BIG HORN COUNTY MOUNTAIN

Community Wildfire Protection Plan

March 31, 2005

Big Horn County

This plan developed by the Big Horn County CWPP Operating Group in cooperation with:

Technical Forestry Services
603 Greybull Avenue
Greybull, Wyoming 82426

Table of Contents

Section **Page**

LIST OF FIGURES

LIST OF TABLES

Acknowlegements

The development of this plan relied on efforts from the following individuals: Richard Fink, Keith Grant, Don Russell, Bill Duncan, Paul Morency, Jim Webster, Brent Godfrey, Jay Kurth, LJ Brown, Tom Gonnoud, Dave Sisk, Marvin Hunt, Ken Mazur, Joshua Amend, Jennifer Karstner, Jack Lindsey, Jack Clucas, Aaron Maier, Jim Waller, Warren Roberts, David Anderson, and Tom Easterly.

1.0 Executive Summary

Big Horn County, Wyoming government agencies, businesses, and communities are concerned about severe wildfire threatening people, structures, natural resources, wildlife habitat, and critical infrastructure. This document addresses the "at-risk" communities and the associated "wildland-urban interface" (WUI) located in the mountain areas of Big Horn County. The WUI is commonly described as the zone where structures and other features of human development meet and intermingle with undeveloped wildland or vegetative fuels.

The purpose of this document, which is entitled *the Big Horn County Mountain Community Wildfire Protection Plan* (BHCWPP), is to identify at-risk communities, prioritize these communities on the basis of fire risk, and make recommendations for reducing the chances of catastrophic fire threatening these communities. This document will help coordinate activities across jurisdictions and ownerships through the CWPP process **before** an emergency occurs in order to reduce the chance of loss of life, and damage to infrastructure, homes, and natural resources as a result of unforeseen and catastrophic wildfire. The BHCWPP further addresses a need for the restoration of fire-adapted ecosystems and improved forest and rangeland health.

Using the CWPP guidelines, an Operating Group was formed and made up of local governments, local firefighting authorities, and State, county, municipal, and federal agencies. The BHCWPP has been developed through the collaborative efforts of this group.

This Operating Group has completed the following activities to date:

- On–site home evaluations of mountain cabins to assess structure ignitability (defined by the characteristics of a structure's materials and design as well as the flammability of the surrounding area);
- Forest and range vegetation and fuels inventories within at-risk community boundaries;
- Use of Geographic Information Systems (GIS) technologies to analyze aerial photographs of the assessment area;
- Development of a working base map of the overall assessment area.

- Analysis of road access and water supplies;
- Analysis of local firefighting capabilities and emergency response times; and
- Analysis of the occurrence of historical fires including size and cause

This information was then used to rank each community within the WUI areas of the assessment area as low-, moderate-, and high-fire risk.

Recommendations for reducing the risk of devastating fire were then developed. Recommendations include the following activities:

Public outreach

- Develop education programs for cabin owners;
- Gather and distribute forest health, insect and disease, and defensible space information to the public;
- Form community Firewise action groups;
- Involve utility (power and pipeline) companies; and
- The Bighorn National Forest should develop an outreach program designed to educate cabin leaseholders on acceptable mitigation practices acceptable for creating defensible space around structures.

Training

- Institute an aggressive training program in wildland firefighting principles geared toward city fire departments and fire protection districts throughout the Big Horn Basin.

Fire reporting

- Coordinate with the State Fire Marshall's Office to establish a better system for reporting and cataloguing fires; and
- Develop a signage system identifying structures to emergency response personnel.

Fire response

- Analyze emergency vehicle ingress and egress capability within cabin group areas;
    - Can a water tender access areas without ready water supplies?
- Explore the potential benefits of creating a fire protection district for Greybull and/or Shell; and
- Analyze emergency equipment and firefighting infrastructure needs within the County.

Fire suppression

- Identify locations for "dry" hydrants or other water sources in areas without readily available water supplies.

Fuels treatments

- Develop shaded fuel breaks, conduct pre-commercial thinning (pct), and schedule timber harvests;
- Conduct prescribed burns; and
- Contact power companies about cost share assistance on fuels treatment projects.

Planning and Zoning

- Develop planning requirements for new home construction in the WUI.

Municipal Water Supply

- Form an "Action Group" to study soil erosion issues following insect outbreak/timber harvest in Shell Canyon; and
- Look at aquifer entry point near Spanish Point and mitigation practices for preventing soil flow.

2.0 Introduction

The Big Horn County Mountain Community Wildfire Protection Plan (BHCWPP) is an analysis of the threat of wildfire to mountain communities in Big Horn County, Wyoming (see Figure 2-1). The purpose of the BHCWPP is to identify at-risk communities and evaluate and classify those communities on the basis of overall risk of catastrophic fire destroying structures, natural resources, wildlife habitat, critical infrastructure, including loss of life. Applying a collaborative process, at-risk communities were identified then prioritized, based on a cumulative risk analysis, in order of need to initiate fuels reduction treatments to reduce fire risk.

The Healthy Forests Restoration Act of 2003 (HFRA) legislation established incentives for communities to develop comprehensive wildfire protection plans in collaboration with local governments, local firefighting authorities, and State, county, municipal, and federal agencies. Furthermore, this legislation gives direction to the Department of the Interior and Department of Agriculture to address community priorities for fuel reduction treatments on federal and non-federal lands.

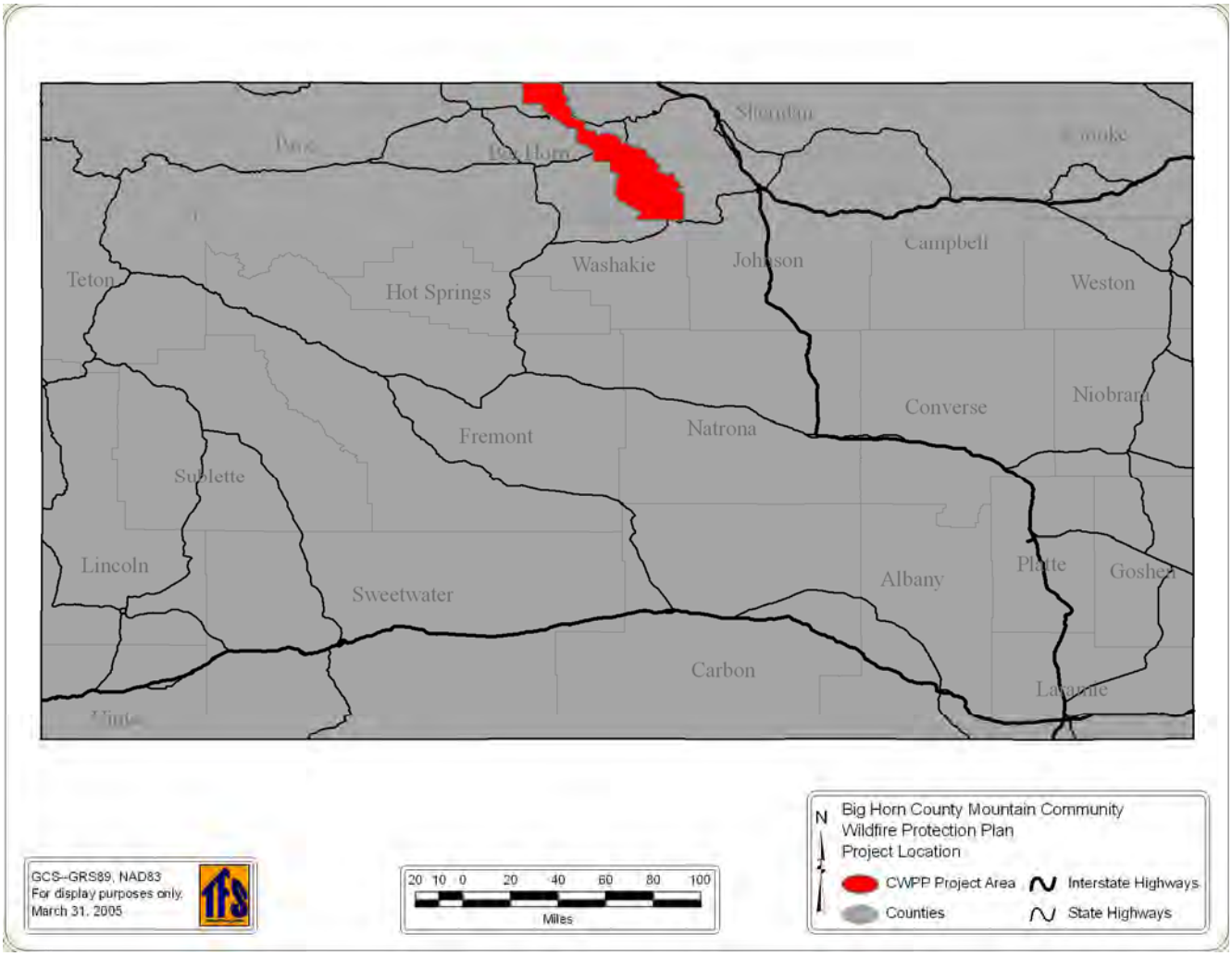
The planning process was initiated by the formation of an Operating Group (OG), which is made up of the following interests:

- local firefighting authorities
- State
- county
- municipal
- federal agencies

BHCWPP Operating Group

Twenty-five communities were identified as being “at-risk” to wildfire and are identified on the BHCWPP Base Map (see Figure 2-2). The process used to classify these communities involved a *relative comparison* assigning risk ratings of high, medium, and low. Classification criterion includes: fire hazard, probability of fire occurrence, community layout, and structure ignitability.

Figure 2-1 Project Location



The criteria used in the cumulative risk analysis include: 1) emergency management capabilities (protection capabilities), 2) values-at-risk, and 3) fire risk rating (as described above). A final priority list of at-risk communities is ultimately produced for use in scheduling effective fuels reduction projects.

However, recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, and that the resilience of communities to wildfires varies widely and changes over time, it is not only important and necessary to complete community assessments, but also to periodically complete re-assessments. Finally, it is worthy to note that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk over time.

Guidance documents that have assisted development of this CWPP include 1) *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee, Society of American Foresters, National Association of Counties, National Association of State Foresters 2004), and 2) *The Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide* (USDA Forest Service and Bureau of Land Management 2004), and 3) Field Guidance. *Identifying and Prioritizing Communities at Risk, National Association of State Foresters,* 2003 (see Appendix 1). As additional guidance documents become available, any changes or amendments will be incorporated into this CWPP.

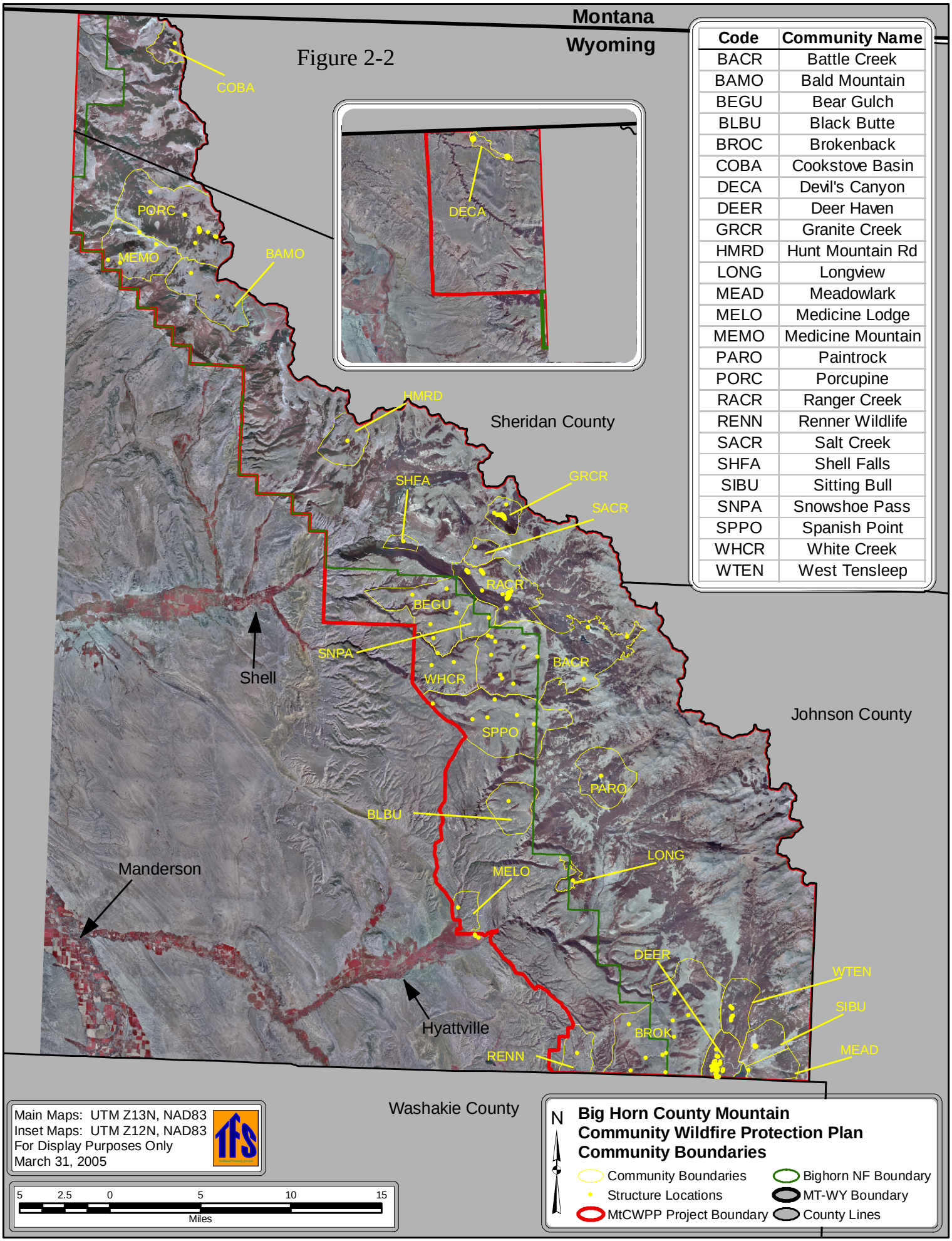
This CWPP, though providing general recommendations for reducing risk of catastrophic fire, is not a mitigation plan. The next step toward reducing risk in the communities is to develop a mitigation plan for one or more of the 25 at-risk communities. These mitigation plans should recommend specific actions that will reduce the risk of wildfire to these communities.

The BHCWPP is intended to be used as a resource to assist in the coordination of long-term interagency mitigation of catastrophic wildfire events in the at-risk communities within this assessment area. The communities in the BHCWPP area agreed on six primary objectives for the BHCWPP:

- improve fire prevention and suppression
- reduce hazardous forest fuels
- restore forest health
- promote community involvement
- recommended measures to reduce structural ignitability within the BHCWPP area
- encourage economic development within the community.

Wildland Fire "Quick Attack" Lovell Fire Dept. TFS Photo

The BHCWPP should be periodically reviewed and updated as needed. Successful implementation of this plan will require a collaborative process among multiple layers of government as well as a broad range of special interests.



Code	Community Name
BACR	Battle Creek
BAMO	Bald Mountain
BEGU	Bear Gulch
BLBU	Black Butte
BROC	Brokenback
COBA	Cookstove Basin
DECA	Devil's Canyon
DEER	Deer Haven
GRCR	Granite Creek
HMRD	Hunt Mountain Rd
LONG	Longview
MEAD	Meadowlark
MELO	Medicine Lodge
MEMO	Medicine Mountain
PARO	Paintrock
PORC	Porcupine
RACR	Ranger Creek
RENN	Renner Wildlife
SACR	Salt Creek
SHFA	Shell Falls
SIBU	Sitting Bull
SNPA	Snowshoe Pass
SPPO	Spanish Point
WHCR	White Creek
WTEN	West Tensleep

2.1 Background

In the 1870's approximately 70% of the Bighorns was burned, in large part, by Native Americans who used fire extensively during the Indian wars. Additionally, naturally caused fires historically burned forest areas resulting in a "mosaic" of vegetation pattern across the landscape.

> ***"The general aspect of the reserve is that of a lightly forested region. It contains no large or valuable timber. Nearly all has been burned, much of it recently, and a larger part has been subjected to repeated fires. A considerable proportion of its area consists of open parks from which the timber has been completely driven out. Another large part is covered with young growth, ranging from 10 to 50 years of age, while the ground is strewn with dead trees, the victims of fires, in an intricate cobwork. As a rule these trees are small. It is only limited localities that mature forests exist."***
>
> **F.E. Town, General Land Office Surveyor, after inspecting the Bighorn Forest Reserve in 1898.**

Timber harvest played a significant role in the fragmentation of forestland in the Big Horn Mountains in the 1970's through the 1980's. Public pressure, concerns about wildlife habitat loss, and other issues limited timber harvest and other forest management activities on federal land beginning in the 1990's. As a result, *private* forestland timber harvest notably increased during this period to "fill the gap" in the reduction in harvesting of federally owned timber.

A combination of reduced forest management and years of fire suppression have resulted in an unnatural buildup of fuels and a change in the historical fire mosaic pattern across the landscape. Fire size has increased due to a buildup of fuels resulting from lack of natural fire.

An increase in fire size has also resulted in an increase in fire cost nationally. The total suppression cost for federal agencies was $1.6 billion in 2002 (NIFC 2003).

2.1.1 Structure Development in the Assessment Area

In the 1930's and 40's the USFS permitted leases for cabin lots to encourage public land use. The Occupancy Permit Act of 1915 was enacted which greatly expanded recreational cabin construction and use on National Forests (O'Dell, 2003). Few recreation cabins on the Bighorn National Forest date

to this early time period. Several factors contributed to the dearth of structures related to this period, including a lag-time in implementing the Occupancy Permit Act which was not fully implemented until the mid-1920's. Inadequate roads within the Forest also deterred cabin construction. The first known recreation cabin permit, issued by the Bighorn National Forest, was issued to Peter C. Watt in 1913. According to USFS records, the cabin was originally built as a cow camp between 1910 and 1912.

The bulk of recreation cabins within the Big Horn National Forest were built between 1925 and 1939. The construction of roads within the Forest is attributed to the increase in cabin construction. In 1922 work began on what would become Highway 14 over the mountains from Dayton to Kane. The road was completed in 1929 (Thibodeau 1994). President Calvin Coolidge played an integral part in Forest Service policy regarding summer homes. In 1924, Coolidge formed the National Conference in Outdoor Recreation. The Conference touted the increased use of National Forests for recreation. All Forests adopted *Recreation Plan and Policy Statements* between 1924 and 1926. The Bighorn National Forest plan was titled the *Bighorn National Forest Recreation Plan*. It began in 1924 and for unknown reasons was discontinued in 1939. By 1925, 75 homes were reported on the Forest (Murray 1980). By 1937 there were a total of 173 summer homes comprising 37 summer home groups within the Forest.

Summer home permitting and construction peaked during the 1930s. Few cabins were permitted during World War II due to a shift in national priorities. Beginning around 1966, the Agency terminated the expansion of summer homes, and began to revoke or purchase certain existing permits. This policy more-or-less remains in effect today (O'Dell 2003).

Private Cabin in the Porcupine Summer Home Group

2.2 Wildland-Urban Interface

The WUI is defined in: *Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire*, issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with Title IV of the Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat. 1009) (66 Fed. Reg. 753, January 4, 2001). The WUI is commonly described as the zone where structures and other features of human development meet and intermingle with undeveloped wildland or vegetative fuels. Communities within the WUI face substantial risk to life, property, and infrastructure.

2.3 At-risk Community

The term "at-risk community" is defined as an area:

- That is comprised of a WUI (as defined above);
- In which conditions are conducive to a large-scale wildland fire disturbance event; and
- For which a significant threat to human life or property exists as a result of a wildland fire disturbance event.

2.4 Forest Health

While the increased risk of catastrophic wildland fire is often blamed on long-term drought or expansion of the wildland-urban interface in the Western United States, the underlying cause is the buildup of forest fuel and changes in vegetation composition over the last century. Unnaturally dense stands of timber, the individual trees of which compete for limited water and nutrients, are at increased risk to unnaturally intense wildland fires and/or insect and disease epidemics.

2.4.1 Fire Regime and Condition Class

The historical role of fire in the assessment area is best described in terms of its fire regime. 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 (Agee 1993, Brown 1995). The five natural (historical) fire regimes are classified based on average number of years

between fires (fire frequency) combined with the severity (amount of replacement) of the fire on the dominant overstory vegetation. These five regimes include:

I – 0-35 year frequency and low (surface fires most common) to mixed severity (less than 75% of the dominant overstory vegetation replaced);

II – 0-35 year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced);

III – 35-100+ year frequency and mixed severity (less than 75% of the dominant overstory vegetation replaced);

IV – 35-100+ year frequency and high (stand replacement) severity (greater than 75% of the dominant overstory vegetation replaced); and

V – 200+ year frequency and high (stand replacement) severity.

A fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). FRCC classes include three condition classes for each fire regime. As a landscape moves "out of sync", changes to one (or more) of the following ecological components occur: vegetation characteristics (species composition, forest structure, forest age, forest density, and the general "pattern" of vegetation such as meadows, young tree re-growth, and mature forest "islands"); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g. insect and diseased mortality, grazing, and drought).

