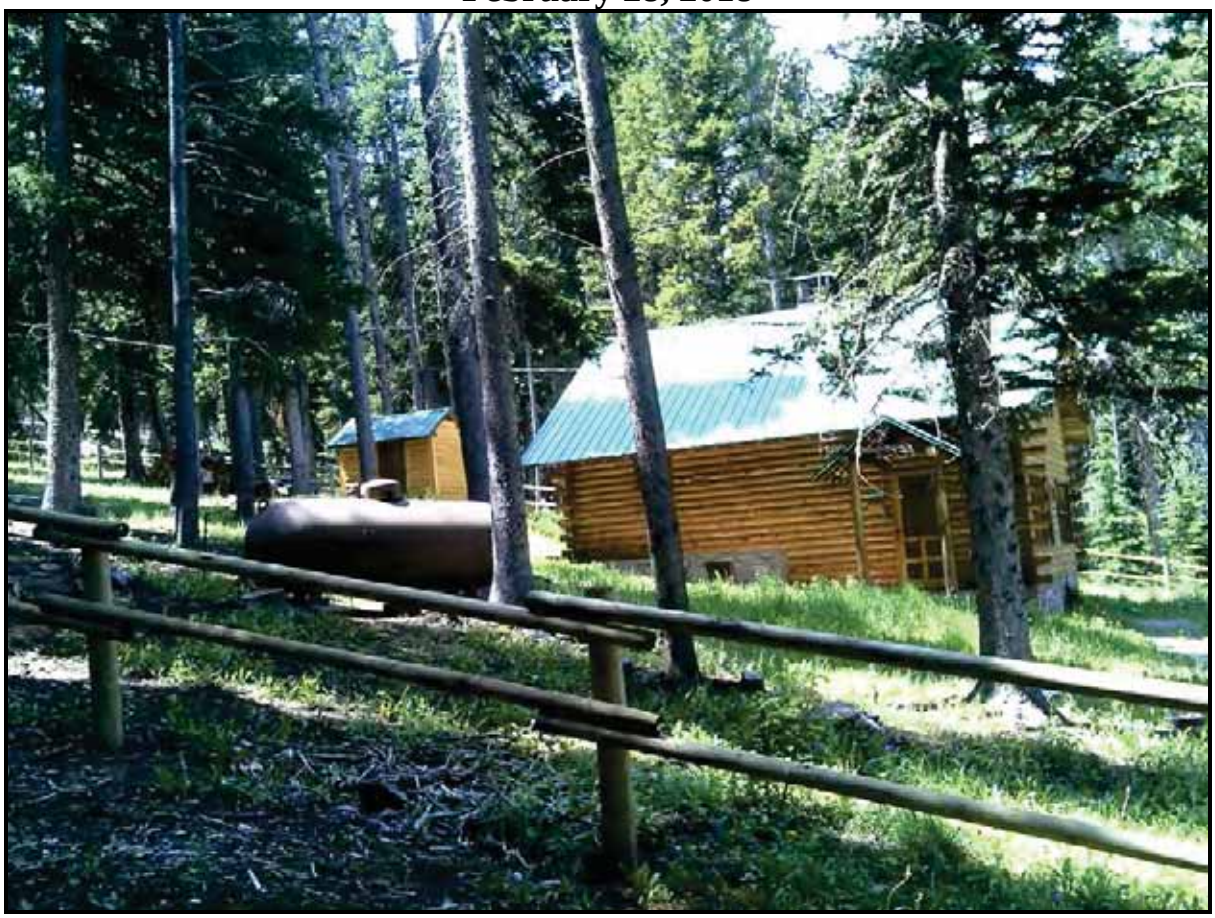
Big Horn County

Community Wildfire Protection Plan 2017 Update

February 28, 2018



Big Horn County, Wyoming

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

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Acknowledgements

The development of this plan relied on efforts from the following individuals: Brent Godfrey, Big Horn County Fire Warden; Tony Giles, Big Horn County Assistant Fire Warden; Joy Hill, Big Horn County Planning & Development; LaRae Dobbs, Big Horn County Emergency Management; Cliff Winters, Big Horn County Weed & Pest; Tim Haas, USDI Bureau of Land Management Fire; Bryan McKenzie, USDI Bureau of Land Management; Eve Warren, USDI Bureau of Land Management; Rich Zimmerlee, USDI Bureau of Land Management; Reed Oldenburg, Wyoming State Forestry Division; Josh Shroyer, Wyoming State Forestry Division; Brian Russell, Wyoming State Forestry Division; Curtis Rasmuson, USDA Forest Service, Big Horn National Forest; Marvin Matthiesen, USDA Forest Service, Big Horn National Forest; Monte Bush, Natural Resources Conservation Service; and Chris Weydeveld, Technical Forestry Services, LLC.

