to do assessments for defensible space and how to work effectively with the community through the ARC program. Glade Park, Gateway, and Plateau Valley have been the areas of emphasis in Mesa County. The work in Mesa County is just getting started. They haven’t been as active as some of the surrounding counties, like Delta and Montrose where this program was piloted (Bear 2003). Now that Bear has funding from the BLM to do the wildfire mitigation work, he will be freer to pursue work in Mesa County.

ARC Wildfire Mitigation Activities

Work days, demonstration sites, distribution of education materials, cost share programs from the State Forest Service, and other assistance is provided or promoted by ARC. For instance the Red Cross and a local fire department may organize a community wildfire preparedness day. For a community wildfire preparedness day, Bear’s main partners are local fire districts and volunteer fire departments. Usually Bear contacts a local fire department and asks if they would like to have a presentation to the community about defensible space and wildfire hazards. He works with the fire department to develop a community wildfire preparedness flyer and agenda for the meeting, and then he goes door-to-door to pass out the flyers (Bear 2003). The presentations are held at the local fire station. Bear lines up speakers on technical issues like fire

history, fire behavior, defensible space, home fire preparedness, and evacuation planning from BLM and USFS (Bear 2003). State Forestry will talk about their 50/50 cost share program for creating defensible space around homes. BLM will encourage the community to do a preplan and talk about the funding they have available for those plans (Bear 2003).

Bear has had mixed results since getting started in Mesa County. In the summer of 2002, he held a meeting at Glade Park that was not well attended. But then had one with the Plateau Valley Fire Department in the same summer that was attended by 82 people (Bear 2003). They had greater attendance at the Plateau Valley meeting because smoke from a local fire was present in the neighborhood. The local fire department and Red Cross volunteers went door-to-door talking to residents to encourage attendance. The meeting was followed up with home site assessments from the CSFS. Out of this particular meeting, 35-40 people wanted defensible space assessments for their homes (Bear 2003). On average Bear estimates about 30% of the people that attend preparedness meetings follow through to do the mitigation work (Bear 2003). The home assessments are free and then it is up to the homeowners to do the defensible space work. Two other meetings in 2002 in Colbran and Mesa attracted 65 and 58 residents respectively (Anonymous 2002).

The ability to get out and do home site assessments have been the biggest help to ARC's partner agencies (Glenn 2003). ARC uses the same prescription used by CSFS—the defensible space zone prescription that preceded the 6.302 prescription. Both CSFS and ARC find this is a more user-friendly prescription for the homeowner. If a homeowner wants to be involved in the cost share program, they will work with CSFS, possibly with ARC's initial assistance. But if they want to work on their own, then they will work with ARC and Bear. In 2002, ARC did 218 home site assessments in Mesa County and 147 of those were requested through cost share work through CSFS (Anonymous 2002). Bear usually works with a forester and the forester actually does the treatment design, while Bear talks to the homeowner about defensible space and treating the 30-foot area directly around the home (Bear 2003). Glenn and Bear estimate it would take about \$300,000 on an annual basis to address the cost share needs in the ten counties they cover on an annual basis, including Mesa County. A more aggressive cost share program would help accelerate treatment, say an 80/20 cost share (Bear 2003).

ARC is working with the USFS on an area called Ward Lake right over the border of Mesa County, in Delta County, high up in the mountains in the middle of the Grand Mesa NF, where they will target a homeowners' group (Bear 2003). The USFS is planning a thinning project around the community that adjoins their land and wants to encourage the homeowners to create defensible space. ARC will do education and a community day as well as assessments of homes (Bear 2004). ARC hopes to expand more in this direction of doing community wildfire preparedness on private lands next to public land where agencies are actively working so they create "seamless landscape scale mitigation" (Bear 2003). Pete Blume is now coordinating this project for the USFS Grand Mesa. The EA was passed and the USFS has started to do the thinning around the Ward Lake community (Bear 2004).

Colorado State Forest Service

Colorado State Forest Service assists the county sheriff in his role as fire warden for the county. CSFS assists by providing fire training, equipment, technical assistance, funding, facilitates interagency mutual aid agreements and annual operating plans (CSFS 2003). CSFS maintains sixteen fire trucks within the Grand Junction CSFS district, and 140 statewide, that they assign for fire suppression (Foley 2004; Denison 2004). These engines are assigned to fire cooperators (mainly fire departments and sheriffs), and are specifically designed for wildland firefighting. These engines fight fire not only in their assigned area, but statewide and nationwide (Denison 2004b). CSFS main strategy is to get landowners to participate in their own planning, mitigation and rescue. This means the landowner must buy into the belief that there is a problem and this is their biggest challenge (Rogers 2003).

