Teton County, Montana

Community Wildfire Protection Plan

2011 Revision

2007 Ahorn Fire

Adopted by the Teton County Board of Commissioners

June 2011

This plan was developed by the Teton County Community Wildfire Protection Plan committee
in cooperation with Northwest Management, Inc.

Acknowledgments

This Community Wildfire Protection Plan represents the efforts and cooperation of a number of organizations and agencies working together to improve preparedness for wildfire events while reducing factors of risk.

Teton County Commissioners and the employees of Teton County

Montana Department of Natural Resources and Conservation

Teton County Fire and Rescue

USDA Forest Service

Montana Fish, Wildlife & Parks

USDI Bureau of Land Management

Montana Disaster and Emergency Services

Federal Emergency Management Agency

NRCS Natural Resources Conservation Service

Teton County Sheriff Department
Choteau Rural Volunteer Fire Company
Fairfield Rural Volunteer Fire Company
Dutton Rural Volunteer Fire Company
Power Rural Volunteer Fire Company
Pendroy Rural Volunteer Fire Company
&
Local Businesses and Citizens of Teton County

To obtain copies of this plan contact:

Teton County Commissioners Office
Teton County Courthouse
PO Box 610
Choteau, Montana 59422

Table of Contents

Forward

The process of developing a Community Wildfire Protection Plan (CWPP) can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the wildland–urban interface on both public and private land. It also can lead community members through valuable discussions regarding management options and implications for the surrounding land base. Local fire service organizations help define issues that may place the county, communities, and/or individual homes at risk. Through the collaboration process, the CWPP planning committee discusses potential solutions, funding opportunities, and regulatory concerns and documents their resulting recommendations in the CWPP. The CWPP planning process also incorporates an element for public outreach. Public involvement in the development of the document not only facilitates public input and recommendations, but also provides an educational opportunity through interaction of local wildfire specialists and an interested public.

The idea for community-based forest planning and prioritization is neither novel nor new. However, the incentive for communities to engage in comprehensive forest planning and prioritization was given new and unprecedented impetus with the enactment of the Healthy Forests Restoration Act (HFRA) in 2003. This landmark legislation includes the first meaningful statutory incentives for the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. In order for a community to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP).

A countywide CWPP planning committee generally makes project recommendations based on the issue causing the wildfire risk, rather than focusing on individual landowners or organizations. Thus, projects are mapped and evaluated without regard for property boundaries, ownership, or current management. Once the CWPP is approved by the county board of commissioners, the planning committee will begin further refining proposed project boundaries, feasibility, and public outreach as well as seeking funding opportunities.

*The **Teton County Community Wildfire Protection Plan** was originally drafted in 2005 through a partnership with the Teton County Hazard Mitigation Planning Committee with project facilitation and support provided by Northwest Management, Inc. The 2011 update of the Community Wildfire Protection Plan is a full review of the document with funding provided through the Title III Secure Rural Schools program.*

The 2011 Community Wildfire Protection Plan expands on the wildfire chapter of the Teton County All Hazard Mitigation Plan.

[This page intentionally left blank.]

Chapter 1

Overview of this Plan and its Development

This Community Wildfire Protection Plan (CWPP) for Teton County, Montana, is the result of analyses, professional collaboration, and assessments of wildfire risks and other factors focused on reducing wildfire threats to people, structures, infrastructure, and unique ecosystems in Teton County. Agencies and organizations that participated in the planning process included:

- Teton County Commissioners and County Departments
- Montana Department of Natural Resources and Conservation
- Montana Fish, Wildlife, and Parks
- USDI Bureau of Land Management
- USDA Forest Service
- USDI Bureau of Reclamation
- USDA Natural Resources Conservation Service
- Choteau Rural Volunteer Fire Company
- Fairfield Rural Volunteer Fire Company
- Power Rural Volunteer Fire Company
- Dutton Rural Volunteer Fire Company
- Pendroy Rural Volunteer Fire Company
- Montana Disaster and Emergency Services
- Northwest Management, Inc.

Northwest Management, Inc. of Moscow, Idaho was selected to assist the planning committee by facilitating meetings, leading the assessments, and authoring the document. Richard Van Auken, Teton County Fire Chief, served as the lead for Teton County. The project co-managers from Northwest Management, Inc. were Mr. Vaiden Bloch and Mrs. Tera R. King.

Goals and Guiding Principles

Planning Philosophy and Goals

The goals of the planning process include integration with the National Fire Plan, the Healthy Forests Restoration Act, and the Disaster Mitigation Act. The plan utilizes the best and most appropriate science from all partners as well as local and regional knowledge about wildfire risks and fire behavior, while meeting the needs of local citizens and recognizing the significance wildfire can have to the regional economy.

Mission Statement

To make Teton County residents, communities, state agencies, local governments, and businesses less vulnerable to the negative effects of wildland fires through the effective

administration of wildfire hazard mitigation grant programs, hazard risk assessments, wise and efficient fuels treatments, and a coordinated approach to mitigation policy through federal, state, regional, and local planning efforts. Our combined prioritization will be the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy.

Vision Statement

Institutionalize and promote a countywide wildfire hazard mitigation ethic through leadership, professionalism, and excellence, leading the way to a safe, sustainable Teton County.

Goals

1. To reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface
2. Prioritize the protection of people, structures, infrastructure, and unique ecosystems that contribute to our way of life and the sustainability of the local and regional economy
3. Educate communities about the unique challenges of wildfire in the wildland-urban interface (WUI)
4. Establish mitigation priorities and develop mitigation strategies in Teton County
5. Strategically locate and plan fuel reduction projects
6. Provide recommendations for alternative treatment methods, such as brush density, herbicide treatments, fuel reduction techniques, and disposal or removal of treated fuels
7. Meet or exceed the requirements of the National Fire Plan and FEMA for a County level Fire Mitigation Plan

United States Government Accountability Office (GAO)

Since 1984, wildland fires have burned an average of more than 850 homes each year in the United States and, because more people are moving into fire-prone areas bordering wildlands, the number of homes at risk is likely to grow. The primary responsibility for ensuring that preventative steps are taken to protect homes lies with homeowners. Although losses from fires made up only 2 percent of all insured catastrophic losses from 1983 to 2002, fires can result in billions of dollars in damages.

GAO was asked to assess, among other issues, (1) measures that can help protect structures from wildland fires, (2) factors affecting use of protective measures, and (3) the role technology plays in improving firefighting agencies' ability to communicate during wildland fires.

The two most effective measures for protecting structures from wildland fires are: (1) creating and maintaining a buffer, called defensible space, from 30 to 100 feet wide around a structure, where vegetation and other flammable objects are reduced or eliminated; and (2) using fire-resistant roofs and vents. In addition to roofs and vents, other technologies – such as fire-resistant windows and building materials, chemical agents, sprinklers, and geographic information systems mapping – can help in protecting structures and communities, but they play a secondary role.

Although protective measures are available, many property owners have not adopted them because of the time or expense involved, competing concerns such as aesthetics or privacy,

misperceptions about wildland fire risks, and lack of awareness of their shared responsibility for fire protection. Federal, state, and local governments, as well as other organizations, are attempting to increase property owners' use of protective measures through education, direct monetary assistance, and laws requiring such measures. In addition, some insurance companies have begun to direct property owners in high risk areas to take protective steps.[1]

State and Federal CWPP Guidelines

This Community Wildfire Protection Plan will include compatibility with FEMA requirements for a Hazard Mitigation Plan, while also adhering to the guidelines proposed in the National Fire Plan, and the Healthy Forests Restoration Act. This Community Wildfire Protection Plan has been prepared in compliance with:

- The National Fire Plan: A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Comprehensive Strategy Implementation Plan (December 2006).
- Healthy Forests Restoration Act (2003).
- The Federal Emergency Management Agency's Region 10 guidelines for a Local Hazard Mitigation Plan as defined in 44 CFR parts 201 and 206, and as related to a fire mitigation plan chapter of a Multi-Hazard Mitigation Plan.
- National Association of State Foresters – guidance on identification and prioritizing of treatments between communities (2003).

The objective of combining these complementary guidelines is to facilitate an integrated wildland fire risk assessment, identify pre-hazard mitigation activities, and prioritize activities and efforts to achieve the protection of people, structures, the environment, and significant infrastructure in Teton County while facilitating new opportunities for pre-disaster mitigation funding and cooperation.

Additional information detailing the state and federal guidelines used in the development of the Teton County Community Wildfire Protection Plan is included in Appendix 5.

Integration with Other Local Planning Documents

During development of this Community Wildfire Protection Plan, several planning and management documents were reviewed in order to avoid conflicting goals and objectives. Existing programs and policies were reviewed in order to identify those that may weaken or enhance the mitigation objectives outlined in this document. The following sections identify and briefly describe some of the existing Teton County planning documents and ordinances considered during development of this plan.

[1] United States Government Accountability Office. *"Technology Assessment: Protecting Structures and Improving Communications during Wildland Fires."* Report to Congressional Requesters. GAO-05-380.

Teton County All Hazard Mitigation Plan (2005)

The Teton County All Hazard Mitigation Plan[2] (AHMP) covers each of the major natural and human-caused hazards that pose risks to the County. The primary objectives of the AHMP are to reduce the negative impacts of future disasters on the community, to enhance life safety, increase public awareness, protect natural systems, and build partnerships. The Plan is a planning document, not a regulatory document.

The AHMP meets FEMA's planning requirements by addressing hazards, vulnerability and risk. Hazard means the frequency and severity of disaster events. Vulnerability means the value, importance, and fragility of buildings and infrastructure. Risk means the threat to people, buildings and infrastructure, taking into account the probabilities of disaster events. Adoption of a mitigation plan is required for communities to remain eligible for future FEMA mitigation grant funds.

Teton County Growth Policy Plan

The Teton County Comprehensive Plan[3] was adopted as last amended in 2003. The document outlines a pattern of growth for the County that is compatible with community traditions, values, and vision for the future. The Comprehensive Plan serves as a basis for ordinances and regulations that will achieve the overall goals identified through the active participation of county residents.

Teton County Emergency Operations Plan

The Teton County Emergency Operations Plan[4] – Basic Plan contains the procedures and guidelines for how the Emergency Operations Center and Incident Command System will interface during a disaster. The Basic Plan applies to all emergency response elements, government agencies, and disaster relief organizations and agencies supporting Teton County emergency operations.

Teton County and State of Montana Cooperative Fire Management Plan

The purpose of the Cooperative Fire Management Plan[5] is to provide a framework for State and local government interagency cooperation in wildland fire management within Teton County. The Cooperative Plan serves as a formal agreement between the State, Teton County, and the Teton County Volunteer Fire Companies. One of the primary goals of the program is to establish a basic level of wildfire protection to all lands in Teton County that are not covered by a wildland fire protection district or under the protection of a municipality or federal agency.

---

[2] Teton County. 2005. Teton County All Hazard Mitigation Plan. Teton County Board of Commissioners. Choteau, Montana.

[3] Teton County, Montana. 2003. Teton County Growth Policy Plan. Teton County Board of Commissioners. Choteau, Montana.

[4] Teton County, Montana. 2001. Teton County Emergency Operations Plan. Teton County Board of Commissioners. Choteau, Montana.

[5] Cooperative Fire Management Plan. Teton County and State of Montana Department of Natural Resources and Conservation. October 2008.

The Cooperative Fire program seeks to increase the level of protection in these areas through interagency coordination, pre-planning, prevention, training, and suppression assistance. The agreement between the State and Teton County obligates each to certain responsibilities.

Northern Rockies Coordinating Group Annual Operating Plan

The purpose of the Annual Operating Plan[6] is to document the commitment to improve efficiency in wildland fire management by facilitating the exchange of personnel, equipment, supplies, services, and funds among agencies. The Montana Department of Natural Resources and Conservation (DNRC), the Bureau of Indian Affairs (BIA), the US Fish and Wildlife Service, the BLM, and the Lewis and Clark National Forest as well as Teton, Glacier, Toole, Cascade, Lewis and Clark, and Meagher Counties are signatories to the Plan.

Rocky Mountain Ranger District Emergency Plan

The Rocky Mountain Ranger District (RMRD) on the Lewis and Clark National Forest (LCF) has completed an Emergency Plan[7] (E-Plan) for the use in evacuation and structure protection during emergency incidents. The E-Plan includes the entire RMRD and an approximate 6 mile buffer extending east onto private lands along the entire National Forest boundary. Work on the E-Plan is a cooperative effort between the USFS, Lewis and Clark County, Teton County, Pondera County, and Glacier County. The E-Plan is intended to aid personnel involved in emergency situations and evacuations including, but not limited to, those emergency incidents involving fire, flood, severe weather, and hazardous material.

[6] Northern Rockies Coordinating Group. 2006 Annual Operating Plan. Great Falls Division – Central Montana Zone.

[7] USDA Forest Service. 2005. Emergency Plan. Rocky Mountain Ranger District, Lewis and Clark National Forest. Choteau, Montana.

[This page intentionally left blank.]

Chapter 2

Documenting the Planning Process

Documentation of the planning process, including public involvement, is necessary to meet FEMA's DMA 2000 requirements (44CFR§201.4(c)(1) and §201.6(c)(1)). This section includes a description of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how all of the involved agencies participated.

Description of the Planning Process

The Teton County Community Wildfire Protection Plan was developed through a collaborative process involving all of the organizations and agencies detailed in Chapter 1 of this document. The planning process included five distinct phases which were in some cases sequential (step 1 then step 2) and in some cases intermixed (step 4 completed throughout the process):

1. **Collection of Data** about the extent and periodicity of the wildfire hazard in and around Teton County.
2. **Field Observations and Estimations** about risks, location of structures and infrastructure relative to risk areas, access, and potential treatments.
3. **Mapping** of data relevant to pre-wildfire mitigation and treatments, structures, resource values, infrastructure, risk assessments, and related data.
4. **Facilitation of Public Involvement** from the formation of the planning committee to news releases, public meetings, public review of draft documents, and acknowledgement of the final plan by the signatory representatives.
5. **Analysis and Drafting of the Report** to integrate the results of the planning process, provide ample review and integration of committee and public input, and signing of the final document.

The Planning Team

The planning philosophy employed in this project included the open and free sharing of information with interested parties. Information from federal, state, and local agencies was integrated into the database of knowledge used in this project. Meetings with the committee were held throughout the planning process to facilitate a sharing of information between participants. When the public meetings were held, many of the committee members were in attendance and shared their support and experiences and their interpretations of the results.

Multi-Jurisdictional Participation

44 CFR §201.6(a)(3) calls for multi-jurisdictional planning in the development of Hazard Mitigation Plans which impact multiple jurisdictions. This Community Wildfire Protection Plan impacts the following jurisdictions:

- Teton County, Montana
- City of Choteau
- City of Fairfield
- Unincorporated communities of Teton County
- Choteau Rural Volunteer Fire Company
- Fairfield Rural Volunteer Fire Company
- Dutton Rural Volunteer Fire Company
- Power Rural Volunteer Fire Company
- Pendroy Rural Volunteer Fire Company
- Fairfield Fire Department
- Choteau Fire Department
- Dutton Fire Department
- Montana Department of Natural Resources and Conservation
- USDI Bureau of Land Management
- Montana Fish, Wildlife, and Parks
- USDA Forest Service
- USDI Bureau of Reclamation

These jurisdictions were represented on the planning committee and in public meetings either directly or through their servicing fire company. They participated in the development of hazard profiles, risk assessments, and mitigation measures. The monthly planning committee meetings were the primary venue for authenticating the planning record. However, additional input was gathered from each jurisdiction in the following ways:

- Planning committee leadership visits to local group meetings (e.g. county departmental meetings, city council meetings, local emergency planning commission, planning commission meetings) where planning updates were provided and information was exchanged.
- One-on-one visits between the planning committee leadership and representatives of the participating jurisdictions (e.g. meetings with county commissioners, city councilors and/or mayors, fire company commissioners, or community leaders).
- Written correspondence between the planning committee leadership and each jurisdiction updating the participating representatives on the planning process, making requests for information, and facilitating feedback.

Like other areas of Montana and the United States, Teton County's human resources have many demands placed on them in terms of time and availability. A few of the elected officials (county commissioners and city mayors) do not serve in a full-time capacity; some of them have other employment and serve the community through a convention of community service. Recognizing this and other time constraints, many of the jurisdictions decided to identify a representative to cooperate on the planning committee and then report back to the remainder of their organization on the process and serve as a conduit between the planning committee and the jurisdiction.

Planning Committee Meetings

The following people participated in planning committee meetings, volunteered time, or responded to elements of the Teton County Community Wildfire Protection Plan's preparation.

NAME	ORGANIZATION
David Hamilton	Montana DNRC
Erik Eneboe	Montana DNRC
Greg Archie	Montana DNRC
Jim Hodgskiss	Teton County Commission
Joe Dellwo	Teton County Commission
Joe Zahara	Teton County Fire Chief
Kyle Inabnit	USDA Forest Service
Mark Schlepp	Montana Fish, Wildlife, and Parks
Melody Martinson	Choteau Acantha
Richard Van Auken	Teton County Fire
Russell Owen	USDA Forest Service
Sherwin Smith	USDA Farm Service Agency/Choteau Fire Company
Tera King	Northwest Management Inc.
Tim McWilliams	Montana Fish, Wildlife, and Parks
Tony Nickol	Montana DNRC
Vaiden Bloch	Northwest Management, Inc.

Committee Meeting Minutes

Committee meetings were scheduled and held from October 2010 through February 2011. These meetings served to facilitate the sharing of information and to lay the groundwork for the Teton County CWPP. Northwest Management, Inc. as well as other planning committee leadership attended the meetings to provide the group with regular updates on the progress of the document and gather any additional information needed to complete the Plan.

Planning committee meeting minutes are included in Appendix 2.

Public Involvement

Public involvement was made a priority from the inception of the project. There were a number of ways that public involvement was sought and facilitated. In some cases, this led to members of the public providing information and seeking an active role in protecting their own homes and businesses, while in other cases it led to the public becoming more aware of the process without becoming directly involved in the planning.

News Releases

Under the auspices of the Teton County Community Wildfire Protection Plan committee, news releases were submitted to the *Choteau Acantha* and the *Fairfield Sun Times.* Press releases announced the kickoff of the planning process, the date and venue of public meetings, and the availability of the draft document for public comment.

Figure 2.1. Sample Press Release.

Teton County Plans to Reduce Wildfire Risk

Choteau, Montana. The Teton County 2011 update of the Community Wildfire Protection Plan (CWPP) has been completed in draft form and is available to the public for review and comment at the County Commissioner's Office, city halls in Choteau and Fairfield, the Rose Room in Pendroy, and the school in Power. An electronic copy can be viewed in pdf format at http://www.tetoncomt.org/countycommissioners/index.aspx. The public review phase of the planning process will be open from March 30th thru April 15th, 2011.

The purpose of the Teton County CWPP is to reduce the wildfire risk for Teton County residents, landowners, businesses, communities, local governments, and state and federal agencies, identify high fire risk areas and develop strategies to reduce this risk, improve awareness of wildland fire issues locally, and improve accessibility of funding assistance to achieve these goals while maintaining appropriate wildfire response capabilities and sustainable natural resource management policies.

The CWPP identifies wildland urban interface areas and hazardous fuel conditions, identifies and prioritizes fuels reduction treatments, encourages and facilitates citizen and community wildfire hazard education, and promotes wildfire mitigation throughout Teton County.

The CWPP planning committee includes representatives from rural and wildland fire districts, Montana DNRC, BLM, U.S. Forest Service, private land managers, various Teton County departments, and others.

Comments must be submitted to the attention Joe Zahara, Teton County Fire Chief, at PO Box 610, Choteau, Montana 59422 or jzaharatcfr@3rivers.net by 5 pm on April 8th, 2011. For more information on the Teton County Community Wildfire Protection Plan update, contact Joe Zahara at 406-466-3406.

Public Meetings

Public meetings were scheduled in several communities during the hazard assessment phase of the planning process to share information on the Plan, obtain input on the details of the hazard assessments, and discuss potential mitigation treatments. Attendees at the public meetings were asked to give their impressions of the accuracy of the information generated and provide their opinions of potential treatments.

The schedule of public meetings in Teton County included two locations. They were attended by a number of individuals on the committee and from the general public. The public meeting announcement sent to the local newspapers, local citizen participation organizations, county

departments, fire district representatives, and distributed by committee members is included below in Figure 2.2.

Figure 2.2. Public Meeting Flyer.

Teton County, Montana

Teton County, Montana
Community Wildfire Protection Plan

Public Meetings!

December 8 - Fairfield Fire Hall (413 1st Avenue South - Fairfield) at 6:30pm
December 9 - Teton County Courthouse Courtroom (1 Main Ave South - Choteau) at 6:30pm

These public meetings will address the **Community Wildfire Protection Plan** for Teton County and its communities. The meetings are open to the public and will include slideshow presentations from wildfire mitigation specialists working on the Teton County Community Wildfire Protection Plan. Public input is being sought in order to better frame the County's efforts for wildfire mitigation treatments, fire department resource enhancements, and public land management.

This meeting will last for approximately 1 hour.

Please attend and participate!