The three classes are based on low (Class 1), moderate (Class 2), and high (Class 3) departure from the central tendency of the natural (historical) regime (Hann and Bunnell 2001, Hardy et al. 2001, Schmidt et al. 2002).

The distribution of vegetation varies considerably by geographic area, and is influenced by such environmental variables as precipitation, elevation, topography, and soil features.

2.5 Relevant Fire Policies

The *Mini Fire Mobilization Plan* updated annually by the Wyoming State Forestry Division (WSFD) is an Interagency Cooperative Fire Management Agreement among the following entities:

- U.S. Department of the Interior
    - Bureau of Land Management (BLM), Wyoming
    - National Park Service (NPS), Intermountain Region
    - Bureau of Indian Affairs (BIA), Rocky Mountain Region
    - Fish and Wildlife Service (USFWS), Mountain Prairie Region
- United States Department of Agriculture, Forest Service (USFS) Rocky Mountain and Intermountain Regions
- The State of Wyoming, State Board of Land Commissioners Office of State Lands and Investments, Wyoming State Forestry Division

The *Mini Mobilization Plan,* under the section titled "Fire Suppression", states the following:

Protection Priorities: The protection of human life is the single, overriding suppression priority. Setting priorities among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be done based on the values to be protected, human health and safety, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.

Wildland Urban Interface Protection: The operational role of federal and State agencies as partners to protect the wildland urban interface includes wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, State, or local governments. Federal agencies may assist with exterior structural protection activities under written formal Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer and may also enter into formal agreements to assist State and local governments with full structural protection) Mini Fire Mobilization Plan, Wyoming State Forestry Division 2004.

2.5.1 State Policies

Initial suppression action on State Land will be taken by the County within their capability. This initial action will be reported promptly to the Wyoming State Forestry Division (Big Horn County Annual Operating Plan).

2.5.2 Federal Policies

In 2001, the U.S. Congress funded the National Fire Plan (NFP) to reduce hazardous fuel and restore the ecological health of forests and rangeland. In response, the Secretaries of Agriculture and the Interior, along with Western Governors and other interested parties, developed a 10-year strategy and implementation a plan for protecting communities and the environment (http://www.fireplan.gov/). The NFP, coupled with the Federal Wildland Fire Management Policy (2001), forms a framework for Federal agencies, States, Tribes, local governments, and communities to reduce the threat of fire, improve the condition of the land, restore forest and rangeland health, and reduce risk to communities.

Over the past two years, administrative procedures and processes governing preparation of projects to reduce hazardous fuel and restore healthy ecological conditions on Federal land have undergone many changes. These changes have resulted from the Healthy Forests Initiative (HFI), launched in 2002 to reduce administrative process delays to implementation of such projects, and from the Healthy Forests Restoration Act (HFRA), passed in December 2003. The HFRA provides improved statutory processes for hazardous-fuel reduction projects on certain types of at-risk National Forest System (NFS) and Bureau of Land Management (BLM) lands and also provides other authorities and direction to help reduce hazardous fuel and restore healthy forest and rangeland conditions on lands of all ownerships (USDA Forest Service and Bureau of Land Management 2004).

The four components of the HFI and HFRA which help to implement fire protection projects at the local level are:

1. On lands in or adjacent to the wildland-urban interfaces of at-risk communities and other at-risk federal lands, work in collaboration with communities in setting priorities and, as appropriate, in developing Community Wildfire Protection Plans;

2. Develop the project information needed to determine whether proposed projects can use the improved HFI and HFRA authorities;

3. Use the National Environmental Policy Act of 1969 (NEPA) process identified for HFI and HFRA projects; and

4. Fund, implement, and monitor the HFI and HFRA projects.

The BHCWPP will satisfy the first of the above four components and provide guidance for accomplishing the final three with the overall goals of 1) reducing risk of catastrophic fire destroying life and property, and 2) the restoration of forest health.

2.6 Existing Fire Control Documents

There have been no known Fire Hazard Assessments developed for the assessment area other than the USFS Forest Plan and the BLM Resource Management Plan which both address fire control issues.

2.6.1 Risk Assessment and Mitigation Strategies (RAMS)

The BLM North Zone Fire Operations is a local agency office that contracted through RNB Spatial Data, Inc. for the development of a RAMS. RAMS is a process for developing prevention and fuels management programs. RAMS allows users to prioritize areas within their planning unit, consider various prevention and/or fuels treatment alternatives, and develop a budget.

RAMS includes three components: 1) Assessment, 2) Prevention, and 3) Fuels. The assessment portion of RAMS is intended to identify the highest priority areas in which to consider fuels and/or prevention work. In the fire prevention module, users develop one or more fire prevention options, with costs and work details. The RAMS fuels analysis identifies potential fuels treatment strategies and projects. A final report is printed from RAMS and shows any or all of the Assessment, Prevention, or Fuels work.

3.0 Community Description

The assessment area is in Big Horn County Wyoming and covers the "mountain area" which is bordered on the north by the Montana line on the east by the Sheridan and Johnson County lines, on the south by the Washakie County line, and on the west by the "toe" of the mountain (see 2-2). [1]

3.1 "At-risk" Community Delineation Process

Wildland-urban interface areas were determined using criteria specified in the HFRA. After the WUI areas were identified, boundaries around these areas were established based generally on topographic features considered capable of affecting fire behavior. The BHCWPP process of delineating WUI boundaries involved collaboration between local fire districts, the WSFD, county commissioners, planners, and natural resource specialists. The resulting Base Map was brought before the BHCWPP OG for review and revision before the final draft was established.

The OG took a two day Community Tour October 26 and 27, 2004. In attendance were representatives from the USFS, Wyoming State Forestry Division (WSFD), BLM, BH County, BH County Fire Protection District #1, and TFS.

This community tour was an opportunity for the OG to share feedback on WUI boundaries, apparent fuel hazards, and recommendations for treatment.

BHCWPP Operating Group on a field tour of the Assessment Area

[1] The entire area of Big Horn County was initially scheduled to undergo the CWPP process but funding was not available for a project of that scope. It was decided that the mountain communities and associated WUI areas are in the most urgent need of the process as defined under the CWPP guidelines.

3.2 Public Outreach in Big Horn County

As part of the at-risk community assessment, collaboration with the public and other interested stakeholders was encouraged through a public outreach program.

NORTHERN WYOMING
Daily News
SERVING THE BIG HORN BASIN

PUBLISHED TUESDAY THROUGH SATURDAY MORNINGS AT WORLAND, WYOMING 82401

98th Year, No. 208 Wednesday, October 20, 2004 50 Cents

Big Horn County to hold meeting to discuss wildfire protection plan

By Jessica Tharp
Staff Writer

GREYBULL — A public meeting will be held Oct. 27 in Greybull to discuss the Big Horn County Community Wildfire Protection Plan.

The meeting will be held in the basement of the Bank of Greybull at 7 p.m., and all interested residents, members of government and key stakeholders are invited to share ideas and voice opinions, said Chris Weydeveld of Technical Forestry Services in Greybull.

"This is an opportunity for people, government and key stake holders to define what they see as a community at risk," Weydeveld said.

An important topic that will be discussed is wildfire hazards present within the Bighorn Mountain cabin groups, including those cabins around Deer Haven, Paintrock Lodge, Antelope Butte Ski Area, Meadowlark and above Hyattville, according to Weydeveld.

"It's the cabins (and lodges) that are actually on the mountain," Weydeveld said. "The demarcation line is the toe of the mountain and Big Horn County."

Threats to the critical infrastructure and the Shell Creek Municipal Watershed will also be addressed.

Technical Forestry Services has been contracted by the Big Horn County Commissioners to develop a community wildfire protection plan (CWPP) with funding from the commissioners and a grant sponsored by the Wyoming State Forestry Division, with money coming from the National Fire Plan.

Although the CWPP will not likely be done before March of 2005, the studies are going well right now, Weydeveld said.

"We're currently in the process of doing the field analysis," he said. "We'll complete all of the structure and community assessments next week."

Weydeveld said they are examining 200 to 300 structures.

Community input and ideas are very important to the CWPP process, Weydeveld said. Without guidelines, the federal government will decide the critical perimeters around the structures, which may only be one-half mile.

"It's a very small area they would consider," he said. Although the one-half mile may be acceptable for some structures, it would not be adequate for others.

Weydeveld said they want to evaluate the areas on a case-by-case basis.

A CWPP will allow participants at the local level to identify areas believed to be at risk of the destructive elements of a wildfire and to recommend possible

See Wildfire Page 2

Wildfire *from 1*

treatments to reduce hazards.

Those interested i participating in the CWPP shoul attend the meeting nex Wednesday, Weydeveld said.

More meetings will be held i the future, and a mailing list wi be available for those who ar interested.

For more information, contac Weydeveld at 765-2635, Richar Fink at 568-2516 or Brent Godfre at 568-2718.

Article appearing on the front page of the Daily News published in Worland, Wyoming

Over a period of several weeks, paid advertising and Public Service Announcements were published in newspapers in the Wyoming towns of Lovell, Greybull, Basin, Worland, and Ten Sleep. (see Appendix 8 and 9) Public meetings were held in these towns and included a presentation on the CWPP process, a Power Point presentation on general fire behavior principles, a brief history of fires in the WUI, current policies, and Firewise principles. The meetings included a question and answer period.

3.3 Community Description

The assessment area contains 25 communities and comprises approximately 130,000 acres (see Table 3-1).

Table 3-1. BHCWPP At-risk Communities Land Ownership Area

BHCWPP At-risk Communities Land Ownership Area			
	USFS Land Area (acres)	Private, State, BLM Land Area (acres)	Total Area (acres)
TOTAL	81913	47692	129605

The communities are described below and grouped according to geographic location. The BHCWPP identifies the at-risk communities in Figure 2-2. These communities are all within Big Horn County, Wyoming and are also within or adjacent to the BNF or the BLM West Slope Bighorn FMU. Using HFRA criteria and guidance published in the Federal Register, these communities are all considered at-risk. The current surrounding land conditions are conducive to a large-scale wildland fire, and such a wildfire in their vicinity could threaten human life and property.

3.3.1 Deer Haven (DEER); West Tensleep (WTEN); Sitting Bull (SIBU); Meadowlark (MEAD)

Vegetation

Dense forest stands of primarily lodgepole pine with inclusions of Engelmann spruce and sub-alpine fir predominates in these communities. Much of the lodgepole pine is either mature or overmature and in a condition susceptible to stand replacement either by fire or insects and disease.

Located at the south end of Big Horn County on the boundary with Washakie County, this area consists of four communities with a combined total of 80 fairly densely concentrated structures. U.S. Highway 16 crosses the southern portion of this community group. Primary Forest Route 27 runs from Deer Haven Lodge, at the south end of the Deer Haven community, north through the West Tensleep community.

The only year around residents are those operating Deer Haven Lodge which caters to winter and summer recreation users.

Weather

The weather in the assessment area described in the tables below comes from information obtained from Remote Automated Weather Stations (RAWS) located within (or near, as in the case of the Burgess Station) the assessment area. Three RAWS are applicable to this assessment, including the Burgess RAWS Station, Mill Creek RAWS Station, and Leigh Creek RAWS Station. The months of May, June, July, August, and September, the months with the most active fire behavior, comprise the analysis period. Weather over the past four years (2001-2004) is evaluated. Records do not go farther back than 2001 in all of the three RAWS stations analyzed. Data was acquired from the Western Regional Climate Center (www.wrcc.dri.edu).

Climate experts have agreed that most of the area is in a period of drought. These drought conditions have been present for over five years which is reflected in the tables below. Continued drought conditions are predicted for the remainder of 2005.

Table 3-2. Leigh Creek RAWS Weather Station data

Leigh Creek RAWS Station						
	May	Jun	Jul	Aug	Sep	Ave
Average Max Temperature (F)	50.8	61.2	75.9	69.7	57.6	63.0
Average Min Temperature (F)	34.0	43.7	57.1	51.1	41.9	45.6
Average Total Precipitation (in.)	1.01	0.96	0.60	0.62	1.57	0.95
Average Dew Point (F)	26.8	34.0	36.3	32.8	30.0	32.0
Average Min Relative Humidity (%)	40.3	35.8	35.3	25.5	36.0	34.6
Average Wind Speed (mph)	8.5	8.5	7.9	8.0	7.2	8.0
Average Wind Gust (mph)	26.8	28.3	26.2	25.7	23.4	26.1
Predominant Gust Direction (bearing)	270	273	264	248	282	265

The Leigh Creek RAWS is shown here to describe weather expected to occur in the LONG, MELO, RENN, BROK, DEER, WTEN, SIBU, and MEAD communities.

3.3.2 Ranger Creek (RACR); Shell Falls (SHFA)

These communities are located at the upper reaches of Shell Canyon east of Shell, Wyoming on Highway 14. The Ranger Creek community is north and southwest of Snowshoe Pass and west of the northwest edge of the Cloud Peak Wilderness. The Shell Falls Visitor Center is located on a narrow strip of land between U.S. Highway 14 and Shell Canyon. Access to the Ranger Creek community is via Highway 14 traveling east from Shell, up Shell Canyon toward Granite Pass, then southeast on Primary Forest Road 17.

Vegetation

The entire area is currently in the midst of an insect and disease epidemic brought on, in part, by five consecutive years of drought conditions in the area. Fire exclusion, high fuel loadings, and dead timber resulting from beetle infestations have increased the risk of a catastrophic fire (USFS Bench Restoration HFI Project, EA).

Historic aspen stands have been suppressed and replaced by dry-site Douglas-fir and moist site Engelmann spruce. Approximately 90 percent of the forested vegetation is dry-site, overstocked, mature, Douglas-fir with aspen, spruce, limber pine, and lodgepole pine. Average tree age in this area is 185 years.

Weather

Table 3-3. Mill Creek RAWS Weather Station data

Mill Creek RAWS Station						
	May	Jun	Jul	Aug	Sep	Ave
Average Max Temperature (F)	51.6	64.8	74.7	72.0	56.4	59.7
Average Min Temperature (F)	29.9	36.8	47.5	45.1	37.6	37.6
Average Total Precipitation (in.)	0.78	1.19	0.98	1.11	1.11	1.16
Average Dew Point (F)	23.0	31.0	34.3	31.0	26.3	32.2
Average Min Relative Humidity (%)	33.0	36.8	26.0	25.0	33.0	37.6
Average Wind Speed (mph)	8.7	8.0	7.8	8.1	7.9	7.7
Average Wind Gust (mph)	27.9	28.2	27.9	27.6	25.1	24.6
Predominant Gust Direction (bearing)	227	203	177	165	183	191

The Mill Creek RAWS data shown above describes weather expected to occur in the SHFA, SACR, RACR, BEGU, SNPA, WHCR, BACR, SPPO, and BLBU communities.

3.3.3 Porcupine; Cookstove Basin; Medicine Mountain; Bald Mountain; Hunt Mountain Road

Vegetation

Forest stands are densely to moderately stocked with a mixture of mature to overmature lodgepole pine, Engelmann spruce and sub-alpine fir. Absence of fire and inconsistent fuels reduction treatments, such as pre-commercial thinning and timber harvest, has resulted in conditions with potential for stand replacing fire.

Weather

Table 3-4. Burgess RAWS Weather Station data

Burgess RAWS Station						
	May	Jun	Jul	Aug	Sep	Ave
Average Max Temperature (F)	51.3	60.3	73.0	70.1	59.3	60.0
Average Min Temperature (F)	29.2	36.1	44.3	42.1	34.5	36.0
Average Total Precipitation (in.)	0.82	1.13	1.03	0.69	1.31	1.02
Average Dew Point (F)	25.8	34.0	37.0	33.5	28.0	31.6
Average Min Relative Humidity (%)	34.5	37.3	26.3	25.0	32.0	34.8
Average Wind Speed (mph)	9.2	8.1	7.8	7.9	8.0	7.9
Average Wind Gust (mph)	28.7	27.4	25.9	27.0	25.2	25.0
Predominant Gust Direction (bearing)	257	264	235	230	241	247

The Burgess RAWS Station is shown here to describe weather expected to occur in the PORC, COBA, MEMO, HMRD, GRCR and BAMO communities.

3.3.4 Granite Creek (GRCR); Salt Creek (SACR)

These communities are located east of Shell, Wyoming on Highway 14 below Granite Pass and Antelope Butte. A well maintained gravel road turns south from Highway 14 past the Antelope Butte

Lodge and Ski Area and into the Granite Creek community. The Salt Creek "community" is a small cow camp less than ¼ of a mile north of Highway 14 a few miles west of the turn into the Granite Creek community.

Vegetation

Forest stands are densely to moderately stocked with a mixture of mature to overmature lodgepole pine, Engelmann spruce and sub-alpine fir. Absence of fire and inconsistent fuels reduction treatments such as pre-commercial thinning and timber harvest has resulted in conditions with potential for stand replacing fire.

3.3.5 Battle Creek (BACR); Bear Gulch; Snowshoe Pass; White Creek; Spanish Point

These communities are located south of Snowshoe Pass about 20 miles East of Shell, Wyoming. Most of the land area drains into the Trapper Creek and White Creek watersheds. Access to much of the areas of BEGU, SNPA, WHCR, and BACR is easiest through private land west of Snowshoe Pass off of Primary Forest Road 17. A locked gate requires contact with the landowner for access.

Access into BACR is gained by traveling over Snowshoe Pass and turning south off of USFS Road 17 onto the old Black Mountain road. It is necessary to travel through private land to access most of this community

Spanish Point is accessed by traveling past BACR on FS Road 17 "Crooked Creek Road" to the junction with the Alkali Road. The southern portion of this community drains into the Medicine Lodge Creek watershed.

Vegetation

The following observations appear in the Landowner Forest Stewardship Plan developed by the Wyoming State Forestry Division in 2004. The property described is located within the Battle Creek Community:

The dominant tree species are Douglas-fir on the north and west facing slopes of Battle Creek, Engelmann spruce and lodgepole pine on the upper elevations …. Other tree species present are limber pine on south slopes and sub-alpine fir mixed in upper stands. Some aspen are present but are very

limited. Some shrubs and forbs found associated with these timber stands are common juniper, gooseberry, and sagebrush is mixed with the scattered trees.

"The spruce/fir and lodgepole pine forest is of commercial sawtimber value and is on operable slopes for conventional harvesting equipment except for the steep areas over 35% slopes in Battle Creek.

Battle Creek Community-Meadow and Forest View Photo courtesy of Paul Morency, WSFD

Bark beetles are starting to become a problem on other properties in the area …. The drought of the past five years has put additional stress on mature and over mature trees and the mild winters has allowed an epidemic population of bark beetles to develop in the Bighorn Mountains. Douglas-fir beetle and Engelmann spruce beetle have shown signs of small groups of infested trees on the property but are not a serious problem right now. Rocky Mountain wide, a major bark beetle epidemic is evident. Bark beetles are usually present in the forest environment but only periodically reach epidemic proportions. A long, cold winter will help to knock the population back. The best defense for major bark beetle losses is to maintain a vigorous forest condition through forest management and continued monitoring of the stand (WSFD 2004).

The lodgepole pine stands on the property are reaching maturity and much of the forest is declining in health due to old age and the effects of the start of mistletoe infection. Mistletoe is a parasitic plant,

which robs the tree of water and food, slowly weakening the tree and eventually killing it. To identify mistletoe on your property, look for bunched growths of branches called “witches brooms” and branches with swellings. These abnormalities are the result of the mistletoe plant, which is a yellow, leafless shoot present on branches and/or the trunk. A tree that is heavily infested will commonly die in 20 years. Dwarf mistletoe is not a big problem on the property but sign of it show the lodgepole slowly reaching its life span and warrants some discussion.

The white pine blister rust is a disease that slowly kills limber pine but does not affect other tree species. A thorough explanation and picture guide of blister rust is attached in the handout section of the plan.

Dense concentrations of trees, combined with steep slopes, or large sagebrush, increases the risk of a devastating wildfire. Existing roads and any trails used for timber harvesting should be maintained for fire access. A logging entry combined with proper slash disposal will serve to reduce fuel loading and provide fuel breaks in the forest canopy which could prevent entire stands from being lost in a single wildfire.

Small patches of mature aspen exist in the community but are declining in health, due to lack of disturbance and wildlife browsing. Aspen is a short-lived species that regenerates best after a disturbance, such as fire or clear cutting. Most of the old aspen are about 80 years old and are dying off. Eventually an entire aspen stand can be weeded out by the conifers if young aspen do not become established. Aspen stands are valuable to the overall health of an ecosystem for a couple of reasons. First, aspen stands are considered the second most critical wildlife habitat in the Rocky Mountains. This is due to the fact that aspen stands provide seven times the forage production of conifer stands. Grasses, forbs and shrubs are all found in abundance in aspen stands.

Aspen Stand Photo courtesy of Paul Morency, WSFD

Aspen stands will also help to defend [an] area from wildfire. Aspen stands burn less intensely than conifer stands and offer firefighters a safer place to defend structures (WSFD 2004).

Much of the forest land in the Battle Creek community has undergone timber harvest in the past 10-15 years. Some of this harvest has been unsupervised and has resulted in complete overstory removal of merchantable trees. In most cases slash has been piled in opening. Areas harvested have seen the fire danger reduced.