Wildfire Hazard Reviews and Wildfire Hazard Area Mapping

Mesa County operates under Wildfire Hazard Planning Standards, which were adopted in 1999. CSFS is the designated state agency by HB 1041 to review wildfire hazards upon request by the county. Mesa County has regulations that call for defensible space on new subdivisions (Denison 2003). However, CSFS reviews only one or two of these plans a year because not much subdivision development is happening in wildfire hazard areas. During 1997-1999, Mesa County contracted with CSFS to do wildfire hazard mapping. In theory this should be keeping subdivision development out of the more hazardous areas, but this is not happening in practice (Denison 2004b). In the cases where they do have someone building in a wildfire hazardous area, the CSFS stipulates what must be done for mitigation. Houses on 35-acre parcels or larger are exempt from these policies. In Mesa County and statewide there is a disconnect between county planning regulations for wildfire hazard reduction and the enforcement, and especially the maintenance of fuels reductions. Recently State Farm Insurance has issued a warning to those they insure in the urban interface in Colorado. They will have 3 years to do fuels mitigation to the CSFS 6.302 standard or face losing their coverage. It is this kind of incentive that is most effective in getting fuels reduction done (Denison 2004b). John Denison and Kimberly Parker-Bullen tried to get more requirements into the land use code, but these were rejected (Parker-Bullen 2003).

CSFS Wildfire Mitigation Specialist

Pete Blume was hired by the CSFS under a grant from the BLM to promote wildfire hazard mitigation efforts on private lands in the WUI through information, grants and coordination of adjacent federal lands fuel treatments (Blume 2004). Blume works primarily through fire protection districts, homeowners associations and contact and coordination with federal, state and county government. Blume's job is more as a coordinator of cross-boundary, on-the-ground wildfire mitigation than just education and outreach (Rogers 2003). Blume will work both sides of the fence, literally and figuratively, and represent both the federal need and the State Forestry private lands need. He will talk to the homeowners about CSFS's 50-50 cost-share grant for wildfire mitigation defensible space work (Robertson 2003). Blume had been housed at BLM Headquarters in Grand Junction, where he used to serve as the area FMO. As of 2004, Blume has moved to the USFS office in Grand Junction (Denison 2004b).

USFS and BLM

The upper elevation regions in Mesa County are under the control of USFS, while the lower elevation lands are under the control of BLM and the county sheriff. The two agencies' jurisdictions are highly commingled (Foley 2003).

BLM and USFS operate as an interagency fire management unit. BLM has six full or part time fuels crews made up of both USFS and BLM employees. Tim Foley, BLM FMO, is the point person for coordinating wildfire response on BLM land. USFS has no wildfire suppression capacity in the area so BLM is responsible for wildfire suppression on USFS lands. National Park Service is responsible for their land, but they have limited staff for fire work (Foley 2003; Denison 2004b). BLM has a mutual aid agreement with NPS if a fire breaks out on the National Monument to respond and provide them with suppression resources. BLM also has a 24-hour mutual aid non-billing agreement with the county and other entities in the county. If a fire is close to BLM land and it is unclear under whose jurisdiction it falls, BLM will respond and not charge if it turns out to be on county land (Foley 2003). Similarly, the county and fire department resources reciprocate (Denison 2004b). BLM hosts a number of wildfire courses that are open to any of the local fire department volunteers or employees. These include S-130, S-190, basic fire crew boss, engine boss, engine operator, intermediate fire behavior and medical unit leader classes (Foley 2003). CSFS coordinates two statewide fire academies that attract and train hundreds of federal and private firefighters every year (Denison 2004b). BLM also has a part time fire prevention tech that does some education and outreach in the summer. BLM meets every two weeks with John Anderson to keep up communication (Foley 2003).