Learn about the assessments of wildfire risk and the Wildland-Urban Interface designation for Teton County. Recent Montana legislation requires that the identified Wildland Urban Interface area carry restrictions for subdivision developments on private land. The Teton County Commissioners are requesting your participation on the designation of this boundary. Please come and discuss *YOUR* priorities for how our communities can best mitigate wildland fire risks.

For more information on Community Wildfire Protection Plan projects in Teton County, contact Teton County Fire Chief, Richard Van Auken, at 406-466-3406 or Tera King, Northwest Management, Inc., at 208-883-4488 ext. 133.

Documented Review Process

Review and comment on this plan has been provided through a number of avenues for the committee members as well as the members of the general public.

During regularly scheduled committee meetings in the fall of 2010 and winter of 2010-11, the committee met to discuss findings, review mapping and analysis, and provide written comments on draft sections of the document. During the public meetings, attendees observed map analyses and photographic collections, discussed general findings from the community assessments, and made recommendations on potential project areas.

The first draft of the document was prepared after the public meetings and presented to the committee on January 11th, 2011 for a full committee review. The committee was given 1 month to provide comments to the plan.

The final draft of the document was made available for public comment on March 30th, 2011 thru April 15th, 2011. Hardcopies of the draft were hosted by the Teton County Commissioners, the city offices in Choteau and Fairfield, the Rose Room community center in Pendroy, and the school in Power. Additionally, an electronic version of the draft was posted on the County's website homepage with instructions on how to submit comments to the planning committee.

Continued Public Involvement

Teton County is dedicated to involving the public directly in review and updates of this Community Wildfire Protection Plan. The Teton County Commissioners, working through the CWPP planning committee, are responsible for review and update of the plan as recommended in chapter 6 of this document.

The public will have the opportunity to provide feedback about the Plan annually on the anniversary of the adoption of this plan, at the meeting of the County Commissioners. Copies of the Plan will be catalogued and kept at all of the appropriate agencies in the county. The existence and location of these copies will be publicized. Instructions on how to obtain copies will be made available on the County's website. The Plan also includes the address and phone number of the Board of Commissioners, responsible for keeping track of public comments on the Plan.

A public meeting will also be held as part of each annual evaluation or when deemed necessary by the planning committee. The meetings will provide the public a forum for which they can express its concerns, opinions, or ideas about the Plan. The County Public Information Officer will be responsible for using county resources to publicize the annual public meetings and maintain public involvement through the public access channel, webpage, and newspapers.

Chapter 3

Teton County Characteristics

Information summarized from the Teton County All Hazards Mitigation Plan. 2005.[8]

Teton County is located along the eastern Rocky Mountain Front of western Montana with the Teton River cutting through its heartland. Elevations range from 3,300 feet above sea level on the eastern side to 9,392 feet in the Rocky Mountains of the Lewis and Clark National Forest on the western edge of the county. Ownership is mixed between Federal (mainly USFS and BLM), state, and private owners.

Geography and Climate

Information summarized from the Teton County All Hazards Mitigation Plan. 2005.[9]

Teton County is located in northern Montana and covers about 2,290 square miles. The geography, topography, climate, and other natural attributes such as vegetation vary significantly across Teton County. The geographic diversity of Teton County is an important factor to consider in wildfire mitigation planning.

The climate in Teton County is moderate. The highest average daily temperature occurs in July and is approximately 80 degrees Fahrenheit. The lowest average daily temperature occurs in January and is approximately 11 degrees Fahrenheit. The average annual rainfall is about 14 inches. Average monthly precipitation varies from about 1 inch in July and August to approximately 2.5 inches in May and June. Average annual snowfall is about 54 inches.

Demographics and Socioeconomics

The number of persons residing in Teton County has remained remarkably steady over the past 80 years, rising by less than 10 percent between 1920 and 2000. Teton County's population was 6,445 in 2000 and 5,870 in 1920. Teton County has two incorporated communities, Choteau (pop. 1,801) and Fairfield (pop. 655). The total land area of the county is roughly 2,293 square miles (1,467,251.2 acres). Teton County had a total of 2,538 occupied housing units and a population density of 2.8 persons per square mile reported in the 2000 Census.

[8] Teton County. 2005. Teton County All Hazard Mitigation Plan. Teton County Board of Commissioners. Choteau, Montana.

[9] Teton County. 2005. Teton County All Hazard Mitigation Plan. Teton County Board of Commissioners. Choteau, Montana.

Figure 3.1. Teton County Population Trends from 1970 to 2000.

Land Ownership

The County is comprised of 72% privately owned land, 19% of land under various Federal agencies and 8% State owned land. Most of the Federal owned land is within the Lewis and Clark National Forest. In the southwest corner of the County there are some scattered, small privately owned in-holdings within the Forest boundaries. The BLM holdings are primarily adjacent to the Lewis and Clark National Forest and include Special Recreation Management Areas (SMRA) and Outstanding Natural Areas (ONA).

The State of Montana Land is comprised of State Trust Lands and State Wildlife Management Areas. The trust lands are scattered throughout the County. The income derived from state trust land including rentals is available for the maintenance and support of schools and institutions. The Trust Land Management Division administers land for the other state agencies in addition to state trust land. The division is divided into four bureaus that represent the different types of land uses: Agriculture and Grazing Management, Forest Management, Minerals Management, and Special Use Management. In Teton County, trust land is primarily used for agriculture and grazing.

Agriculture and rangeland comprise 80% of the County's land area. Urbanized areas comprise the smallest category of land use representing only 0.3% of the entire area in the County. The forested areas are located in the west portion of the County along the Rocky Mountain front in primarily the Lewis and Clark National Forest. Agriculture land is the dominant land use in the east half of the County while rangeland is located mostly adjacent to the national forest in the west half of the County.

Table 3.1. Ownership Categories in Teton County

Landowner	Acres	Percent
Private	1,033,015	70.5%
U.S. Forest Service	230,259	15.7%
State Trust Land	102,718	7.0%
Other Federal	26,196	1.79%
Private Conservation	22,282	1.52%
Bureau of Land Management	17,650	1.2%
Other State Land	16,087	1.1%
Water	15,991	1.1%
U.S. Fish and Wildlife	1,486	0.1%

Natural Resources

Teton County is a diverse ecosystem with a complex array of vegetation, wildlife, and fisheries that have developed with, and adapted to fire as a natural disturbance process. Nearly a century of wildland fire suppression coupled with past land-use practices (primarily timber harvesting and agriculture) has altered plant community succession and has resulted in dramatic shifts in the fire regimes and species composition. As a result, some forests in Teton County have become more susceptible to large-scale, high-intensity fires posing a threat to life, property, and natural resources including wildlife and plant populations. High-intensity, stand-replacing fires have the potential to seriously damage soils, native vegetation, and fish and wildlife populations. In addition, an increase in the number of large, high-intensity fires throughout the nation's forest and rangelands has resulted in significant safety risks to firefighters and higher costs for fire suppression.

Biota

Fish and Wildlife – Teton County is home to a diverse array of fish and wildlife species. Teton County streams provide habitat for cold and warm water fish species, provide cover and shelter for wildlife, and are home to an array of plant communities that are dependant upon this type of environment for survival including populations that are listed as threatened under the federal Endangered Species Act. Rangelands and interface areas are important habitat for many species of birds and mammals.

Vegetation - Throughout the western portion of the County, prairie lands gave way to upland forests of the Rocky Mountains. These forested areas contain a wide diversity of tree species the most predominant of which are Douglas-fir, limber pine, lodgepole pine, Engelmann spruce, and subalpine fir.

Vegetation in Teton County is a mix of forestland, riparian areas, rangeland, and agricultural ecosystems. An evaluation of satellite imagery of the region provides some insight to the composition of the vegetation of the area. The most represented vegetated cover type is grassland at 70%. The next most common vegetation cover type represented is open tree canopy followed by closed tree canopy and shrubland.

Table 3.2. Vegetative Cover Types in Teton County.

Land Cover	Acres	Percent of Total Area
Closed tree canopy	86,119	6%
Dwarf-shrubland	11,571	1%
Herbaceous - grassland	1,025,600	70%
Herbaceous - shrub-steppe	14,054	1%
No Dominant Lifeform	20,042	1%
Non-vegetated	23,916	2%
Open tree canopy	188,557	13%
Shrubland	94,553	6%
Sparse tree canopy	28	0%
Sparsely vegetated	1,841	0%
Total	**1,466,280**	**100%**

Hydrology

The Montana DNRC Water Resources Division is charged with the development of the Montana State Ground Water Plan. Included in the Plan is the statewide water policy plan along with detailed subsections regarding the protection, education, and remediation of Montana's ground water resources. The Montana DNRC Water Resources Division has prepared Surface Water Supply Index Maps for all of the surface water systems in Montana. This agency also addresses statewide floodplain management, stream flow conditions, dams and canals, and water rights issues.

A correlation to mass wasting due to the removal of vegetation caused by high intensity wildland fire has been documented for the central Montana region. Burned vegetation can result in changes in soil moisture and loss of rooting strength that can result in slope instability, especially on slopes greater than 30%. The greatest watershed impacts from increased sediment will be in the lower gradient, depositional stream reaches.

Air Quality

The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides.[10]

The Clean Air Act, passed in 1963 and amended in 1977, is the primary legal authority governing air resource management. The Clean Air Act provides the principal framework for national, state, and local efforts to protect air quality. Under the Clean Air Act, the Organization for Air Quality Protection Standards (OAQPS) is responsible for setting the NAAQS standards for pollutants which are considered harmful to people and the environment. OAQPS is also responsible for ensuring these air quality standards are met, or attained (in cooperation with state,

[10] USDA-Forest Service. 2000. Incorporating Air Quality Effects of Wildland Fire Management into Forest Plan Revisions – A Desk Guide. April 2000. – Draft.

Tribal, and local governments) through national standards and strategies to control pollutant emissions from automobiles, factories, and other sources.[11]

Smoke emissions from fires potentially affect an area and the airsheds that surround it. Climatic conditions affecting air quality in Montana are governed by a combination of factors. Large-scale influences include latitude, altitude, prevailing hemispheric wind patterns, and mountain barriers. At a smaller scale, topography and vegetation cover also affect air movement patterns. Locally adverse conditions can result from occasional wildland fires in the summer and fall, and prescribed fire and agricultural burning in the spring and fall.

Teton County is in the Montana Airshed Unit 9 as defined by the Montana/Idaho Airshed Group. An airshed is a geographical area which is characterized by similar topography and weather patterns (or in which atmospheric characteristics are similar, e.g., mixing height and transport winds). The USFS, BLM, and the Montana DNRC are all members of the Idaho/Montana State Airshed Group, which is responsible for coordinating burning activities to minimize or prevent impacts from smoke emissions. The Group issues daily decisions which may restrict burning when atmospheric conditions are not conducive to good smoke dispersion.

Due principally to local wind patterns, air quality in Teton County is generally very good. Smoke from wildfires, field burning, and wood burning stoves are the primary and most persistent cause of the degradation of local air quality. In addition, all major river drainages are subject to temperature inversions which trap smoke and affect dispersion, causing local air quality problems. Air quality is also affected by winter inversions trapping emissions form internal combustion engines and wood burning stoves.

[11] Louks, B. 2001. *"Air Quality Monitoring Point Source Emissions"*. Montana Department of Environmental Quality. Boise, Idaho.

[This page intentionally left blank.]

Chapter 4

Risk and Preparedness Assessments

Wildland Fire Characteristics

An informed discussion of fire mitigation is not complete until basic concepts that govern fire behavior are understood. In the broadest sense, wildland fire behavior describes how fires burn; the manner in which fuels ignite, how flames develop and how fire spreads across the landscape. The three major physical components that determine fire behavior are the fuels supporting the fire, the topography in which the fire is burning, and the weather and atmospheric conditions during a fire event. At the landscape level, both topography and weather are beyond our control. We are powerless to control winds, temperature, relative humidity, atmospheric instability, slope, aspect, elevation, and landforms. It is beyond our control to alter these conditions, and thus impossible to alter fire behavior through their manipulation. When we attempt to alter how fires burn, we are left with manipulating the third component of the fire environment; fuels which support the fire. By altering fuel loading and fuel continuity across the landscape, we have the best opportunity to control or affect how fires burn.

A brief description of each of the fire environment elements follows in order to illustrate their affect on fire behavior.

Weather

Weather conditions contribute significantly to determining fire behavior. Wind, moisture, temperature, and relative humidity ultimately determine the rates at which fuels dry and vegetation cures, and whether fuel conditions become dry enough to sustain an ignition. Once conditions are capable of sustaining a fire, atmospheric stability and wind speed and direction can have a significant effect on fire behavior. Winds fan fires with oxygen, increasing the rate at which fire spreads across the landscape. Weather is the most unpredictable component governing fire behavior, constantly changing in time and across the landscape.

Topography

Fires burning in similar fuel types, will burn differently under varying topographic conditions. Topography alters heat transfer and localized weather conditions, which in turn influences vegetative growth and resulting fuels. Changes in slope and aspect can have significant influences on how fires burn. Generally speaking, north slopes tend to be cooler, wetter, more productive sites. This can lead to heavy fuel accumulations, with high fuel moistures, later curing of fuels, and lower rates of spread. In contrast, south and west slopes tend to receive more direct sun, and thus have the highest temperatures, lowest soil and fuel moistures, and lightest fuels. The combination of light fuels and dry sites leads to fires that typically display the highest rates of spread. These slopes also tend to be on the windward side of mountains. Thus these slopes tend to be “available to burn” a greater portion of the year.

Slope also plays a significant role in fire spread, by allowing preheating of fuels upslope of the burning fire. As slope increases, rate of spread and flame lengths tend to increase. Therefore, we can expect the fastest rates of spread on steep, warm south and west slopes with fuels that are exposed to the wind.

Fuels

Fuel is any material that can ignite and burn. Fuels describe any organic material, dead or alive, found in the fire environment. Grasses, brush, branches, logs, logging slash, forest floor litter, conifer needles, and buildings are all examples. The physical properties and characteristics of fuels govern how fires burn. Fuel loading, size and shape, moisture content, and continuity and arrangement all have an effect on fire behavior. Generally speaking, the smaller and finer the fuels, the faster the potential rate of fire spread. Small fuels such as grass, needle litter and other fuels less than a quarter inch in diameter are most responsible for fire spread. In fact, "fine" fuels, with high surface to volume ratios, are considered the primary carriers of surface fire. This is apparent to anyone who has ever witnessed the speed at which grass fires burn. As fuel size increases, the rate of spread tends to decrease due to a decrease in the surface to volume ratio. Fires in large fuels generally burn at a slower rate, but release much more energy and burn with much greater intensity. This increased energy release, or intensity, makes these fires more difficult to control. Thus, it is much easier to control a fire burning in grass than to control a fire burning in timber.

When burning under a forest canopy, the increased intensities can lead to torching (single trees becoming completely involved) and potential development of crown fires. That is, they release much more energy. Fuels are found in combinations of types, amounts, sizes, shapes, and arrangements. It is the unique combination of these factors, along with the topography and weather, which determines how fires will burn.

The study of fire behavior recognizes the dramatic and often-unexpected effect small changes in any single component have on how fires burn. It is impossible to speak in specific terms when predicting how a fire will burn under any given set of conditions. However, through countless observations and repeated research, some of the principles that govern fire behavior have been identified and are recognized.

Wildfire Hazards

In the 1930s, wildfires consumed an average of 40 to 50 million acres per year in the contiguous United States, according to USFS estimates. By the 1970s, the average acreage burned had been reduced to about 5 million acres per year. Over this time period, fire suppression efforts were dramatically increased and firefighting tactics and equipment became more sophisticated and effective. For the 11 western states, the average acreage burned per year since 1970 has remained relatively constant at about 3.5 million acres per year.

The severity of a fire season can usually be determined in the spring by how much precipitation is received, which in turn determines how much fine fuel growth there is and how long it takes this growth to dry. These factors, combined with the annual wind events drastically increase the chance a fire start will grow and resist suppression activities. Furthermore, harvest operations are typically also occurring throughout the months of August and September. Occasionally, harvesting equipment causes an ignition that can spread into populated areas and timberlands.

Fire History

Fire was once an integral function within the majority of ecosystems in Montana. The seasonal cycling of fire across the landscape was as regular as the July, August and September lightning storms plying across the canyons and mountains. Depending on the plant community composition, structural configuration, and buildup of plant biomass, fire resulted from ignitions

with varying intensities and extent across the landscape. Shorter return intervals between fire events often resulted in less dramatic changes in plant composition.[12] The fires burned from 1 to 47 years apart, with most at 5- to 20-year intervals.[13] With infrequent return intervals, plant communities tended to burn more severely and be replaced by vegetation different in composition, structure, and age.[14] Native plant communities in this region developed under the influence of fire, and adaptations to fire are evident at the species, community, and ecosystem levels. Fire history data (from fire scars and charcoal deposits) suggest fire has played an important role in shaping the vegetation throughout Teton County.

Fool Creek Fire

The Fool Creek Fire occurred in the Upper North Fork of the Sun River in the Bob Marshall Wilderness approximately 36 miles west of Choteau, Montana. The fire was ignited by lightning on June 28th, 2007, but not detected until July 4th. All types of fire intensity and behavior were observed including ground fires, torching, and crown fires. By the end of September, the fire had burned over 60,000 acres and spread into an area mostly recently burned in the McDonald II Fire of 2000. The Teton Pass ski area and numerous campgrounds and cabin sites were threatened. A Northern Rockies Fire Use Management Team, in cooperation with the Rocky Mountain Ranger District and Flathead National Forest personnel, had jurisdiction over the Fools Creek Fire and developed a long term management and contingency plan. Large sections of the Flathead and Lewis and Clark National Forests were closed to the public as a result of the Fool Creek and neighboring Ahorn Fire.

2002 Pishkun Fire

Pishkun Fire

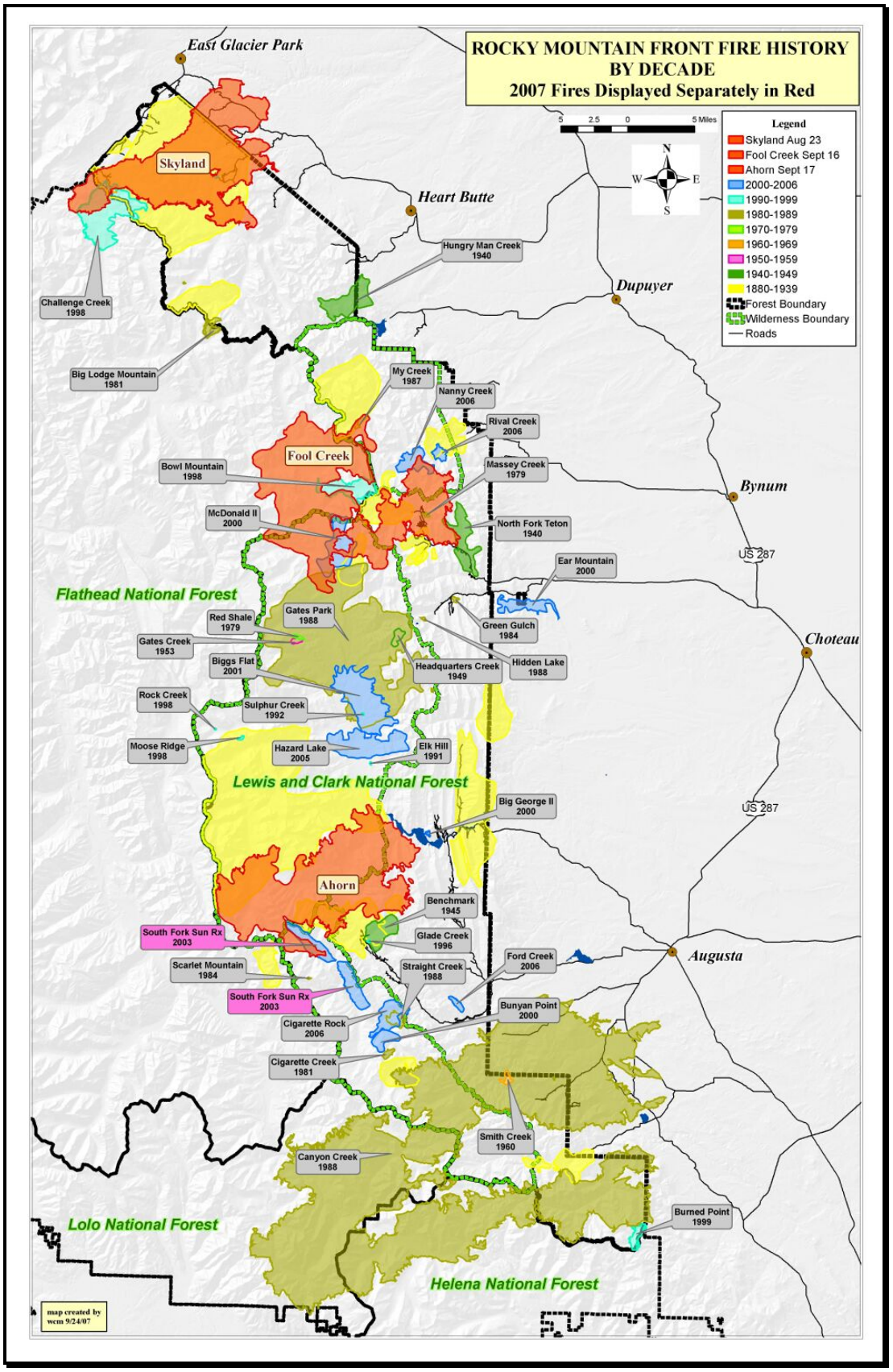
The Pishkun Fire was started by a downed power line arcing onto a fence in February of 2002. Due to winds recorded in excess of 100 miles per hour, the fire spread to 5,600 acres in less than four hours.