3.3.6 Brokenback (BROK); Renner Wildlife (RENN)

The Hyattville "Logging" Road, a well-graveled road of medium width, travels southeast out of Hyattville, Wyoming into the communities of RENN and BROK. Roads leading into the cabin sites are primarily two-track and of uncertain condition. Both areas are in the Paintrock watershed.

The West Slope Bighorn FMU is dissected and rolling east of the Bighorn Mountains foothills. Average annual precipitation is 10 to 18 inches with productivity varying with it. The erosion hazard ranking changes from slight to high moving east from its western boundary along the Bighorn River. The northern most area of this FMU has an erosion hazard rating of extreme. Predicted erosion values, based on Forest Service WEPP interface, following wildfire average 8 tons per acre. The worst case scenario predicts erosion rates exceeding 21 tons per acre (USDI BLM 2004).

Values at risk include existing sagebrush shrub critical habitat and elk and mule deer wintering grounds, and commercial forestland. There are cabins, outbuildings, recreational sites and other structures interspersed throughout.

Vegetation

The vegetation can be divided into six subtypes as follows: 23% desert salt shrub, 16% Foothill Mountain sagebrush and shrub, 18% juniper and limber pine, 7% mixed conifer, including lodgepole pine and riparian aspen, 1% Ponderosa pine, 27% sagebrush shrub critical habitat, and 8% of acres that include barren areas, sub alpine meadows, and crop land. Starting at the base of the mountains and proceeding upslope, four distinct timber zones are present. The first is a juniper woodlands zone followed by a ponderosa pine belt. The third zone is mixed conifers on north-facing slopes and lastly a zone of lodgepole pine intermingled with aspen (USDI BLM 2004).

3.3.7 Paintrock (PARO); Longview (LONG)

Primary Forest Service Road 17 comes into the community from the north. The Cold Springs Road come up from Hyattville from the south west.

Vegetation

Dense forest stands exist throughout much of the community with a significant component of mature to over-mature lodgepole pine.

3.3.8 Devils Canyon (DECA)

This area is at the north end of Big Horn County and borders the Montana line. Structures include one home and two outbuildings at the old Moss Ranch and three at the old Winter Ranch. Access to these areas is from the east through Porcupine or from the west starting in Lovell, over the causeway (Big Horn River), up John Blue canyon, Little Mountain, past Godes spring into Devils Canyon. There is a private landowner locked gate a few hundred yards below the small trailer house at Godes Spring. Once in Devil's Canyon there is a rough 4 WD road that follows Porcupine Creek 3.5 miles (past an old bulldozer) then up Deer Creek Canyon to a road junction with the Winter Ranch Buildings to the south and the Moss Ranch to the north.

Vegetation

Fuels consist of common juniper, sagebrush, and grasses on the slopes above the structures. The biggest threat to structures, however, may be the very densely vegetated riparian area along Deer Creek.

Devils Canyon Community-Deer Creek The "Winter Ranch" structures are approximately 100 feet to the north of this riparian area vegetation with a short grass community type between. TFS Photo

Vegetation surveys noted the presence of cheatgrass (*Bromus tectorum)* in the community (see description of cheatgrass in the Medicine Lodge community assessment above).

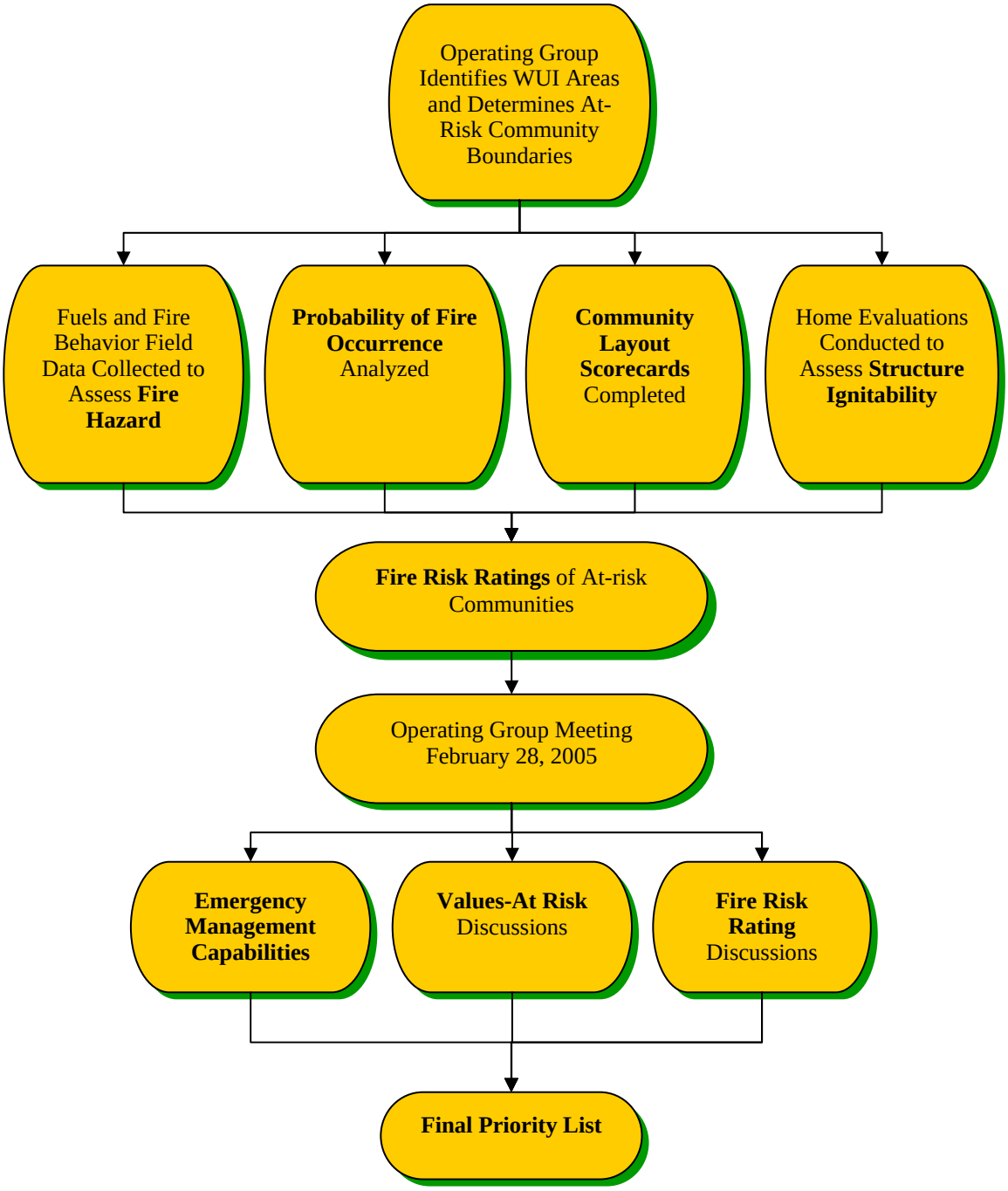
3.3.9 Shell Creek Municipal Watershed

Shell Creek is a municipal watershed capable of supplying water to the towns of Shell and Greybull. The water from Shell Creek is currently not be utilized by either municipality. Further study is needed to determine the threat to this watershed form wildland fire.

4.0 Community Assessment

The purpose of the BHCWPP is to identify at-risk communities, prioritize these communities for hazardous fuels reduction treatments, and make recommendations for reducing the chances of catastrophic fire. As described above in Section II, 25 at-risk communities were identified. Once identified, the communities underwent an analysis process to set priorities for hazardous fuels reduction treatments. This analysis process is illustrated in Figure 4-1. It is important to note that the 25 communities underwent a *relative comparison* process to classify them into a roughly equal distribution of low, moderate and high fire risk. The process of prioritizing communities is completed in two steps: 1) Fire Risk Rating, and 2) Cumulative Fire Risk Rating.

Figure 4-1 At-risk Community Analysis Process



After identifying the WUI and corresponding at-risk communities, field data was collected for use in analyzing fire risk. Fire Hazard, Fire Occurrence, Community Layout, and Structure Ignitability, are all attributes used in the determination of fire risk. The fire risk rating results (seen in Table 4-5. Fire Risk Rating) were analyzed by the OG meeting on February 28 along with Emergency Management Capabilities and Values-at-Risk, to arrive at a cumulative risk rating for each community. The Final Priority List (Table 4-6) is based on this cumulative risk rating.

4.1 Fire Risk Rating

4.1.1 Fire Hazard

This section describes the methodology and results of an assessment of the fire hazard on lands in the assessment area. *Hazard* is defined herein as the existence of a fuel complex that constitutes a threat of wildland fire ignition, unacceptable fire behavior and severity, or suppression difficulty. *Fuels* include dead or down wood, live vegetation, and human developments when those developments are capable of ignition and arranged in a manner that will affect fire behavior and severity[2].

Table 4-1 shows the fire hazard evaluation criteria used to rate the at-risk communities within the BHCWPP assessment area. Each at-risk community is assigned a hazard rating of 1, 2, or 3 for each parameter. The sum of the hazard ratings for each parameter (slope, aspect, and fire regime condition class) is then divided by three to calculate the total hazard rating.

Table 4-1 Fire Hazard Index

Fire Hazard Index			
Hazard Rating	Percent Slope	Aspect 0-360 degrees	Fire Regime Condition Class
1 (low)	<15	0-112, 291-360	1
2 (mod)	15-24	113-158, 248-290	2
3 (high)	>24	158-247	3

Percent Slope

Field data from Home Evaluation Forms were queried to extract the average slope for each at-risk community. Communities with slopes of less than 15 percent were given a hazard rating of 1, slopes from 15 to 24 percent were assigned a hazard of 2, and slopes 25 percent and greater were assigned a hazard of 3. A combination of agency discussions, comparisons of similar hazard assessment methodologies, and Fuels Management Analyst Plus (FMA Plus) model trial runs were used to determine slope threshold values between the different hazard ratings.

[2] Additional parameters including forest stand structure, tree density, ladder fuels, and fuel model were included in the initial fire hazard methodology. These parameters were unable to be used in the final analysis due to data gaps in non-federal land databases.

Aspect

Field data were queried to extract the average aspect for each Community. Those with aspects between 290 and 112 degrees were given a hazard rating of 1, aspects between 158 and 248 degrees were given a hazard rating of 3, and all other aspects were assigned a hazard rating of 2.

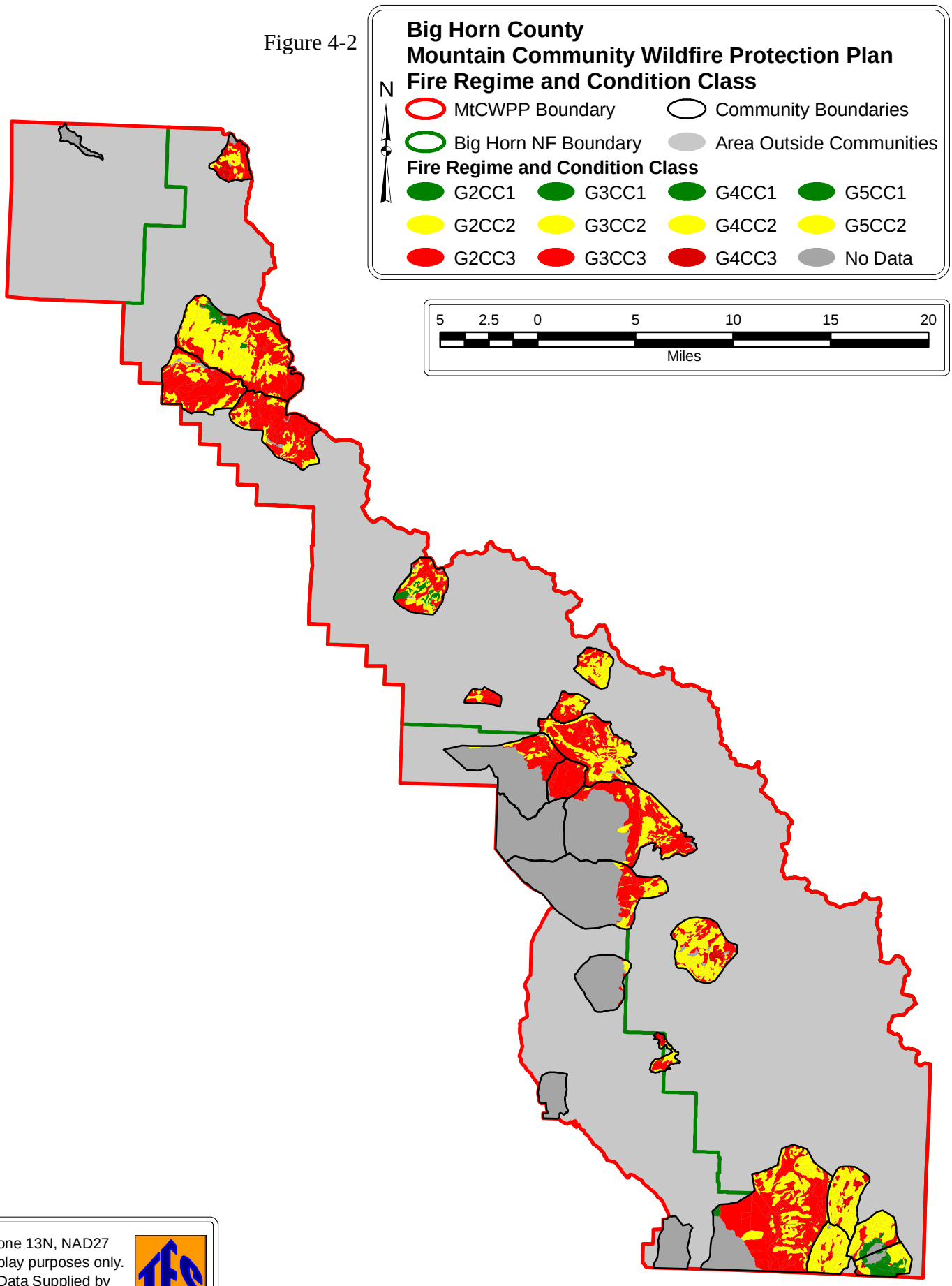
Characteristics such as Slope and Aspect were evaluated at each Structure site as part of the Assessment

Fire Regime Condition Class (FRCC)

Forest Service GIS data show Condition Class values for Common Vegetation Units (CVUs) within the at-risk community boundaries (see Figure 4-2).

Condition class values were used to generate a Condition Class hazard rating for each at-risk community. Each Community was analyzed to generate a sum of CVU Condition Class values. That summation was then divided by the total number of CVUs within the Community to get an average value. Only Condition Classes 2 and 3 were found to exist within the Communities.

Figure 4-2


Big Horn County
Mountain Community Wildfire Protection Plan
Fire Regime and Condition Class
N
MtCWPP Boundary
Community Boundaries
Big Horn NF Boundary
Area Outside Communities
Fire Regime and Condition Class
G2CC1
G3CC1
G4CC1
G5CC1
G2CC2
G3CC2
G4CC2
G5CC2
G2CC3
G3CC3
G4CC3
No Data
5 2.5 0 5 10 15 20
Miles
UTM Zone 13N, NAD27
For display purposes only.
FRCC Data Supplied by
Bighorn National Forest
March 31, 2005

Condition Classes 2 and 3 exhibit the following characteristics:

Condition Class

Condition Class 2

(A) fire regimes on the land have been moderately altered from historical ranges;

(B) there exists a moderate risk of losing key ecosystem components from fire;

(C) fire frequencies have increased or decreased from historical frequencies by 1 or more return intervals, resulting in moderate changes to--

(i) the size, frequency, intensity, or severity of fires; or

(ii) landscape patterns; and

(D) vegetation attributes have been moderately altered from the historical range of the attributes.

Condition Class 3

(A) fire regimes on land have been significantly altered from historical ranges;

(B) there exists a high risk of losing key ecosystem components from fire;

(C) fire frequencies have departed from historical frequencies by multiple return intervals, resulting in dramatic changes to--

(i) the size, frequency, intensity, or severity of fires; or

(ii) landscape patterns; and

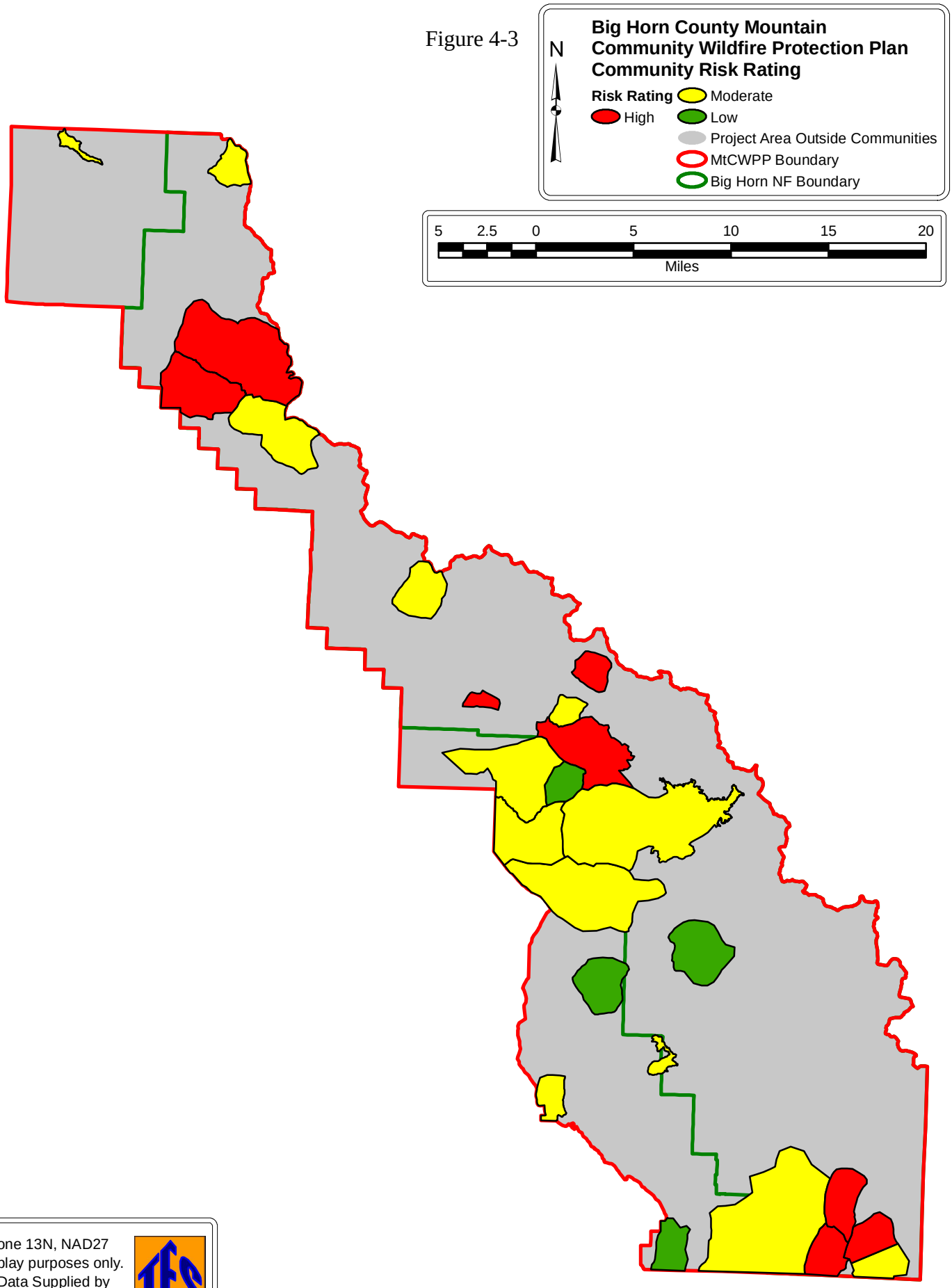
(D) vegetation attributes have been significantly altered from the historical range of the attributes.

Total Fire Hazard Rating Results

At-risk communities with a total fire hazard rating of one (1) are classified as a low hazard, those with a hazard rating of two (2) a moderate hazard, and those with a rating of three (3) a high hazard (see Figure 4-3). Appendix 2 shows a table with Fire Hazard Rating results for each community).

This assessment does not take into account the potential increased hazard resulting from situations in which moderate hazard Communities are located adjacent to high hazard Communities. An assumption is made that these areas would have an increased risk due to the likelihood of fire moving from high to lower hazard stands. The land manager may consider modifying treatment area priorities after identifying these areas.

Figure 4-3



UTM Zone 13N, NAD27
For display purposes only.
FRCC Data Supplied by
Bighorn National Forest
March 31, 2005

4.1.2 Probability of Fire Occurrence

The probability of fire occurrence was assessed individually in each of the 25 communities using PROBACRE, a computer program developed to assess the long-term risk associated with a certain level of fire protection provided to an area (Wiitala 1992). PROBACRE accomplishes the risk assessment task in two ways. First, it calculates the probability of major single fire events. Second, it computes the long term probability that combinations of fire events, both large and small, will result in total burned acres in excess of some number (in this assessment the second method is used to rate the communities).

Probabilities are computed from information on the annual frequency of fires by size class for the protected area of concern. PROBACRE assumes that the frequency and distribution of fire sizes will remain constant over any assessment timeframe.