Big Horn County Operating Group members

1.0 Executive Summary

The Big Horn County Community Wildfire Protection Plan 2017 Update (2017 BHCCWPP) is an update to the 2005 Big Horn County Mountain Community Wildfire Protection Plan (2005 CWPP) and the 2010 Big Horn County CWPP Addendum (2010 Addendum) The 2005 and 2010 CWPPs were developed to provide for wildfire protection planning for twenty five (25) and forty (40) at-risk communities, respectively. Funding for this 2017 CWPP has come in the form of a grant through the National Fire Plan (Federal Grant No. 12-DG-11020000-031 CFDA 10.664). The grant was awarded to Big Horn County and is administered by the Wyoming State Forestry Division (WSFD). A portion of this grant funding has been used to contract Technical Forestry Services, LLC (TFS) to develop this 2017 Update. A digital version of this, and other CWPP documents are available for download and printing at the Wyoming State Forestry Fuels Mitigation web page at: (https://sites.google.com/a/wyo.gov/forestry/fire-management/fire-grants-assistance/fuels-mitigation).

This document addresses "at-risk" communities in Big Horn County as defined by the Big Horn County CWPP Operating Group (OG). The purpose of this document, which is entitled *Big Horn County Community Wildfire Protection Plan 2017 Update* (2017 BHCCWPP), is to identify at-risk communities, prioritize these communities on the basis of fire risk, and make recommendations for reducing the risk of wildfire threatening communities, and the unwanted effects caused by wildfire. Federal and state funding sources consider an approved CWPP when appropriating monies for fuels reduction projects and other wildfire preparedness projects. 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 2017 BHCCWPP 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 made up of representatives from local governments, local firefighting agencies, and state, county, municipal, and federal agencies. A list of Operating Group members can be seen in Appendix 2. The 2017 BHCCWPP Update has been developed through the collaborative efforts of this group.

This Operating Group has completed the following activities to date:

- Review of previously completed documents analyzing the at-risk communities in Big Horn County.
- Development of a working Base Map (Fig. 2-2) of the overall assessment area.
- Use of spatial data and fire modeling programs to assess fire behavior and determine risk ratings.
- Field site visits by professional foresters, fire behavior analysts, and structure ignitability specialists to gather site data on at-risk communities.
- Analysis of road access, road characteristics, building construction, utilities, water supplies, local firefighting capabilities, historical fire occurrence, topography, and emergency response times within the at-risk communities.

Information generated through the Operating Group meetings, on March 13, 2017, in Greybull, WY and May 22, 2017, in Greybull, WY, and through electronic communication throughout the spring, summer, and fall of 2017, forms the basis of this document.

Section 2.0 provides a description of the CWPP project area and includes an Area Map (Figure 2-1) and the CWPP Base Map (Figure 2-2). Section 2.0 also provides background on the CWPP process in Big Horn County, definitions of terms used in this document, a summary of forest insect and disease concerns, a description of Fire Regimes and Vegetation Condition Class (VCC), and relevant state, county, and federal policies relevant to this process.

Section 3.0 describes the project area in general, the specific at-risk communities within Big Horn County, and the process used in delineating those communities.

Section 4.0 describes the at-risk community assessment process for prioritizing communities on the basis of risk from wildfire and provides a table (Table 4-1), and map (Figure 4-4) of prioritized communities.

Recommendations for reducing the risk of wildfire threatening communities, and the unwanted effects caused by wildfire within at-risk communities, are given in Section 5.0. Recommendations address the following considerations: structural ignitability, public outreach, fire suppression, training, emergency equipment needs, wildland fuels treatments (prescribed fire, fuels treatments, and slash disposal), defensible space, and planning and zoning. Appendix 5, at the end of this document, shows a Table of recommended wildfire preparedness projects.

Figure 1-1. Buck Creek Cow Camp in the Battle Park Community at-risk (BAPA) within the Bighorn National Forest. The Cloud Peak Wilderness is in the background. Access to these structures is very difficult and not suitable for conventional emergency management vehicles due to width restrictions (July 2017 TFS photo).

Figure 1-2. Greer Cow Camp in the Longview (LONG) Community at-risk. TFS photo July 2017.