[12] Johnson, C.G. 1998. Vegetation Response after Wildfires in National Forests of Northeastern Oregon. 128 pp.

[13] Barrett, J.W. 1979. Silviculture of ponderosa pine in the Pacific Northwest: the state of our knowledge. USDA Forest Service, General Technical Report PNW-97. Pacific Northwest Forest and Range Experiment Station, Portland, OR. 106 p.

[14] Johnson, C.G.; Clausnitzer, R.R.; Mehringer, P.J.; Oliver, C.D. 1994. Biotic and Abiotic Processes of Eastside Ecosytems: the Effects of Management on Plant and Community Ecology, and on Stand and Landscape Vegetation Dynamics. Gen. Tech. Report PNW-GTR-322. USDA-Forest Service. PNW Research Station. Portland, Oregon. 722pp.

Figure 4.1. Rocky Mountain Front Fire History Map.



Wildfire Ignition and Extent Profile

Detailed records of fire ignition and extent have been compiled by the USFS, DNRC, BLM, and Teton County. Using this data on past fire extents and ignitions, the occurrence of wildland fires in Teton County has been evaluated for the period of 1980 thru 2009. This dataset includes all fires greater than 0 acres reported by the local fire companies and agencies, which excludes most structure and vehicle fire calls that did not result in a wildland fire-type incident. There were approximately 1,102 fire ignitions during this 29 year period with the highest number of total ignitions resulting from controlled burns (mostly agricultural, but does include some prescribed silvilcultural fires) followed by equipment use or unknown causes.

Table 4.1. Summary of Teton County Fire History Database from 1980-2009.

General Cause	Number of Ignitions	Percent of Total Ignitions	Acres Burned	Percent of Total Acres
Campfire	7	1%	6	<1%
Children	9	1%	9	<1%
Controlled Burn	295	27%	6,631	6%
Debris Burning	85	8%	579	<1%
Equipment	202	18%	2,607	2%
Fireworks	18	2%	107	<1%
Lightning	117	11%	71,024	59%
Miscellaneous	68	6%	6,859	6%
Power Line	61	6%	26,797	22%
Railroad	36	3%	1,487	1%
Smoking	9	1%	26	<1%
Unknown	195	18%	3,498	3%
Total	**1,103**	**100%**	**121,610**	**100%**

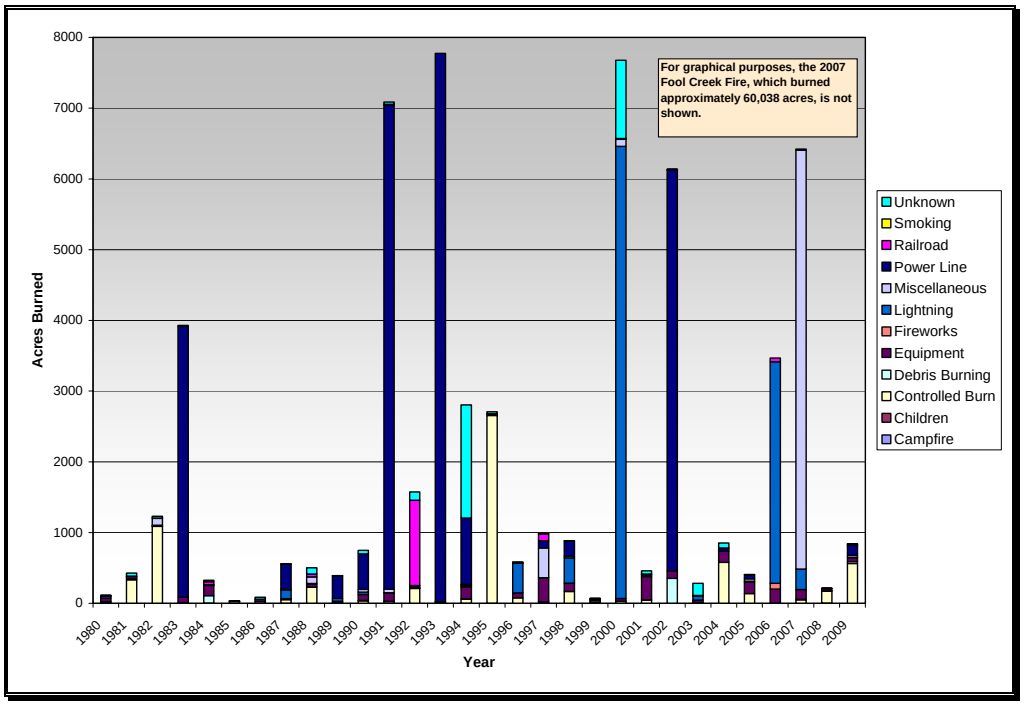
Within Teton County approximately 22% of the total acres burned during this period were ignited by power line components, most of which stemmed from large acreage fires in 1983 (~3,346 acres), 1991 (~6,000 acres), 1993 (~7,750 acres), and 2002 (~5,661 acres). Although only a small percentage of acres burned are the result of escaped controlled burns (6%), this type of fire is one of the most common ignition sources. This statistic is testament to the success of initial attack techniques by local fire companies and agency mutual aid. Lightning accounts for 11% of all ignitions in Teton County, but is responsible for 59% of the acres burned since 1980. The vast majority of these acres were burned in 2007 during the Fool Creek Fire, which burned approximately 60,038 acres on public land managed by the USFS. Other significant lightning caused fires occurred in 2000 with the Ear Mountain (~1,980 acres) and McDonald II (~4,345 acres) Fires and 2006 with the Rival (~631 acres) and Nanny (~2,362 acres) Fires.

Fires in the "Miscellaneous" category include fires caused by vehicles, electric fences, arson, and various other sources. Since 1980, the Burlington Northern Santa Fe railroad has caused 36 fires resulting in 1,487 acres burned in Teton County. Although this is a very small percentage of the total acres burned, these fires typically occur near communities and/or roadways which significantly increases the potential for damages, property loss, and or other impacts to population centers.

Since 1980, there have been five fires reported over 5,000 acres. The largest fire was the 60.038 acre Fool Creek Fire in 2007. The fires in 1991 and 1993 caused by power line components are

the 2nd and 3rd largest fires. The 4th largest fire was the Collins Fire which occurred in 2007 and was caused by a vehicle fire that spread to approximately 5,924 acres due to high winds. The Pishkun Fire burned approximately 5,661 acres in 2002 and was ignited by power line components.

Figure 4.2. Summary of Teton County Fire History Database from 1980-2003.



The data reviewed above provides a general picture regarding the level of wildland-urban interface fire risk within Teton County. However, there are several reasons why the fire risk may be higher than suggested above, especially in developing wildland-urban interface areas.

1) Large fires may occur infrequently, but statistically they will occur. One large fire could significantly change the statistics. In other words, 30 years of historical data may be too short to capture large, infrequent wildland fire events. The average acreage of a fire in Teton County since 1980 is 109 acres; however, during that time, there have been 14 individual fires over 1,000 acres. On average, Teton County experiences a 1,000 plus acre wildfire about every third year according to the Teton County fire history database.

2) The level of fire hazard depends profoundly on weather patterns. A several year drought period would substantially increase the probability of large wildland fires in Teton County. For smaller vegetation areas, with grass, brush and small trees, a much shorter drought period of a few months or less would substantially increase the fire hazard. Weather patterns also influence the time of year fires ignite in Teton County. According to the fire history database from 1980 thru 2009, 20% of all fires have occurred in August and 19% have occurred in April. Most lightning-caused fires have occurred in July and August and within the Choteau, Dutton, and USFS fire suppression response areas. Of all the fires that have occurred in July and August, 32% were ignited by equipment use and 21% were started by lightning. Of the 330 ignitions that have occurred in March and April, 62% were caused by escaped controlled burns. Fires started by power line components or by the

railroad have occurred in every month with only a slight increase of occurrence during the summer months.

3) The level of fire hazard in wildland-urban interface areas is likely significantly higher than for wildland areas as a whole due to the greater risk to life and property. The probability of fires starting in interface areas is much higher than in wildland areas because of the human influence. A large percentage of wildland or interface fires have human sources of ignition. Thus, the probability of a given acre burning is higher in interface areas than in the wildland areas of Teton County.

Not only does vegetation type and weather patterns tend to affect the magnitude and frequency of wildland fires, but land use and suppression capabilities can also drive ignition trends. As would be expected, debris burning and equipment fires are more common in agriculturally-based areas while escaped campfires occur more frequently in recreational areas. Fires caused by the railroad have most commonly occurred in the Dutton Rural Volunteer Fire Company response area, but have also been recorded by the Power and Fairfield Rural Volunteer Fire Companies. Power line components have more commonly caused fires in the Choteau and Fairfield Rural Volunteer Fire Companies' service areas. Significantly more ignitions occur in the Fairfield Rural Volunteer Fire Company response area than any other service area in Teton County; however, more total acres have burned within the Choteau Rural Volunteer Fire Company and USFS response areas.

Figure 4.3. Summary of Ignitions by Fire Company and Agency.

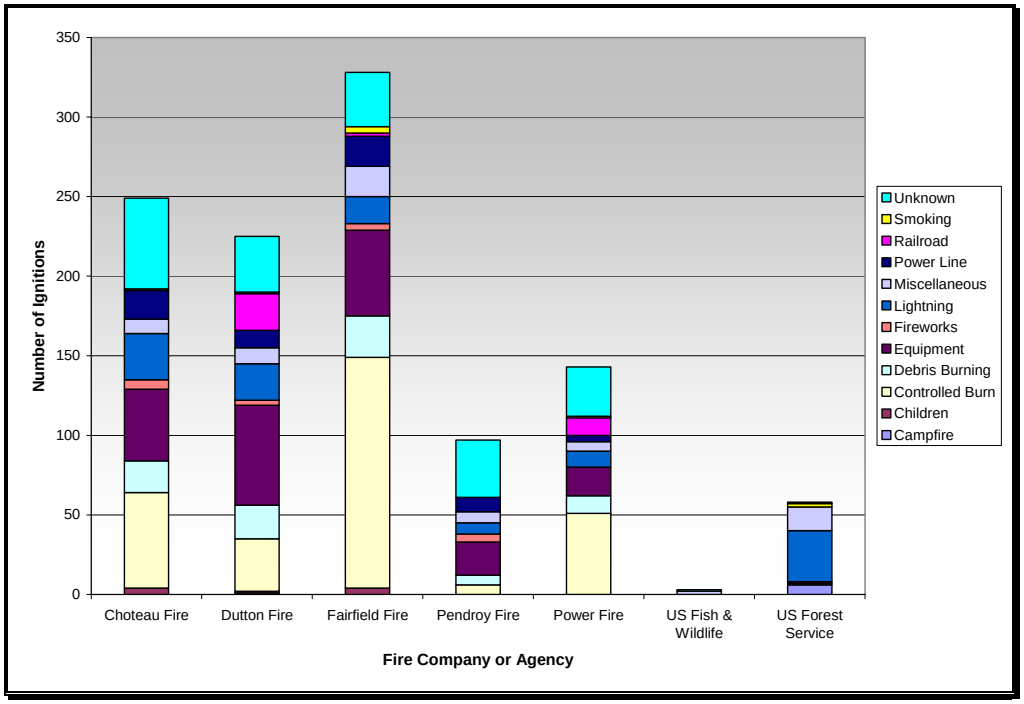
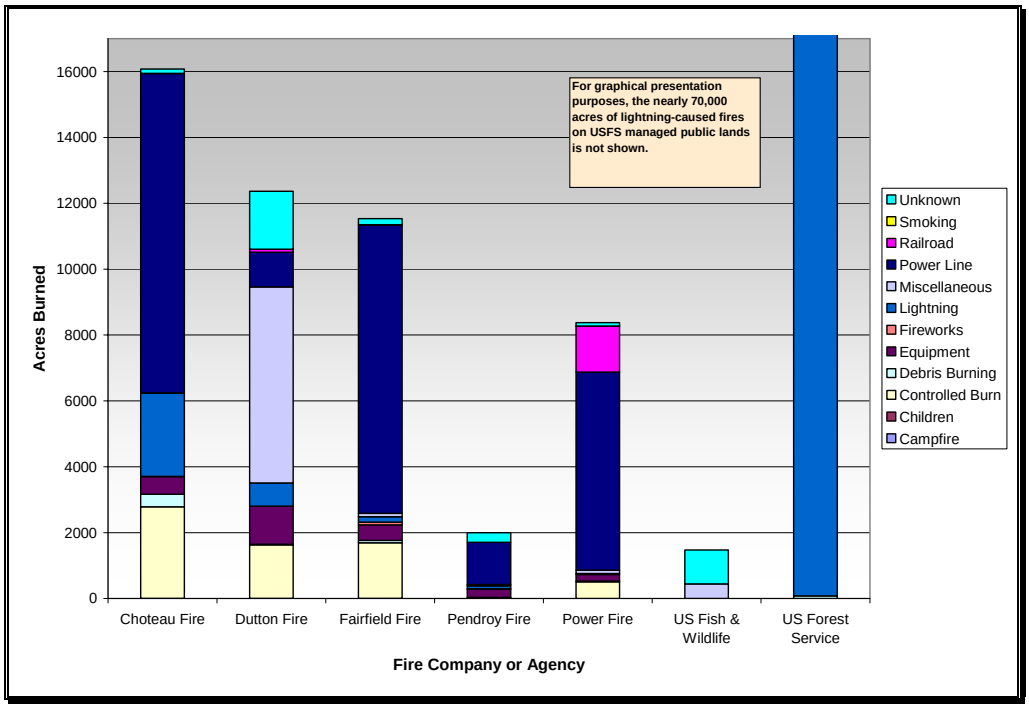


Figure 4.4. Summary of Acres Burned by Fire Company and Agency.



National Wildfire Statistic Summary

Across the west, wildfires have been increasing in extent and cost of control. Data summaries for 2000 through 2006 are provided and demonstrate the variability of the frequency and extent of wildfires nationally.

Table 4.2. National Fire Season Summaries.

Statistical Highlights	2000	2001	2002	2003	2004	2005	2006
Number of Fires	122,827	84,079	88,458	85,943	77,534	66,753	96,385
10-year Average ending with indicated year	106,393	106,400	103,112	101,575	100,466	89,859	87,788
Acres Burned	8,422,237	3,555,138	6,937,584	4,918,088	6,790,692	8,689,389	9,873,745
10-year Average ending with indicated year	3,786,411	4,083,347	4,215,089	4,663,081	4,923,848	6,158,985	6,511,469
Structures Burned	861	731	2,381	5,781	1,095	--	--
Estimated Cost of Fire Suppression (Federal agencies only)	$1.3 billion	$917 million	$ 1.6 billion	$1.3 billion	$890 million	$876 million	--

The National Interagency Fire Center maintains records of fire costs, extent, and related data for the entire nation. Tables 4.2 and 4.3 summarize some of the relevant wildland fire data for the nation and some trends that are likely to continue into the future unless targeted fire mitigation efforts are implemented and maintained. According to these data, the total number of fires is

trending downward while the total number of acres burned is trending upward. Since 2000 there has been a significant increase in the number of acres burned.[15]

Table 4.3. Total Fires and Acres 1980 - 2009 Nationally.

Year	Fires	Acres	Year	Fires	Acres
2009	78,792	5,921,786	**1994**	114,049	4,724,014
2008	68,594	4,723,810	**1993**	97,031	2,310,420
2007	85,822	9,321,326	**1992**	103,830	2,457,665
2006	96,385	9,873,745	**1991**	116,953	2,237,714
2005	66,753	8,689,389	**1990**	122,763	5,452,874
2004	77,534	6,790,692	**1989**	121,714	3,261,732
2003	85,943	4,918,088	**1988**	154,573	7,398,889
2002	88,458	6,937,584	**1987**	143,877	4,152,575
2001	84,079	3,555,138	**1986**	139,980	3,308,133
2000	122,827	8,422,237	**1985**	133,840	4,434,748
1999	93,702	5,661,976	**1984**	118,636	2,266,134
1998	81,043	2,329,709	**1983**	161,649	5,080,553
1997	89,517	3,672,616	**1982**	174,755	2,382,036
1996	115,025	6,701,390	**1981**	249,370	4,814,206
1995	130,019	2,315,730	**1980**	234,892	5,260,825

These statistics are based on end-of-year reports compiled by all wildland fire agencies after each fire season. The agencies include: BLM, BIA, National Park Service, US Fish and Wildlife Service, USFS, and all state agencies.

The fire suppression agencies in Teton County respond to numerous wildland fires each year, but few of those fires grow to a significant size. According to national statistics, only 2% of all wildland fires escape initial attack. However, that 2% accounts for the majority of fire suppression expenditures and threatens lives, properties, and natural resources. These large fires are characterized by a size and complexity that require special management organizations drawing suppression resources from across the nation. These fires create unique challenges to local communities by their quick development and the scale of their footprint.

Teton County has experienced high impact wildland fires that have threatened structures and infrastructure most recently in 2007 with the Ahorn and Fools Creek Fires. These types of fire have severe impact on the region and local communities. It is important that regional planners as well as local residents understand what has happened in the past in order to be more effective in the future when preparing for the inevitable.

Wildfire Hazard Assessment

Teton County was analyzed using a variety of models, managed on a Geographic Information System (GIS) system. Physical features of the region including roads, streams, soils, elevation, and remotely sensed images were represented by data layers. Field visits were conducted by specialists from Northwest Management, Inc. and others. Discussions with area residents and local fire suppression professionals augmented field visits and provided insights into forest

[15] National Interagency Fire Center. 2008. Available online at http://www.nifc.gov/.

health issues and treatment options. This information was analyzed and combined to develop an objective assessment of wildland fire risk in the region.

Historic Fire Regime

Historical variability in fire regime is a conservative indicator of ecosystem sustainability, and thus, understanding the natural role of fire in ecosystems is necessary for proper fire management. Fire is one of the dominant processes in terrestrial systems that constrain vegetation patterns, habitats, and ultimately, species composition. Land managers need to understand historical fire regimes, the fire return interval (frequency) and fire severity prior to settlement by Euro-Americans, to be able to define ecologically appropriate goals and objectives for an area. Moreover, managers need spatially explicit knowledge of how historical fire regimes vary across the landscape.

Many ecological assessments are enhanced by the characterization of the historical range of variability which helps managers understand: (1) how the driving ecosystem processes vary from site to site; (2) how these processes affected ecosystems in the past; and (3) how these processes might affect the ecosystems of today and the future. Historical fire regimes are a critical component for characterizing the historical range of variability in fire-adapted ecosystems. Furthermore, understanding ecosystem departures provides the necessary context for managing sustainable ecosystems. Land managers need to understand how ecosystem processes and functions have changed prior to developing strategies to maintain or restore sustainable systems. In addition, the concept of departure is a key factor for assessing risks to ecosystem components. For example, the departure from historical fire regimes may serve as a useful proxy for the potential of severe fire effects from an ecological perspective.

Table 4.4. Historic Fire Regimes in Teton County.

Historic Fire Regime	Description	Acres	Percent of Area
Fire Regime Group I	<= 35 Year Fire Return Interval, Low and Mixed Severity	107,738	7%
Fire Regime Group II	<= 35 Year Fire Return Interval, Replacement Severity	842,194	57%
Fire Regime Group III	35 - 200 Year Fire Return Interval, Low and Mixed Severity	275,521	19%
Fire Regime Group IV	35 - 200 Year Fire Return Interval, Replacement Severity	146,286	10%
Fire Regime Group V	> 200 Year Fire Return Interval, Any Severity	57,955	4%
Water	Water	9,128	1%
Barren	Barren	14,785	1%
Snow/Ice	Snow/Ice	3	<1%
Sparsely Vegetated	Sparsely Vegetated	12,593	1%
Indeterminate Fire Regime Characteristics	Indeterminate Fire Regime Characteristics	77	<1%

The table above shows the amount of acreage in each defined fire regime in Teton County. The historic fire regime model in Teton County shows that most of the rangeland and agricultural areas in the County historically burned at least every 35 years. The foothills along the Front Range experienced replacement severity fires at an interval of 35 to 200 years. The mountainous region to the west was dominated by a similar return interval, but fires were typically low and mixed severity burns. Drainages, north aspects, and other wet areas tended to have fire return intervals greater than 200 years.

A map of Historic Fire Regimes in Teton County as well as an explanation of how the data were derived is included in Appendices 1 and 3, respectively.

Fire Regime Condition Class

A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning.[16, 17] Coarse scale definitions for historic fire regimes have been developed by Hardy et al[18] and Schmidt et al[19] and interpreted for fire and fuels management by Hann and Bunnell.