PROBACRE outputs are used in this analysis to rate at-risk communities as low, moderate, and high fire occurrence. A community received a low rating if, in the next 10 years, there exists a probability of a fire growing to between 0.1 and 99.9 acres, moderate for communities with a probability of a fire growing to between 100 and 299.9 acres, and high for communities with a probability of a fire growing to a size greater than 300 acres (see Appendix 3, Fire occurrence probability in the BHCWPP At-risk Communities).

Forest Service and Bureau of Land Management records report 75 fire *starts* occurring *within the boundaries* of the 25 at-risk communities in the past 25 years between the years 1980-2004 (see Table 4-2). It should be noted that not all fire starts are reported. State, county, and municipal emergency management fire reporting is inconsistent and often incomplete.

Table 4-2 Number of Fires by Size Class

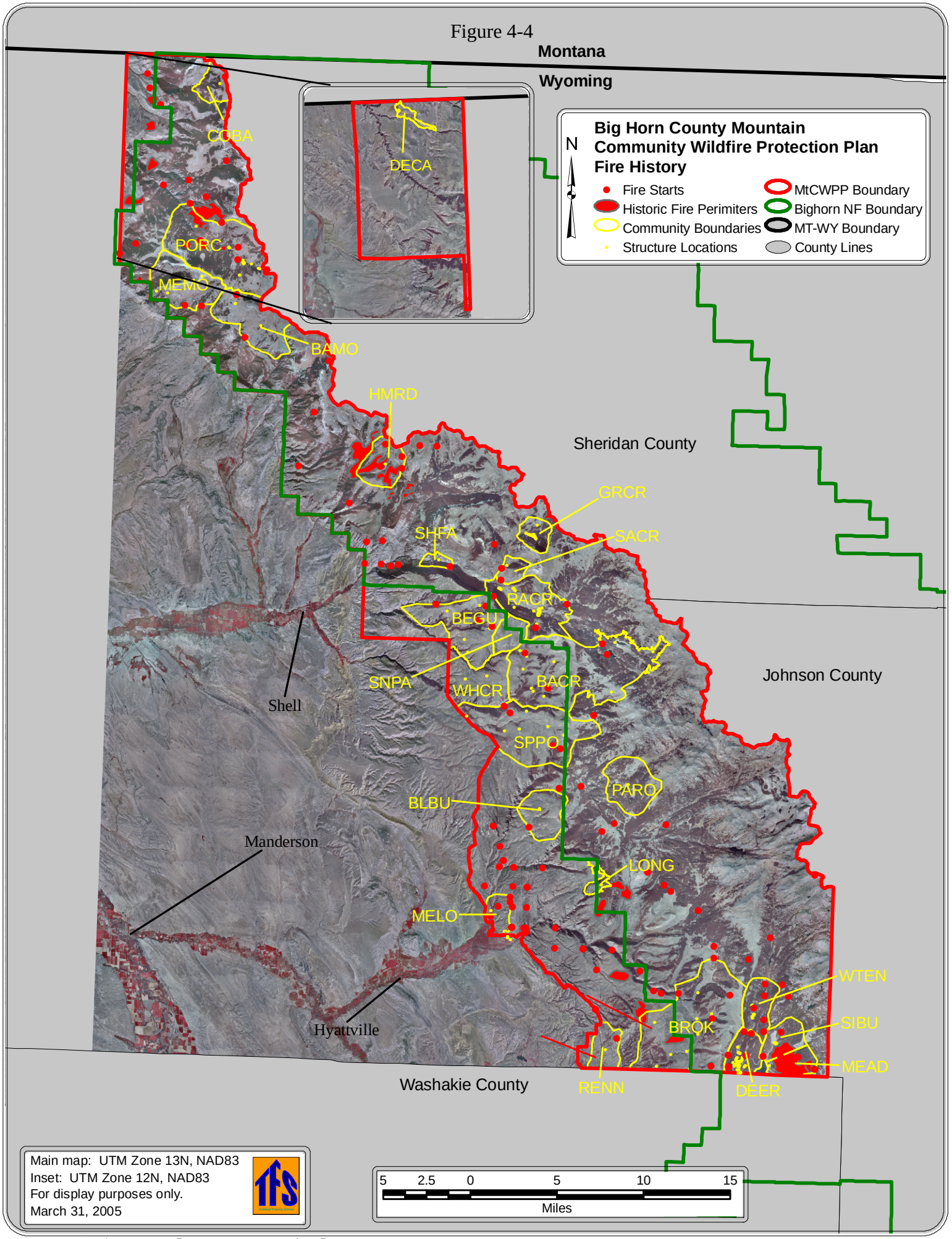
Number of Fires by Size Class							
Fire size (acres)	0-.99	1-9.99	10-99.9	100-299.9	300-999.9	1000+	Total
Number of fires	51	3	7	4	7	3	**75**

Most fires have been smaller than one acre (68% of total) with only three fires (4% of total) growing larger than 1,000 acres. Large fires include the 1997 Little Mountain 2 Fire (1,083 acres) starting in the

Devils Canyon community; the 1988 Intermission Fire (1,800 acres) starting in the Porcupine community; and the 1988 Dorn Draw 2 Fire (1,514 acres) starting in the Brokenback community. Figure 4-4, Fire Occurrence Map, shows the distribution of fire starts across the assessment area.

Helicopter Bucket Drop on Fire in Devils Canyon late 1990's Photo Courtesy of Paul Morency, WSFD

Figure 4-4

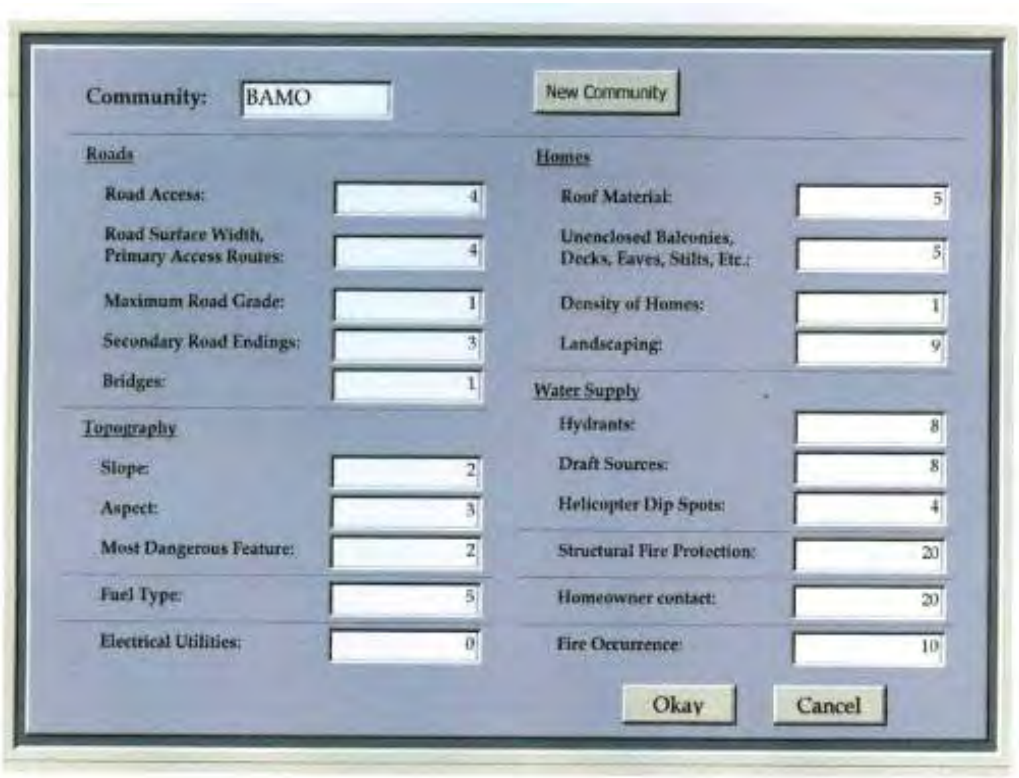

Montana
Wyoming
Big Horn County Mountain
Community Wildfire Protection Plan
Fire History
N
Fire Starts
Historic Fire Perimiters
Community Boundaries
Structure Locations
MtCWPP Boundary
Bighorn NF Boundary
MT-WY Boundary
County Lines
COBA
DECA
PORC
MEMO
BAMO
HMRD
Sheridan County
GRCR
SACR
SHFA
RACR
BECU
SNPA
WHCR
BACR
Johnson County
Shell
SPPO
PARO
BLBU
Manderson
LONG
MELO
WTEN
BROK
SIBU
MEAD
RENN
DEER
Hyattville
Washakie County
Main map: UTM Zone 13N, NAD83
Inset: UTM Zone 12N, NAD83
For display purposes only.
March 31, 2005
5 2.5 0 5 10 15
Miles

4.1.3 Community Layout Scorecard

Each at-risk community underwent a site visit at which time a scorecard was completed assessing characteristics such as road access (ingress and egress), building materials, availability of water sources, and fuels characteristics (see Appendix 4. Community Layout Scorecard).

Values from the Community Layout field forms were entered into the BHCWPP Microsoft® Access Database (MAD) Graphic User Interface (GUI) (see Figure 4-5).

Figure 4-5 Community Layout GUI



Each characteristic was assigned a numeric value and the total values were summed for an overall score (see Table 4-3. Community Layout Scorecard Summary).

Table 4-3 Community Layout Scorecard Summary

Community Layout Scorecard Summary			
Rating	Low	Moderate	High
Value	<115	116 to 130	>130
Rating Code	1	2	3

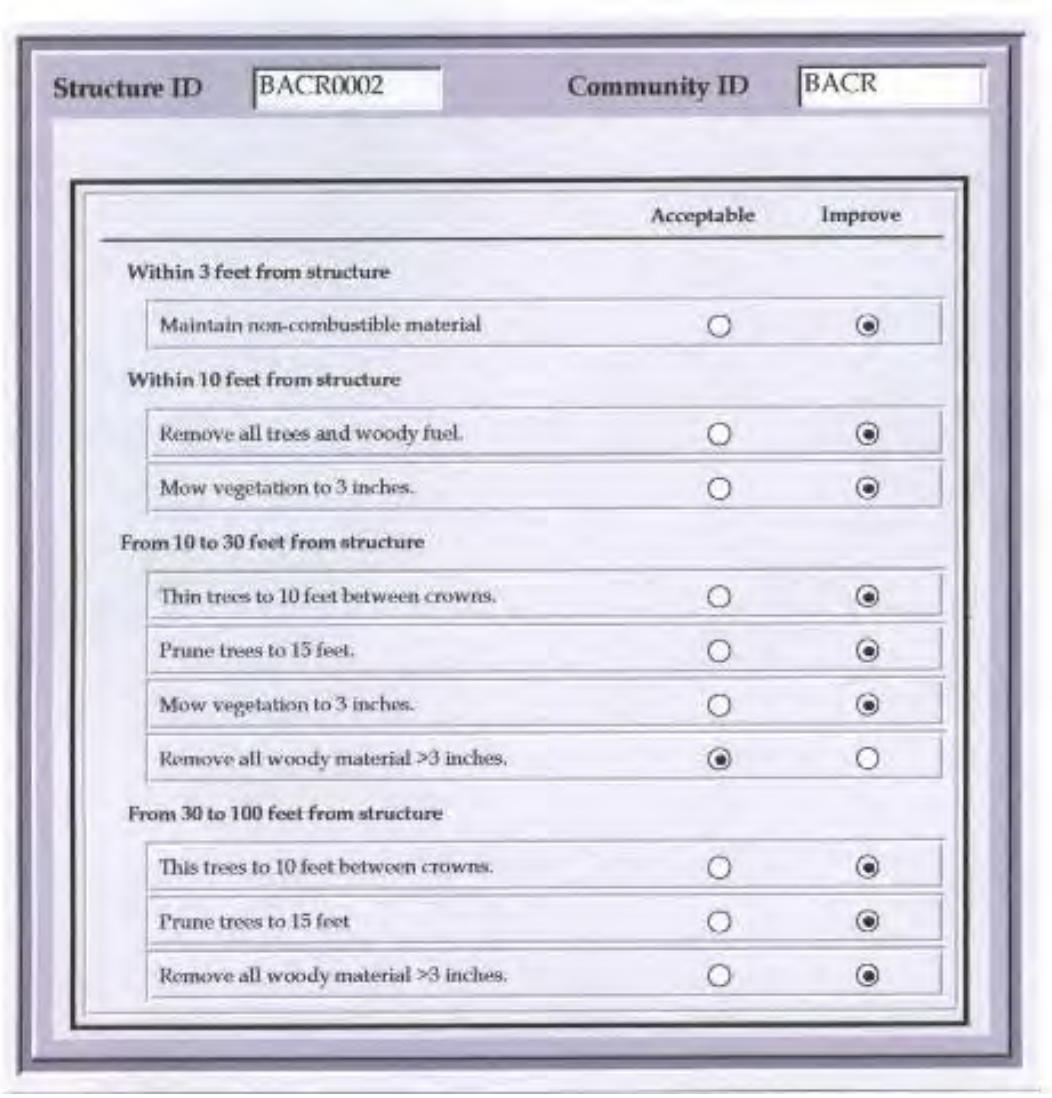
A rating code of one (1), two (2), or three (3) was assigned to each community and entered into the Fire Risk Rating Table 4-5).

4.1.4 Structure Ignitability

Two hundred and twenty structures were identified in the 25 communities of the assessment area. Each of the structures underwent a site visit at which time a Home Evaluation Form was completed and a photograph taken. The Home Evaluation Form used in this assessment was developed by the Montana Department of Natural Resources (see Appendix 5).

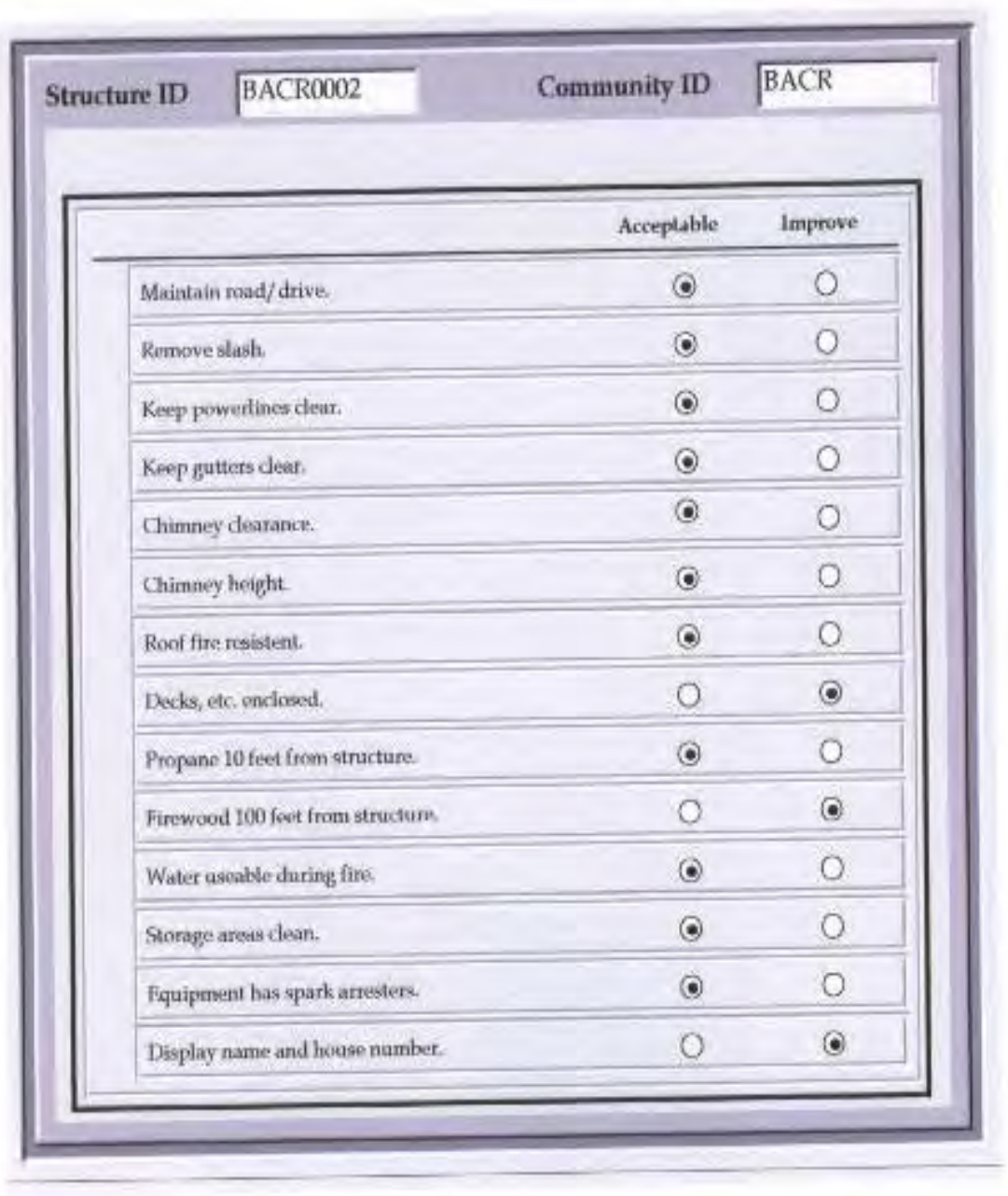
Each attribute on the form was assigned one of two choices: "Acceptable" or "Needs Improvement". Acceptable characteristics received a value of one (1) and Needs Improvement a value of two (2). Field form data for vegetation characteristics were entered into the BHCWPP MAD GUI (see Figure 4-6).

Figure 4-6 Structure Ignitability MS Access Database GUI-Vegetation Data



Other structure characteristics such as building materials, access, chimneys, etc… are entered (see Figures 4-7).

Figure 4-7 Structure Ignitability MS Access Database GUI-Other Data



Values for each structure in a community were summed and averaged to give an overall rating for that community. Breakpoint values for low, moderate and high were determined based on an approximate equal distribution (see Table 4-4).

Table 4-4 Structure Ignitability Value Summary

Structure Ignitability Rating Summary			
Rating	Low	Moderate	High
Value	<9	9 to 11	>11
Rating Code	1	2	3

Ratings of one, two, or three were then entered into the Risk Rating Matrix (Table 4-5) for each community.

Location and owner information was then entered for each structure into the MAD GUI (see Figures 4-8 and 4-9).

Figure 4-8 Structure Ignitability MS Access Database GUI-Location Information

The location GUI includes a "link" to the photo of the structure.

Figure 4-9 Structure Ignitability MS Access Database GUI-Owner Information

The BHCWPP Microsoft® Access Database uses the information entered for communities and structures to generate "reports" useful for summarizing characteristics (see Appendix 6. Structure Report). The BHCWPP MAD is also a tool that can be used in the future to update community and structure information or add new communities or structures.

Fire Risk Rating

The Risk Ratings of the at-risk communities are shown below in Table 4-5. These results will now be included in the Cumulative Risk Rating Analysis completed by the OG at the February 28, 2005 meeting.

Table 4-5 Fire Risk Rating Matrix

Fire Risk Rating Matrix						
Community (number of structures)	Fire Hazard Rating	Fire Occurrence Rating	Community Layout Hazard Rating	Structure Ignitability Hazard Rating	Fire Risk Rating Value	Fire Risk Rating
Deer Haven (41)	2.0	2.0	3.0	3.0	4.00	high
Medicine Mtn (1)	2.0	1.0	3.0	3.0	3.75	high
Granite Creek (16)	1.7	1.0	3.0	3.0	3.67	high
Sitting Bull (6)	1.7	1.0	3.0	3.0	3.67	high
Porcupine (20)	1.3	3.0	3.0	2.0	3.58	high
Shell Falls (2)	2.7	1.0	3.0	2.0	3.42	high
Ranger Creek (30)	1.7	1.0	3.0	2.0	3.17	high
West Tensleep (10)	1.7	1.0	2.0	3.0	3.17	high
Bear Gulch (5)	2.3	3.0	2.0	1.0	2.83	moderate
Devils Canyon (3)	2.3	3.0	2.0	1.0	2.83	moderate
Meadowlark (23)	2.3	1.0	2.0	2.0	2.83	moderate
Bald Mountain (2)	2.0	1.0	2.0	2.0	2.75	moderate
Battle Creek (12)	2.0	1.0	3.0	1.0	2.75	moderate
Brokenback (10)	2.0	3.0	2.0	1.0	2.75	moderate
Longview (2)	2.0	1.0	2.0	2.0	2.75	moderate
Salt Creek (1)	2.0	1.0	1.0	3.0	2.75	moderate
Spanish Point (7)	2.0	3.0	1.0	2.0	2.75	moderate
Cookstove Basin (1)	1.7	1.0	1.0	3.0	2.67	moderate
White Creek (6)	2.0	1.0	2.0	1.0	2.25	moderate
Hunt Mountain Rd (1)	1.7	1.0	1.0	2.0	2.17	moderate
Medicine Lodge (6)	1.3	3.0	1.0	1.0	2.08	moderate
Paintrock (6)	2.0	1.0	1.0	1.0	1.75	low
Snowshoe Pass (2)	2.0	1.0	1.0	1.0	1.75	low
Black Butte (1)	1.7	1.0	1.0	1.0	1.67	low
Renner Wildlife (1)	1.7	1.0	1.0	1.0	1.67	low
Weighting Factor	1	1	2	2	≈≈≈≈≈	≈≈≈≈≈

4.2 Cumulative Fire Risk Rating

At the February 28 meeting the OG met to finalize the prioritization of the at-risk communities. Three factors were chosen to use in the discussions for this prioritization:

1. **Emergency Management Capabilities**
2. **Values-at-Risk**
3. **Fire Risk Ratings**

4.2.1 Emergency Management Capabilities

Each at-risk community was evaluated for items such as local preparedness (personnel training, emergency equipment and resources availability), ingress and egress of emergency vehicles, and response times required for emergency equipment and personnel to arrive at an incident.