2.0 Introduction

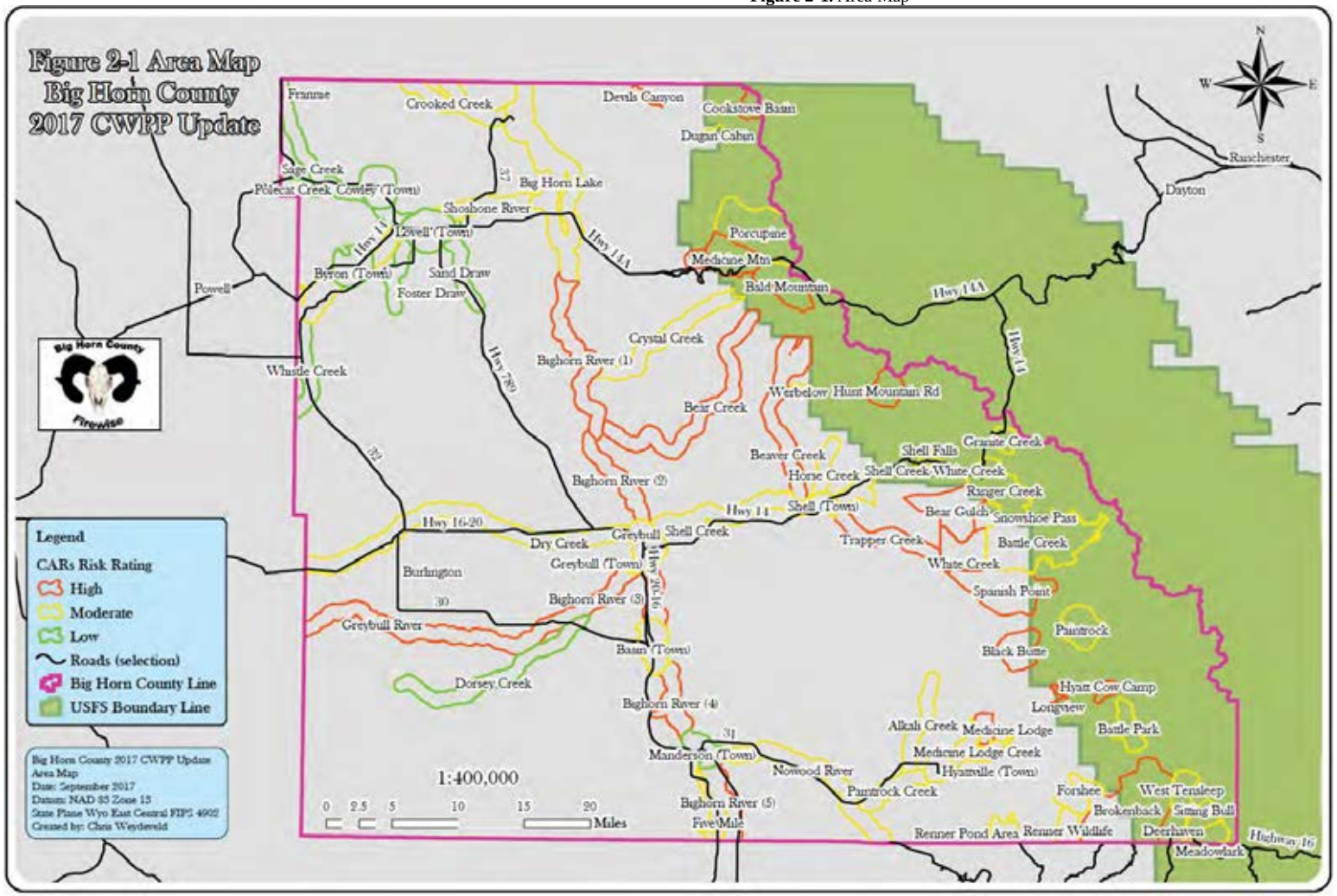
The Big Horn County Community Wildfire Protection Plan Update (2017 BHCCWPP) is an analysis of the threat of wildfire to at-risk communities in Big Horn County, Wyoming. Big Horn County is in the north central portion of Wyoming with Big Horn Basin high desert shrubland in the west, and the Bighorn Mountains making up the eastern portion of the County (see Area Map Figure 2-1). It is the intent of the Big Horn County Fire Warden, County Commissioners, and the 2017 BHCCWPP cooperators to continue the work toward achieving the goals of the 2005 CWPP and 2010 Addendum. Further, the 2017 BHCCWPP serves to identify newly recognized 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, municipal watersheds, and human welfare, including loss of life. Applying a collaborative process, at-risk communities were identified, then prioritized based on a 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.

Big Horn County supports the tenants of the National Cohesive Strategy which establishes a national vision for wildland fire management, defines national goals, describes the wildland fire challenges, identifies opportunities to reduce wildfire risks, and establishes national priorities focused on achieving the national goals. The National Cohesive Strategy identifies three primary factors as presenting the greatest challenges and opportunities in addressing wildland fire:

1. Restoring and maintaining resilient landscapes
2. Creating fire-adapted communities
3. Responding to wildfires

Figure 2-1. Area Map



Sixty-eight (68) communities were identified as being "at-risk" from wildfire and are identified on the 2017 BHCCWPP Base Map (see Figure 2-2).

The process used to classify these communities involved a *relative comparison* assigning risk ratings of high, moderate, and low. A final priority list of at-risk communities is ultimately produced for use in scheduling effective fuels reduction projects. Classification criterion includes: wildland fire hazard and risk, structure ignitability, and community layout.

Thirty (30) of the identified at-risk communities are within or adjacent to the Bighorn National Forest (The remaining thirty-eight (38) at-risk communities are within or adjacent to Bureau of Land Management administered lands). The Bighorn National Forest lies in north central Wyoming in the north-south trending Central Rocky Mountains. The Forest includes approximately 1.1 million acres. All of the Bighorn National Forest is mountainous. Elevation rises to 13,167 feet above sea level at Cloud Peak in the Bighorn Mountains.

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.

This 2017 BHCCWPP, though providing general recommendations for reducing risk of catastrophic fire, is not a mitigation plan. *This plan does not include strategic operational objectives or tactics to protect communities.* Following the implementation of the CWPP, the next step in the process toward reducing risk in the at-risk communities is the development of mitigation plans. These mitigation plans recommend specific actions that will reduce the risk of wildfire to communities.