A fire regime condition class (FRCC) is a classification of the amount of departure from the historic regime. [20] The three classes are based on low (FRCC 1), moderate (FRCC 2), and high (FRCC 3) departure from the central tendency of the natural (historical) regime.[21,22] The central tendency is a composite estimate of vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated natural disturbances. Low departure is considered to be within the natural (historical) range of variability, while moderate and high departures are outside.

An analysis of Fire Regime Condition Classes in Teton County shows that most of the county that is not in agriculture has a low departure (40%) from its historic fire regime and associated vegetation and fuel characteristics. In most scenarios, the more departed an area is from its natural fire regime, the higher the wildfire potential; however, this is not true 100% of the time.

[16] Agee, J. K. Fire Ecology of the Pacific Northwest forests. Oregon: Island Press. 1993.

[17] Brown. J. K. "Fire regimes and their relevance to ecosystem management." *Proceedings of Society of American Foresters National Convention*. Society of American Foresters. Washington, D.C. 1995. Pp 171-178.

[18] Hardy, C. C., et al. *"Spatial data for national fire planning and fuel management."* International Journal of Wildland Fire. 2001. Pp 353-372.

[19] Schmidt, K. M., et al. *"Development of coarse scale spatial data for wildland fire and fuel management."* General Technical Report, RMRS-GTR-87. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station. Fort Collins, Colorado. 2002.

[20] Hann, W. J. and D. L. Bunnell. "Fire and land management planning and implementation across multiple scales." International Journal of Wildland Fire. 2001. Pp 389-403.

[21] Hardy, C. C., et al. *"Spatial data for national fire planning and fuel management."* International Journal of Wildland Fire. 2001. Pp 353-372.

[22] Schmidt, K. M., et al. *"Development of coarse scale spatial data for wildland fire and fuel management."* General Technical Report, RMRS-GTR-87. U.S. Department of Agriculture, Forest Service. Rocky Mountain Research Station. Fort Collins, Colorado. 2002.

Table 4.5. Fire Regime Condition Classes in Teton County.

Condition Class	Acres	Percent of Area
Fire Regime Condition Class I	582,349	40%
Fire Regime Condition Class II	148,967	10%
Fire Regime Condition Class III	29,616	2%
Water	9,128	1%
Urban	20,042	1%
Snow/Ice	3	0%
Barren	14,785	1%
Sparsely Vegetated	12,593	1%
Agriculture	648,796	44%

The Fire Regime Condition Class model for Teton County shows that most of the County is experiencing wildfires in much the same way it did prior to European settlement. Only a few areas along the Front Range show signs of moderate to high departure from their historic range of variability. This is likely due to aggressive fire suppression tactics as well as increased use and development in these areas.

A map depicting Fire Regime Condition Class as well as a more in-depth explanation of FRCC is presented in Appendices 1 and 3, respectively.

Teton County's Wildland-Urban Interface

Over the last decade, the wildland-urban interface (WUI) has gained attention through efforts targeted at wildfire mitigation. Since 2004, the Montana Legislature has been actively developing its WUI policy in an effort to protect citizens and reduce the costs of wildland fire suppression. In 2007, Montana passed Senate Bill 145 establishing the State's wildfire policy and defining the wildland urban interface. Additionally, Senate Bill 51 was passed which required growth policies to include an evaluation of potential wildland fire, required the Montana DNRC to adopt rules addressing development in WUI areas and criteria for providing funding assistance to local governments, and required the Department of Labor and Industry to adopt rules that identify construction techniques that may by used by local governments in mitigation fire hazards in subdivisions.

Montana Definition of Wildland Urban Interface (Code 76-13-102):

"Wildland-urban interface" means the line, area, or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels.

Reducing the wildfire hazard in the wildland-urban interface requires the efforts of federal, state, and local agencies and private individuals.[23] "The role of [most] federal agencies in the wildland-urban interface includes wildland firefighting, hazard fuels reduction, cooperative prevention and

[23] Norton, P. Bear Valley National Wildlife Refuge Fire Hazard Reduction Project: Final Environmental Assessment. Fish and Wildlife Services, Bear Valley Wildlife Refuge. June 20, 2002.

education, and technical experience. Structural fire protection [during a wildfire] in the wildland-urban interface is [largely] the responsibility of Tribal, state, and local governments".[24]

The Teton County CWPP planning committee considered several methods for revising their WUI boundary based on the new legislation. Several alternatives were developed and presented to local residents at the public meetings. In addition, the Teton County Commissioners contacted every private landowner that may have been affected by the proposed WUI designations by letter to explain the definition and ramifications of the WUI boundary and to gather their input. A few landowners supported including private parcels of land in the Teton County WUI due to their proximity to wildland fuels and potential for hazardous fuels treatment funding assistance from the Montana DNRC. However, the overwhelming response from local residents was that no private property should be included in the Teton County WUI designation based on input gathered at the public meetings, written responses to the Commissioner's letter, and individual meetings between landowners and the County Commissioners.

The CWPP planning committee reviewed all of the comments received regarding the WUI designation and resolved to exclude private parcels from the Teton County WUI boundary based on:

- Overwhelming public opposition for inclusion of private property
- Uncertainty regarding the direction of Montana WUI policy
- Perceived inconsistency in current Montana WUI regulations
- No foreseen changes in wildland fire suppression response in Teton County as a result of the WUI designation

Thus, only public lands were included in the final designation of WUI areas in Teton County. The planning committee recognized that this definition of the WUI was not based on the Montana definition of WUI and has no relationship with hazardous fuels or potential wildland fire risk.

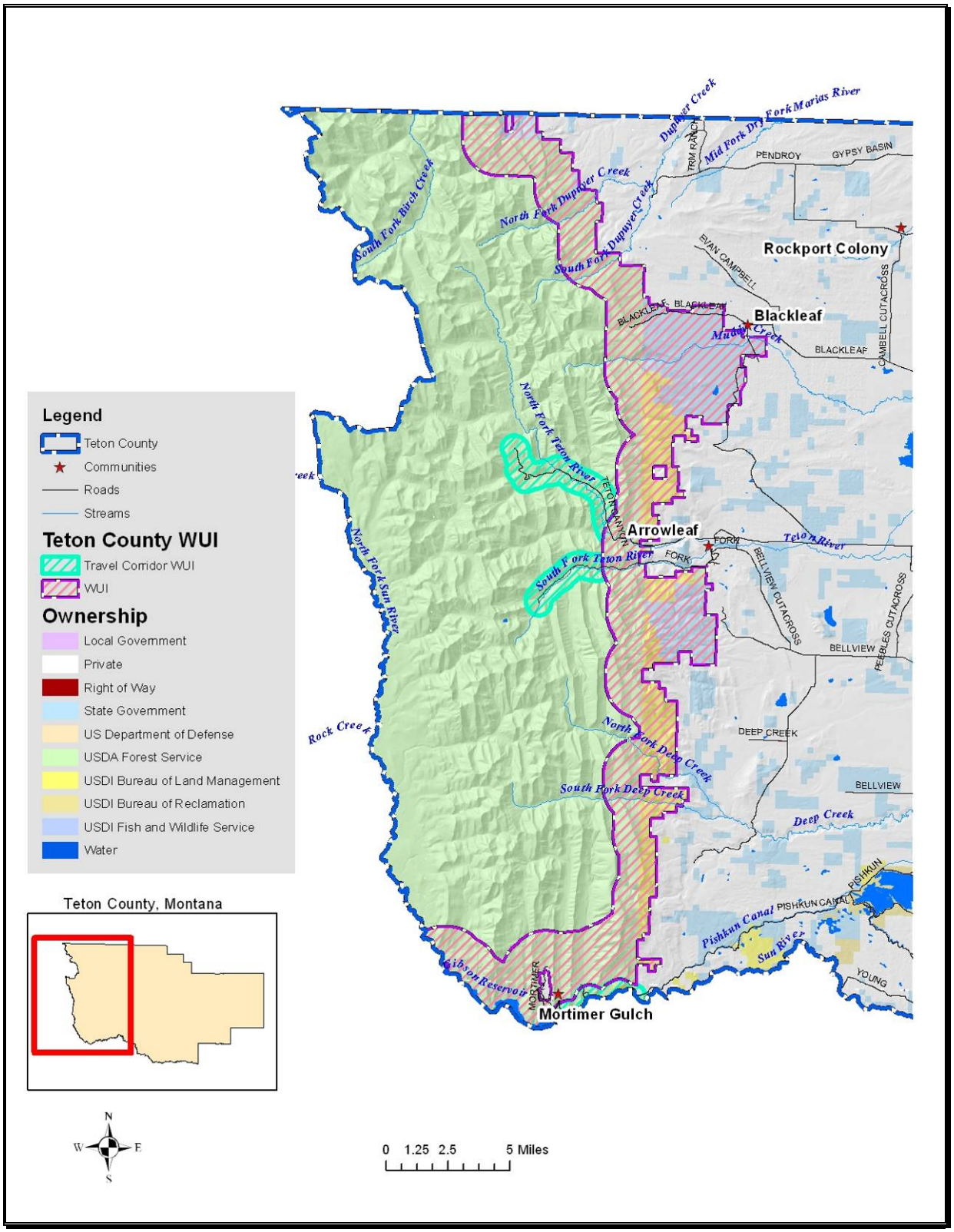
The eastern WUI border was drawn along the interface between federal or state owned parcels and privately owned land. In keeping with the Healthy Forest Restoration Act guidelines, the western WUI border was drawn based on an arbitrary 1.5 mile buffer from state or private land. Montana State-owned lands, including those managed by Montana Fish, Wildlife, and Parks (FWP), was included due to the lack of development potential on these parcels and the likelihood for fuels treatment funding opportunities.

The Healthy Forests Restoration Act makes a clear designation that the location of the WUI is at the determination of the county or reservation when a formal and adopted Community Wildfire Protection Plan is in place. It further states that the federal agencies are obligated to use this WUI designation for all Healthy Forests Restoration Act purposes. The Teton County Community Wildfire Protection Plan planning committee evaluated a variety of different approaches to determining the WUI for the county and selected this approach and has adopted it for these purposes.

[24] USFS. 2001. United States Department of Agriculture, Forest Service. Wildland Urban Interface. Web page. Date accessed: 25 September 2001. Accessed at: http://www.fs.fed.us/r3/sfe/fire/urbanint.html

Teton County recognizes their right to revise the Teton County WUI at any time due to changes in wildfire risk, legislation, public sentiment, or other factors.

Figure 4.5. Wildland Urban Interface in Teton County, Montana.



Private property owners in Teton County have taken responsibility for protecting their residences and businesses and minimizing danger by creating defensible areas on their property. With treatment, a defensible space can provide firefighters a defensible area from which to suppress wildland fires or defend communities against other hazard risks. By reducing hazardous fuel loads, ladder fuels, and tree densities, and creating new and reinforcing existing defensible space, landowners can protect their properties, the biological resources of the landscape, and adjacent property owners by:

- minimizing the potential of high-severity ground or crown fires entering or leaving the area;
- reducing the potential for firebrands (embers carried by the wind in front of the wildfire). Research indicates that flying sparks and embers (firebrands) from a crown fire can ignite additional wildfires as far as 1¼ miles away during periods of extreme fire weather and fire behavior;[25]
- improving defensible space in the immediate areas for suppression efforts in the event of wildland fire.

It should not be assumed that just because an area is not identified as being within the WUI, that there is no wildland fire risk. The CWPP planning committee has identified wildland fire risk throughout Teton County based on vegetation data, fire history, and fire regime condition class. They have also made treatment recommendations in areas recognized as having a high fire risk.

It should also not be assumed that WUI designation on national or state forest lands automatically equates to a treatment area. The USFS, BLM, and Montana DNRC are still obligated to manage lands under their control according to the standards and guides listed in their respective forest plans. The adopted forest plan has legal precedence over the WUI designation until such a time as the forest plan is revised to reflect updated priorities.

Teton County Conditions

Teton County is characterized by cold winters and dry summers. Although fairly large, Teton County is sparsely populated. Much of the county is quite rural, due in large part to the agricultural economy of the region. Farms and ranches tend to be widely spread. Grazing activity on both public and private lands by livestock and wildlife tends to decrease the build up of fine fuel loads; however, this does not drastically reduce the fire potential. The Lewis and Clark National Forest on the west side of the county provides ample economic and recreational resources. Overcrowded forest conditions in some areas increases the potential for high intensity, possibly stand replacing fires.

Forested lands flank the western portion of the county along the Lewis and Clark National Forest. Many of these forest types are dry Douglas-fir and Engelmann spruce forests that have become heavily overstocked resulting in multi-storied conditions with abundant ladder fuels. Increased activities by pathogens will continue to increase levels of dead and down fuel, as host trees succumb to insect attack and stand level mortality increases. Overstocked, multi-layered

[25] McCoy, L. K., et all. Cerro Grand Fire Behavior Narrative. 2001.

stands and the abundance of ladder fuels lead to horizontal and vertical fuel continuity in many stands. These conditions, combined with an arid and often windy environment can encourage the development of a stand replacing fire. These fires can burn with very high intensities and generate large flame lengths and fire brands that can be lofted long distances. Such fires present significant control problems for suppression resources, often developing into large, destructive wildland fires. Examples of large, stand replacing fires can be seen throughout the Rocky Mountains. These fire events threaten natural resource values as well as homes and other improvements important to Teton County residents.

The majority of the county is dominated by rangelands, much of which has been converted to irrigated farm or pasture. Undeveloped rangelands are characterized by low growing grasses with occasional clumps of sagebrush or juniper. Developed rangelands are either grazed, thereby keeping the fine fuel buildup to a minimum, or are in various stages of crop production. Agricultural fields are generally not considered to be at high risk of uncontrolled wildland fires; however, fires in this type of vegetation could burn very intensely with large flame lengths depending on the crop type. Annual burning of stubble after harvest does, inevitably, lead to escaped grass fires. Usually, these fires are relatively easily controlled at road crossings or by using available farm implements to modify the vegetation in its path.

Since the induction of the Crop Reserve Program by the federal government, many formerly crop producing fields have been allowed to return to native grasses. CRP fields are creating a new fire concern all over the West. As thick grasses are allowed to grow naturally year after year, dense mats of dead plant material begin to buildup. Due to the availability of a continuous fuel bed, fires in CRP fields tend to burn very intensely with large flame lengths that often times jump roads or other barriers, particularly under the influence of wind. Many landowners and fire personnel are researching allowable management techniques to deal with this increasing problem. Currently, according to the CRP Handbook all management must be part of the landowner's Conservation Plan of Operations, which includes burning to reduce the fuel loading, and must be in the best interest of the CRP. Under certain circumstances, burning may be used as a process to enhance or renovate the existing vegetative cover for wildlife, especially if it is overgrown and stagnant. As noted in Montana CRP-542, burning can only be conducted under an approved burn plan by qualified personnel. The County must also issue a burn permit for any controlled burning on CRP fields.

Fire suppression often depends on two important factors: availability of fire suppression resources and access. Fire suppression resources include firefighting personnel, equipment and apparatus as well as water and chemical fire suppressants. The greater the availability of fire suppression resources, the more likely it is that a given fire will be contained quickly. Fire suppression also depends on access. Fires in remote areas without ground access are more difficult to fight and thus harder to contain than are fires in roaded areas. Access and effective response is partially a function of land management objectives. Lands managed for natural conditions where roads have not been built or the existing roads have been obliterated tend to have a much poorer fire suppression response than commercial forestlands where road systems are maintained.

Because wildland fires are being effectively suppressed, the patterns and characteristics of fires are changing. Vegetation that historically would have been minimized by frequent fires has become more dominant. Over time, some species have also become more susceptible to disease

and insect damage, which leads to an increase in mortality. The resulting accumulation of dead wood and debris creates the types of fuels that promote intense, rapidly spreading fires.

Fire risk to structures and occupants is high along the Front Range due to high vegetative fuel loads, difficult access, and limited fire suppression resources compared to urban or suburban areas and strictly agriculturally-based areas. Homes near the Front are most commonly on wells rather than on municipal water supplies, which limits the availability of water for fire suppression. Less availability of water resources makes it more likely that a small wildland fire or a single structure fire will spread before it can be extinguished.

In many areas of Teton County, narrow winding roads, dead end driveways, and inadequate bridges impede access by firefighting apparatus. As with water supplies, the lower availability of firefighting personnel and apparatus and longer response times increase the probability that a small wildland fire or a single structure fire will spread.

Developments in Teton County, particularly along the Front Range, often face high fire risk because of the combination of high fire hazard (high vegetative fuel loads) and limited fire suppression capabilities. Unfortunately, occupants in many of these areas also face high safety risks, especially from large fires that may spread quickly. The safety risks are often exacerbated by a limited number of roads (in the worst case only one access road) that are often narrow and subject to blockage by a wildland fire.

Potential safety issues are also often increased by homeowners' reluctance to evacuate homes quickly. Instead, homeowners often try to protect their structures with whatever fire suppression resources are available. Such efforts generally have very little effectiveness. Unfortunately, homeowners who delay evacuation often place themselves in jeopardy.

Developments in rural areas face a range of risk factors. Developments that have all or most of the following attributes are at the highest level of risk:

1) Location in or surrounded by heavy fuel loads with a high degree of continuity (i.e. few significant firebreaks). Risk may be particularly high if the fuel load is grass, brush, and smaller trees subject to low moisture levels in short duration drought periods.
2) Steep slopes, which cause fires to spread more rapidly.
3) Limited fire suppression capacity including limited water supply capacity for fire suppression purposes, limited firefighting personnel and apparatus, and typically long response times for fire alarms.
4) Limited access for firefighting apparatus and limited evacuation routes for residents at risk.
5) Construction of structures to less than fully fire-safe practices,
6) Lack of maintenance of firebreaks and defensible zones around structures.

Overall, the threat of wildland fire appears moderate to high for Teton County. This is in large part because of the intense agricultural activities as well as a large amount of National Forest, which is more difficult to access and has a high rate of lightning ignitions. However, for portions of Teton County, depending on conditions and weather partners, the threat may be low to moderate due to development and relatively flat topography.

Overall Mitigation Activities

There are many actions that will help improve safety in a particular area; there are also many mitigation activities that can apply to all residents and all fuel types. General mitigation activities that apply to all of Teton County are discussed below while area-specific mitigation activities are discussed within the strategic planning area assessments.

Prevention. The safest, easiest, and most economical way to mitigate unwanted fires is to stop them before they start. Generally, prevention actions attempt to prevent human-caused fires. Campaigns designed to reduce the number and sources of ignitions can be quite effective and can take many forms. Traditional "Smokey Bear" type campaigns that spread the message passively through signage can be effective. Interpretive signs that remind folks of the dangers of careless use of fireworks, burning when windy, and leaving unattended campfires can also be effective.

Active prevention techniques can involve mass media, radio, and the local newspapers. Fire districts in other Counties have contributed to the reduction in human-caused ignitions by printing a weekly "run blotter," similar to a police blotter, in the paper. The blotter briefly describes the fire response calls for the week and is followed by a "tip of the week" to reduce the threat from wildland and structure fires. The federal government and the Montana DNRC have been champions of prevention, and could provide ideas for such tips. When fire conditions are high, brief public service messages could warn of the hazards of misuse of fire or any other ignition sources.

Burning Permits. Teton County has established an Annual Fire Season which runs from March 1 to the last day of February of each year. Any open burning on private lnads within the County in excess of 25 square feet is not allowed without a burning permit. Burning permits must be obtained from the County Commissioners or their authorized agent prior to ignition. Burning permits are automatically cancelled during red flag warnings and may be cancelled under other circumstances by the County Fire Chief and/or County Commissioners. Permit holders are required to contact the 911 Dispatch Center no more than one hour before ignition. The permit and attachment thereto includes the criteria which must be met prior to and during an ignition. From September 30 through the last day in February, minor open burners must meet all the requirements of the Montana Department of Environmental Quality.

Defensible Space. Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the homeowner. Once a fire has started and is moving toward a structure, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the building. *"Living with Fire, A Guide for the Homeowner"* is an excellent tool for educating homeowners on the steps to take in order to create an effective defensible space. Residents of Teton County should be encouraged to work with local fire departments and fire management agencies within the county to complete individual home site evaluations. Home defensibility steps should be enacted based on the results of these evaluations. Beyond the homes, forest management efforts must be considered to slow the approach of a fire that threatens a community.

Evacuation. Development of community evacuation plans is necessary and critical to assure an orderly evacuation in the event of a threatening wildland fire. Designation and posting of escape routes would reduce chaos and escape times for fleeing residents. Community safety zones should also be established in the event safe evacuation is impossible and 'sheltering in place'

becomes the better option. Efforts should be made to educate homeowners through existing homeowners associations or citizen participation organizations.

Access. Also of vital importance is the accessibility of homes to emergency apparatus. The fate of a home will often be determined by homeowner actions prior to the event. A few simple guidelines such as widening or pruning along driveways and creating a turnaround area for large vehicles, can greatly enhance home survivability.