Glade Park

Glade Park is a small community of 1,600 that is not under a taxable fire protection district, but rather has organized its own volunteer fire department (Rogers 2003; Perrin 2003). Glade Park Fire Department has existed since 1980. Nearly 60% of their calls are wildland fire, 30% are medical and 10% are structural fire (Brown 2003). They used Global Positioning Satellite to map the 425 homes in their area to facilitate easy location in case of a fire (Perrin 2003). Glade Park recently got a new Fire Chief who has been very active in getting his folks trained, and has also been proactive in interagency cooperation (Foley 2004). The biggest problem in Glade Park is getting people to create defensible space. Even though there are regulations for creating defensible space on new properties, these are not enforced and most people don't even know they exist (Perrin 2003). In fact the previous Fire Chief has not done defensible space on his land. During the Dierich Fire in 2002, the community was evacuated and this raised awareness among the people (Brown 2003). Some people seem to be doing more defensible space and CSFS is putting out defensible space information at local stores.

Glade Park Fire Department relies almost solely on contributions to fund their activities, since there is no tax base for the fire department (Brown 2003). One activity they have is a movie they show on the side of the firehouse every Friday night. Donations go to support the Glade Park Fire Department (Rogers 2003). The first movie in 1981 brought in \$37, now they bring in \$750-2,400 annually (Brown 2003). In the fall 2003, Glade Park purchased a BLM truck from the proceeds of their Friday night movie fund. In 2002 they used VFA/RFA money to purchase a BLM brush truck (Brown 2003). "Glade Park is doing quite a bit. I think they've been the

most proactive in doing mitigation, and it's been initiated by the BLM's fuels reduction program" (Bear 2003). The BLM has done hundreds of acres of fuels reductions in the Glade Park/Pinyon Mesa area. The challenge has been to get their projects closer to peoples' homes. People don't want cut trees and roller-chopped brush next to their property where it will do the most good from a wildfire hazard reduction standpoint (Denison 2004b). BLM has 7 thinning projects planned for the next few years around Glade Park. They have passed the EA and will be implementing the projects (Bear 2004).

Hazardous Fuel Reduction—Prioritize hazardous fuels reduction where negative impacts are greatest

- 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

United States Forest Service

The USFS treated 670 acres in 2001, 20 acres in 2002 and 10 acres in 2003 (Blume 2004). They started planning and preparation work for the 17,000 acre North Uncompahgre Project and the 3,000 acre Dominguez Project in 2003 (Blume 2004). The very small spring burn window makes some years difficult to implement prescription burns. Smoke management regulations have limited the amount of burning when a window is present. Overall the budget dictates how many mechanical acres can be treated.

Bureau of Land Management

BLM is focusing their work in areas they see as particularly high risk in Mesa County—these include Glade Park, Unaweep Canyon and Plateau Valley—almost all of which is in pinyon juniper woodland and sage grass (Robertson 2003). Projects are proposed by fire and resource specialists, rated against criteria and then prioritized for planning and implementation. They are working toward a five-year action plan, which is still underdevelopment (Blume 2004). The areas chosen for work are intermixed with private, BLM and USFS lands and were identified through a risk assessment process (Robertson 2003). BLM does not use prescribed fire in these WUI areas but has a Fire Ecologist that is in charge of prescription fire and wildland fire use for fuel treatment outside the WUI areas, mostly in the mountain shrub vegetation type (Robertson 2003). Unaweep Canyon has treatments in progress now. They have identified many sites through their risk assessment work and they are getting ramped up to address them.

Hazardous fuel reduction projects are prioritized based on guidance from the National Interagency Fire Center and the BLM Colorado State Office. The method of evaluation and ranking proposed projects changes each year but is based on the same basic criteria. WUI projects are evaluated based on WUI conditions, the fire management plan zone, fire ecology, project access and resource consideration. Local support and partnerships with matching funds,

adjacent planned efforts, multi-agency partnerships and the likelihood of meeting project deadlines also is taken into consideration (Laforge 2003).

Smoke management has been one of the biggest challenges for the USFS and BLM (Foley 2003). They have had to convert some projects from prescribed fire to mechanical treatment because some permitting requirements have been difficult to meet, like weather monitoring. While mechanical prescriptions are more expensive, they end up having much more control. “You can get it done and also you have a lot less risk” (Foley 2003). It is increasingly difficult and expensive to get a “burn window” that will meet weather and fuel moisture prescriptions as well as the smoke management limitations (not to mention the availability of qualified personnel). Often prescribed and managed fire prescriptions will be met at the same time fire suppression activities are occurring. The “challenge” of explaining to the public why you are lighting and allowing some fires to burn while suppressing others is one federal land managers are “treading lightly” with (Denison 2004b).