Figure 2-2 2017 BHCCWPP Base Map

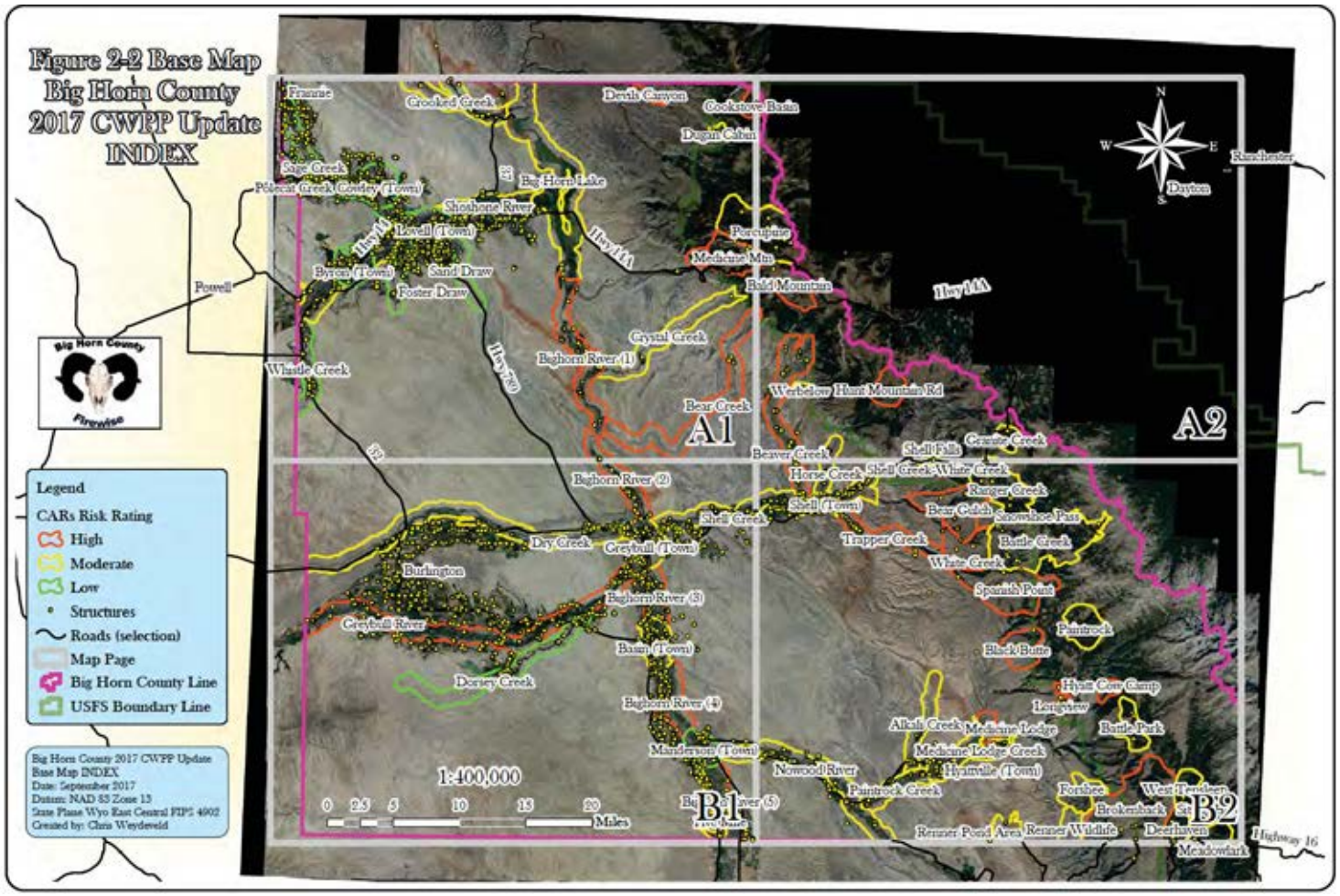


Figure 2-2 Base Map
Big Horn County
2017 CWPP Update
INDEX
Legend
CARs Risk Rating
High
Moderate
Low
Structures
Roads (selection)
Map Page
Big Horn County Line
USFS Boundary Line
Big Horn County 2017 CWPP Update
Base Map INDEX
Date: September 2017
Datum: NAD 83 Zone 13
State Plane Wyo East Central FIPS 4902
Created by: Chris Weydeveld
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0 2.5 5 10 15 20
Miles
A1
A2
B1
B2
Fraune
Crooked Creek
Devils Canyon
Cookstove Basin
Dugout Cabin
Sage Creek
Pelican Creek
Greybull (Town)
Big Horn Lake
Shoshone River
Lovell (Town)
Byron (Town)
Sand Draw
Foster Draw
Powell
Whistle Creek
Porcupine
Medicine Mtn
Bald Mountain
Hwy 14A
Crystal Creek
Bighorn River (1)
Werbelow Hunt Mountain Rd
Bear Creek
Beaver Creek
Shell Falls
Granite Creek
Horse Creek
Shell Creek
White Creek
Ranger Creek
Bighorn River (2)
Shell (Town)
Bear Gulch
Snowshoe Pass
Shell Creek
Trapper Creek
Battle Creek
Dry Creek
Greybull (Town)