Facility Maintenance. Recreational facilities near communities or in the surrounding forests such as parks or natural areas should be kept clean and maintained. In order to mitigate the risk of an escaped campfire, escape-resistant fire rings and barbeque pits should be installed and maintained. In some cases, restricting campfires during dry periods may be necessary. Surface fuel accumulations in nearby forests can also be kept to a minimum by periodically conducting pre-commercial thinning, pruning and limbing, and possibly controlled burns.

Fire District Response. Once a fire has started, how much and how large it burns is often dependent on the availability of suppression resources. In most cases, rural fire departments are the first to respond and have the best opportunity to halt the spread of a wildland fire. For many districts, the ability to reach these suppression objectives is largely dependent on the availability of functional resources and trained individuals. Increasing the capacity of departments through funding and equipment acquisition can improve response times and subsequently reduce the potential for resource loss.

Other Mitigation. Other actions to reduce fire hazards are thinning and pruning timbered areas, creating a fire resistant buffer along roads and power line corridors, and strictly enforcing fire-use regulations. Ensuring that areas beneath power lines have been cleared of potential high risk fuels and making sure that the buffer between the surrounding forest lands is wide enough to adequately protect the poles as well as the lines is imperative.

Overview of Fire Protection System

Structural fire protection is provided within jurisdictional boundaries of the Teton County Fee Service area and municipal fire departments. On Federal lands, structure fire suppression is only provided to privately-owned structures paying a fee to Teton County Fire Fee Service. Teton County has five rural fire companies and three municipal fire departments providing wildland fire protection on all state and private lands under a cooperative fire control agreement between the Montana DNRC and Teton County. The rural fire companies provide structural and wildland fire protection to all unincorporated areas in Teton County (excluding Federal lands) with assistance from the Fire Fee Service and County funding. The municipal fire departments located in Choteau, Fairfield, and Dutton provide structural fire protection within their respective city limits.

The DNRC provides wildland fire protection on State lands and private lands that have signed up for this service under the affidavit program. The Lewis and Clark National Forest and BLM, have fire protection responsibility for all USFS and BLM lands, respectively, in Teton County. Mutual aid agreements are in place between Teton County and all municipalities. The County has a cooperative fire control agreement with the Montana DNRC and mutual aid agreements with the DNRC, BLM, several surrounding counties, and individual fire companies in Cascade and Lewis and Clark County.

Local Fire Department and District Summaries

The firefighting resources and capabilities information provided in this section is a summary of information provided by the fire chiefs or representatives of the wildland firefighting agencies listed. Each organization completed a survey with written responses. Their answers to a variety of questions are summarized here. These synopses indicate their perceptions and information summaries.

Appendix 4 contains contact information and a complete equipment list for each of the following fire service organizations.

Teton County Fire and Rescue

Teton County funding is primarily from a fire service area fee on structures. In addition, local fire companies receive County general fund, Payment In Lieu of Taxes (PILT) and Volunteer Fire Assistance/Rural Fire Assistance (VFA/RFA) grant funding on a yearly basis. The annual fire budget averages $125,000. Teton County has also successfully applied for grant funding through the Federal Fire Assistance grant program. Based on current funding and expenditures, Teton County Fire is likely in a position to maintain and upgrade vehicles and equipment within an acceptable rotation.

Issues of Concern:

- **Choteau:** the limber pine and WUI issues on the Front as well as the river bottom issue near and around Choteau.
- **Dutton:** the transmission lines and railroad increase fire starts as well as the CRP and continuous crops that have a high potential for a large rangeland fire.
- **Power:** similar issues as Dutton with the exception of also covering part of the Greenfield Irrigation District (GID), which even with burn permits and other education continues to experience escaped controlled burns.
- **Fairfield:** dealing with the majority of the GID, which even with burn permits and other education continues to experience escaped controlled. In addition, Fairfield is responsible for the Sun River Canyon area.
- **Pendroy:** CRP fields, forestland, and oil giving a diverse fire regime, but has a relatively low population at risk.

Training of volunteers is a huge issue. With peoples' lives getting busier, it is a real challenge to provide training and get volunteers to give up their free time to attend.

Teton County's radio communications are adequate unless it becomes mandatory to switch to digital technology, which would require an enormous amount of money and several additional repeater sites. A portable repeater for use on wildfires would be very helpful in certain areas of the county.

Choteau Rural Volunteer Fire Company/Choteau Fire Department

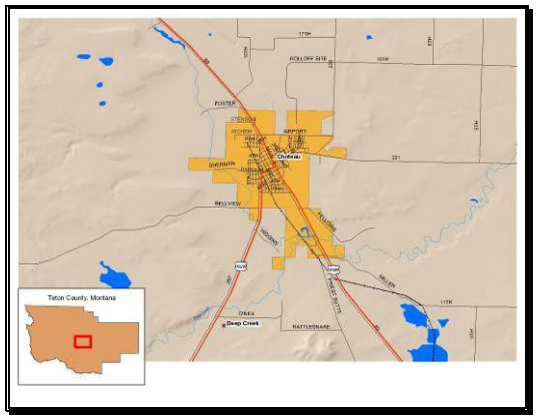
District Summary: The Choteau Rural Volunteer Fire Company is a volunteer organization housed in a station that contains 4 stalls and a meeting room. The Choteau Fire Company has a priority fire fighting response area of approximately 1,157 square miles (787 square miles of private land plus 400 square miles of National Forest), 2,600+ people, 1,300 residences, 1,500 outbuildings, 6 U.S. Air Force Minute Man II Missile Launch Sites, 1 U.S. Air Force Intercontinental Missile Control Center, 1 large natural gas transmission pipeline, and 1 crude oil transmission pipeline. The Choteau Fire Department shares the same station, fire fighters, and equipment; however, the Department has fire protection responsibilities only within the city limits of Choteau. The Rural Fire Company is responsible for wildland and structural fire protection in unincorporated areas within the district boundaries.

Choteau is the only town within the district and has a population of 1,750 people. Within the city limits of Choteau, there is a hospital, 2 extended care facilities, a nursing home, a three-story retirement complex, 2 schools, the County Courthouse, and 2 handicap group homes and care facilities. The airport is designated as the emergency alternate landing strip for the Great Falls International Airport. The remainder of the district consists of rural agricultural farmland, pastureland, and National Forest. Our department has mutual aid response agreements with the 4 other rural fire departments in Teton County plus the 4 adjoining counties, the State of Montana, USFS, BLM, and the U.S. Air Force.

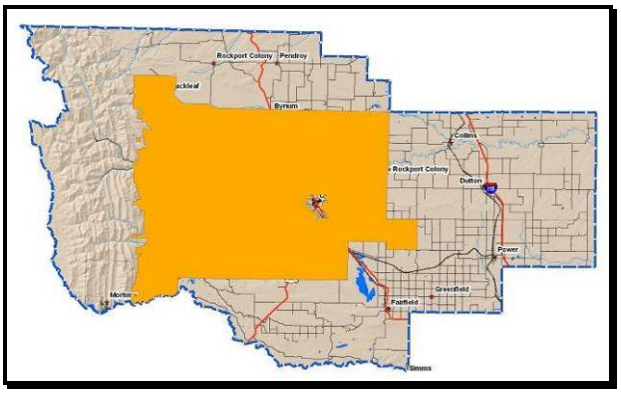
The Company's new main fire hall, located at the north end of Choteau, consists of 6 stalls and a meeting room. There is also 3 additional buildings with 5 stalls situated on the north end of the property at this location. These outbuildings are used as cold storage and also to house Teton County Search and Rescue.

The Company is staffed by 27 volunteer fire fighters. Half of the Company's members have received formal structure fire fighting training, but only 6 are Fire Fighter I qualified. Approximately ¾ of the members have received formal wildland fire fighting training. Choteau Fire Company members assist EMS and law enforcement when dispatched to vehicle accidents. The Company is responsible for fire control and the extrication of victims at this type of incident.

Choteau Fire Department



Choteau Rural Volunteer Fire Company



Issues of Concern: Homes and farmsteads located in the rural areas of the district are most at risk of loss from wildland fires due to the increase response time. To reach the far northwestern corner of the district takes approximately 1.25 hours from page out to arriving on scene.

Inadequate access into new and existing structures in the rural area continues to be problematic for the district, particularly the lack of standards or maintenance program for private bridges.

Due to the Company's reliance on volunteer help, maintaining a viable work force is always difficult. New recruits are rare and the availability of daytime responders is limited.

Within the Choteau Fire Company's coverage area, the areas considered to have the highest wildland fire risks are the Rocky Mountain Front, the Arrowleaf subdivision area, CRP fields, and the Teton, Blackleaf, and Deep Creek river bottoms. The biggest challenge for the Company is residential development along the Rocky Mountain Front and the effect it will have on the number of fires. The Arrowleaf area is the Company's highest risk interface area and is at least a 45 minutes response time. The Company's ability to fight a structure fire in this subdivision is further complicated by the narrow width of the private driveways.

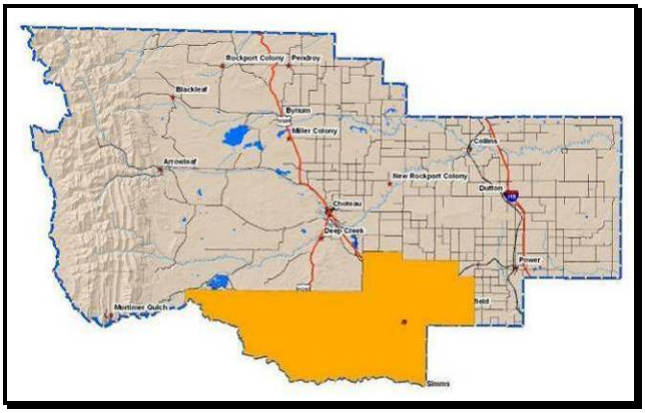
Fairfield Rural Volunteer Fire Company/Fairfield Fire Department

District Summary: Fairfield Fire Company is a volunteer organization that responds to structural and wildland fires in Fairfield a community of 659 people. In addition, the Company also responds to an additional area comprising approximately 340 square miles with 1,300 additional residents. This includes 3 school systems of which two are in the rural area, two launch control facilities for Malmstrom Air Force Base, and 8 missile silo sites. There are two electrical substations, a large telecommunications center, and other businesses within their response area.

The District responds to all types of emergencies including fire, medical, and rescue and is staffed by 28 volunteer firefighters.

Fairfield Fire Department

Fairfield Rural Volunteer Fire Company



Dutton Rural Volunteer Fire Company/Dutton Fire Department

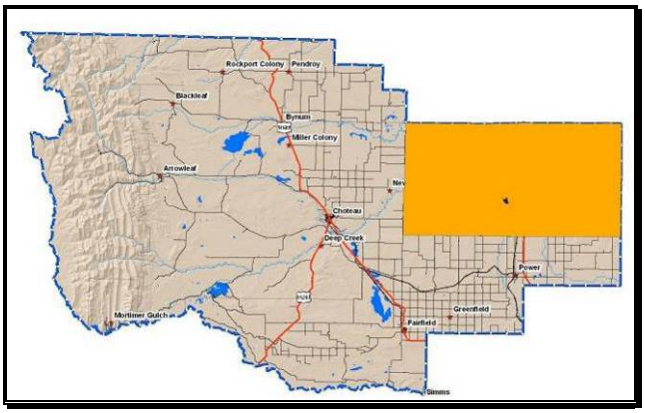
District Summary: The Dutton Rural Volunteer Fire Company is a volunteer organization in the northeast corner of Teton County. Funding is provided by the local community tax budget and is barely capable of covering daily operating costs. Occasionally, FEMA grant funds are available to supplement the annual budget. The Dutton Fire Company responds to structural, agricultural, and vehicle fires. The coverage area consists of farmland, farm houses, CRP land, and the town of Dutton. As a result, nearly all of our fire responses are wildland urban interface-type calls. The area also includes the main north/south arterial of the Burlington Northern railroad and is bisected by Interstate 15, which adds to the Company's vehicle accident and HazMat incident calls.

The Company serves as an automatic mutual aid partner with the Power Rural Volunteer Fire Company. The Dutton Fire Company also has working mutual aid agreements with 5 other fire departments in Teton, Chouteau, and Pondera Counties and with Malmstrom Air Force Base.

The Company presently operates a 1000 gallon per minute structural pumper and an enclosed 2-wheel trailer that hauls a Hurst tool, generator, lights, and rescue equipment.

Dutton Fire Department

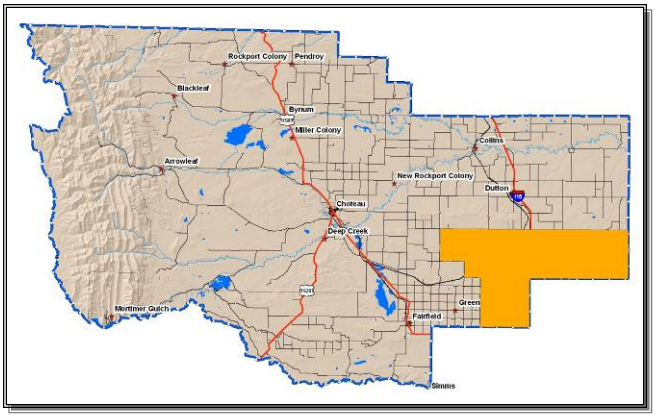
Dutton Rural Volunteer Fire Company



Issues of Concern: The water supply comes from a mutual aid tender and brush truck responding from Power. The only water system within the Dutton Fire Company response area is within the town of Dutton itself, which is available to less than half of the Company's tax base. Due to the delayed water arrival, the Company cannot conduct primary search or offensive attack until mutual aid arrives, which can take as long as 15 minutes after the pumper is on scene.

Power Rural Volunteer Fire Company

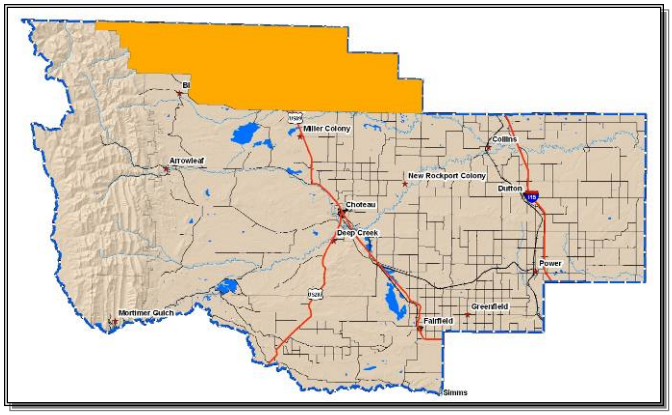
District Summary: Information unavailable.



Pendroy Rural Volunteer Fire Company

District Summary: The Pendroy Rural Volunteer Fire Company has a priority response area of approximately 386 square miles (228 of which is private land and 98 are National Forest). This coverage area serves approximately 308+ people, 100+ residences, 400+ outbuildings, 6 U.S. Air Force nuclear missile launch sites, 1 large natural gas pipeline, and 1 crude oil pipeline.

Pendroy is the only community within the district and has a population of 23 people. The remainder of the district consists of rural agricultural farmland, pasture, and National Forest. The Fire Company has mutual aid response agreements with the four other rural fire companies in Teton County as well as fire departments in adjoining counties, the State of Montana, and the U.S. Air Force. The Pendroy Fire Company's full response area is approximately 100 square miles.



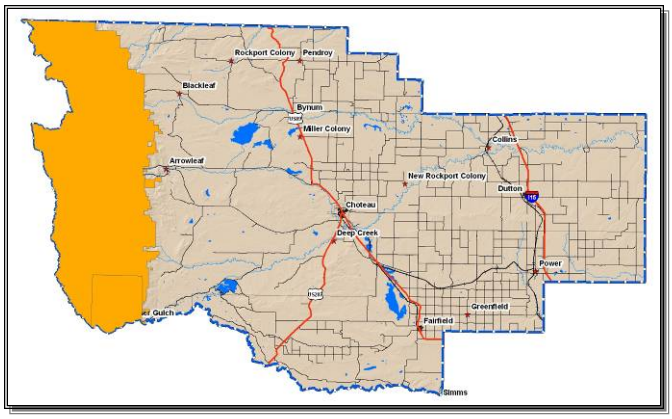
Issues of Concern: Over the last three years, wildfires within the district have caused over $100,000 in damages.

Lewis and Clark National Forest, Rocky Mountain Ranger District

District Summary: The Rocky Mountain Ranger District contains 775,925 acres of National Forest managed by a staff of 16 permanent employees, 35-40 seasonals, and many volunteers. The District is responsible for managing 300,000 acres of the Bob Marshall Wilderness, 84,407 acres of the Scapegoat Wilderness, and 391,518 acres of non-wilderness National Forest land. The Rocky Mountain Ranger District is part of the Bob Marshall Wilderness Complex, which includes the Bob Marshall, Great Bear, and Scapegoat wilderness areas on the Flathead, Lolo, and Helena National Forests.

The Rocky Mountain Ranger District is visited by approximately 800,000 people a year. There are 1,023 miles of trails, 130 miles of roads, 99 recreation residence permits, 40 grazing permittees, 26 commercial outfitters, 16 trailheads, 11 developed campgrounds, 6 eligible wild/scenic rivers, 4 special use resorts, 3 lookouts, 1 paved airstrip, and 1 ski area. The listed resources are spread across 4 counties: Lewis and Clark, Teton, Pondera, and Glacier.

The Rocky Mountain Ranger District has a very active fire management program consisting of prescribed burning, fire use, and fire suppression programs.



The Rocky Mountain Ranger District recently updated its communication system. It is currently narrow-banded with various repeaters supporting the system. There are 5 radio repeaters located at the following locations: Half Dome, Mount Wright, Prairie Reef, Renshaw, and Steam Boat. These are all true repeaters making for more effective communications for personnel in the field and the local unit or the Great Falls Interagency Dispatch Center (GDC). Basic administrative traffic is covered by the local unit either in Choteau or Augusta and all fire related radio traffic is covered by GDC.

The Rocky Mountain Ranger District is pro-active in its education and training of employees and cooperators. The District's fire management personnel are engaged in training for a minimum of several weeks every year. This training encompasses a wide range of fire management and safety techniques and procedures. The training is kept current with the Northwest Coordinating Group training and qualification requirements. USFS employees shall comply with the FSH 5109.17 Fire and Aviation Management Qualifications Handbook.

Bureau of Land Management, Central Montana Zone

District Summary: The BLM Central Montana Zone is a Federal wildland fire program with lands in 16 counties in Central and North Central Montana. The BLM fire program is limited to wildland fire actions only and on BLM lands or as requested under agreements. The Central Zone has a dispatch center located in Lewistown and a fleet of 7 engines and other support vehicles. The Zone has Offset and I.A agreements with most counties; however, the BLM's ability to support counties on the far western edge of the Zone is limited by distance and the time required responding.

Montana Department of Natural Resources and Conservation

District Summary: The Montana Department of Natural Resources and Conservation (DNRC) Central Land Office (CLO) covers fourteen counties including Glacier, Toole, Liberty, Pondera, Teton, Cascade, Lewis & Clark, Meagher, Broadwater, Jefferson, Beaverhead, Madison, Park, and Gallatin County. CLO provides direct wildfire protection in some counties while in others the Office supports the counties as needed. The CLO also assists with training and equipment for wildland fire incidents.

The CLO provides training to all of their firefighters with some employees being crossed trained for all-risk type events.

The CLO has signed mutual aid agreements with all of the counties within their coverage area.

Montana Fish, Wildlife, and Parks

District Summary: The Montana Department of Natural Resources and Conservation (DNRC) Central Land Office (CLO) works cooperatively with Montana FWP to provide wildland fire protection on land managed by Montana FWP such as wildlife management areas.

Fire Protection Issues

The following sections provide a brief overview of the many difficult issues currently challenging Teton County in providing wildland fire safety to citizens. These issues were discussed at length both during the committee process and at several of the public meetings. In most cases, the committee has developed action items (Chapter 6) that are intended to begin the process of effectively mitigating these issues.

Urban and Suburban Growth

One challenge Teton County faces is the large number of houses in the urban/rural fringe compared to twenty years ago. Since the 1970s, a segment of Montana's growing population has expanded further into traditional forest or resource lands. The interface between urban and suburban areas and the resource lands created by this expansion has produced a significant increase in threats to life and property from fires, and has pushed existing fire protection systems beyond original or current design or capability. Many property owners in the interface are not aware of the problems and threats they face and owners have done very little to manage or offset fire hazards or risks on their own property. Furthermore, human activities increase the incidence of fire ignition and potential damage.

It is one of the goals of this document to help educate the public on the ramifications of living in the in high risk wildland fire areas, including their responsibilities as landowners to reduce the fire risk on their property and to provide safe access to their property for all emergency personnel and equipment. Homeowners building in a high fire risk area must understand how to make their properties more fire resistant using proven firesafe construction and landscaping techniques, and they must have a realistic understanding of the capability of local fire service organizations to defend their property.

Rural Fire Protection

People moving from urban to more rural areas frequently have high expectations for structural fire protection services. Often, new residents do not realize they are living outside a fire protection district, or that the services provided are not the same as in an urban area. The diversity and amount of equipment and the number of personnel can be substantially limited in rural areas. Fire protection may rely more on the landowner's personal initiative to take measures to protect his or her property. Furthermore, subdivisions on steep slopes and the greater number of homes exceeding 3,000 square feet are also factors challenging fire service organizations. In the future, public education and awareness may play a greater role in rural or interface areas. Great improvements in fire protection techniques are being made to adapt to large, rapidly spreading fires that threaten large numbers of homes in interface areas.