4.2.2 Values-at-Risk

Factors such as the presence of historical structures, cultural sites, real estate values, wildlife habitat, recreation areas, watersheds, natural resources, and the total number of structures in each community were evaluated.

4.2.3 Fire Risk Rating

The rating of communities, as discussed above and summarized in Table 4-5 were discussed.

Final Priority List

The cumulative risk analysis determines the final prioritization of the communities. This process evaluates fire hazard, fire occurrence, community layout scorecards, structure ignitability, emergency management capabilities, and values-at-risk. The result of this analysis is a Final Priority List of the at-risk communities (see Table 4-6).

Table 4-6 Final Priority List

BHCWPP At-risk Communities Priority List						
Priority	Community	Map Code	Number of Structures	Federal Land Area (acres)	Private, State, BLM Land Area (acres)	Total Area (acres)
1	Deer Haven	DEER	41	2763	0	2763
2	Ranger Creek	RACR	30	6708	0	6708
3	Porcupine	PORC	20	12437	0	12437
4	Granite Creek	GRCR	16	1826	0	1826
5	Sitting Bull	SIBU	6	2709	0	2709
6	Battle Creek	BACR	12	10186	7613	17799
7	West Tensleep	WTEN	10	3295	0	3295
8	Medicine Lodge	MELO	6	0	1820	1820
9	Bear Gulch	BEGU	5	380	7698	8078
10	Spanish Point	SPPO	7	1655	10046	11701
11	Brokenback	BROK	10	11918	5793	17711
12	White Creek	WHCR	6	0	6116	6116
13	Paintrock	PARO	6	4908	0	4908
14	Medicine Mtn	MEMO	6	5999	0	5999
15	Meadowlark	MEAD	23	2256	0	2256
16	Devils Canyon	DECA	3	0	622	622
17	Shell Falls	SHFA	2	763	0	763
18	Bald Mountain	BAMO	2	6292	0	6292
19	Longview	LONG	2	368	444	812
20	Salt Creek	SACR	1	1284	0	1284
21	Cookstove Basin	COBA	1	1974	0	1974
22	Hunt Mountain Rd	HMRD	1	3500	0	3500
23	Snowshoe Pass	SNPA	2	629	1391	2020
24	Black Butte	BLBU	1	63	3694	3757
25	Renner Wildlife	RENN	1	0	2455	2455
≈≈≈≈≈≈≈≈	≈≈≈≈≈≈≈≈	**TOTAL**	**220**	**81913**	**47692**	**129605**

4.3 Summary of Community Assessment

Details for each community and for each structure within the communities can be accessed in the BHCWPP Microsoft® Access Database (MAD). This database is found on a compact disk bound with this document. If the disk is not attached contact Big Horn County for information on obtaining the database.

An assessment summary is given below for the at-risk communities on the priority list. Communities are listed in the order of priority for needed fuels reduction treatments and overall current risk of devastating fire. Community and structure details for all communities are found in the BHCWPP MAD.

There are few homes of high monetary value in the BHCWPP assessment area. Perhaps the highest values-at-risk in the BHCWPP assessment area are the historical cabins that are an important part of the cultural fabric in Big Horn County.

4.3.1 Deer Haven (DEER); West Tensleep (WTEN); Sitting Bull (SIBU); Meadowlark (MEAD)

Topography consists of relatively gentle slopes and mostly south and west facing aspects. Most of the community is in current Condition Class 2 with some areas of Condition Class 3. There have been five reported fires within the community in the past 25 years, all under 100 acres in size. The PROBACRE model shows there is a 44% probability that combinations of fire events will result in total burned area in excess of 50 acres in the next ten years.

There are narrow spur roads providing ingress to cabin sites and roads with no egress. In recent years, the USFS was able to access all cabin sites with a Type 6 engine after improving access by removing trees and vegetation. There is a bridge with a 20 ton per axle rating at the entrance to the community. It should accommodate all emergency management vehicles.

Utilities appear to be all underground. Most roofs are made of fire resistant materials. Defensible space is being improved as a result of a public outreach program by the USFS which began after the 2000 fire season.

More than 25% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements in 25-50% of the structures. No water hydrants were apparent on inspection and access to draft sources was poor. Meadowlark Lake is likely the closest source for a helicopter dip spot, which is one to two miles away from Deer Haven.

The nearest emergency management response is from the Ten Sleep Volunteer Fire Department. Response time from Ten Sleep is estimated at 45 minutes.[3] Response time from the Worland BLM Field Office is estimated at 2 hours.

Dense forest stands exist throughout much of the community with a significant component of mature to over-mature lodgepole pine. This forest component is likely in a Condition Class 3 and is due for a stand replacing fire.

The USFS, as part of the West Tensleep Project, allows landowners to remove fuels under greenwood and traditional firewood permits.

Sitting Bull (SIBU)

Topography consists of gentle slopes and predominately west facing aspects. Most of the land area is currently in Condition Classes 2 with a small representation of Condition Classes 1 and 3 There have been three reported fire starts within the community in the past 25 years - all human caused. All fires have been less than one acre in size. The human caused Meadowlark Fire burned 1,900 acres in 1975. The PROBACRE model shows there is a 33% probability that combinations of fire events will result in total burned area in excess of one acre in the next ten years.

There are mostly narrow width roads providing access to cabin sites. There is a low weight limit bridge providing access into some of the structures. Utilities appear to be all above ground and in poor maintenance.

---

[3] All response times include a 20 to 30 minute preparation time before personnel and equipment begin travel.

Most roofs are made of fire resistant materials. Greater than 25% of structures have unenclosed balconies, eaves, or decks. Cabins are moderately densely spaced with an estimated 60-100 feet between structures. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements for 50% of the structures. Meadowlark Lake, one mile to the south, is the nearest helicopter dip spot. No water hydrants were apparent on inspection. Small ponds and drainages are in the area and may provide opportunities for draft sources.

The nearest emergency management response is from the Ten Sleep Volunteer Fire Department. Response time from Ten Sleep is estimated at 45 minutes. Response time from the Worland BLM Field Office is estimated at 2 hours.

Forest stands are densely to moderately stocked with a mixture mostly lodgepole pine, with Engelmann spruce and sub-alpine fir present.

It is uncertain if the USFS has initiated fuels reduction treatments in the community.

Characteristics found in the Sitting Bull community closely approximate those found in Meadowlark (MEAD).

West Tensleep (WTEN)

Topography consists of relatively gentle slopes and mostly south and east facing aspects. Most of the community is in current Condition Class 2. There have been five reported fires within the community in the past 25 years all less than 10 acres in size. The PROBACRE model shows there is a 28% probability that combinations of fire events will result in total burned area in excess of 5 acres in the next ten years.

There are narrow spur roads providing ingress to cabin sites and roads with no egress. There is a bridge with a 20 ton per axle rating at the entrance to the community. It should accommodate all emergency management vehicles.

Utilities appear to be all underground. Most roofs are made of fire resistant materials. Defensible space is being improved as a result of a public outreach program by the USFS which began after the 2000 fire season.

Greater than 25% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements in 25-50% of the structures. No water hydrants were apparent on inspection and no easy access to draft sources. Meadowlark Lake is likely the closest source for a helicopter dip spot two miles away.

The nearest emergency management response is from the Ten Sleep Volunteer Fire Department. Response time from Ten Sleep is estimated at 60 minutes. Response time from the Worland BLM Field Office is estimated at 90 minutes.

Dense forest stands exist throughout much of the community with a significant component of mature to over-mature lodgepole pine. This forest component is likely in a Condition Class 3 and due for a stand replacing fire.

The USFS, as part of the West Tensleep Project, allows landowner to remove fuels under greenwood and traditional firewood permits

4.3.2 Ranger Creek (RACR)

Topography consists of moderate to steep slopes and predominately northwest facing aspects. An equal mixture of land area is currently in Condition Classes 2 and 3. There have been three reported fire starts within the community in the past 25 years all under 1 acre in size. The PROBACRE model shows there is a 34% probability that combinations of fire events will result in total burned area in excess of 1 acre in the next ten years.

There have been 37 fires recorded in the Shell Creek drainage since 1910. Three fires were over one acre in size; one was a 225-acre, stand-replacement event west of the analysis area in 1984. Forest history indicates that no large scale fires have occurred within the analysis area since 1790.

There are three significant recorded fires in the general area, although exact locations and acreages are approximate. The Shell Creek fire occurred in 1895, with an estimated size of 10,000 acres. In 1898, shepherds started the Copman's Tomb Fire (unknown size) that burned in Granite Creek and under Copman's Tomb. The Beaver Creek fire burned 12,000 acres from Beaver Creek to Shell Creek and was credited to indigenous people (USDA FS 2005).

There are narrow- to medium-width roads providing access to cabin sites. There is a 20-40 ton weight limit bridge at the upper end of the community. The Schulte cabin has one way in and one way out.

Utilities appear to be both above ground and underground. Most roofs are made of fire resistant materials. Defensible space is being improved as a result of a public outreach program by the USFS which began after the 2000 fire season. The USFS, as part of the Bench Restoration Healthy Forest Initiative Project, has planned nearly 1,000 acres of fuels reduction treatments within and adjacent to the Ranger Creek at-risk community.

Greater than 25% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements in 25-50% of the structures. Adelaide Lake and Shell reservoir, five miles to the east, are the nearest helicopter dip spots. No water hydrants were apparent on inspection and to the nearest draft source is Shell Creek. Adelaide Lake and Shell reservoir, five miles to the east, are the nearest helicopter dip spots.

The nearest emergency management response is from the Shell Volunteer Fire Department approximately 20 miles to the west. Response time from Shell is estimated at 60-90 minutes. Response time from the Worland BLM Field Office is estimated at two hours 30 minutes.

Lack of fire in the analysis area has resulted in a continuous canopy layer with few breaks in continuity. High tree stocking has increased stress and mortality within the Douglas-fir types, and significant Douglas-fir beetle attacks are ongoing. Historic aspen stands have been suppressed and replaced by dry-site Douglas-fir and moist site Engelmann spruce. Approximately 90 percent of the forested vegetation is dry-site, overstocked, mature, Douglas-fir with aspen, spruce, limber pine, and lodgepole components. Average tree age in the analysis area is 185 years (USDA FS 2005).

The USFS has been working within the community on fuels treatments since 2000. These treatments have taken place outside the lot boundaries. The leaseholders themselves have been allowed by the USFS to purchase a “Biomass Permit” which allows them to remove trees under four inches in diameter. There has been some confusion expressed on the part of the landowner on what options they have for fuels reduction around cabins. One problem is the short duration of the permit (one year).

The area consists of 30 structures assembled in the following five, separate cabin groups:

<u>Ruble Creek</u>

This cabin group is accessed by passing the Cabin Creek turn to the left after leaving Highway 14 and turning north at the second road branching off of FS Road 17. The road re-connects with FS Road 17

one mile below the Shell Creek Ranger Station. This cabin group consists of five cabins with miscellaneous outbuildings. Vegetation consists of fairly dense spruce and Douglas-fir along the Ruble creek drainage and transitions to sagebrush and grassland above the creek.

Masonic Cabin Group

This cabin group is located south on a two track road leaving FS Road 17 approximately 100 yards after leaving Highway 14. The road switchbacks downhill to Shell Creek where five cabins are situated along the Creek. The cabins are generally located on the edge of the spruce and Douglas-fir forest vegetation associated with the creek. Grass and sagebrush comprise the vegetation on the southwest facing slope rising to the north of the cabins.

Shulte Cabin

This is a solitary cabin located on the south side of Shell Creek, and is accessed by turning south from FS Road 17 one-mile west of the Shell Creek Ranger Station, traveling downhill on a two-track road, crossing Shell Creek on a timber bridge, and traveling approximately 400 yards up the hill.

The cabin is located along the Bench Trail which runs from the Trailhead at the Ranger Creek Campground 16 miles down to Post Creek Picnic Ground.

Vegetation is a mix of aspen immediately to the west of the cabin and spruce, Douglas-fir, and lodgepole pine to the south and east. Young conifer trees are encroaching from the southwest and east. Grass and sagebrush occurs north downslope from the cabin.

Characteristics found in the Ranger Creek community closely approximate those found in the Shell Falls (SHFA) community.

4.3.3 Porcupine (PORC)

Topography consists of gentle to moderately steep slopes and predominately east facing aspects. Most lands in the east half of the community are currently within Condition Classes 2 and lands in the west, Condition Class 3 with a small percentage in Condition Class 1. There have been seven reported fire starts within the community in the past 25 years - three lightning and four human caused. Six fires have been less than one acre in size and one, the 1988 Intermission Fire, grew to 1,800 acres in size. Additionally, a 120 acre human caused fire burned near the Bischoff cow camp in 1969. The

PROBACRE model shows there is a 30% probability that combinations of fire events will result in total burned area in excess of 1,000 acres in the next ten years.

There are narrow to medium-width roads providing access to cabin sites. There is a USFS primary road bridge on the primary USFS road directly after the turn from Highway 14A into the Porcupine Summer Home Group. There is another, very small bridge on a spur road into a group of cabins. The smaller bridge would likely not support an emergency management vehicle above 10 to 15 tons. Utilities appear to be all above-ground. Most roofs are made of fire resistant materials. The USFS is in the planning stages for implementation of fuels reduction projects in this community.

Greater than 25% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements for 25-50% of the structures. There are no known helicopter dip spots within a practical distance of the community. Two water hydrants of uncertain operability, are located at the USFS Porcupine Work Station.

The nearest emergency management response is from the Lovell Fire Department (Big Horn County Fire Protection District #1) approximately 35 miles to the west. Response time from Lovell is estimated at 75 minutes. Response time from the Cody BLM Field Office is estimated at 2 hours thirty minutes. Response time from the Worland BLM Field Office is estimated at three hours. There is no known homeowner organization or fire prevention working group in the Porcupine community.

Characteristics found in the Porcupine community closely approximate those found in Cookstove Basin (COBA); Medicine Mountain (MEMO); and Bald Mountain (BAMO): Hunt Mountain Road (HMRD)

4.3.4 Granite Creek (GRCR)

Topography consists of gentle to moderately steep slopes and predominately north and east facing aspects. A mixture of land area is currently in Condition Classes 2 and 3 with the majority in Condition Class 2. There have been no reported fire starts within the community in the past 25 years.

There are narrow- to medium-width roads providing access to cabin sites. Utilities appear to be all above ground and in poor maintenance. A bridge with a 20 to 40 ton weight limit exists within the community. Most roofs are made of fire resistant materials.

Greater than 25% of structures have unenclosed balconies, eaves, or decks. Cabins are moderately densely spaced with an estimated 60-100 feet between structures. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements for 25% of the structures. Adelaide Lake and Shell reservoir, seven to 10 miles to the southeast, are the nearest helicopter dip spots. No water hydrants were apparent on inspection and no easy access to draft sources.

The nearest emergency management response is from the Shell Volunteer Fire Department approximately 20 miles to the west. Response time from Shell is estimated at 60-90 minutes. Response time from the Worland BLM Field Office is estimated at three hours.

The USFS has been conducting some fuels reduction treatments in the community. Crews have been working in an area 150 feet (and sometimes farther) from cabin lease boundaries.

Characteristics found in the Granite Creek community closely approximate those found in Salt Creek (SACR).

4.3.5 Battle Creek (BACR)

Topography consists of variable-slope angles ranging from steep to moderate and predominately west-facing aspects. An equal mixture of land area is currently in Condition Classes 2 and 3. There have been two reported fire starts within the community in the past 25 years both under 1 acre in size. The PROBACRE model shows there is a 19% probability that combinations of fire events will result in total burned area in excess of 1 acre in the next ten years.

There are narrow to medium width roads providing access to cabin sites. The community is located south of Snowshoe Pass about 20 miles East of Shell, Wyoming. Access is off the Black Mountain road from USFS Road 17 and from US HWY 14. There is a 20-40 ton weight limit bridge on FS Road 17 in the Ranger Creek community that must be crossed if access is gained from the north. An alternate travel route, though with a longer time and distance, is via the Alkali road from the southwest.

Utilities are all above ground and in need of a maintenance check. Greater than 25% of structures have unenclosed balconies, eaves, or decks. Structures are not densely associated and are situated as is typical of “cow camps” found throughout the Big Horn Mountains.

"High Whaley" Cow Camp. Headwaters of Trapper Creek, Battle Creek Community. Photo Courtesy of Jack Lindsey

Cabins are mostly located on private land in meadows, valleys, and sagebrush pasture. These cow camps are used by ranchers while monitoring cattle grazing on summer private land and federal range allotments.

Landscape guidelines, meant to improve defensible space, do not meet minimum requirements in greater than 75% of the structures. Adelaide Lake and Shell reservoir, five miles to the east, are the nearest helicopter dip spots. No water hydrants are present and draft sources are not easily accessible. Adelaide Lake and Shell reservoir, five miles to the east, are the nearest helicopter dip spots.

The nearest emergency management response is from the Shell Volunteer Fire Department approximately 25 miles to the west. Response time from Shell is estimated at 90-120 minutes. Response time from the Worland BLM Field Office is estimated at two hours, 30 minutes.

Battle Creek characteristics closely approximate those found in the following communities: Spanish Point (SPPO), Snowshoe Pass (SNPA), Bear Gulch (BEGU), and White Creek (WHCR).

4.3.6 Medicine Lodge (MELO); Black Butte (BLBU)

Topography consists of gentle to moderately steep slopes and predominately south and east facing aspects. There have been three lightning caused and one human caused fire starts within the community in the past 25 years, none of which grew to over one acre in size. There have been a relatively high number of fire starts *surrounding* the community, however, indicating a likely "lightning belt" in this area.

There is one main road of medium width providing access to this community. There are no bridges and ample areas for emergency vehicles to turn around. Utilities appear to be both above ground and below ground. Roofs on structures in this community are made of fire resistant materials.

Less than 10% of structures have unenclosed balconies, eaves, or decks. Structures are moderately densely spaced with an estimated 60 feet or more between structures. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements for 50% of the structures. Renner Reservoir, 10 miles to the south, is the nearest known helicopter dip spot. A water hydrant is accessible between the main house and barn. Medicine Lodge Creek would allow an easy draft source and lies close enough to structures to allow for a direct hoselay.

The nearest emergency management response is from the Hyattville Volunteer Fire Department approximately five miles to the southwest. Response time from Hyattville is uncertain. Response time from the Worland BLM Field Office is estimated at two hours.

Fuels consist of Rocky Mountain juniper, sagebrush, and grasses on the slopes above the main valley. The biggest threat to structures, however, may be the very densely vegetated riparian area along Medicine Lodge Creek.

Riparian Area Historical Fire Intervals

Wildfires in riparian communities were presumably uncommon due to the high moisture content of the riparian soils and vegetation, and the low frequency of lightning strikes in low-lying drainages and valley bottoms. These infrequent fires often burned in a mosaic pattern leaving much of the vegetation and soil only lightly disturbed, and helped maintain a diversity of plant species. Dominant members of the *Populus* and *Salix* genera respond to low-intensity fires by either root sprouting or survival through older individuals The Nature Conservancy.

The suppression of naturally occurring fires and an increase of exotic/invasive plant species in riparian communities has resulted in an increased fuel loading within riparian zones. As a result, there has been an increase in both fire frequency (5-10 per century) and intensity in many riparian areas throughout the west - much to the detriment of the native plant community that can not survive the high-intensity fires.

Compounding the threat of wildfire to riparian communities, is the close proximity of residential and commercial properties often associated with riparian areas, and the potential impacts of a wildfire on human safety, air quality, commercial activities, highway or road closures, and loss of private property.

In the photo above, the riparian vegetation is seen behind the main house A large portion of the riparian vegetation along the lower portion of Medicine Lodge Creek consists of aging cottonwood trees and the invasive species tamarisk Tamarix ramosissima, (also called salt cedar).

Tamarix, an invasive species, is becoming an ever increasing problem in Big Horn County. The immediate effect of fire on tamarisk depends on fire severity, which is largely a function of the quantity and quality of fuels present. Tamarix (salt cedar) leaves are not highly flammable due to high moisture content, even though they contain volatile oils. Salt cedar flammability increases with the build-up of dead and senescent woody material within the plant

Vegetation surveys noted the presence of cheatgrass (*Bromus tectorum)* in the community. This plant is called cheat because it “out competes” other plants in the spring by taking the water first. When the

soil dries in summer, native-grass seedlings are robbed of available water at the soil surface. Over time, native species decline and cheat grass takes over. Cheatgrass is of no use as forage after it seeds out in early summer because its seeds have sharp points that injure livestock and wildlife attempting to eat the grass.

Cheatgrass burns every one to three years compared to every 60 to 100 years for other grassland types. The increase in the fire cycle increases chances of a surface fire moving into the dense riparian vegetation along Medicine Lodge Creek.