In FY2002, BLM had four WUI projects scheduled for implementation and 2,724 acres were treated. 2,560 acres were planned for treatment and 1,232 were treated. 500 acres of the proposed treatment were for prescribed burns that could not take place (Laforge 2003). Timber Ridge was planned at 1,800 acres for mechanical crushing treatment and 1,160 were completed. Initially the project was planned as a prescribed fire prescription. Unawep was planned at 260 acres of mechanical crush prescription and 72 acres were completed. Battlements was planned at 500 acres for prescribed burning, but did not meet spring burn requirements so no acres were treated (Laforge 2003).

In FY2002 there were nine hazardous fuels projects or non-WUI projects and 3,638 acres were treated. 5,210 acres were planned for treatment and 1,819 acres were treated successfully (Laforge 2003). Little Book Cliffs was planned at 1,000 acres but redesigned for 570 acres of mechanical crush and mowing prescription. Wildcountry was planned at 100 acres of mechanical thinning and 10 acres were completed in 2002. Dolores Point as planned at 700 acres of mechanical crush and carried over into FY03. Outlaw Mesa was planned at 350 acres of mechanical crush and 350 were treated. Gibbler was originally planned at 1,100 and 662 were treated with a mechanical crush prescription. Corcoran was planned at 1,300 and 227 completed. Clarks Bens was planned at 360 and carried over to FY2003. Snyder Flats was planned at 300 acres of chemical treatment and carried over into FY2003 (Laforge 2003).

In FY 2003 4,190 acres were treated mechanically in both WUI and non-WUI settings. Three WUI projects were scheduled for FY03 and two were carried over for a total treatment of 1,657 acres (Blume 2004). 727 out of the 1,328 acres not treated in FY02 were treated in FY03 (Laforge 2003). A 500-acre prescribed burn on Battlements again was postponed due to unfavorable spring burning conditions. An additional 750 acres of new projects were planned and completed in FY2003. Landini was planned at 350 acres crush and 350 accomplished. Fish Canyon planned at 400 acres and 400 completed with crushing (Laforge 2003).

In FY 2003 there were two non-WUI projects scheduled for implementation and seven carryovers. 3,856 acres of carry over projects were completed along with 300 additional new

acres (Laforge 2003; Blume2004)). Lapham and Post Canyon had 800 acres planned and 300 acres completed. Lower 4A had 900 acres planned carried over into FY 2004 (Laforge 2003).

The BLM hired “fuels planning teams” to keep project progressing through the NEPA process as well as categorical exclusions. The success they have had in treatment is due in part to the interest by non-fire resource specialists in seeing vegetative treatments done that have benefits for fuel reduction and their functional resource specialty. This has kept projects in the pipeline and involved more people with the workload (Blume 2004).

BLM ends up using contractors when they need heavy equipment. For instance if the work involves a Hydroaxe or roller chopper, then they will contract out (Foley 2003). Contract request for quotes (CRQ) are sent to a list of qualified operators. Contracts are awarded to the low bid. Most of the awards are to relatively local contractors in south Fork, Grand Junction, Silt, Paonia, Delta, and Norwood. There are only two mechanical operators in Mesa County that consistently present competitive bids (Laforge 2003).

BLM is starting to do maintenance treatment on areas that were treated in the past, primarily with prescription fire. They have just hired a fire use module, between 5-8 people, that will be shared all around western Colorado, but based in Grand Junction. They will be able to ramp up their treatment work because this group will be utilized to do prescription burning and wildland fire use for treatments (Robertson).

Colorado State Forest Service

CSFS is not doing any additional hazardous fuel reduction work in Mesa County beyond the work with private property owners: defensible space, fuel breaks and forest thinning.

CSFS Prescribed Burning

While the largest prescribed burns CSFS has managed have been on the CSFS-Grand Junction district it has not recently done a lot of prescribed burning because of the risk involved and the recent development of cost-effective mechanical treatment options (e.g. the Hydroaxe). Because of unresolved liability issues and funding the Grand Junction District of the CSFS recommends to counties against allowing natural ignition burns to cross from federal land into private or state owned lands and vice versa (CSFS n.d.; Denison 2004b). “Some people like to talk about the cost-effectiveness of prescribed burns, but I guess I’ve seen it both ways. It can be cost-effective if everything goes right, but it can be not very cost effective if things go wrong” (Rogers 2003). Moreover, prescribed fire in the WUI interface is difficult to carry out. Mechanical treatments are easier because they can be done at any time of the year and actually cost less money per acre, especially if you count all the false starts on a prescribed fire, the contingency planning and the smoke management plan (Denison 2003). For instance, the projected costs for the prescribed fire that caused the Cerro Grande Fire in Los Alamos in 2000 was \$324 per acre for a 100-acre area. It was this prescribed fire that escaped, burning 235 homes and 47, 650 acres and costing many millions of dollars in damages (Denison 2004b). Due to their vegetative types, Mesa County can do mechanical fuels treatment for less than \$324 per acre (Denison 2003).