White Creek
Burlington
Spanish Point
Bighorn River (3)
Greybull River
Paintrock
Basin (Town)
Black Butte
Dorsey Creek
Hyatt Cow Camp
Longview
Bighorn River (4)
Alkali Creek
Medicine Lodge
Battle Park
Medicine Lodge Creek
Manderson (Town)
Nowood River
Hyattville (Town)
Paintrock Creek
Forshee
West Tensleep
Bighorn River (5)
Brokenback
Deerhaven
Renner Pond Area
Renner Wildlife
Meadowlark
Highway 16
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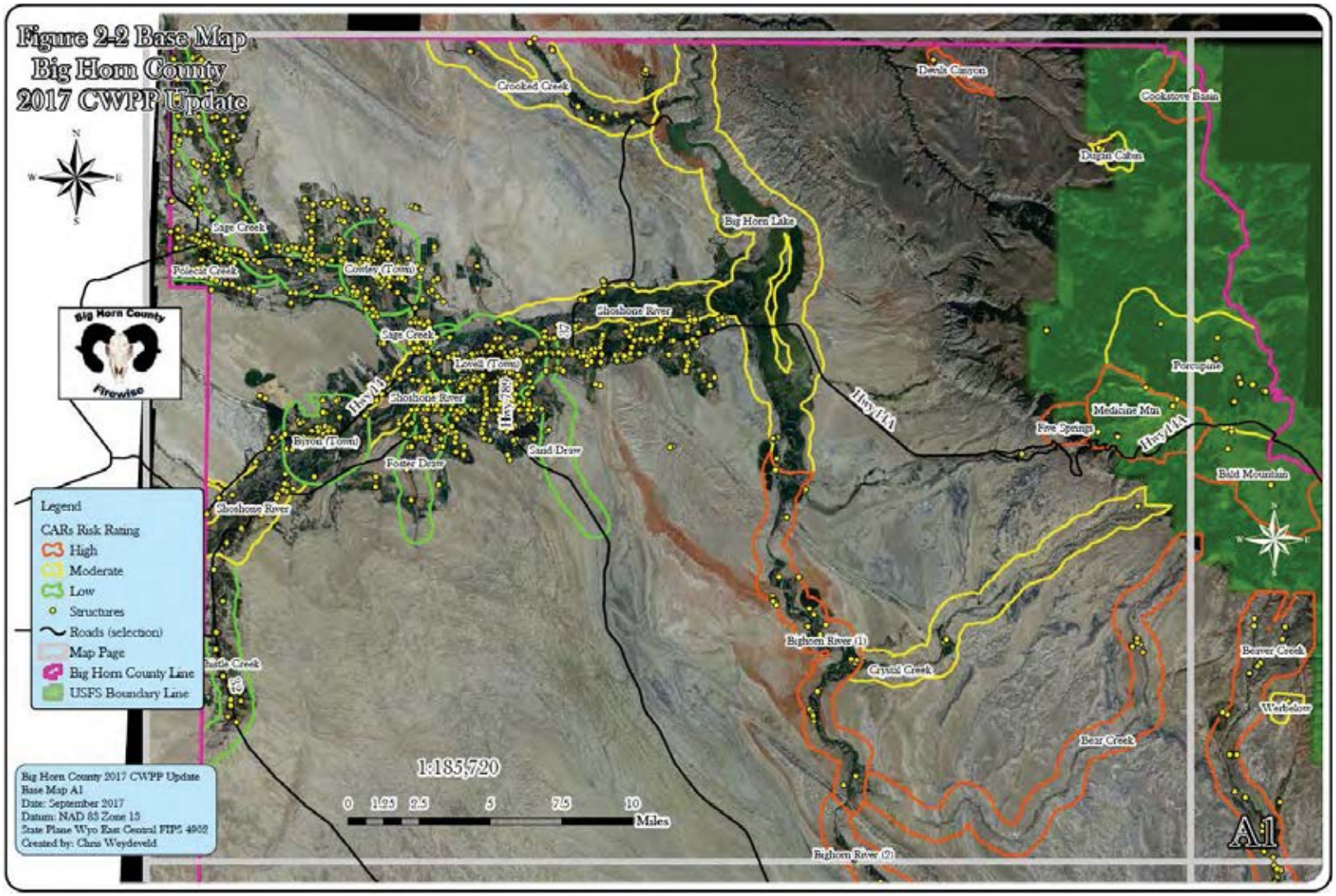
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Big Horn County
2017 CWPP Update
Crooked Creek
Devils Canyon
Cookstove Basin
Dryan Cabin
Big Horn Lake
Sage Creek
Polecat Creek
Cowley (Town)
Shoshone River
Sage Creek
Lovell (Town)
Hwy 14
Shoshone River
Hwy 14A
Byron (Town)
Foster Drain
Sand Draw
Porcupine
Medicine Mtn
Five Springs
Hwy 14A
Bald Mountain
Shoshone River
Legend
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High
Moderate
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Roads (selection)
Map Page
Big Horn County Line