4.3.7 Brokenback (BROK); Renner Wildlife (RENN)

Topography consists of relatively gentle to moderate slopes with deeply cut canyons and draws in areas. Most aspects are south and west facing. Most of the community is in current Condition Class 3. There have been six reported fire starts within the community in the past 25 years. Five have been less than one acre in size and one, the 1988 Dorn Draw 2 Fire, grew to over 1,500 acres in size. The North Brokenback Fire burned a large area in 1996. The West Brokenback Fire of unknown cause burned 275 acres within the community in 1920. The PROBACRE model shows there is a 30% probability that combinations of fire events will result in total burned area in excess of 1,000 acres in the next ten years.

Structures are not densely associated and are situated as is typical of “cow camps” found throughout the Big Horn Mountains. Cabins are mostly located on private land in meadows, valleys, and sagebrush pasture. These cow camps are used by ranchers while monitoring cattle operations on private land and federal range allotments. There are no known bridges.

Utilities appear to be all underground. Most roofs are made of fire resistant materials. Defensible space is being improved as a result of a public outreach program by the USFS which began after the 2000 fire season.

Greater than 25% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements in over 75% of the structures. No water hydrants were apparent on inspection and no easy access to draft sources. Meadowlark Lake is likely the closest source for a helicopter dip spot five miles to the east.

The nearest emergency management response is from either the Ten Sleep Volunteer Fire Department or Hyattville. Response time from Ten Sleep is estimated at 60-90 minutes. Response time from the Worland BLM Field Office is estimated at 2 hours.

Much of the vegetation consists of grassland and shrub communities. Past fire activity has created a mosaic pattern of vegetation reducing chances of large scale fires.

Brokenback characteristics closely approximate those found in Renner Wildlife (RENN).

4.3.8 Paintrock (PARO)

Topography consists of relatively gentle slopes and mostly west facing aspects. Most of the community is in current Condition Class 2 and 3. There have been no reported fires within the community in the past 25 years.

Primary Forest Service Road 17 comes into the community from the north. The Cold Springs Road come up from Hyattville from the south west. There is ample room for emergency management vehicles to turn around at the Paintrock Lodge location. There is an approximately 20-39 ton weight limit bridge.

Utilities appear to be all underground. Roofs are made of fire resistant materials Less than 10% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements in 50% of the structures. No water hydrants were apparent on inspection, however, draft sources from Paintrock Lake would allow for an easy hoselay. Paintrock Lake is likely the closest source for a helicopter dip spot a short distance from the Lodge complex.

The nearest emergency management response is uncertain. Shell may be the closest in time because of better roads. Hyattville is likely the nearest emergency response location in distance. Response time from the Worland BLM Field Office is estimated at 3 hours.

Dense forest stands exist throughout much of the community with a significant component of mature to over-mature lodgepole pine. This forest component is likely in a Condition Class 3 and due for a stand replacing fire.

Paintrock characteristics closely approximate those found in Longview (LONG).

4.3.9 Devils Canyon (DECA)

Topography consists of gentle to moderately steep slopes and predominately west facing aspects. There have no reported fire starts within the community however, there have been 12 fire starts surrounding the community in the past 25 years. Most of the fires have been lightning caused, which suggests this area may be in a lightning belt.

Access from the west is on a treacherous four-wheel drive road through Devils Canyon. Access from the east comes from the USFS lands. There is a USFS primary road bridge after the turn from Highway 14A onto Primary Forest Service Road 13.

Greater than 25% of structures have unenclosed balconies, eaves, or decks. Landscape guidelines, meant to improve defensible space, do not meet minimum requirements for 25% of the structures. There are no known helicopter dip spots within a practical distance of the community.

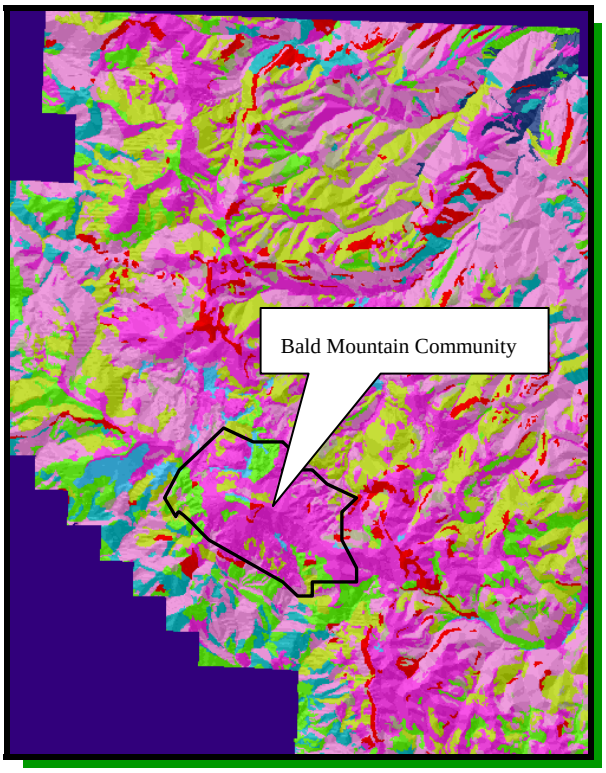
The nearest emergency management response is from the Lovell Fire Department (Big Horn County Fire Protection District #1 approximately 55 miles travel distance. Response time from Lovell is estimated at 75 minutes. Response time from the Cody Field Office is estimated at three hours. Response time from the Worland BLM Field Office is estimated at four hours. There is no known homeowner organization or fire prevention working group in the Devils Canyon community.

FlamMap Analysis

The local USFS Fire Management Officer assessed fire behavior characteristics in the assessment area using the fire modeling software FlamMap. This software creates maps of potential fire behavior characteristics (rate of spread, flame length, crown fire activity, etc.) and environmental conditions (dead fuel moistures, mid-flame wind speeds, and solar irradiance) over an entire landscape.

There is no temporal component in FlamMap. It uses spatial information on topography and fuels to calculate fire behavior characteristics at a single point in time. Figure 4-10. shows the map generated by the FlamMap software in the BHCWPP assessment area.

Figure 4-10 FlamMap Example Output



NOTE: Though the FlamMap model was not used extensively in the BHCWPP at-risk community cumulative risk rating or prioritization, it will be used in the development of mitigation and project planning.

5.0 Recommendations for Reducing Risk of Catastrophic Fire

Section II provides the following information on the BHCWPP assessment area: physical environment, history of the structure development, forest health, relevant fire policies (guiding fuels reduction nationally and locally), and existing fire control documents. Section III outlines the process used for delineating the at-risk communities and provides descriptions of these communities. Section IV defines the analysis process used to assess cumulative fire risk, and from that analysis, set priorities for hazardous fuels reduction treatments. This section recommends fuels treatments, administrative actions, policy changes, and other management considerations aimed at mitigating the potential for catastrophic wildland fire within the WUI.

5.1 Administrative Oversight

The most effective method of initiating and perpetuating hazardous fuel reduction treatments and other mitigation efforts in the WUI is to appoint a "Wildland Community Forester" to oversee the implementation of the BHCWPP. This position would be responsible for developing a Mitigation Plan for the BHCWPP at-risk communities, develop site specific project plans, and coordinate the implementation of these plans. This will allow for the enhanced coordination of management actions and reduced inconsistency among local, State, and federal agencies.

This Wildland Community Forester position would be appointed after the BHCWPP Operating Group developed a position description identifying the responsibilities for coordination, implementing, monitoring, and reporting to the OG the status of the current-year projects as specified in the Mitigation Plan and project plans. This position could be shared by surrounding counties.

The OG will develop a work plan proposing priority action recommendations which will contain a scope-of-work, schedule, and budget. A report and work plan will be submitted to the OG each year for approval. Funding through the HFRA can be requested after work plans and reports are approved by the participating government entities, and fire districts.

The highest priority for the Wildland Community Forester position is the implementation of the BHCWPP in a way that provides for timely decision making at all levels of government and that provides for: 1) reduced risk of catastrophic fire destroying life and property, and 2) the restoration of forests.

5.2 Recommendations for Land Treatments

All fuels reduction projects will be designed and implemented in accordance with section 102 of HFRA. The HFRA requires authorized projects to be planned and conducted consistent with resource management plans and other relevant administrative policies and decisions that apply to the federal lands covered by the project (Section 102(b)). The HFRA also prohibits authorized projects in wilderness areas, formal wilderness study areas, and Federal lands where an act of Congress or Presidential proclamation prohibits or restricts removal of vegetation (Section 102(d)).

Land treatments on private land will be planned after consultation with the following entities:

- Wyoming Game and Fish regarding wildlife habitat impacts
- US Fish and Wildlife Service regarding wetlands
- State Historical Preservation Office (SHPO) regarding any known cultural resource sites in the planned treatment area.

The following fuels treatment recommendations are presented as examples of possible treatments to be considered when developing a mitigation plan and site specific project plans for the at-risk communities.

5.2.1 Shaded fuel breaks

The objective of treatments in these areas is to reduce fuels by thinning trees and brush along roads and ridges to improve the fuel break function already present in these areas. Fuels treatments in these areas would have the greatest effect on preventing fire spread and would maintain the primary ingress/egress and escape routes. Trees on both sides of identified roads and ridges would be thinned by hand or mechanically so that trees are separated by an average of 40 feet.

Aerial view of Shaded Fuel Break

The width of the shaded fuel break would vary between 300 and 500 feet depending on vegetation and terrain. The center of the fuel break would be approximately 100 feet in width and would resemble a shaded open park-like atmosphere. Tree thinning in the center of the fuel break would be greatest resulting in a final spacing of about 30 trees per acre. Beyond this central area, tree removal would

incrementally be reduced in both directions so that spacing between trees would be feathered back to the current forest density.

In conformance with section 102(e) of HFRA, specifying that treatments will be designed to "contribute toward the restoration of the structure and composition of old growth stands and retaining the large trees contributing to old-growth structure," large, healthy trees (generally greater than 16 inches in diameter at breast height [DBH]) would not be removed in the shaded fuel breaks and trees scheduled for harvest would be marked with paint for sale preparation (cut-tree marked). All trees infected with bark beetles would be removed in the shaded fuel breaks, as would trees with poor form or low vigor. All woody surface materials and ladder fuels would be cleared within the fuel breaks. Trees containing nests and snags with apparent cavity nesters would be retained.

Shrubs that were not removed would be thinned, in most cases by hand, at ground level so that crowns are separated. As a whole, these actions would aid in forcing potential crown fires to drop to the ground as surface fires, would slow fire spread, and would enable the roads and ridges to serve as major lines of defense against wildfires.

Harvested trees would be skidded to landing sites along the roads using tracked equipment, rubber-tired skidders, or short-span skyline systems. Trees would be limbed and bucked at the landing sites. Slash (including pruned shrubs) would be piled in openings or near the landing sites. No slash would remain within fuel breaks. Slash piles would be positioned wherever possible so that the prevailing winds would not force flames into surrounding tree canopies when piles are burned. In smaller openings piles would be kept small to minimize flame lengths. Piles would be burned under favorable conditions after the sale is complete (generally one to two years after harvest). Scarifying the soil in burn pile areas in early spring and seeding with an appropriate native seed mixture would minimize the potential for noxious weed establishment. To remain effective, fuel breaks would undergo periodic maintenance about every five years to clear understory woody species as well as any down and dead material. Removal of dying trees and recruitment of younger trees would also occur as needed to maintain the functionality of the fuel breaks. Once created, prescribed fire may be used to help maintain the shaded fuel breaks. Finally, an inventory and analysis of existing secondary roads could be used to develop a matrix of fire breaks designed to aid suppression forces in the advent of a wildfire.

5.2.2 Selective Tree Harvest:

Forested areas that would undergo selective timber harvest would generally consist of mature stands of conifer trees with heavy fuel loads and densities as high as 300 trees per acre. Stands currently infected with insects and/or diseases and those stands that are over mature and at risk of disease and insect infestation are high priorities for a selective timber harvest prescription.

The objective of the harvest in these areas is to reduce very high fuel loads by removing one-quarter to one-half of the trees in each stand so that the final density of trees is between 60 and 175 trees per acre, depending on initial density. Due to the inherent wind-throw hazard to dense forests that are thinned, the desired future condition might not be achievable with a single harvest entry. Therefore, the initial entry for selective harvest represents the first step in a process. Mature stands of trees would be thinned in a series of ongoing cuts (approximately one harvest every 10 years). Regeneration of each successive stand would occur under the cover of a partial forest canopy, or "shelterwood". Keeping up this prescription would reduce hazardous fuels and significantly improve forest health by maintaining less dense, even-aged stands of young to mid-aged trees. Furthermore, by providing a continuous cover of trees during ongoing treatments, the regenerating trees would have an advantage over undesired competing vegetation.

Large, healthy trees greater than 16 inches DBH would not be removed and trees scheduled for harvest would be marked with paint for sale preparation (cut-tree marked). All trees infected with bark beetles would be removed in these treatment areas, as would trees that have poor form or low vigor. A minimum of three snags per acre would be left for cavity nesters and birds of prey, and any tree with an active nest site would be retained.

5.2.3 Clearcut/Patch Cuts/Group Selection

Silvicultural treatments in which all overstory trees are removed are sometimes needed in the following circumstances:

- A shade intolerant species, such as lodgepole pine, requires full sunlight for the regeneration of young trees. Cone serotiny, a condition in which cones are opened to release seed only after being subjected to intense heat, is often present in lodgepole pine trees. Lodgepole pine forests are considered "fire dependent" and succumb to stand replacing fire every 100 years or so in

general. Clearcuts are a common treatment in lodgepole forests because the openings created serve to "mimic" openings created by fire.

- Insect and disease outbreaks are sometimes controlled by the complete removal of all the overstory trees. Sanitation harvests of this sort are sometimes prescribed to halt the spread of insect and disease epidemics by removing all infected trees.

- In situations where management is directed toward forest product utilization, forest stands that have reached a condition of over-maturity and are at risk of loss to fire, disease, or insect infestation may be suited for clearcutting as the appropriate tool to improve overall forest health.

- In areas where conifer encroachment has obliterated meadows and other opening, clearcuts are a tool for reestablishing these openings and maintaining essential fragmentation features critical to wildlife habitat, and forest health.

- A landscape mosaic, as discussed earlier, serves to "break up" homogeneity in vegetation and provide natural fire breaks that slow fire spread and aid in decreasing the chance of the "Yellowstone-size" fires seen the past few decades.

5.2.4 Aspen Release

In areas where aspen capable of reproducing can be found, all conifers within, and one tree length in distance from, the aspen clones would be removed to encourage aspen growth and clone spread. Prescribed fire would be used as necessary to stimulate regeneration of the aspen. These areas may also be temporarily (generally 1-3 years) fenced from livestock until aspen re-growth can tolerate grazing.

5.2.5 Pre-commercial/Commercial/Brush Reduction/Hand Thinning:

This treatment would be prescribed for the 150 feet zone around structures known as the "home ignition zone". In these areas defensible space would be improved with the help of hand crews cutting and remove sapling size trees, which are generally those below five inches DBH and less than 12 feet in height, and pole size trees, which are generally trees between five and seven inches DBH. The

objective in these stands is to leave a mature forest with a thinned understory that has a residual density of 130-220 trees per acre.

To lessen the fuel buildup in the largely non-forested areas around communities, thick stands of juniper, and/or sagebrush would be thinned so that the residual trees and shrubs are separated by one crown width. Trees and shrubs would be piled and burned when conditions are favorable. Scarifying the soil in burn pile areas in early spring and seeding with an appropriate native seed mixture would minimize the potential for noxious weed establishment and stabilize soils.

5.2.6 Prescribed Fire

Prescribed fire is defined as management ignited fire that is used to alter, maintain, or restore vegetative communities to achieve desired resource conditions. It is also used to protect life, property, and values that would be degraded by wildland fire (USDI BLM, 2000).

Shell Canyon Prescribed Fire east of Brindle Creek. Photo Courtesy of Tom Gonnoud, USFS

Prescribed fire is used in many cases to mimic the effects of natural fires, that is to reduce the fuel loads in areas that have been deprived of fire through fire suppression over the last several decades. Prescribed fire plans are prepared prior to the project to identify site-specific treatment objectives and how those objectives are to be met through the use of fire.

5.2.7 Riparian Area Fuels Modifications

Riparian vegetation in the Medicine Lodge community should be analyzed further for treatments to reduce fire hazard. Removing or crushing vegetation, and disturbing soils in riparian areas can increase

erosion if stream banks are exposed. Soft hydric soils are easily compacted by machinery. Soil compaction can alter vegetation dynamics and may interrupt hydrologic functions.

Best Management Practices

The Wyoming State Forestry Division has developed a set of Best Management Practices (BMPs) to be followed when conducting forest management practices. Copies of these BMPs can be obtained by contacting WSFD in Cheyenne at (307) 777-7586.

5.2.8 Miscellaneous

Grazing of fine fuels by wildlife and livestock reduces surface fire spread and intensity. Encourage grazing in areas around structures only if forage production is adequate to maintain rangeland health.

5.3 Recommendations for Reducing Structural Ignitability

Appendix 7 lists the 220 structures in the assessment area in order of structure ignitability risk. It is recommended that cabin leaseholders on federal land consult with the USFS on current policy regarding fuels reduction activities on cabin leases before implementing treatments. Following consultation with the USFS, cabin owners should implement Firewise recommended practices to reduce structural ignitability in the home ignition zone. Firewise practices are defined in detail on the Firewise website at: www.firewise.org.

Evaluate the possibilities for installing sprinkler systems around structures as an option open to cabin owners in areas with limited options for reducing structure ignitability.

5.4 Recommendations for Promoting Public Outreach

- Education programs for cabin owners
    - Forest health, the natural role of fire, and insect and disease issues
    - The importance of creating defensible space around structures and the various incentives available to landowners to accomplish these goals.

    - Formation of community Firewise action groups

- Outreach to power and pipeline companies. Line clearance is needed in the Granite Creek community.
- USFS policy establishing clear guidelines for acceptable defensible space practices around structures. Define practices the cabin owner can complete on his/her own and those practices for which the USFS is responsible.

5.5 Recommendations for Emergency Management Services

Fire suppression

- Identify locations for "dry" hydrants or other water sources in areas without readily available water supplies

Training

- Institute an aggressive training program in wildland firefighting principles geared toward city fire departments and fire protection districts throughout the Big Horn Basin

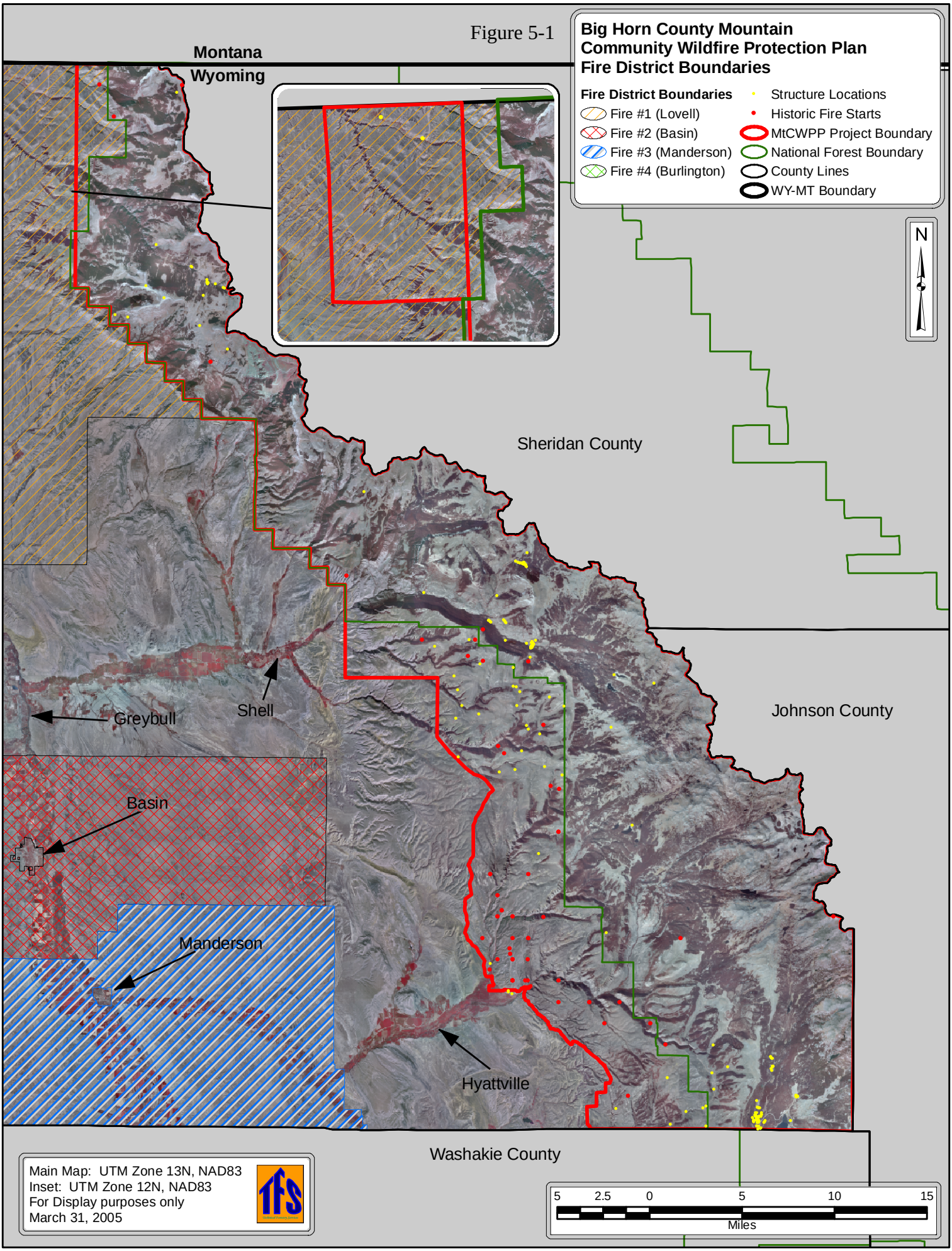
Emergency Equipment

- Analyze emergency equipment needs in the County

Fire response

- Analyze emergency vehicle ingress and egress within cabin group areas
    - Can a water tender access areas without ready water supplies?
- Install "structure fire number" signs at primary, secondary, and tertiary roads leading into communities. Each structure should have a fire number sign visible for use by emergency responders.
- Explore the potential benefits of creating a fire protection district for Greybull and/or Shell. The map below in Figure 5-1 shows the current fire protection district boundaries. Most of the assessment is not currently within a fire protection district boundary.