Debris Burning

Local burning of trash and yard debris has been identified as a significant and growing cause of wildfires throughout Teton County. Not only are some people regularly burning outside of the designated time frame, but escaped debris fires impose a very high fire risk to neighboring properties and residents. A growing portion of local fire department calls are in response to

debris fires or "backyard burning" that either have escaped the landowner's control or are causing smoke management problems. It is likely that regulating this type of burning will always be a challenge for local authorities and fire departments; however, improved public education regarding the county's burning regulations and permit system as well as potential risk factors would be beneficial.

Pre-planning in High Risk Areas

Although conducting home, community, and road defensible space projects is a very effective way to reduce the fire risk to communities in Teton County, recommended projects cannot all occur immediately and many will take several years to complete. Thus, developing pre-planning guidelines specifying which and how local fire agencies and departments will respond to specific areas is very beneficial. These response plans should include assessments of the structures, topography, fuels, available evacuation routes, available resources, response times, communications, water resource availability, and any other factors specific to an area. All of these plans should be available to the local fire departments as well as dispatch personnel.

Accessibility

Fire chiefs throughout Teton County have identified home accessibility issues as a primary concern in many of the rural areas in the county. Inadequate private bridges lacking weight rating signage are a common problem. Due to the risk of bridge failure and resulting personnel injury and equipment damage, fire and medical service organizations will not cross bridges that may be incapable of handling the weight of emergency response apparatus.

Recently, the Burlington Northern Santa Fe (BNSF) railroad has begun removing road crossings along their railway. This has effectively increased the emergency medical service and fire suppression response times in some areas as responders must take a longer alternative route.

As part of this process, the committee has recommended an action item for coordination with the BNSF railroad regarding the removal of critical access crossings.

Wildland Fire Specific Building Regulations

As the trend to build in the wildland urban interface continues, many counties and communities have begun to develop wildland urban interface codes for new construction that regulate the use of certain building materials (roofing, siding, vents, decking, etc.) in high fire risk areas. In addition, WUI codes regarding road and bridge standards, availability of water resources, proximity of vegetation, and other requirements have been adopted in some communities and counties across the United States.

During the 2011 revision of the CWPP, the planning committee thoroughly discussed wildland fire specific building codes in relation with the wildland urban interface designation. Based on strong public comment on the issue, the planning committee agreed that no wildland fire specific building codes or other regulations would be recommended to the Teton County Commissioners at this time.

Volunteer Firefighter Recruitment

The rural fire departments in Teton County are dependent on volunteer firefighters. Each district spends a considerable amount of time and resources training and equipping each volunteer, with the hope that they will continue to volunteer their services to the department for at least several years. One problem that all volunteer-based departments encounter is the diminishing number of new recruits. As populations continue to rise and more and more people build homes in high fire risk areas, the number of capable volunteers has gone down. In particular, many departments have difficulty maintaining volunteers available during regular work day hours (8am to 5pm).

No Till Practices

No till farming is a way of growing crops from year to year without disturbing the soil through tillage. No till practices are becoming more common throughout Montana and other states due to its conservation benefits such as protecting soil from erosion, improving soil quality/function, reducing soil compaction, and reducing evaporation of water. In many areas, no till farming is replacing the practice of summer fallow. Fields kept out of production, or fallow, during the growing season were typically tilled and left as bare ground, which has a very low fire risk due to the lack of burnable material. Thus, no till farming, which leaves crop residues intact from year to year, is effectively increasing the amount of available fuels during the wildfire season. Large expanses of no till cropland creates a continuous fuel bed, which is increasing the wildfire potential in previously low risk areas.

Conservation Reserve Program

The Conservation Reserve Program is administered by the USDA Farm Services Agency. The Conservation Reserve Program (CRP) is a voluntary program for agricultural landowners. Through CRP, farmers can receive annual rental payments and cost-share assistance to establish long-term, resource conserving covers on eligible farmland. The Commodity Credit Corporation (CCC) makes annual rental payments based on the agriculture rental value of the land and it provides cost-share assistance for up to 50 percent of the participant's costs in establishing approved conservation practices. Participants enroll in CRP contracts for 10 to 15 years.

CRP support is provided by the Natural Resources Conservation Service, Cooperative State Research and Education Extension Service, state forestry agencies, and local Soil and Water Conservation Districts. Approximately 3.4 million acres of farm land in Montana have been enrolled in the CRP program through February 2005. In Teton County, there was approximately 155,000 acres of CRP in 2005. In 2010, CRP acres had been reduced to approximately 120,000 with the trend continuing downward due to the expiration of contracts as well as strong wheat prices.

CRP protects millions of acres of American topsoil from erosion and is designed to safeguard the Nation's natural resources. By reducing water runoff and sedimentation, CRP protects groundwater and helps improve the condition of lakes, rivers, ponds, and streams. Acreage enrolled in the CRP is planted to resource-conserving vegetative covers, making the program a major contributor to increased wildlife populations in many parts of the country.

Although there are many benefits to the County stemming from CRP land enrollment, the impact on wildfire control is problematic. When these lands, often near communities and homes, build up heavy fuels consistent with natural grasses and shrubs, the fuel loading increases dramatically above that found on farmlands or that would have been found with a natural fire return interval.

Fires in these fuels can move very rapidly when fanned by winds (common during the fire season).

The FSA allows periodic fuels mitigation treatments on CRP lands including the establishment of fuel breaks around buildings or along road corridors. Existing CRP contracts can be modified to include some types of fuels reduction and/or hazard mitigation treatments. These fuel treatments or projects are critical to the development of a successful wildfire mitigation program in Teton County and are fully endorsed and encouraged by the CWPP committee.

Since the introduction of the Conservation Reserve Program (CRP) by the federal government, many formerly crop producing fields have been allowed to return to native grasses. CRP fields are creating a new fire concern all over the west. As thick grasses are allowed to grow naturally year after year, dense mats of dead plant material begin to buildup. Due to the availability of a continuous fuel bed, fires in CRP fields tend to burn very intensely with large flame lengths that often jump roads or other barriers, particularly under the influence of wind. Many landowners and fire personnel are researching allowable management techniques to deal with this increasing problem. Currently, according to the CRP Handbook all management must be part of the landowner's Conservation Plan of Operations, which includes burning to reduce the fuel loading, and must be in the best interest of the CRP. Under certain circumstances, burning may be used as a process to enhance or renovate the existing vegetative cover for wildlife, especially if it is overgrown and stagnant. As noted in Montana CRP-542, burning can only be conducted under an approved burn plan by qualified personnel. The County must also issue a burn permit for any controlled burning on CRP fields.

Oil and Gas Extraction Sites and Pipelines

There are numerous oil rigs and pump houses scattered throughout Teton County. New technology and mechanical improvements on these rigs has reduced the fire danger significantly; however, these sites are still at risk from wildland fires and are also prone to lightning strikes and arson. The local fire departments currently receive training on how to deal with fires associated with the oil and gas infrastructure in the County; however, these sites remain a significant risk factor.

Public Wildfire Awareness

As the potential fire risk in the wildland-urban interface continues to increase, it is clear that fire service organizations cannot be solely responsible for protection of lives, structures, infrastructure, ecosystems, and all of the intrinsic values that go along with living in rural areas. Public awareness of the wildland fire risks as well as homeowner accountability for the risk on their own property is paramount to protection of all the resources in the wildland-urban interface.

Developing a mechanism to increase public awareness regarding wildfire risks and promoting "do it yourself" mitigation actions is a primary goal of the CWPP planning committee as well as many of the individual organizations participating on the committee.

Current Wildfire Mitigation Activities

National Fire Plan Grant

Given the drought conditions and fire history along the Rocky Mountain Front, the Teton River canyon and Sun River canyon was considered for a fuels mitigation project due to its potential fire impacts on subdivisions and recreational cabin holdings in the area. The lack of any defensible space work being done in the area, the need to inform the landowners of the potential risk of fire, and the present weather conditions made the Rocky Mountain Front in Teton County a prime choice for a grant-funded defensible space project. The two areas of primary concern were the Arrowleaf subdivision area at the mouth of Teton River canyon and the Sun River canyon area west of the Lewis and Clark National Forest's eastern boundary. The purpose of the projects was to identify and implement homesite and community defensible space projects. Upon completion of the defensible space work at selected demonstration locations, these sites would be used as models for educational purposes for the other residents in the area.

Educating residents along the Rocky Mountain Front regarding methods for increasing their chance of surviving a wildfire was paramount at a time when interest was heightened due to the 2000 fire season and the September fire along the Front. This project allowed the public to observe and learn the proper methods and benefits of developing wildfire defensible space.

Teton County has seen not only a heightened awareness of the need for fuel mitigation and defensible space, but action has also been taken on several fronts.

1. Teton County has completed over 20 defensible space projects plus 5 demonstration projects.
2. The City of Choteau has begun a community-wide assessment and completed some fuel mitigation along Spring Creek.
3. Several individuals have cleared access roads and continued fuel reduction beyond the grant funding.
4. The USFS has completed an evacuation plan for all public and private lands within 6 miles of the Lewis and Clark National Forest boundary.
5. A wildfire education component is now included as part of the Extension services within Teton County.

Public Education Programs

Many of the county's fire departments and agencies are actively working on public education and homeowner responsibility by visiting neighborhoods and schools to explain fire hazards to citizens. Often, they hand deliver informative brochures and encourage homeowners to have their driveways clearly marked with their addresses to ensure more rapid and accurate response to calls and better access.

Chapter 5

Community Fire Risk Assessments

The majority of homes and structures within and surrounding these communities are along a spectrum from low to moderate to high risk of loss to wildland fire. Individual characteristics of each community and structure dictate the risk factors. The prevalence of tree and shrub fuels pose a moderate to high threat to homes surrounded by these fuels, as fire typically spreads quickly through the grasses and burns at relatively high intensities in the brush and forest tree fuels, especially where declining forest health is a factor. Many homes are at low risk because of the management of fuels in the area immediately surrounding the structures and their access routes. There are a number of individual homes that are at much higher risk to wildland fire loss in the area, largely due to use of highly ignitable materials in home construction, or by lack of defensible space surrounding the home. Home defensibility practices can dramatically increase the probability of home survivability. The amount of fuel modification necessary will depend on the specific attributes of the site. Considering the high spread rates possible in these fuel types, homes need to be protected prior to fire ignitions, as there is little time to defend a home in advance of fire.

Individual Community Assessments

Agawam and Farmington

Farmington is located approximately five miles north of Choteau just west of State Route 220. Homeowners in this area are surrounded by irrigated farm fields. A small tributary of the Teton River flows through the townsite. The topography in the Farmington and Agawam area is flat with only an occasional creek bed or ephemeral coulee to differentiate the landscape.

Agawam lies about seven miles north of Farmington, also alongside State Route 220. There are only a few homes still remaining in this remnant railroad town. Muddy Creek flows about one mile south of the townsite; however, this is not a sufficient water resource for irrigation purposes.

Fire Potential

Fuels surrounding Farmington and Agawam consist primarily of sparse grasses, irrigated crop, or CRP fields. There are very few low growing shrubs and the only trees that exist are ornamentals planted in residents' yards. Agriculture and ranching activities dominate the landscape and the economy, particularly near Farmington, resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Under extreme weather conditions, particularly high winds, there is a greater potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease the build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel component of the arid rangeland ecosystem.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Stubble fires escape landowner's boundaries relatively frequently. These fires are generally easily suppressed by modifying the vegetation and homes are rarely threatened.

Risk Assessment

Residents of Farmington and Agawam have a low to moderate risk of experiencing a wildland fire due to the relatively flat topography and agricultural development. However, recreational and agricultural activities throughout the area increase the risk of a man-caused wildfire spreading to the communities. The receptive nature of fuels increases the likelihood of a fire start. In the event of wildfire, the dry, flashy fuels would likely support a very fast-moving rangeland fire. Therefore, it is important that homeowners implement fire mitigation measures to protect their structures and families prior to such an event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds. Community defensible space is also maintained by livestock grazing. A planned, integrated grazing system around the communities could help enhance the fire reduction benefits derived from grazing.

Farmington and all of the surrounding area has structural fire protection provided by Choteau Rural Volunteer Fire Company. Agawam falls into the Pendroy Rural Volunteer Fire Company.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

In more remote communities, such as Farmington and particularly Agawam, development of fuel breaks and creating access to water for firefighting would enhance the survivability of the community and the efficiency of emergency fire response.

Arrowleaf Subdivision

The Arrowleaf Subdivision is located near the end of Teton Canyon Road at the junction of the South Fork of the Teton River with the main Teton River channel. There are two main roads through the subdivision, one traveling up the main Teton River drainage and another following the South Fork drainage. The subdivision sits at the base of the steep slopes of the Rocky Mountains and abuts the Lewis and Clark National Forest. Homes are scattered throughout the area and are typically set back from the main road by private drives of variable length. Structures in this area, new and old, are typically built using wood siding and decking, which tends to heighten the fire risk. Many homeowners have established a yard or groomed area around structures; however, some homes directly abut forest fuels. The Pine Butte Guest Ranch, owned by the Nature Conservancy, lies on the western edge of the subdivision and has many associated cabins, barns, and other structures.

Fire Potential

Many of the homes in the Arrowleaf Subdivision are surrounded by limber pine, which becomes somewhat denser on the western edge. Mature limber pines are naturally short to moderately tall trees that grow in well-spaced stands. The understory of this limber pine stand generally consists of sparse grasses and a few low-growing shrubs. Fires in these fuels are infrequent, but burn at high intensities usually resulting in stand replacement. The topography is relatively gentle in this area; thus, wind would likely be needed to push fire through the understory vegetation.

Homes closer to the National Forest boundary sit within the limber pine to Douglas-fir transition zone. Fuel loading in predominantly Douglas-fir stands is much higher than limber pine stands. Increased dead and down fuels, stand density, and understory vegetation results in a much hotter and more unpredictable wildfire. Crowning, spotting, and torching of individual trees also makes direct attack suppression efforts difficult and dangerous for firefighters. These fire behavior characteristics are significantly enhanced by steep, highly variable slopes and the potential for extreme weather conditions.

Homes located directly along the river frontage on the eastern end of the subdivision have slightly less fire risk. The floodplain area is mostly a series of river rock gravel bars deposited by past high water events. Riparian vegetation is somewhat sparse in this area. Denser riparian vegetation, which could potentially carry a fire, is found upriver near the National Forest boundary.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Residential living and intense recreational use present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through

dry fields or on unimproved trails. ATV's and pick ups are used regularly for recreational purposes in the mountains. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Risk Assessment

Residents of the Arrowleaf Subdivision have a moderate to high risk of experiencing a wildland fire due to its proximity to forest fuels. Natural ignitions within the Lewis and Clark National Forest or in the Rocky Mountain Front area could easily move into this area. High intensity recreational traffic throughout the area also increases the risk of a man-caused wildfire threatening the community. Additionally, many of the homes in this area are at higher risk due to factors such as non fire-resistant siding and poor fire-conscious landscaping techniques. Recently, a defensible space awareness and hazardous fuels reduction project was implemented with participating landowners in some areas of the subdivision. This project removed or pruned limber pine and underbrush within a set distance from qualifying structures. Homes that participated in the project have a reduced risk of loss to wildfire.

The Arrowleaf Subdivision is a remote community without access to immediate fire protection. Response time for the Choteau Rural Volunteer Fire Company may be delayed due to the distance to the community. In the event of wildfire, the forest fuels would likely support a higher intensity and potentially very fast-moving wildland fire. It is imperative that homeowners in this area implement fire mitigation measures to protect their structures and families prior to a wildfire event.

The Choteau Rural Volunteer Fire Company provides structural fire protection for residents in the Arrowleaf Subdivision and surrounding area.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation. It is also important for alternative escape routes to be signed and maintained for emergency use.

Bynum

The community of Bynum is a U.S. Highway 89 roadside town lying approximately thirteen miles north of Choteau and about four miles northeast of Bynum Reservoir. The Bynum area is typical of a Rocky Mountain Front community. The immediate area is relatively flat, broken only by a few shallow creek beds and ephemeral coulees. However, the steep slopes of the Rocky Mountains and the Lewis and Clark National Forest rise ominously about 17 miles due west. The main fork of Muddy Creek passes along the north side of the community. Bynum Reservoir was created for irrigation purposes, supplying water to area farmers throughout the dry summers; however, the area is also used for recreational purposes including fishing and waterfowl hunting

Fire Potential

The rangeland fuels surrounding Bynum are predominantly made up of sparse native grasses and agricultural fields. There are very few shrubs and the only notable trees are those planted in residents' yards. Agriculture and ranching activities are scattered throughout the area resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Stubble fires seldom escape landowner's boundaries; however, there are a few incidents throughout the County each year. These fires are generally easily suppressed by modifying the vegetation and homes are rarely threatened.

Risk Assessment

Residents of Bynum have a low to moderate risk of experiencing a wildland fire due to the relatively flat topography, sparse vegetation surrounding most structures, and their nearby access to water resources. However, recreational and agricultural activities throughout the area increase the risk of a man-caused wildfire spreading to the community. Additionally, wildfires pushed out of the mountains by strong Chinook winds could potentially threaten the community. In the

event of wildfire, the dry, flashy fuels would likely support a very fast-moving rangeland fire. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

The Choteau Rural Volunteer Fire Company provides structural fire protection for most residents of Bynum; however, the Pendroy Rural Volunteer Fire Company picks up a few more remote structures north of the community.

Choteau

Choteau, the Teton County seat and largest community, is located in central Teton County at the junction of U.S. Highway 89 and U.S. Highway 287. The Teton River flows along the western edge of the community. Deep Creek, a major tributary of the Teton River, drains into the main channel just south of the Choteau city limits. Another small stream, Spring Creek, runs through town near the east side of U.S. 89; however, this creek remains dry throughout most of the year. While Fairfield is the agricultural hub of the county, Choteau is the commercial center. Most of the area's public buildings, service facilities, and privately-owned businesses reside in Choteau. The landscape surrounding the community is dominated by irrigated crops and livestock pasture.

Fire Potential

Fuels surrounding Choteau consist primarily of irrigated crop fields, CRP, and pasture with scattered remnants of native grasses. Agriculture and ranching activities dominate the landscape resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Agricultural fields currently managed under the Crop Reserve Program (CRP) burn very intensely due to increased amount of fuels, particularly dead grasses from previous years. Larger flame lengths and intense heat make fires in CRP fields difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

Build up of riparian vegetation in the creek and river bottoms creates a continuous fuel bed for wildfires to enter communities or housing developments. Fires that would otherwise be controlled as they neared developments could potentially be carried through communities by fuels in the riparian zones. These fires could potentially burn very intensely with large flame lengths due to the higher production of vegetation in the creek beds. Community clean-up projects targeting the creek and river bottoms could be beneficial from both fire safety and aesthetic standpoints.

Stubble fires escape landowner's boundaries relatively frequently in heavily developed agricultural areas. These fires are generally easily suppressed by modifying the surrounding vegetation with readily available farm equipment and homes are rarely threatened.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the

rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Risk Assessment

Residents of Choteau have a low to moderate risk of experiencing a wildland fire due to the extensive agricultural development and nearby water supply. However, recreational activities throughout the area increase the risk of a man-caused wildfire spreading to the community. Recently, a project was implemented that reduced the fuel buildup along Spring Creek within the Choteau city limits. Much of the dead and down or dying vegetation was removed from the riparian zone. This project reduced the fire risk by creating discontinuity within the burnable fuel complex around the community.

Under extreme weather conditions, escaped agricultural fires could potentially threaten individual homes or the townsite; however, this type of fire is usually quickly controlled. The Choteau area frequently experiences high winds, which generally increase the rate of fire spread and intensity of rangeland fires. It is imperative that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

Choteau City Volunteer Fire Department provides structural fire protection for structures within the Choteau city limits. The Choteau Rural Volunteer Fire Company provides structural fire protection for the greater Choteau area including structures within the Lewis and Clark National Forest.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

Designing a plan to help firefighters control CRP fires would significantly lessen the fire danger to the community. Pre-mitigation associated with this type of fire might include plowing a fire resistant buffer zone around fields and along pre-designed areas to tie into existing natural or manmade barriers or implementing a prescribed burning regimen during less risky seasons of the year.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

Collins

There are very few residents remaining in the immediate Collins area. Although there is an identified community center, most residents are larger landowners. Collins is located along the Burlington Northern railroad corridor on Collins Road about seven miles northwest of Dutton. The junction of Muddy Creek with the Teton River occurs about one mile east of the townsite, effectively sandwiching the community between the two drainages. Farming and ranching operations sustain the economy in this somewhat remote area.

Fire Potential

Fuels surrounding Collins consist primarily of sparse grasses, dryland CRP, or irrigated agricultural fields. There are very few low growing shrubs and the only trees that exist are ornamentals planted in residents' yards. Agriculture and ranching activities dominate the landscape, resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, railroad use, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Stubble fires escape landowner's boundaries relatively frequently; however, these fires are generally easily suppressed by modifying the vegetation and homes are rarely threatened.