USFS Boundary Line
Bighorn River (1)
Crystal Creek
Beaver Creek
Wetbelow
Bear Creek
Bighorn River (2)
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0 1.25 2.5 5 7.5 10
Miles
Big Horn County 2017 CWPP Update
Base Map A1
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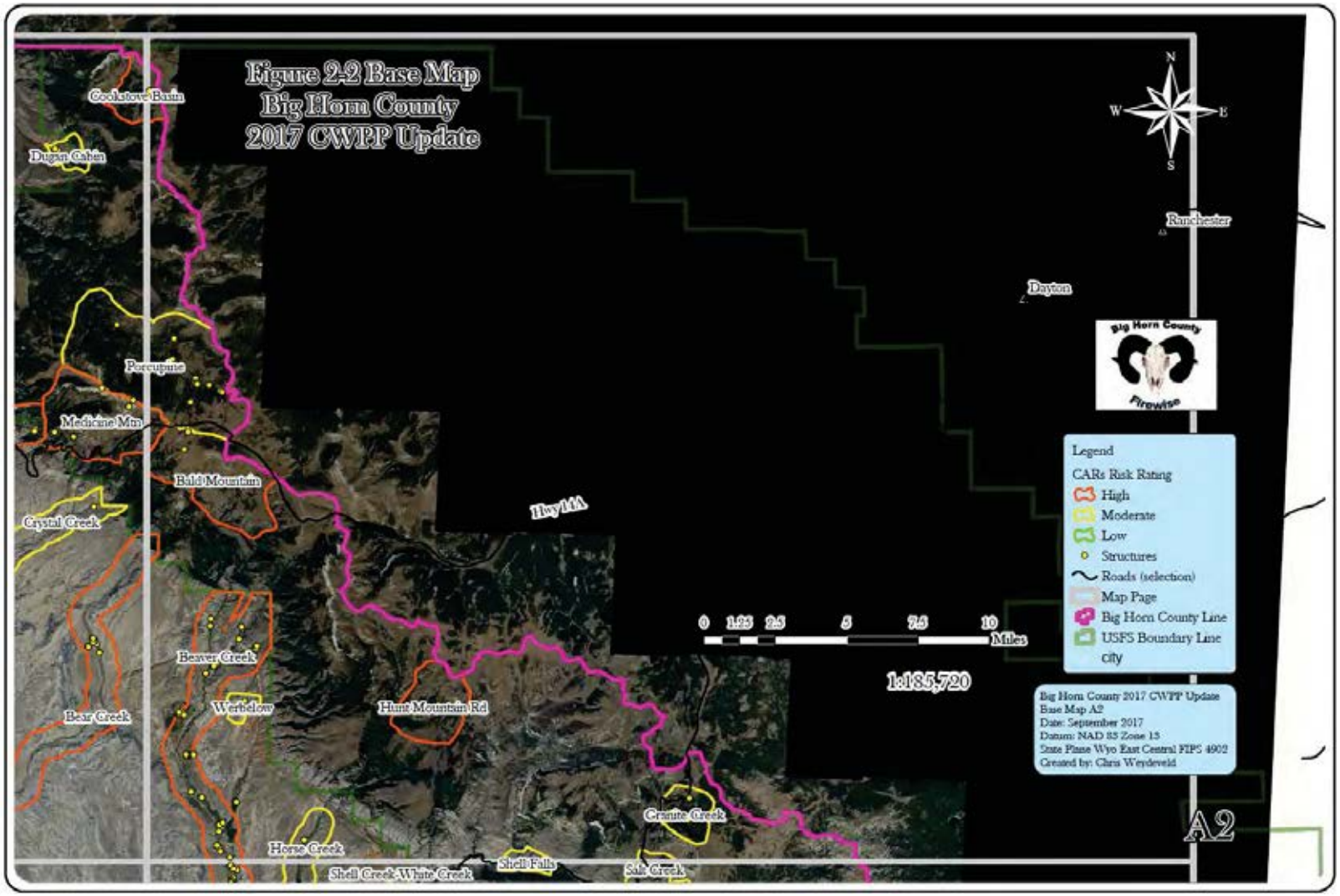
Datum: NAD 83 Zone 13
State Plane Wyo East Central FIPS 4908
Created by: Chris Weydeveld
A1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2017 CWPP Update
Cookstove Basin
Dugin Cabin
Porcupine
Medicine Mtn
Bald Mountain
Crystal Creek
Beaver Creek
Bear Creek
Werbelow
Hunt Mountain Rd
Horse Creek
Shell Creek-White Creek
Shell Falls
Sale Creek
Granite Creek
Hwy 14A
Ranchester
Dayton
N
W
E
S
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city
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Miles
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Created by: Chris Weydeveld
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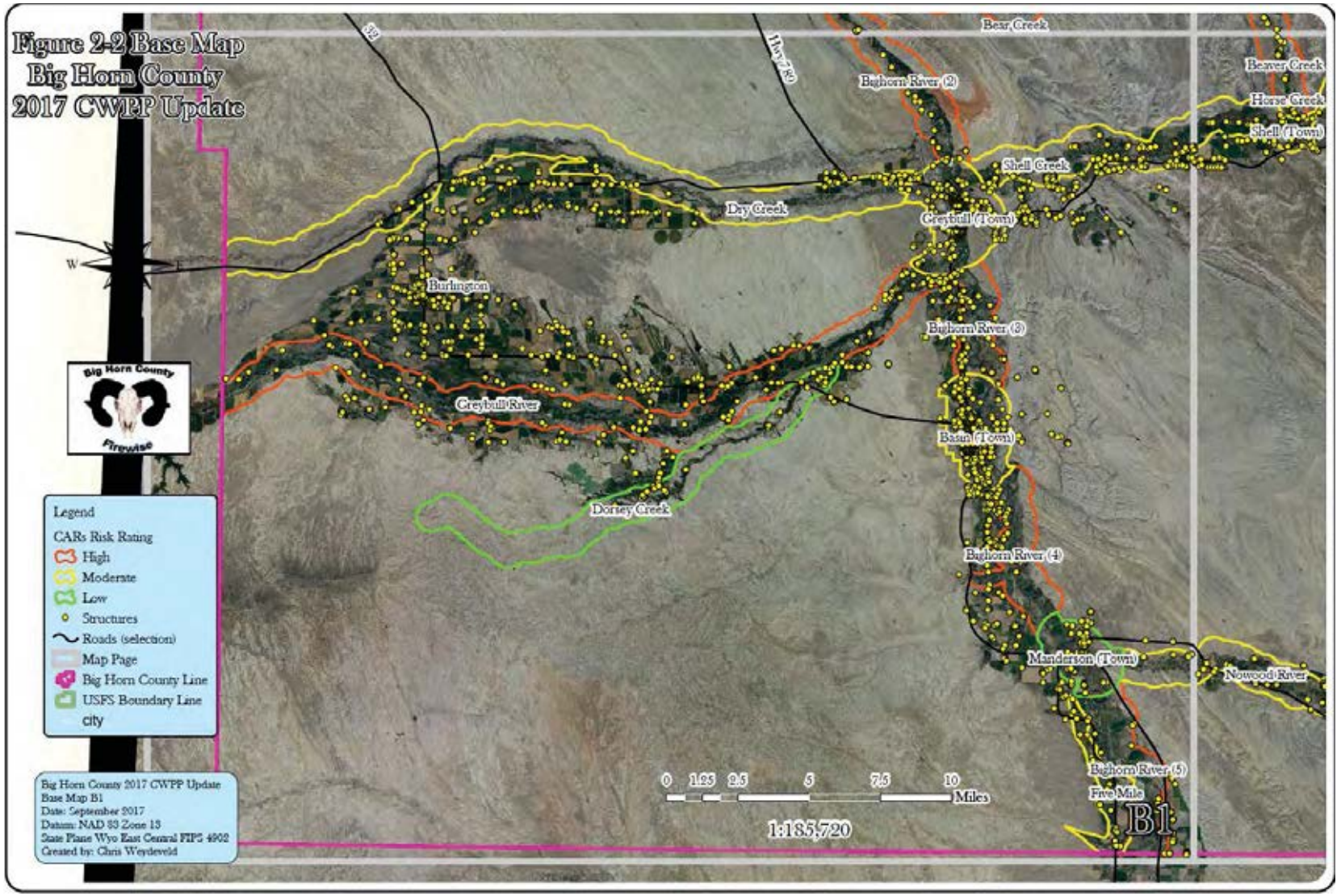