Figure 5-1


Big Horn County Mountain
Community Wildfire Protection Plan
Fire District Boundaries
Fire District Boundaries
Fire #1 (Lovell)
Fire #2 (Basin)
Fire #3 (Manderson)
Fire #4 (Burlington)
Structure Locations
Historic Fire Starts
MtCWPP Project Boundary
National Forest Boundary
County Lines
WY-MT Boundary
N
Montana
Wyoming
Sheridan County
Johnson County
Washakie County
Greybull
Shell
Basin
Manderson
Hyattville
Main Map: UTM Zone 13N, NAD83
Inset: UTM Zone 12N, NAD83
For Display purposes only
March 31, 2005
5 2.5 0 5 10 15
Miles

5.6 Recommendations for Policy Changes

Fire reporting

- Coordinate with the State Fire Marshall's office to establish a better system for the reporting and cataloguing of fires

- Develop a signage system identifying structures to emergency response personnel. Fire number and road number. Check with Cody on their system.

Wildland Fire Use

Wildland Fire Use (formerly known as Prescribed Natural Fire) is the management of naturally-ignited (i.e. lightning-ignited) wildland fires to accomplish specific pre-stated resource management objectives in pre-defined geographic areas outlined in Fire Management Plans. Wildland Fire Use (WFU) plays an important role, primarily in designated wilderness areas and some National Parks. By allowing some fires to burn, land managers can reduce the cost of fire suppression, restore fire-adapted ecosystems, reduce future fuel accumulations, and safeguard firefighters.

Without an approved Wildland Fire Use plan, managers have no option other than suppression. However, with an approved plan in place, managers have more flexibility to manage fires, thereby reducing future risk, safeguarding firefighters and saving tax dollars. In 1999, USFS policy changes allowed for the consideration of Wildland Fire Use outside of designated wilderness areas in order to designate a fire as WFU, first, the Land Management Plan must authorize the use of naturally-ignited fires to accomplish predetermined goals. Next, the Fire Management Plan must designate Fire Management Units where WFU can be utilized. Finally, a Wildland Fire Use Guidebook must be adopted. The Guidebook identifies the site-specific conditions and circumstances under which fires can be allowed to burn.

5.7 Encourage Local Wood Products Industry

The BHCWPP communities will encourage private contractors participating in fire mitigation work. The communities will encourage the development of industries that will utilize all size-classes of wood products resulting from hazardous-fuel reduction activities.

The Wildland Community Forester will explore opportunities that would sustain private contractors participating in fuels reduction activities while generating an income from the sale of forest products. Examples of possible income generating projects include: co-generation capabilities, post and poles, firewood, pellets, and, landscape mulch.

5.8 Miscellaneous

Planning and Zoning

- Develop planning requirements for new home construction in the WUI

Municipal Water Supply

- Action group to study soil issues following insect outbreak/timber harvest in Shell Canyon
- Look at aquifer entry point near Spanish Point and mitigation practices for preventing soil flow

Burned Area Rehabilitation Planning

Develop guidelines for the BHCWPP assessment area for rehabilitating areas burned by wildfire. These guidelines would include native plant seed mixtures and soil stabilization techniques

Funding Opportunities

Research the availability and requirements of funding sources such as Rural Prevention and Control (RFPC) and Rural Community Fire Protection (RCFP) grants

6.0 MONITORING AND ASSESSING FOREST AND RANGELAND HEALTH

Monitoring is critical to ensure that BHCWPP goals are accomplished. The HFRA states, in section 102.g.5, that communities will participate in multiparty monitoring to assess progress toward meeting the CWPP goals. This authority would be with the Wildland Community Forester, a position needed as described above.

> *(1) IN GENERAL- For each Forest Service administrative region and each Bureau of Land Management State Office, the Secretary of Agriculture or Interior will:*
>
> > *(A) monitor the results of a representative sample of the projects authorized under this title for each management unit; and*
> >
> > *(B) not later than 5 years after the date of enactment of this Act, and each 5 years thereafter, issue a report that includes--*
> >
> > > *(i) an evaluation of the progress towards project goals; and*
> > >
> > > *(ii) recommendations for modifications to the projects and management treatments.*
>
> *(2) CONSISTENCY OF PROJECTS WITH RECOMMENDATIONS- An authorized hazardous fuel reduction project approved following the issuance of a monitoring report shall, to the maximum extent practicable, be consistent with any applicable recommendations in the report.*
>
> *(3) SIMILAR VEGETATION TYPES- The results of a monitoring report shall be made available for use (if appropriate) in an authorized hazardous fuels reduction project conducted in a similar vegetation type on land under the jurisdiction of the Secretary.*
>
> *(4) MONITORING AND ASSESSMENTS- Monitoring and assessment shall include a description of the changes in condition class, using the Fire Regime Condition Class Guidebook or successor guidance, specifically comparing end results to--*
>
> > *(A) pretreatment conditions;*
> >
> > *(B) historical fire regimes; and*

(C) any applicable watershed or landscape goals or objectives in the resource management plan or other relevant direction.

(5) MULTIPARTY MONITORING-

(A) IN GENERAL- In an area where significant interest is expressed in multiparty monitoring, the Secretary shall establish a multiparty monitoring, evaluation, and accountability process in order to assess the positive or negative ecological and social effects of authorized hazardous fuel reduction projects and projects conducted pursuant to section 404.

(B) DIVERSE STAKEHOLDERS- The Secretary shall include diverse stakeholders (including interested citizens and Indian tribes) in the process required under subparagraph (A).

(C) FUNDING- Funds to carry out this paragraph may be derived from operations funds for projects described in subparagraph (A).

(6) COLLECTION OF MONITORING DATA- The Secretary may collect monitoring data by entering into cooperative agreements or contracts with, or providing grants to, small or micro-businesses, cooperatives, nonprofit organizations, Youth Conservation Corps work crews, or related State, local, and other non-Federal conservation corps.

(7) TRACKING- For each administrative unit, the Secretary shall track acres burned, by the degree of severity, by large wildfires (as defined by the Secretary).

(8) MONITORING AND MAINTENANCE OF TREATED AREAS- The Secretary shall, to the maximum extent practicable, develop a process for monitoring the need for maintenance of treated areas, over time, in order to preserve the forest health benefits achieved (HFRA 2003).

7.0 Declaration of Agreement and Concurrence

The following partners in the development of this Community Wildfire Protection Plan have reviewed and do mutually agree or concur with its contents:

Agreement

Donald Russell, Chairman, Big Horn County Commissioners — Date 4-5-05

Keith Grant, Big Horn County Commissioners — Date 4-5-05

William Duncan, Big Horn County Commissioners — Date 4-5-05

Paul Morency, Wyoming State Forestry Division — Date 4-4-05

Brent Godfrey, Big Horn County Fire Warden — Date 4/5/05

Concurrence

Jay Kurth, USDA FS, Acting Fire Management Officer, Paintrock Dist. — Date 4/5/05

LJ Brown, USDI BLM, Fire Operations Supervisor — Date 03/29/05

8.0 Literature Cited

Agee, J.K. 1993. *Fire Ecology of Pacific Northwest Forests*. Island Press, Wash. DC.

Brown, J.K. 1995. *Fire Regimes and Their Relevance to Ecosystem Management*. Pages 171-178.

Hann, W.J., Bunnell, D.L. 2001. *Fire and Land Management Planning and Implementation Across Multiple Scales.* Int. J. Wildland Fire. 10:389-403.

Hardy, C.C., Schmidt, K.M., Menakis, J.M., Samson, N.R. 2001. *Spatial Data for National Fire Planning and Fuel Management*. International Journal of Wildland Fire 10:353-372.

Murray, Robert A. 1980. *Multiple Use in the Big Horns.* Western Interpretive Services, Sheridan, Wyoming.

National Interagency Fire Center. 2003. *Total fires and Acres 1960-2002*. Available online at http://www.nifc.gov/stats/wildlandfirestats.html.

Nature Conservancy. *Scott M. Matheson Wetlands Preserve. Wildfire Response Plan*.

O'Dell, Kevin. 2003. *A Class III Cultural Resource Inventory of the Asp/Murphy-Crawford Cabin Lease (48BH3233), T54N, R88W, Section 31, Bighorn National Forest, Big Horn County, Wyoming*. ACR Consultants, Inc. ACRC Report No. 120.

Schmidt, K.M., Menakis, J.P. Hardy, C.C., Hann, W.J., Bunnell, D.L. 2002. *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, CO.

State of Wyoming, Office of Lands and Investments, Wyoming State Forestry Division. 2004. *Forest Stewardship Plan, Leavitt Property.* Big Horn County, Wyoming.

Thibodeau, Todd. 1994. *Historic Evaluation of Arrowhead Lodge Complex: Addendum to Class III Cultural Resource Inventory of Arrowhead Lodge Expansion Project, Sheridan, County Wyoming.* Toung River Ranger District, Bighorn national Forest, Sheridan, Wyoming.

U.S. Department of the Interior, Bureau of Land Management. 2004. *WY Northern Zone Fire Management Plan.* Worland Field Office, Worland, Wyoming.

U.S. Department of Agriculture, Forest Service. February 2005. *Environmental Assessment Bench Restoration Healthy Forest Initiative Project. Paintrock Ranger District, Bighorn National Forest, Big Horn County.*

U.S. Department of Agriculture, Forest Service, and U.S. Department of the Interior, Bureau of Land Management. 2004. *The Healthy Forests Initiative and Healthy Forests Restoration Act: Interim Field Guide*. FS-799. Washington, D.C.

Wiitala, Marc R. *PROBACRE: A Model for Computing Aggregate Burned Acreage Probabilities for Wildfire Risk Analysis, User's Manual.* Aviation & Fire Management USDA Forest Service, Pacific Northwest Region. 1992.

9.0 Appendixes

Appendix 1. Field Guidance. Identifying and Prioritizing Communities at Risk.

FIELD GUIDANCE

Identifying and Prioritizing Communities at Risk

Prepared by: National Association of State Foresters

June 27, 2003

Purpose: To provide national, uniform guidance for implementing the provisions of the "Collaborative Fuels Treatment" MOU, and to satisfy the requirements of Task e, Goal 4 of the Implementation Plan for the 10-Year Comprehensive Strategy.

Intent: The intent is to establish broad, nationally compatible standards for identifying and prioritizing communities at risk, while allowing for maximum flexibility at the State and regional level. Three basic premises are:

- Include all lands and all ownerships.
- Use a collaborative process that is consistent with the complexity of land ownership patterns, resource management issues, and the number of interested stakeholders.
- Set priorities by evaluating projects, not by ranking communities.

References:

1. *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment. 10-Year Comprehensive Strategy Implementation Plan.* May 2002. (Goal 4 Task e: "Develop nationally comparable definitions for identifying at-risk wildland urban interface communities and a process for prioritizing communities within State and tribal jurisdiction.") (Available at: http://www.fireplan.gov/reports).

2. *Memorandum of Understanding for the Development of a Collaborative Fuels Treatment Program.* January 13, 2003. (Available at: http://www.fireplan.gov/reports).
3. *Concept Paper: Communities at Risk.* National Association of State Foresters (NASF), December 2, 2002. (Available at: http://www.stateforesters.org/reports).
4. *Wildland/Urban Interface Fire Hazard Assessment Methodology*. NWCG, undated (circa 1997). (Available through the NWCG Publications Management System (PMS), NIFC Catalog number NFES 1597.)

Definition – Community at Risk: For the purpose of this document, a community is defined as "a group of people living in the same locality and under the same government" (*The American Heritage Dictionary of the English Language*, 1969). A community is considered at risk from wildland fire if it lies within the wildland/urban interface as defined in the federal register (*FR Vol. 66, No. 3, Pages 751-754, January 4, 2001).*

Approach:

1. Identify communities at risk (or alternately, landscapes of similar risk) on a state-by-state basis with the involvement of all organizations with wildland fire protection responsibilities (State, local, tribal, and federal) along with other interested cooperators, partners, and stakeholders. Alternately, in some locations this may be more easily done on a geographic basis through the already existing Geographic Area Coordinating Groups.
    - Using the 2000 census data (or other suitable means) identify all communities in the state that are in the wildland urban interface and that are at risk from wildland fire, regardless of their proximity to federal lands. Ideally, the results of this effort would be displayed on a map or series of maps.
    - Develop state-specific criteria for sorting communities (or landscapes) into three, broad categories (or zones) of relative risk, using the methodology described in the following section. You also may want to include a fourth category denoting little, or no significant risk.
    - Prioritize the categories/zones as high, medium, and low. Alternately, a classification of very high, high, and moderate may be more appropriate depending upon fuel types.

Again, you may have a fourth category/zone that you would prioritize as having little, or no significant risk.

- Using the identified criteria, sort communities (or landscapes) into each of the three categories or zones of risk. The product may be map-based with lines or colors depicting the three zones on a map or series of maps. In this case, all communities that fall within the same zone would be classified as having an equivalent degree of relative risk. Alternately, in some states cooperators may choose to use a written document to display how communities have been classified, such as a simple spreadsheet or table. In this case, individual communities would be listed by name under one of the three previously identified categories of risk.
- If there are land ownerships that cross state lines (for example Indian Reservations or single, National Forests), it is important to coordinate the risk assessment process with neighboring state(s) to ensure consistency in classification.
- After completing the assessment process for a specific community, strongly encourage the development of a mitigation plan to reduce the identified risks to the community, particularly for communities in the higher risk categories.

2. Annually, using available mitigation plans or another similar analysis process, federal agencies, state agencies, and tribes will each examine the lands under its own ownership or jurisdiction and, with the involvement of all interested parties, identify high priority fuels reduction and ecosystem restoration projects which have the potential to reduce the risk to a specific community or communities.
3. Prior to May 1 of each year (beginning in 2004) state, federal, local, and tribal partners and interested stakeholders should meet to complete a joint program of work for the upcoming federal fiscal year. Jointly prioritize projects within each state using the collaborative process defined in the national, interagency MOU "*For the Development of a Collaborative Fuels Treatment Program"*. Assign the highest priorities to projects that will provide the greatest benefits either on the landscape or to communities. Attempt to properly sequence treatments on the landscape by working first around and within communities, and then moving further out into the surrounding landscape.

[Note: In some of the larger states, this process may have to be initiated at the sub-state level first. The resulting lists of prioritized projects would then be reviewed by a state level collaborative group, who would develop the final, joint program of work.]

- First, focus on the category/zone of highest overall risk but consider projects in all categories/zones. Identify a set of projects that will effectively reduce the level of risk to communities within the category/zone.
- Second, determining the community's willingness and readiness to actively participate in each identified project.
- Third, for each potential project, determining the willingness and ability of the owner of the land surrounding the community to undertake, and maintain, a complementary project.
- Last, set priorities by looking for projects that best meet the three criteria above. In other words, assign a higher priority to those projects with the greatest potential to achieve a proper sequencing of treatments. Assign lower priority to projects where either the community or the surrounding landowner is unwilling or unable to actively participate. However, do not overlook opportunities around isolated, rural communities which may be at high risk, but not be organized well enough to effectively advocate on their own behalf.
- Note: One reason for the collaborative priority setting process is the opportunity to identify complementary projects on adjoining ownerships which, if implemented, would provide a greater benefit to communities than if only a single project was implemented. However, nothing in this document is intended to prevent non-public landowners (such as Indian tribes) from implementing any project on their own lands, regardless of overall priority.

4. Annually document accomplishments both quantitatively and qualitatively.

- Quantitative measures. Document accomplishments in accordance with the performance measures identified under Goal 4 in the *10-Year Comprehensive Strategy Implementation Plan* (page 15). However, the single, most important quantitative reporting element is the number of implemented projects that result in a significant and measurable reduction of risk to the communities and landscapes within the project area.

In the longer term, it is important to document situations where a wildfire burned through an implemented project area, and determine how the treatment affected fire behavior.

- Qualitative measures. Document examples of successfully implemented projects using the guidelines previously distributed by federal agencies and the NASF for "success stories". These "success stories" will then be placed on both the NASF and the National Fire Plan websites as examples how we collectively are reducing risks to communities.

Methodology:

Although there is no uniform, national hazard or risk assessment process, there are a number of valid assessment processes that may work well in individual states or regions. In developing a risk assessment process for communities, use the NWCG publication *"Wildland/Urban Interface Fire Hazard Assessment Methodology"* as a reference guide. At minimum, consider the following factors when assessing the relative degree of exposure each community (landscape) faces. One effective approach is to map the four factors below using adjective ratings (high, medium, and low) and then overlay the maps to determine geographic areas of highest hazard, highest probability of fire occurrence, highest values being protected, and lowest protection capability.

- Fire Occurrence. Using historic fire occurrence records and other factors, assess the anticipated probability of a wildfire ignition in the vicinity of each community (or identified landscape) using an adjective rating system, such as high, medium, and low.
- Hazard. Assess the fuel conditions on the landscape and surrounding the community using a GIS mid-level mapping tool (if available) or other similar process. Again, apply an adjective rating to each specific area.
- Values Protected. Evaluate the human and economic values associated with the community or landscape, such as homes, businesses, community infrastructure (e.g. water systems, utilities, transportation systems, critical care facilities, schools, manufacturing and industrial sites, etc.) as well as high value commercial timber lands, municipal watersheds, and areas of high historical, cultural, and spiritual significance. As with the other factors, apply an appropriate adjective rating to each community or identified landscape.

- Protection Capabilities. Assess the wildland fire protection capabilities, including the capacity and resources to undertake fire prevention measures, of all agencies or organizations with jurisdiction: federal, state, tribal, and local. Again, apply an appropriate adjective rating. Consider using the Insurance Services Organization (ISO) rating for the community as an indicator.

SUMMARY:

Using the process described above, it is possible to assess the level of relative risk that communities in the wildland urban interface face from wildland fire. This can then lead to an efficient process for prioritizing and scheduling effective, fuel reduction projects. However, recognizing that the condition of the vegetation (fuel) on the landscape is dynamic, and that the resilience of communities to wildfire loss varies widely and changes over time, it is not only important and necessary to complete community assessments, but also to periodically complete re-assessments. The frequency of re-assessments, however, will vary considerably across the country depending upon fuel types and climate. We must remember that it is not only important to lower the risk to communities, but once the risk has been reduced, to maintain those communities at a reduced risk.

Further, it is essential that both the assessment process and the prioritization of projects be done collaboratively, with all agencies with fire protection jurisdiction – federal, state, local, and tribal – and interested stakeholders, taking an active role.