Risk Assessment

Residents of Collins have a low to moderate risk of experiencing a wildland fire due to the relatively flat topography, sparse vegetation surrounding most structures, and the nearby access to water resources. However, agricultural activities throughout the area increase the risk of a man-caused wildfire spreading to the community. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

Dutton Rural Volunteer Fire Company provides structural fire protection for residents in the Collins area. They maintain a satellite station containing a brush truck in Collins to better serve residents in the area. During large fire events, local resident's often use their personal equipment to create fuel breaks in addition to equipment provided by the County Road Department. This does create some liability issues; however, this is often a necessary initial attach and suppression mechanism.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. "Living with Fire, A Guide for the Homeowner" is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

Dutton

The community of Dutton is located along Interstate 15 and the Burlington Northern railroad between Power and Brady. This area is mostly flat; however, Bosseler Ridge gains about 300 feet in elevation just south of town. Other than a few ephemeral coulees, there are no major water bodies within several miles of Dutton.

Fire Potential

Fuels surrounding Dutton consist primarily of irrigated crop fields, CRP, and pasture with scattered remnants of native grasses. Agriculture and ranching activities dominate the landscape resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths

due to the greater availability of fuels. Agricultural fields currently managed under the Crop Reserve Program (CRP) burn very intensely due to increased amount of fuels, particularly dead grasses from previous years. Larger flame lengths and intense heat make fires in CRP fields difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

Stubble fires escape landowner's boundaries relatively frequently in heavily developed agricultural areas. These fires are generally easily suppressed by modifying the surrounding vegetation with readily available farm equipment and homes are rarely threatened.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Risk Assessment

Residents of Dutton have a low to moderate risk of experiencing a wildland fire due to the relatively flat topography and relatively sparse vegetation surrounding most structures. However, agricultural activities throughout the area and heavy traffic on the Interstate increase the risk of a man-caused wildfire spreading to the community. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds.

Dutton City Volunteer Fire Department provides structural fire protection for structures within the Dutton city limits. The Dutton Rural Volunteer Fire Company provides structural fire protection for the greater Dutton area.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

Designing a plan to help firefighters control CRP fires would significantly lessen the fire danger to the community. Pre-mitigation associated with this type of fire might include disking a fire resistant buffer zone around fields or implementing a prescribed burning regimen during less risky seasons of the year.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

Fairfield and Greenfield

Fairfield and Greenfield are both located on what is known as “The Bench” in southeast Teton County. The Bench is actually a series of three flat benches (Greenfield Bench, Second Bench, and Third Bench) that have been extensively developed into heavily irrigated farm and pasture ground. A large percentage of Teton County’s population lives on the Bench.

Fairfield is the second largest community in Teton County and is located near the southwest corner of the Bench along U.S. Highway 89. Freezeout Lake and the Freezeout Lake Wildlife Management Area lie about one mile northwest of the community center. This area is well-known for its migratory bird populations. Greenfield is located about six miles northeast of Fairfield with the Greenfield Main Canal passing along its north side. Although there are still many residents in the Greenfield area, all that remains to designate the community center is a small school.

Fire Potential

Fuels surrounding Fairfield and Greenfield consist primarily of irrigated crop fields and pasture with scattered remnants of native grasses. Agriculture and ranching activities dominate the landscape and the economy resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Agricultural fields currently managed under the Crop Reserve Program (CRP) burn very intensely due to increased amount of fuels, particularly dead grasses from previous years. Larger flame lengths and intense heat make fires in CRP fields difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

The expansive landscape west of Fairfield and continuing towards the mountains is native rangelands. Fires in these areas have the potential to move extremely rapidly, but would likely burn at variable intensities.

Stubble fires escape landowner's boundaries relatively frequently on the Bench. These fires are generally easily suppressed by modifying the surrounding vegetation with readily available farm equipment and homes are rarely threatened.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Risk Assessment

Residents of Fairfield and Greenfield have a low risk of experiencing a wildland fire due to the extensive development of irrigated farming. However, there is a fairly high potential for escaped agricultural fires, which under extreme circumstances, may threaten structures. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by watering their yards or mowing grass and weeds. Additionally, the road system allows for prompt and straightforward access to firefighters and emergency response equipment.

The Fairfield City Volunteer Fire Department provides structural fire protection for residents within the Fairfield city limits. The Fairfield Rural Volunteer Fire Company provides structural fire protection for the greater Fairfield area including Greenfield and the western half of the Bench.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

Designing a plan to help firefighters control CRP fires would significantly lessen the fire danger to the community. Pre-mitigation associated with this type of fire might include disking a fire resistant buffer zone around fields or implementing a prescribed burning regimen during less risky seasons of the year.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

Mortimer Gulch and Surrounding Area

There are several leased USFS cabins and a few privately owned structures in the mountainous region near Gibson Reservoir on the Lewis and Clark National Forest. Most of these structures are located in Mortimer Gulch; however, there are also a few in Blacktail Gulch and Hannan Gulch on the north side of the Sun River drainage. This area is characterized by sheer cliff walls rising nearly vertically from narrow valleys. The thin soils on the lower slopes support a primarily Douglas-fir forest type; however, many of the ridge tops are solid rock void of any vegetation.

Fire Potential

Many of the structures in Mortimer Gulch and the surrounding area are bordered by a primarily Douglas-fir forest type. Many of these stands are unnaturally dense due to decades of fire suppression. The understory consists of an assortment of brush species and regeneration at variable stages of development. Greater amounts of fuel in combination with steep and rugged topography can result in a high intensity and unpredictable wildfire. Crowning, spotting, and torching of individual trees also makes direct attack suppression efforts difficult and dangerous for firefighters. These fire behavior characteristics are significantly enhanced by steep slopes and the potential for extreme weather conditions.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Human activities also have a high potential of causing an uncontrolled wildfire. Residential activities and intense recreational use present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. ATV's and pick-ups are used regularly for recreational purposes in the mountains. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Risk Assessment

Mortimer Gulch and the surrounding area have a high risk of experiencing a wildland fire due to its proximity to forest fuels. Natural ignitions within the Lewis and Clark National Forest could easily move into this area. High intensity recreational traffic throughout the area also increases the risk of a man-caused wildfire threatening the community. Additionally, many of the structures in this area are at higher risk due to factors such as nonfire-resistant siding and poor fire-conscious landscaping techniques.

Recently, a defensible space project was implemented in the Mortimer Gulch area. Widening roads and thinning and pruning trees and underbrush around participating structures increases their survivability during a wildfire event. However, many of the USFS leased cabins were not included in this project due to the legal ramifications of thinning on USFS property. Not only does this increase the risk to these structures, but it also increases the risk to neighboring structures that received treatment. In order to make this area less fire prone, all structures need to be assessed and appropriate defensible space treatments implemented.

Mortimer Gulch and the surrounding area are very remote and lack access to immediate fire protection. Response time for the Fairfield or Augusta Fire Companies or the USFS may be delayed due to the sheer distance. Also, the lack of alternative access routes limits the ability of firefighters to control a fire. In the event of wildfire, the forest fuels would likely support a higher intensity and potentially very fast-moving wildland fire. It is imperative that homeowners in this area implement fire mitigation measures to protect their structures and families prior to a wildfire event.

Teton County has an automatic mutual aid agreement set up with the Augusta Volunteer Fire Department in Lewis and Clark County to provide initial attack on structure fires in the Mortimer Gulch area. The Fairfield Rural Volunteer Fire Company also responds to structure fires in this area. The USFS provides wildland fire protection on the Lewis and Clark National Forest.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or pruning driveways and creating a turnaround area for large vehicles. As the sole access road, Forest Route 108 should be made as fire resistant as possible. This may include thinning and pruning vegetation within a reasonable distance from both sides of the road. An alternate escape route out of the area should be considered as part of this fire plan.

Continuing to expand the defensible space and hazardous fuels reduction project in this area would also help lessen the fire danger. Creating a defensible space around all structures would drastically increase the survivability of the structures as well as increase firefighter safety. Thinning, pruning, and removal of underbrush in the area between structures and Gibson Reservoir would slow the approach of forest fires and give firefighters a place to tie their operations into. Therefore, more effectively control the blaze.

Providing more immediate response to emergencies could save structures and lives in the event of wildland fire. Having a fire truck or other equipment parked near Mortimer Gulch would

allow initial attack procedures to begin before additional firefighting personnel could arrive. Trained personnel to operate the equipment is also imperative.

New Rockport Colony, Rockport Colony, and Miller Colony

New Rockport, Rockport Colony, and Miller Colony are Hutterite religious colonies. New Rockport is located approximately six miles east of Farmington on the northern bank of the Teton River. Rockport is a more remote community located in the northwest corner of the County east of Pendroy. Miller Colony lies just west of U.S. 89 between Bynum and Choteau. Hutterian communes typically rely on agriculture, livestock, and small manufacturing operations for their livelihood. The New Rockport, Rockport, and Miller Colonies manage vast expanses of farmland surrounding the community centers, which New Rockport and Miller Colony irrigate with water from the Teton River. Residents live in a group of large housing facilities; thus, limiting the amount of structures.

Fire Potential

There is very little native fuels remaining near these colonies due to the efficient development of crop fields. Additionally, all structures, including housing, are surrounded by river rock, gravel, or groomed lawns making them well buffered from wildfire. During the spring and summer some unharvested fields may be at risk to loss by fire; however, very few, if any, structures would be threatened.

Although lightning events are common in Teton County, residents of the New Rockport, Rockport, and Miller Colonies are more prone to man-caused ignitions than lightning strikes. Residential activities, particularly the daily use of farm and manufacturing machinery, presents innumerable ignition sources. Debris burning and roadway fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry rangeland vegetation or farm fields.

Risk Assessment

Residents of New Rockport, Rockport, and Miller Colonies have a low risk of wildland fire due to the lack of vegetation immediately surrounding structures and the agricultural development. Rockport Colony may have a slightly elevated risk due to the abundance of native rangeland fuels in the surrounding area and their closer proximity to timber type fuels on the Lewis and Clark National Forest. Since there is only one main access point to the New Rockport Colony, emergency evacuation and initial response may be difficult. The lack of a safe alternate escape route heightens the risk to residents in the event that a wildfire threatens the community.

Structural protection for the New Rockport Colony and the Miller Colony is provided by Choteau Rural Volunteer Fire Company, whom maintains a satellite station New Rockport Colony. New Rockport has converted a truck to handle wildland fire suppression activities and several colonists are members of the Choteau Rural Volunteer Fire Company. Rockport Colony structures are protected by the Pendroy Rural Volunteer Fire Company.

Potential Mitigation Activities

Wildfire within the Hutterite colonies has been effectively mitigated by limiting the number of at-risk structures and by inhibiting the growth of natural vegetation around community structures.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation. It is also important that alternative escape routes be developed, maintained, and signed for emergency use.

Pendroy

Pendroy is a small community located in north central Teton County near the junction of U.S. Highway 89 and State Route 219. There are several homeowners residing within the town of Pendroy; however, many residents are larger landowners scattered throughout the nearby rangelands. Ranching is the economic base in this part of the Teton County.

Fire Potential

Fuels surrounding Pendroy consist primarily of sparse grasses or pasture. There are very few low growing shrubs and the only trees that exist are ornamentals planted in residents' yards. Ranching activities dominate the landscape, resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for ranching purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Risk Assessment

Residents of Pendroy have a low risk of experiencing a wildland fire due to the lack of vegetation surrounding most structures. Nevertheless, this area experiences frequent high winds, which generally increases the rate of fire spread and intensity of rangeland fires. Most homeowners maintain an adequate defensible space around structures. The lack of a readily

available water source during the summer fire season may reduce the ability of fire suppression services to effectively fight a wildland fire.

Residents of Pendroy and the surrounding area are protected by the Pendroy Rural Volunteer Fire Company.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

Power

The small community of Power is located just off the west side of Interstate 15 between Dutton and Vaughn. The Muddy Creek drainage flows about one mile west of the townsite. The immediate area surrounding Power is relatively flat with only a few shallow creek beds and coulees. Power is not as extensively irrigated as the Bench; however, agriculture and ranching activities dominate much of the landscape.

Fire Potential

Fuels surrounding Power consist primarily of native grasslands mixed with dryland crop fields, CRP, and pasture. Agriculture and ranching activities are scattered throughout the area resulting in a discontinuous pattern of native fuels. A wind-driven fire in the dry native fuel complexes would produce a rapidly advancing, but variable intensity fire. Fires burning in some types of unharvested fields would be expected to burn more intensely with larger flame lengths due to the greater availability of fuels. Agricultural fields currently managed under the Crop Reserve Program (CRP) burn very intensely due to an increased amount of fuels, particularly dead grasses from previous years. Larger flame lengths and intense heat make fires in CRP fields difficult to control. Under extreme weather conditions, particularly high winds, there is a high potential for a rapidly advancing rangeland fire. Nevertheless, many homeowners maintain groomed yards or are surrounded by agricultural fields; thus, decreasing the risk of a wildland fire threatening structures. Grazing around homes and communities helps decrease build up of fine fuel loads. Livestock grazing can be an effective tool to reduce the primary fuel load component of the arid rangeland ecosystem.

Lightning events are particularly common in the mountainous regions on the west side of Teton County. Fires started by strikes in the higher elevations are commonly pushed eastward into the rangelands by the Chinook winds common along the Rocky Mountain Front. Human activities also have a high potential of causing an uncontrolled wildfire. Agricultural and recreational uses present innumerable ignition sources. Debris burning, discarded cigarettes, children playing with matches, fireworks, roadway fires, railroad use, and camp fires are just a few of the countless potential human ignition sources in the area.

Vehicle use on- and off-road is also a significant source of ignitions. Not only do sparks from vehicles ignite fuels along roadways, but fires may also be started by vehicles driving through dry fields or on unimproved trails. Farm equipment, ATV's, and pick ups are used regularly for farming purposes and recreational operations. Public transmission lines in the area also add to potential ignition sources. Sparks from downed lines or arcing during extreme weather conditions could easily ignite dry fuels below.

Stubble fires escape landowner's boundaries relatively frequently in heavily developed agricultural areas. These fires are generally easily suppressed by modifying the surrounding vegetation with readily available farm equipment and homes are rarely threatened. An abundance of CRP around Power has not only increased the fire risk, but it has also made escaped agricultural fires more difficult to control.

Risk Assessment

Residents of Power have a moderate risk of experiencing a wildland fire due to the relatively flat topography, agricultural development, and relatively sparse vegetation surrounding most structures. Agricultural activities throughout the area and heavy traffic on the Interstate increase the risk of a man-caused fires spreading to the community. Uncontrolled wildfires in fields currently enrolled in the Crop Reserve Program (CRP) have repeatedly threatened Power. These fires burn very intensely with large flame lengths due to an increased availability of fuels. Under the influence of high winds, these fires move very quickly and are difficult to control. It is important that homeowners implement fire mitigation measures to protect their structures and families prior to a wildfire event. Most homeowners maintain an adequate defensible space around structures by mowing grass and weeds; however, due to the lack of water, yards are usually dry throughout the late summer months.

Residents of Power and the surrounding area are protected by the Power Rural Volunteer Fire Company.

Potential Mitigation Activities

Effective mitigation strategies begin with public awareness campaigns designed to educate homeowners of the risks associated with living in a flammable environment. Residents of Teton County must be made aware that home defensibility starts with the home. Once a fire has started and is moving toward homes or other valued resources, the probability of that structure surviving is largely dependent on the structural and landscaping characteristics of the home. “Living with Fire, A Guide for the Homeowner” is an excellent tool for educating homeowners as to the steps to take in order to create an effective defensible space.

Also of vital importance is the accessibility of the home to emergency apparatus. If the home cannot be protected safely, firefighters will not jeopardize lives to protect a structure. Thus, the fate of the home will largely be determined by homeowner actions prior to the event. In many cases, homes' survivability can be greatly enhanced by following a few simple guidelines to

increase accessibility such as widening or mowing driveways and creating a turnaround area for large vehicles.

Designing a plan to help firefighters control CRP fires would significantly lessen the fire danger to the community. Pre-mitigation associated with this type of fire might include disking a fire resistant buffer zone around fields or implementing a prescribed burning regimen during less risky seasons of the year.

Maintaining developed drafting sites and mapping alternative water resources such as underground tanks near the community will increase the effectiveness and efficiency of emergency response in a wildfire situation.

[This page intentionally left blank.]

Chapter 6

Mitigation Recommendations

Critical to implementation of this Community Wildfire Protection Plan are the identification and implementation of an integrated schedule of action items targeted at achieving a reduction in the number of human caused fires and the impact of wildland fires in Teton County. This section of the plan identifies and prioritizes potential mitigation actions, including treatments that can be implemented in the county to pursue that goal. As there are many land management agencies and thousands of private landowners in Teton County, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across various ownerships.

The federal land management agencies in Teton County, specifically the USFS and BLM, are participants in this planning process and have contributed to its development. Where available, their schedule of land treatments have been considered in this planning process to better facilitate a correlation between their identified planning efforts and the efforts of Teton County.

Teton County encourages the building of disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

All risk assessments were made based on the conditions existing during 2010. Therefore, the recommendations in this section have been made in light of those conditions. However, the components of risk and the preparedness of the county's resources are not static. It will be necessary to fine-tune this plan's recommendations regularly to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

Maintenance and Monitoring

As part of the policy of Teton County, the Community Wildfire Protection Plan will be reviewed at least annually at special meetings of the planning committee, open to the public and involving all municipalities/jurisdictions, where action items, priorities, budgets, and modifications can be made or confirmed. A written review of the plan should be prepared (or arranged) by the Teton County Fire Chief, detailing plans for the year's activities, and made available to the general public ahead of the meeting (in accord with the Montana Open Public Meeting Laws). Amendments to the plan should be detailed at this meeting, documented, and attached to the formal plan as an amendment. Re-evaluation of this plan should be made on the 5th anniversary of its acceptance, and every 5-year period following.

Prioritization of Mitigation Activities

The action items recommended in this chapter were prioritized through a group discussion and voting process. The action items in Tables 6.1 – 6.5 are ranked as "High", "Moderate", or "Low" priorities for Teton County as a whole. The CWPP committee does not want to restrict funding to only those projects that are high priority because what may be a high priority for a

specific community may not be a high priority at the county level. Regardless, the project may be just what the community needs to mitigate disaster. The flexibility to fund a variety of diverse projects based on varying criteria is a necessity for a functional mitigation program at the county and community level.

Policy and Planning Efforts

Wildfire mitigation efforts must be supported by a set of policies and regulations at the county level that maintain a solid foundation for safety and consistency. The recommendations enumerated here serve that purpose. These recommendations are policy related and therefore are recommendations to the appropriate elected officials; debate and formulation of alternatives will serve to make these recommendations suitable and appropriate.

Table 6.1. Action Items for Policy and Planning.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline	2010 Status
6.1.a: Improve rural signage such as road markers throughout the county.	**CWPP Goal #2 and 4** Priority Ranking: High	**Lead:** Teton County Fire Chief **Support:**	Annual	Ongoing
6.1.b: Develop County policy to provide information concerning building materials used in high-risk WUI areas.	**CWPP Goal #1, 2, 3, 4, and 6** Priority Ranking: High	**Lead:** Teton County Commissioners **Support:** Teton County Fire Chief	Annual	Ongoing
6.1.c: Continue to inspect and enforce regulations regarding access and water supply standards in new subdivisions and individual residences.	**CWPP Goal #1, 2, 3, 4, and 6** Priority Ranking: High	**Lead:** Teton County Planning **Support:**	Annual	Ongoing
6.1.d: Improve emergency dispatch system by implementing a rigorous annual training program for dispatchers and first responders.	**CWPP Goal #2 and 4** Priority Ranking: High	**Lead:** Teton County Sheriff's Office **Support:** Teton County Disaster and Emergency Services	Annual	Ongoing
6.1.e: Continue to support prescribed burning in the Blackleaf area as a method to improve wildlife habitat and reduce wildland fire risk.	**CWPP Goal #1, 2, 4, and 6** Priority Ranking: Moderate	**Lead:** Montana FWP, Montana DNRC, and USFS **Support:** Teton County Commissioners and Fire Chief	5 years	New project

Since the original document was written in 2005, Teton County has completed two of its original "Safety and Policy" action items including:

1. Teton County has developed a policy to support grant applications resulting from projects and action items proposed in the Community Wildfire Protection Plan.

2. Teton County has established its CWPP planning committee as a WUI advisory committee for the Board of Commissioners.

Fire Prevention and Education Projects

The protection of people and structures will be tied together closely because the loss of life in the event of a wildland fire is generally linked to a person who could not, or did not, flee a structure threatened by a wildfire or to a firefighter combating that fire. Many of the recommendations in this section involve education and increasing wildfire awareness among Teton County residents.