Restore Fire Adapted Ecosystems—Rehabilitation, Restoration, Using Science and Information, Monitoring

- 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
- Promote establishment of native seed and other plant material
- Promote research of effective restoration practices
- Research interactions between fire, land management and other actions

BLM did some rehab in the Glade Park area due to the fire in 2002 (Bear 2004), but nothing extraordinary.

Promote Community Assistance—Increase Local Capacity, Incentives, Biomass Utilization

- 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 initiatives through fire-sensitive land use planning
- Promote public knowledge and understanding of wildland fire, including risks and the role of fire in natural ecosystem processes.

Colorado State Forest Service Cost-Share Programs

National Fire Plan money is available to private landowners for 50% cost-share fuels reduction to a specified standard. CSFS generally cost-shares a fuel break or defensible space type clearing as well as forest thinning. There are specified standards that have to be achieved to get the cost-share funding for all treatment work. , CSFS in Mesa County uses what they call “defensible space zones,” the predecessor to the 6.302 prescription, for defensible space work on homeowner property (Denison 2003). CSFS also funds volunteer fire departments and fire districts to coordinate defensible space in their areas. In the past all State Fire Assistance (SFA) WUI cost-share grant monies for Mesa County were applied for by the Interagency Fire Advisory Board (IFAB), but as of 2003 these funds have been managed directly through CSFS-GJ (Rogers 2003; Denison 2004b). Since 2001 CSFS-GJ has reimbursed \$358,049 to landowners with 126 landowners participating and 1,654 acres treated in the district, of which 1,242 acres were treated in Mesa County for fuel breaks and defensible space work (CSFS 2003).

In Mesa County in 2001, CSFS cost-shared three fuel breaks for a total of 464 treated acres at a cost of \$89,367 (\$192 per acre) (Rogers 2003b; CSFS 2003). In 2002, CSFS cost-shared 10 projects that covered 694.6 acres of treatment at a cost of \$92,604 (Rogers 2003a; CSFS 2003). Three fuel breaks totaled \$71,174 on 654 acres (Rogers 2003b). The other seven were defensible space projects on 40.6 acres costing \$21,430. In 2003 Mesa County treated 601 acres involving 9 landowners that did 2 fuelbreaks, and 7 defensible space/thinnings at a cost of \$27,903 (\$46 per acre). The reason the cost/acre was so low is 500 acres was a roller-chopping practice which is very cost effective. (Rogers 2003b; Rogers 2004; Denison 2004b). The monies available for homeowner defensible space cost share were capped at \$50,000 in 2003, so CSFS supplemented their cost share money with funds leftover from 2002 (CSFS 2003; Denison 2004b). The decrease in acres treated in 2003 results from a greater emphasis placed on defensible space work over fuel breaks (CSFS 2003).

Most people find out about the cost-share program through their local fire departments and neighbors that are doing treatments with cost-share money or through the Red Cross program (Denison 2004; Bear 2003). ARC hands out 50/50 cost share d-space applications when they do their programs and then it is up to the CSFS to follow up (Bear 2003). Word of mouth has been the most effective method (Bear 2003). People interested in the cost share are referred to CSFS for the 50/50-match money. The CSFS does the follow-up inspection to be sure it meets their standards (Bear 2004). CSFS sends applications to interested people, does a site visit to determine if fuels treatment is necessary, explains the program, helps line up a contractor if the landowner doesn't want to do the work themselves, then inspects the treatment afterwards to ensure it meets the standards before approving cost-share payment. Several landowners have decided after they started that they didn't want to do the treatment to standard and they were not given cost-sharing. "We make it very clear in the beginning that this is not a 'property clean-up' program; they will have to cut live trees, not just dead ones, and if they don't do it to the standard they will not get cost-sharing" (Denison 2004).

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