Appendix 2 Fire Hazard Rating

Community	Slope (percent)	Slope Hazard	Aspect (degrees)	Aspect Hazard	Condition Class	Hazard Rating
Bald Mountain	5	1	215	3	2	2
Battle Creek	12	1	179	3	2	2
Bear Gulch	11	1	242	3	3	2
Black Butte	8	1	260	2	2	2
Brokenback	14	1	194	3	2	2
Cookstove Basin	5	1	280	2	2	2
Deer Haven	9	1	162	3	2	2
Devils Canyon	15	2	229	3	2	2
Granite Creek	11	2	340	1	2	2
Hunt Mountain Rd	8	1	140	2	2	2
Longview	18	2	250	2	2	2
Meadowlark	20	2	233	3	2	2
Medicine Lodge	13	1	90	1	2	1
Medicine Mtn	20	2	125	2	2	2
Paintrock	8	1	220	3	2	2
Porcupine	7	1	63	1	2	1
Ranger Creek	12	1	315	1	3	2
Renner Wildlife	12	1	130	2	2	2
Salt Creek	8	1	240	3	2	2
Shell Falls	45	3	260	2	3	3
Sitting Bull	11	1	263	2	2	2
Snowshoe Pass	14	1	160	3	2	2
Spanish Point	8	1	227	3	2	2
West Tensleep	10	1	125	2	2	2
White Creek	4	1	163	3	2	2

Appendix 3, Fire occurrence probability in the BHCWPP At-risk Communities

Community	Percent probability of a fire exceeding an acre threshold in the next 10 years							
	0-0.2	0.3-9.9	10-99.9	100-299.9	300-999.9	1000+	Risk rating	Code
Bald Mountain	19	0.02	0	0	0	0	low	1
Battle Creek	19	0.02	0	0	0	0	low	1
Bear Gulch	70	55	55	44	0.9	0.1	high	3
Black Butte	6	0	0	0	0	0	low	1
Brokenback	72	34	33	33	33	29	high	3
Cookstove Basin	0	0	0	0	0	0	low	1
Deer Haven	70	55	44	0.6	0	0	moderate	2
Devils Canyon	99	98	97	95	90	76	high	3
Granite Creek	0	0	0	0	0	0	low	1
Hunt Mountain Rd	48	0.6	0	0	0	0	low	1
Longview	0	0	0	0	0	0	low	1
Meadowlark	65	28	0	0	0	0	low	1
Medicine Lodge	65	33	33	33	28	6	high	3
Medicine Mtn	37	15	0	0	0	0	low	1
Paintrock	0	0	0	0	0	0	low	1
Porcupine	79	35	33	33	33	31	high	3
Ranger Creek	34	0.2	0	0	0	0	low	1
Renner Wildlife	6	0	0	0	0	0	low	1
Salt Creek	19	0.02	0	0	0	0	low	1
Shell Falls	6	0	0	0	0	0	low	1
Sitting Bull	34	0.2	0	0	0	0	low	1
Snowshoe Pass	0	0	0	0	0	0	low	1
Spanish Point	80	80	56	33	25	6	high	3
West Tensleep	65	28	0	0	0	0	low	1
White Creek	0	0	0	0	0	0	low	1

Appendix 4 Community Layout Scorecard

Big Horn County Wildfire Protection Plan, Community Layout Report

Community: Bald Mountain **Community Layout Score:** 115

Community ID Code: BAMO

Roads

Road Access

- ☐ 0--Multiple primary access roads
- ☐ 1--Two Primary access roads
- ☐ 2--One primary + one alternative access road
- ☐ 3--One way in/out
- ☑ 4--No primary access roads

Road Surface Width, Primary Access Routes

- ☐ 1-- > 28' road surface + shoulder
- ☐ 2--28' road surface + shoulder
- ☐ 3--16-< 28' road surface + shoulder
- ☑ 4-- < 16' road surface + shoulder

Maximum Road Grade

- ☑ 1--0-5%
- ☐ 2--6-8%
- ☐ 3--9-10%
- ☐ 4-->10%

Ending

- ☐ 1--Loops or >90' diameter cul de sacs
- ☐ 2--Cul de sac diameter 70-90'
- ☑ 3--Cul de sac diameter <70'
- ☐ 4--Dead ends--no cul de sac

Bridges

- ☑ 1--No bridg
- ☐ 2--40 Ton+ limit on access bridges
- ☐ 3--20-39 Ton limit on all access bridges
- ☐ 4--<20 Ton limit on any access bridge

Topography

Slope

- ☑ 2--0-10%
- ☐ 4--11-20%
- ☐ 6--21-30%
- ☐ 8-->30%

Aspect

- ☐ 0--North (316 - 45 degrees)
- ☐ 1--East (46 - 135 degrees)
- ☐ 2--Level
- ☑ 3--West (226 - 315 degrees)
- ☐ 4--South (136 - 225 degrees)

Most Dangerous Feature

- ☑ 2--None
- ☐ 4--Adjacent steep slopes
- ☐ 6--Draws/ravines
- ☐ 8--Chimneys, canyons, saddles

Big Horn County Wildfire Protection Plan, Community Layout Report

Community: Bald Mountain **Community Layout Score:** 115

Community ID Code: BAMO

Fuels

- [x] 5–Grass around >90% of structures
- [ ] 10–Low brush field or open timber around >10% of structures
- [ ] 15–Dense conifer or brush field exist around >10% of structures
- [ ] 20–Slash, bugkill, dense lodgepole pine exist around >10% of structures

Electrical Utilities

- [x] 0–All underground
- [ ] 10–Above ground/underground combination
- [ ] 20–Above ground

Homes

Roof materials

- [x] 5–90% + of roofs fire resistant
- [ ] 10–80-89% of roofs fire resistant
- [ ] 15–75-79% of roofs fire resistant
- [ ] 20–<75% of roofs fire resistant

Density of homes

(0-30% slope)

- [x] 1–> 100' between homes
- [ ] 3–60-100' between homes
- [ ] 5–<60' between homes

(>30% slope)

- [ ] 2–>100' between homes
- [ ] 4–60-100' between homes
- [ ] 6–<60' between homes

Unenclosed balconies, decks, eaves, stilts, etc.

- [ ] 1–<10% of homes have enenclosed decks, etc.
- [ ] 2–10 -20% of homes have enenclosed decks, etc.
- [ ] 3–21 - 25% of homes have enenclosed decks, etc.
- [x] 5–>25% of homes have enenclosed decks, etc.

Landscaping

- [ ] 2–76-100% of homes have fire resistant landscaping
- [ ] 4–51-75% of homes have fire resistant landscaping
- [ ] 6–26-50% of homes have fire resistant landscaping
- [x] 8–0-25% of homes have fire resistant landscaping

Big Horn County Wildfire Protection Plan, Community Layout Report

Community: Bald Mountain **Community Layout Score:** 115

Community ID Code: BAMO

Water Supply

Hydrant

- ☐ 2--500 GPM hydrants available on < 660" spacing
- ☐ 4--500 GPM hydrants available
- ☐ 6--< 500GPM hydrants available
- ☑ 8--No hydrants

Helicopter Dip Spots

- ☐ 1--< 2 min. turnaround
- ☐ 2--2 - 5 min. turnaround
- ☐ 3--5 - 6 min. turnaround
- ☑ 4--> 6 min. turnaround/unavailable

Draft Sources

- ☐ 2--Accessible sources available within hoselay
- ☐ 4--Draft sources available within 5 mi. via primary access roads
- ☐ 6--Draft sources require development
- ☑ 8--Draft sources unavailable

Structural Fire Protection

- ☐ 5--<=5 min. from FD
- ☐ 10--<=5 min. from VFC; 6 - 15 min. from FD
- ☐ 15--6 - 15 min. from VFC; 16 - 30 min. from FD
- ☑ 20--16 - 30 min. from FD No RFD, FSA, municipal FD, or VFC

Fire Occurrence

- ☐ 5--0.00 - 0.10 fires/1000 ac/10 yr
- ☑ 10--0.11 - 0.20 fires/1000 ac/10 yr
- ☐ 15--0.21 - 0.40 fires/1000 ac/10 yr
- ☐ 20--0.40+ fires/1000 ac/ 10 yr

Homeowner Contact

- ☐ 5--Central contact--formal/well organized group
- ☐ 10--Less central contact--informal/loosely organized group
- ☐ 15--Multiple groups
- ☑ 20--No organized contacts

Appendix 5 Home Evaluation Form

HOME EVALUATION FORM

OWNER OR OCCUPANT_____**PHONE**_____
ADDRESS_____
(OR DESCRIPTIVE LOCATION)_____
_____

People living in the wildland / urban interface should be prepared for wildland fires. The Montana Department of Natural Resources and Conservation is providing this wildland fire prevention inspection to help residents reduce fire hazards endangering their property. By following the suggestions listed here, you can help yourself to reduce the risk that an accidental fire could start on your property and also the risk that a fire starting elsewhere could cause damage to your property.

Acceptable	Recommend Improvement	
		Within 3 feet of structure:
_____	_____	Maintain an area of non-combustible material - flowers, plants, concrete, gravel, mineral soil, etc.
		Within 10 feet of structure (increase distance below structure if slope is >10%):
_____	_____	Maintain surface vegetation at 3 inches or less in height.
_____	_____	Remove all downed woody fuels.
		From 10 to 30 feet of structure (increase distance below structure if slope is >10%):
_____	_____	Thin trees to 10 feet between crowns.
_____	_____	Prune limbs of all remaining trees to 15 feet in height or one third of total live crown, which ever is less.
_____	_____	Maintain surface vegetation at 3 inches or less in height.
_____	_____	Remove all downed woody fuels.
		From 30 to 100 feet of structure (increase distance below structure if slope is >10%):
_____	_____	Thin trees to 10 feet between crowns.
_____	_____	Prune limbs of all remaining trees to 15 feet in height or one third of total live crown, which ever is less.
_____	_____	Remove all downed woody fuels greater than 3 inches in diameter.
_____	_____	Clear or reduce vegetation from alongside your driveway or road edge, and make sure your driveway is wide enough and adequate for fire trucks to turn around.
_____	_____	Dispose of all slash and flammable debris from your property. If you intend to burn follow all applicable open burning regulations and requirements.
_____	_____	Have the power company cut overhanging branches away from power lines.
_____	_____	Clean the roof and gutters of needles, leaves, branches and other combustible debris.
_____	_____	Provide a 15 foot clearance between you chimney and nearest branches.
_____	_____	Make sure your chimney extends 3 feet above the roof and is capped with an approved spark arrester.
_____	_____	Roof should be of fire resistant material. A wood shake roof should be treated with UL approved fire retardant chemical or replaced.
_____	_____	Enclose open spaces beneath features such as decks, balconies and stilts to keep out hot embers.
_____	_____	Locate the propane tank at least 10 feet from the structure and clear a 10 foot area around the tank.
_____	_____	Stack your firewood at least 100 feet from the house, not on the downhill side.
_____	_____	Ensure that your water supply is usable during a fire emergency, and keep garden hoses readily available.
_____	_____	Keep storage areas clean. Do not allow oily rags, flammable chemicals or newspapers to accumulate.
_____	_____	Insure that all motorized garden equipment, lawnmowers and chainsaws have approved spark arresters.
_____	_____	Display your name and house number in front of your property to assist firefighters in locating your home.

Other Items:_____

_____

INSPECTED BY:_____DATE:_____

FOR FURTHER INFORMATION CONTACT:

THIS INSPECTION IS UNDERTAKEN AS A PUBLIC SERVICE AND IS ADVISORY ONLY

F-701 7/99

Appendix 6 Structure Report

Big Horn County Community Wildfire Protection Plan, Structure Summary

Structure ID: BACR0011 **Community:** Battle Creek

Hazard Rating: 8
Priority Rating:
Response time:
Response From:

Primary Owner: U.S.D.A. Forest Ser
Mailing Address: C/O Jay Kurth
604 East Main
Lovell, WY 82431

Primary Phone: (307) 548-6541
Phone 2:
Phone 3:
Phone 4:

Lat: 44.5168
Lon: 107.3594
Slope: 10
Aspect: 300

Structure Location:

Located within the Cloud Peak Wilderness Boundary along Buckley Creek. Approx. 3 mi. east of Adelaide Lake.

Structure ID: BACR0012 **Community:** Battle Creek

Hazard Rating: 2
Priority Rating:
Response time:
Response From:

Primary Owner: Shell Vy Watershed
Mailing Address: 1725 Hwy 14

Shell, WY 82441

Primary Phone: (307) 765-2946
Phone 2:
Phone 3:
Phone 4:

Lat: 44.52
Lon: 107.36
Slope: 5
Aspect: 90

Structure Location:

This cabin is located at the southwest of the dam at Adelaide Lake. Access this cabin by travelling east out of Shell WY up Hwy 14 to the turn into Ranger Cr campground. FS Rd 17 to 4WD Rd 271.

Appendix 7. Structure Ignitability Priority List

Overall Priority Rating	Structure ID	Community	Hazard Rating
1	DEER0007	Deer Haven	17
2	DEER0008	Deer Haven	17
3	DEER0009	Deer Haven	17
4	DEER0010	Deer Haven	17
5	DEER0011	Deer Haven	17
6	DEER0024	Deer Haven	17
7	DEER0018	Deer Haven	16
8	DEER0026	Deer Haven	16
9	DEER0029	Deer Haven	16
10	GRCR0001	Granite Cr.	16
11	PORC0004	Porcupine	16
12	RACR0013	Ranger Cr.	16
13	RACR0014	Ranger Cr.	16
14	DEER0006	Deer Haven	15
15	DEER0012	Deer Haven	15
16	DEER0015	Deer Haven	15
17	DEER0027	Deer Haven	15
18	DEER0030	Deer Haven	15
19	GRCR0014	Granite Cr.	15
20	GRCR0016	Granite Cr.	15
21	PORC0003	Porcupine	15
22	PORC0006	Porcupine	15
23	SIBU0002	Sitting Bull	15
24	SIBU0006	Sitting Bull	15
25	WTEN0003	West Tensleep	15
26	WTEN0005	West Tensleep	15
27	WTEN0009	West Tensleep	15
28	BACR0006	Battle Cr.	14
29	COBA0001	Cookstove Basin	14
30	DEER0003	Deer Haven	14
31	DEER0005	Deer Haven	14
32	DEER0028	Deer Haven	14
33	DEER0033	Deer Haven	14
34	DEER0034	Deer Haven	14
35	GRCR0009	Granite Cr.	14

36	GRCR0012	Granite Cr.	14
37	GRCR0015	Granite Cr.	14
38	MEMO0002	Medicine Mtn.	14
39	RACR0005	Ranger Cr.	14
40	RACR0007	Ranger Cr.	14
41	RACR0008	Ranger Cr.	14
42	RACR0016	Ranger Cr.	14
43	RACR0023	Ranger Cr.	14
44	RACR0024	Ranger Cr.	14
45	RACR0025	Ranger Cr.	14
46	SIBU0005	Sitting Bull	14
47	DEER0002	Deer Haven	13
48	DEER0025	Deer Haven	13
49	DEER0032	Deer Haven	13
50	DEER0035	Deer Haven	13
51	GRCR0004	Granite Cr.	13
52	GRCR0007	Granite Cr.	13
53	GRCR0008	Granite Cr.	13
54	GRCR0013	Granite Cr.	13
55	PORC0001	Porcupine	13
56	PORC0005	Porcupine	13
57	RACR0017	Ranger Cr.	13
58	RACR0018	Ranger Cr.	13
59	SACR0001	Salt Cr.	13
60	WTEN0004	West Tensleep	13
61	WTEN0010	West Tensleep	13
62	BACR0002	Ranger Cr.	12
63	BROK0010	Brokenback	12
64	DEER0013	Deer Haven	12
65	DEER0020	Deer Haven	12
66	DEER0039	Deer Haven	12
67	DECA0001	Devil's Canyon	12
68	RACR0006	Ranger Cr.	12
69	RACR0015	Ranger Cr.	12
70	RACR0022	Ranger Cr.	12
71	RACR0026	Ranger Cr.	12
72	RACR0029	Ranger Cr.	12
73	SIBU0004	Sitting Bull	12
74	SPPO0003	Spanish Point	12

75	SPPO0005	Spanish Point	12
76	BEGU0003	Bear Gulch	11
77	BROK0008	Brokenback	11
78	DEER0001	Deer Haven	11
79	DEER0004	Deer Haven	11
80	DEER0019	Deer Haven	11
81	DEER0022	Deer Haven	11
82	DEER0023	Deer Haven	11
83	DEER0031	Deer Haven	11
84	DEER0036	Deer Haven	11
85	DEER0038	Deer Haven	11
86	GRCR0010	Granite Cr.	11
87	MEAD0001	Meadowlark	11
88	MEMO0001	Medicine Mtn.	11
89	PORC0007	Porcupine	11
90	RACR0001	Ranger Cr.	11
91	RACR0009	Ranger Cr.	11
92	RACR0027	Ranger Cr.	11
93	SIBU0001	Sitting Bull	11
94	SIBU0003	Sitting Bull	11
95	WTEN0002	West Tensleep	11
96	WTEN0007	West Tensleep	11
97	BACR0005	Ranger Cr.	10
98	DEER0040	Deer Haven	10
99	GRCR0003	Granite Cr.	10
100	GRCR0005	Granite Cr.	10
101	PORC0013	Porcupine	10
102	RACR0004	Ranger Cr.	10
103	RACR0010	Ranger Cr.	10
104	RACR0019	Ranger Cr.	10
105	RACR0020	Ranger Cr.	10
106	WTEN0001	West Tensleep	10
107	WTEN0008	West Tensleep	10
108	BAMO0002	Bald Mtn.	9
109	BACR0009	Battle Cr.	9
110	DEER0017	Deer Haven	9
111	DEER0021	Deer Haven	9
112	GRCR0006	Granite Cr.	9
113	GRCR0011	Granite Cr.	9

114	HMRD0001	Hunt Mtn. Rd.	9
115	LONG0001	Longview	9
116	PORC0002	Porcupine	9
117	PORC0009	Porcupine	9
118	PORC0010	Porcupine	9
119	RACR0011	Ranger Cr.	9
120	RACR0028	Ranger Cr.	9
121	SHFA0001	Shell Falls	9
122	SPPO0002	Spanish Point	9
123	WTEN0006	West Tensleep	9
124	BACR0011	Battle Cr.	8
125	BROK0007	Brokenback	8
126	BROK0009	Brokenback	8
127	DEER0016	Deer Haven	8
128	DEER0037	Deer Haven	8
129	DEER0041	Deer Haven	8
130	DECA0003	Devil's Canyon	8
131	PARO0001	Paint Rock	8
132	PORC0011	Porcupine	8
133	RACR0002	Ranger Cr.	8
134	RACR0003	Ranger Cr.	8
135	RACR0021	Ranger Cr.	8
136	RENN0001	Renner Wildlife	8
137	SPPO0006	Spanish Point	8
138	BEGU0001	Bear Gulch	7
139	DEER0014	Deer Haven	7
140	GRCR0002	Granite Cr.	7
141	PORC0012	Porcupine	7
142	WHCR0001	White Cr.	7
143	BACR0004	Battle Cr.	6
144	BACR0008	Battle Cr.	6
145	BEGU0002	Bear Gulch	6
146	BEGU0005	Bear Gulch	6
147	BROK0003	Brokenback	6
148	LONG0002	Longview	6
149	MEDL0001	Medicine Lodge	6
150	MEMO0003	Medicine Mtn.	6
151	WHCR0003	White Cr.	6
152	WHCR0004	White Cr.	6

153	BAMO0001	Bald Mtn.	5
154	BACR0001	Battle Cr.	5
155	BACR0007	Battle Cr.	5
156	BLBU0001	Black Butte	5
157	BROK0005	Brokenback	5
158	PORC0008	Porcupine	5
159	RACR0030	Ranger Cr.	5
160	SPPO0001	Spanish Point	5
161	SPPO0004	Spanish Point	5
162	SNPA0001	Snowshoe Pass	4
163	BACR0010	Battle Cr.	3
164	BROK0001	Brokenback	3
165	BROK0006	Brokenback	3
166	DECA0002	Devil's Canyon	3
167	BACR0003	Battle Cr.	2
168	BACR0012	Battle Cr.	2
169	BROK0002	Brokenback	2
170	BROK0004	Brokenback	2
171	RACR0012	Ranger Cr.	2
172	BEGU0004	Bear Gulch	0
173	MEMO0004	Medicine Mtn.	0
174	SPPO0007	Spanish Point	0
175	WHCR0002	White Cr.	0

Appendix 8

Paid Advertisement for Public Meetings

2 SECTIONS

NORTHERN WYOMING

Daily News

SERVING THE BIG HORN BASIN

PUBLISHED TUESDAY THROUGH SATURDAY MORNINGS AT WORLAND, WYOMING 82401

98th Year, No. 211 | Saturday, October 23, 2004 | 50 Cent

ATTENTION

BIG HORN MOUNTAIN CABIN OWNERS

Your comments and feedback are needed at a
PUBLIC MEETING
Tuesday, Oct. 26 at 7 p.m.
Bank of Greybull – Alamo Room
(in the basement)
and
Wednesday, Oct. 27 at 7 p.m.
Ten Sleep Senior Citizen's Center

Technical Forestry Services is developing a Community Wildfire Protection Plan (CWPP) for Big Horn County through a grant obtained by the Big Horn County Commissioners

Threats to critical infrastructure & the Shell Creek watershed will also be addressed

For further information contact:
Chris Weydeveld 307-765-2635
Richard Fink, 307-568-2516 or
Brent Godfrey, 307-568-2718

Appendix 9

Public Service Announcement

SOUTH BIG HORN COUNTY **News**

Basin Republican Rustler/Greybull Standard, Thursday, Oct. 14, 2004, Page B1

Big Horn County wildfire protection plan meeting is Oct. 26

A public meeting to discuss wildfire hazards within the Big Horn mountain cabin groups is scheduled for Oct. 26 at 7 p.m. in the basement meeting room at the Bank of Greybull.

A similar meeting will be held at the Ten Sleep Senior Citizen Center on Oct. 27 at 7 p.m. .

Discussions of threats to critical infrastructure and the Shell Creek municipal watershed will be addressed as well. The results of the field assessments and the feedback from key stakeholders will be detailed in a Community Wildfire Protection Plan.

Technical Forestry Services based in Greybull has been contracted by the Big Horn County Commissioners to develop the CWPP. Funding for the project was obtained by the Commissioners from a grant sponsored by the Wyoming State Forestry Division with money coming from the National Fire Plan.

A CWPP will allow participants at the local level to identify areas believed to be at risk of the destructive elements of wildfire and to recommend possible treatments to reduce hazards.

Those interested in participating in the CWPP process should plan to attend the meeting. Future meetings will be held and those interested will be put on a mailing list to receive information. For more details contact Chris Weydeveld in Greybull at 765-2635, Richard Fink in Lovell at 568-2516, or Brent Godfrey in Basin at 568-2718.