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Bighorn River (2)
Shell Creek
Day Creek
Greybull (Town)
Burlington
Bighorn River (3)
Greybull River
Basin (Town)
Dorsey Creek
Bighorn River (4)
Manderson (Town)
Nowood River
Bighorn River (5)
Five Mile
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Big Horn County
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Miles
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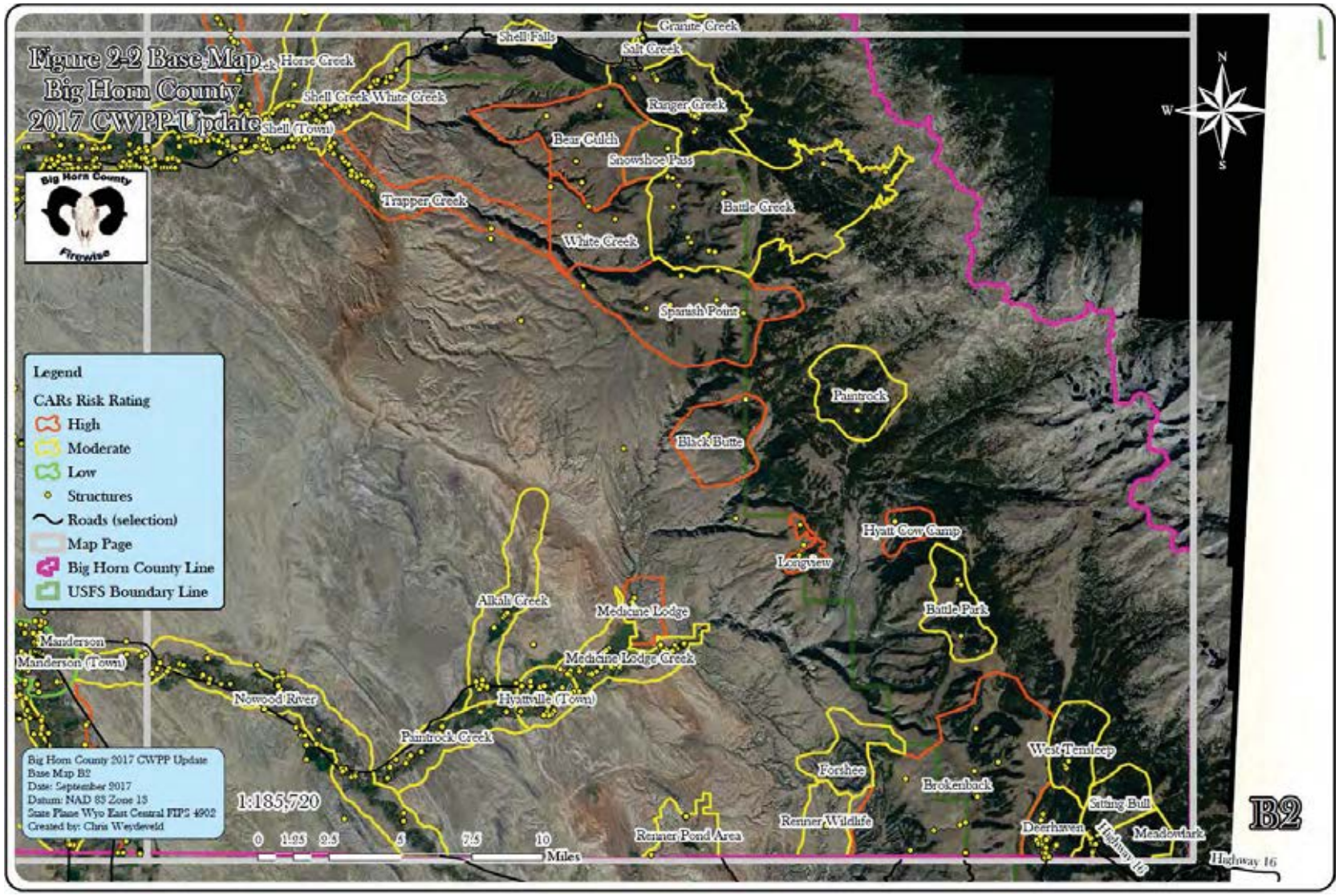
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1:185,720
0 1.25 2.5 5 7.5 10
Miles
B2
Granite Creek
Shell Falls
Salt Creek
Horse Creek
Shell Creek White Creek
Shell (Town)
Ranger Creek
Bear Gulch
Snowshoe Pass
Trapper Creek
Battle Creek
White Creek
Spanish Point
Paintrock
Black Butte
Hyatt Cow Camp
Longview
Battle Park
Alkali Creek
Medicine Lodge
Medicine Lodge Creek
Manderson
Manderson (Town)
Nowood River
Hyattville (Town)
Paintrock Creek
Forshee
Brokenback
West Ten Sleep
Sitting Bull
Deerhaven
Meadowlark
Reiner Pond Area
Reiner Wildlife
Highway 16
Highway 16