Residents and policy makers of Teton County should recognize certain factors that exist today, the absence of which would lead to increased risk of wildland fires in Teton County. The items listed below should be acknowledged and recognized for their contributions to the reduction of wildland fire risks:

Livestock Grazing in and around the communities of Teton County has led to a reduction of many of the fine fuels that would have been found historically. Domestic livestock not only eat these grasses, forbs, and shrubs, but also trample certain fuels to the ground where decomposition rates may increase. Livestock ranchers tend their stock, placing resource professionals into the forests and rangelands of the area where they may observe ignitions, or potentially risky activities. There are ample opportunities throughout the county to increase grazing. This could contribute to the economic output of the county as well as reduce the fuel loading. Livestock grazing in this region should be encouraged into the future as a low cost, positive tool for wildfire mitigation in Teton County.

Forest Health in Teton County has been affected greatly by the reduction of operating sawmills and the bark beetle epidemic in the region. However, the active forest management programs of the USFS, Montana DNRC, and many of the private and industrial forestland owners in the region has led to a significant reduction of wildland fuels where they are closest to homes and infrastructure. In addition, forest resource professionals managing these lands are generally trained in wildfire suppression and recognize risk factors when they occur.

Agriculture is a significant component of Teton County's economy. The original conversion of native rangelands to agriculture was targeted at the most productive soils and juxtaposition to water and infrastructure. Many of these productive ecosystems were consequently also at some of the highest risk to wildland fires because of increased biomass accumulations. The result today, is that much of the rangeland historically prone to frequent fires, has been converted to agriculture, which is at a much lower fire risk. The preservation of a viable agricultural economy in Teton County is integral to the continued management of wildland fire risk in this region.

Table 6.2. Action Items for Fire Prevention and Education.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline	2010 Status
6.2.a: Continue to develop youth and adult wildfire education programs.	**CWPP Goal #1, 2, 3, and 4** Priority Ranking: High	**Lead:** Teton County Fire Chief and Rural Volunteer Fire Companies **Support:** Montana DNRC and USFS	Annual	Ongoing
6.2.b: Continue to develop a program to conduct homesite risk assessments countywide.	**CWPP Goal #2, 3, 4, and 5** Priority Ranking: High	**Lead:** Teton County Fire Chief and Rural Volunteer Fire Companies **Support:** Montana DNRC and USFS	Annual	Ongoing
6.2.c: Educate landowners regarding maintenance of previously completed hazardous fuels reduction projects in high wildfire risk areas.	**CWPP Goal #1, 2, 3, and 4** Priority Ranking: Moderate	**Lead:** Teton County Fire Chief and Rural Volunteer Fire Companies **Support:** Montana DNRC and USFS	Annual	New project
6.2.d: Promote individual landowner responsibility for wildland fire pre-planning and protection throughout the County through existing cooperative education programs.	**CWPP Goal #1, 2, 3, 4, and 6** Priority Ranking: High	**Lead:** Teton County Planning **Support:** Montana DNRC, USFS, Teton County Fire Chief, and Rural Volunteer Fire Companies	Annual	New project

Since the original document was written in 2005, Teton County has completed one of its original "Prevention and Education" action items including:

1. Teton County provides an annual "Farmers on Fire" training workshop to local landowners.

Infrastructure Enhancements

Critical infrastructure refers to the communications, transportation (road and rail networks), energy transport supply systems (gas and power lines), and water supply that service a region or a surrounding area. All of these components are important to northern Montana and to Teton County specifically. These networks are, by definition, a part of the wildland-urban interface in the protection of people, structures, infrastructure, and unique ecosystems. Without supporting infrastructure, a community's structures may be protected, but the economy and way of life lost. As such, a variety of components will be considered here in terms of management philosophy, potential policy recommendations, and mitigation recommendations.

Table 6.3. Action Items for Infrastructure Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline	2010 Status
6.3.a: Develop better overall access by improving substandard bridges, cattle guards, and limiting road surfaces throughout the County.	**CWPP Goal #2 and 4** Priority Ranking: High	**Lead:** Teton County Road Department **Support:** Teton County Commissioners	Annual	Ongoing
6.3.b: Continue to work on countywide inventory of critical transportation infrastructure components including bridges, culverts, etc.	**CWPP Goal #2, 4, and 6** Priority Ranking: High	**Lead:** Teton County Road Department **Support:** Teton County Commissioners	Annual	New project
6.3.c: Continue to work with the Burlington Northern Santa Fe Railroad on reducing ignitions along the rail line, public education programs, and identification of critical crossings for emergency access.	**CWPP Goal #1, 2, 4, and 6** Priority Ranking: High	**Lead:** Teton County Fire Chief **Support:** Teton County Disaster and Emergency Services	Annual	New project
6.3.d: Continue to help facilitate defensible space projects around critical infrastructure components including, but not limited to, power lines, railroads, and communication towers.	**CWPP Goal #1, 2, 4, and 5** Priority Ranking: High	**Lead:** Teton County Fire Chief **Support:** Montana DNRC and USFS	Annual	New project

Resource and Capability Enhancements

There are a number of resource and capability enhancements identified by the rural and wildland firefighting districts in Teton County. All of the needs identified by the districts are in line with increasing the ability to respond to emergencies and are fully supported by the Community Wildfire Protection Plan committee.

Specific repeated themes of needed resources and capabilities include:

- Retention and recruitment of volunteers
- Training and development of rural fire fighters in structure and wildland fire
- Development of water drafting sites in rural locations
- Improve radio capabilities

Although additional and specific needs were enumerated by the districts in Teton County, these items were identified by multiple districts and at the public meetings. The implementation of each issue will rely on either the isolated efforts of the rural fire districts or a concerted effort by the county to achieve equitable enhancements across all of the districts. Given historic trends, individual departments competing against neighboring departments for grant monies and equipment will not necessarily achieve countywide equity. However, the Teton County Fire

Chief is available to work with all of the districts in Teton County and adjacent counties to assist in the prioritization of needs across district and even county lines.

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline	2010 Status
6.4.a: Continue to enhance radio availability in each district and improve range within the region.	**CWPP Goal #2, 4, and 6** Priority Ranking: Moderate	**Lead:** Teton County Fire Chief **Support:** Teton County Disaster and Emergency Services	2013	Ongoing
6.4.b: Develop programs, such as retirement options, to improve retention of volunteer firefighters.	**CWPP Goal #2 and 4** Priority Ranking: High	**Lead:** Rural Volunteer Fire Companies **Support:** Teton County Fire Chief	Annual	Ongoing
6.4.c: Continue to improve training program and capabilities of firefighters.	**CWPP Goal #2, 3, and 4** Priority Ranking: High	**Lead:** Rural Volunteer Fire Companies **Support:** Teton County Fire Chief and DNRC	Annual	Ongoing
6.4.d: Obtain funding to update PPE, hand tools, SCBAs, portable radios, and other miscellaneous equipment for city and rural fire departments.	**CWPP Goal #2 and 4** Priority Ranking: High	**Lead:** Rural Volunteer Fire Companies **Support:** Teton County Fire Chief and Montana DNRC	Annual	Ongoing
6.4.e: Establish onsite water sources such as dry hydrants or underground storage tanks for rural housing developments.	**CWPP Goal #1, 2, 4, and 6** Priority Ranking: High	**Lead:** Rural Volunteer Fire Companies **Support:** Teton County Fire Chief and Montana DNRC	Annual	Ongoing
6.4.f: Obtain funding to purchase a 3,000 gallon water tender for the Choteau Rural Volunteer Fire Company.	**CWPP Goal #1, 2, and 4** Priority Ranking: Moderate	**Lead:** Choteau Rural Volunteer Fire Company **Support:** Teton County Fire Chief	3 years	Deferred due to lack of funding
6.4.g: Obtain funding to build a rural fire station in the Sun River canyon.	**CWPP Goal #1, 2, and 4** Priority Ranking: Moderate	**Lead:** Fairfield Rural Volunteer Fire Company **Support:** Teton County Fire Chief	5 years	New project

Table 6.4. Action Items for Resource and Capability Enhancements.

Action Item	Goals Addressed (see page 4)	Responsible Organization	Timeline	2010 Status
6.4.h: Obtain funding to purchase a compressed air foam system for the Choteau Rural Volunteer Fire Company.	**CWPP Goal #1, 2, and 4** Priority Ranking: Low	**Lead:** Choteau Rural Volunteer Fire Company **Support:** Teton County Fire Chief	8 years	Deferred due to lack of funding
6.4.i: Improve communications throughout the County by purchasing portable repeaters for emergency response personnel.	**CWPP Goal #2 and 4** Priority Ranking: High	**Lead:** Rural Volunteer Fire Companies **Support:** Teton County Fire Chief	5 years	Deferred due to lack of funding
6.4.j: Obtain funding to purchase additional vehicle extrication equipment for the Choteau Rural Volunteer Fire Company.	**CWPP Goal #2 and 4** Priority Ranking: Low	**Lead:** Choteau Rural Volunteer Fire Company **Support:** Teton County Fire Chief	5 years	New project
6.4.k: Obtain funding to purchase a Type 1 engine for the Pendroy Rural Volunteer Fire Company.	**CWPP Goal #1, 2, and 4** Priority Ranking: High	**Lead:** Pendroy and Fairfield Rural Volunteer Fire Companies **Support:** Teton County Fire Chief	3 years	Deferred due to lack of funding
6.4.l: Obtain funding to purchase a Type 1 engine for the Fairfield Rural Volunteer Fire Company.	**CWPP Goal #1, 2, and 4** Priority Ranking: Moderate	**Lead:** Pendroy and Fairfield Rural Volunteer Fire Companies **Support:** Teton County Fire Chief	5 years	Deferred due to lack of funding

Since the original document was written in 2005, Teton County has completed many of its original "Resource and Capability Enhancements" action items including:

1. The Choteau Rural Volunteer Fire Company updated one of its brush trucks and is in the process of building a new fire hall.
2. The Dutton Rural Volunteer Fire Company updated personal protective equipment and SCBAs for its fire fighters and made some improvements to its 1979 command vehicle. They also purchased a tender and a Type 6 engine.
3. The Fairfield Rural Volunteer Fire Company updated its water tender and purchased a Type 6 engine. They are also currently constructing a new fire hall.
4. The Pendroy Rural Volunteer Fire Company completed an addition to its fire hall and updated its water tender. They also purchased a Type 6 engine.
5. The Power Rural Volunteer Fire Company updated its water tender and one of its brush trucks. The are also working on building an addition to their fire hall

Proposed Project Areas

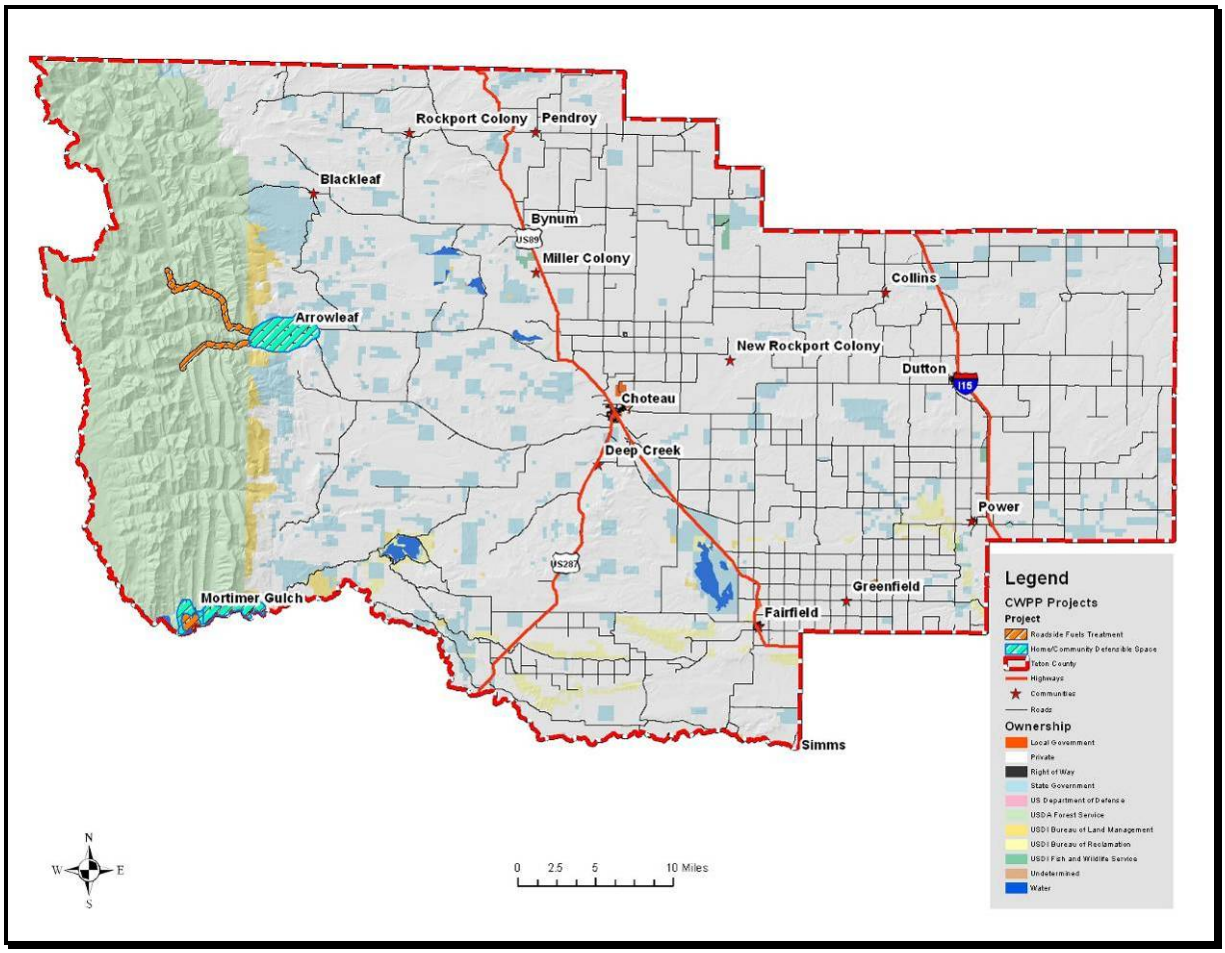
The following project areas were identified by the CWPP planning committee as having multiple factors contributing to the potential wildfire risk to residents, homes, infrastructure, and the ecosystem. Treatments within the project areas will be site specific, but will likely include homeowner education, creation of a wildfire defensible space around structures, forest health improvement, fuels reduction, and access corridor improvements. All work on private property will be performed with consent of, and in cooperation with the property owners. Specific site conditions may call for other types of fuels reduction and fire mitigation techniques as well. Defensible space projects may include, but are not limited to commercial or precommercial thinning, pruning, brush removal, chipping, prescribed burning, installation of greenbelts or shaded fuel breaks, and general forest health improvements.

Table 6.5. Proposed Project Areas.

Project Name	Project Type CWPP Goals #1, 2, 4, 5, and 6	# of Acres	# of Structures	Miles of Road	Priority Ranking
Mortimer Gulch	Hazardous Fuels Treatment/Defensible Space	1,031	15	-	High
Arrowleaf	Hazardous Fuels Treatment/Defensible Space	5,057	71	-	High
Forest Route 108	Roadside Fuels Treatment	666	26	3.3	High
USFS WUI Area	Hazardous Fuels Treatment/Forest Health Improvement	51,279	29	19.6	High
Forest Route 109	Roadside Fuels Treatment	1,302	0	5.1	High
Forest Route 144	Roadside Fuels Treatment	2,128	3	8.8	High
Sun River	Hazardous Fuels Treatment/Defensible Space	1,821	10	-	Moderate
BLM WUI Area	Hazardous Fuels Treatment/Forest and Rangeland Health Improvement	13,438	1	.1	High
State of Montana WUI Area	Hazardous Fuels Treatment/Forest and Rangeland Health Improvement	15,866	2	6.6	High

The Montana DNRC; Montana FWP; BLM; USFS; and/or individual fire protection districts may take the lead on implementation of many of these projects; however, project boundaries were purposely drawn without regard to land ownership in order to capture the full breadth of the potential wildland fire risk. Coordination and participation by numerous landowners will be required for the successful implementation of the identified projects.

Figure 6.1. Map of Proposed Projects



Regional Land Management Recommendations

Wildfires will continue to ignite and burn depending on the weather conditions and other factors enumerated earlier. However, active land management that modifies fuels, promotes healthy forestland conditions, and promotes the use of natural resources (consumptive and non-consumptive) will ensure that these lands have value to society and the local region. The Montana DNRC, USFS, industrial forestland owners, private forestland owners, and all agricultural landowners in the region should be encouraged to actively manage their wildland-urban interface lands in a manner consistent with reducing fuels and risks in this zone.

Conservation Reserve Program

Since the 2005 CWPP was written, the number of Conservation Reserve Program (CRP) acres has been reduced due to the expiration of contracts and strong wheat prices. However, large expanses of CRP remain a prominent issue for all fire departments and emergency personnel in Teton County. Due to the lack of management on CRP, a dense mat of highly flammable fuels builds up as the fields sit in fallow year after year. Fires in these fuels burn at very high intensities with large flame lengths, particularly under the influence of the strong winds common in Teton County. Once ignited, CRP fires can burn very rapidly, jumping roads and other barriers that would normally inhibit a natural range or grass fire. In the recent past, uncontrolled CRP

fires have burned hundreds of acres and threatened countless homes and critical infrastructure such as main highways and power poles in Montana.

It is the recommendation of this plan that Teton County enacts a policy defining an active management plan for fire hazard fuel reduction on Conservation Reserve Program lands in proximity of structures. This plan should be based on a three year rotation where a certain number of acres are treated each year. Potential treatment options may include, but are not limited to, grazing, haying, prescribed fire, and/or tilling. Teton County believes active management will reduce the fire risk associated with these fuels and cut down on the number of CRP fires responded to each year. This is especially critical on those acres adjacent to homes, businesses, and critical infrastructure.

Chapter 7

Supporting Information

List of Tables

List of Figures

Signature Pages

This Teton County Community Wildfire Protection Plan has been developed in cooperation and collaboration with representatives of the following organizations and agencies.

Teton County Board of Commissioners

Resolution of the Commissioners of Teton County, Montana
2011-19

A resolution of the Teton County Board of Commissioners declaring county support and adoption of the updated Teton County Community Wildfire Protection Plan (2011 Revision).

Whereas, the Teton County Board of Commissioners supports the updated Teton County Community Wildfire Protection Plan and

Whereas, the updated Teton County Community Wildfire Protection Plan will be utilized as a guide for planning as related to the National Fire Plan, the Healthy Forest Restoration Act, and other purposes as deemed appropriate.

Therefore be it resolved, that the Teton County Board of Commissioners do hereby adopt, support, and will facilitate implementation of the updated Teton County Community Wildfire Protection Plan.

Passed and approved this 2nd Day of June, 2011

Board of County Commissioners
Teton County, Montana

By: Arnie Gettel - Chairman
Board of County Commissioners

By: Jim Hodgskiss – Vice Chairman
Board of County Commissioners

By: Joe Dellwo
Board of County Commissioners

Attested by: Paula Jaconetty
Clerk and Recorder

Signatures of Participation by Teton County Fire Districts and Departments

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

Sherwin K. Smith, Asst. Chief — 6/14/11

By: Gary Betcher, Chief
Choteau Rural Volunteer Fire Company — Date

Ben Rhodes Chief — 8/24/11

By: Ben Rhodes, Chief
Fairfield Rural Volunteer Fire Company — Date

8-24-11

By: Chad Coffman, Chief
Dutton Rural Volunteer Fire Company — Date

6/13/11

By: Erik Somerfeld, Chief
Power Rural Volunteer Fire Company — Date

8-31-11

By: Jon Stolz, Chief
Pendroy Rural Volunteer Fire Company — Date

Signatures of Participation by other Teton County Entities

This Community Wildfire Protection Plan and all of its components identified herein were developed in close cooperation with the participating entities listed.

By: Erik Eneboe
Montana Department of Natural Resources and Conservation

Date: 7/14/11

By:
Lewis and Clark National Forest, Rocky Mountain Ranger District

Date: 10/4/2011

By: Joe Zahara, Chief
Teton County Fire and Rescue

Date: 7/13/11

By:
Montana Fish, Wildlife, and Parks

Date: 8/31/2011

By: Gary "Stan" Benes, Central Montana District Manager
Bureau of Land Management

Date: August 15, 2011

By: Tera King, Project Manager
Northwest Management, Inc.

Date: July 14th, 2011

[This page intentionally left blank.]

This plan was developed by Northwest Management, Inc. under contract with Teton County. Funding for the project was provided by the Board of County Commissioners from the Title III Secure Rural Schools program.

Citation of this work:

King, Tera R. and V. Bloch. *Lead Authors.* Teton County, Montana Community Wildfire Protection Plan. 2011 Revision. Northwest Management, Inc., Moscow, Montana. 2011. Pp 93.

King, Tera R. and V. Bloch. *Lead Authors.* Teton County, Montana Community Wildfire Protection Plan. 2011 Revision. Northwest Management, Inc., Moscow, Montana. 2011. Pp 49.

Northwest Management, Inc.
233 East Palouse River Drive
PO Box 9748
Moscow ID 83843

208-883-4488 Telephone
208-883-1098 Fax
NWManage@consulting-foresters.com
http://www.Consulting-Foresters.com/