2.1 Background

Big Horn County developed the 2005 CWPP and the 2010 CWPP Addendum using the services of Technical Forestry Services, LLC (TFS). The 2005 and 2010 documents provide recommendations for reducing the threat of catastrophic wildfire destroying life and property. These documents are still relevant for the communities addressed, and should be utilized during planning efforts. These documents are available as a pdf file at the Wyoming State Forestry Division website (Wyoming CWPPs). Mitigation planning and fuels treatment projects have already taken place for many of the communities in the assessment area, including work by the USFS, BLM, NRCS, Conservation Districts, municipalities, and the County through the ongoing Firewise Program.

Big Horn County was awarded a Federal grant in 2004 to develop the initial 2005 CWPP for the County. The County was then awarded federal Western States WUI Grants in 2008, 2010 and 2011. In addition to the 2010 Mountain CWPP development, funding from these grants were used to administer a Firewise Program (Bighorn Basin Firewise)[1] including public outreach, the quarterly Firesmart Newsletter, wildfire mitigation planning to address hazardous fuel loading in the WUI, and cost/share funding for the implementation of hazardous fuels projects. Additional Western States WUI Grant funding was added to the grant in the summer of 2017 to develop this CWPP Update and to conduct a Structure Ignitability Assessment of the homes and cabins in the mountain areas of the County.

2.1.1 Public Outreach in Big Horn County

Big Horn County Fire has had a Firewise USA™ program aimed at educating residents about protecting their homes and property from wildland fire through community picnics, public meetings, media reports, a Facebook page (Bighorn Basin Firewise), and the quarterly Firesmart Newsletter, and facilitating the layout, implementation, and inspection of defensible space projects around homes and cabins within the at-risk communities. The National Forest Plan, Western States WUI Grant funding has allowed cost/share funding to assist in this effort. The WSFD and local Conservation Districts have also been active in public outreach. Currently, there is no funding available to administer a Firewise USA™ program in Big Horn County. The grant which funded this update, expired on September 30, 2017.

[1] https://www.facebook.com/bighornbasin.firewise

2.1.2 Emergency Management Capabilities

Big Horn County has a strong association of volunteer fire departments with a capable emergency management infrastructure. The county shares mutual aid agreements with state and federal partners. The county has access to all available resources including air tankers, helicopters, engines, crews, and incident management teams. See Figure 9 on page 25 of the 2010 CWPP Addendum for a map of Big Horn County Fire District boundaries.

2.2 Definitions

Definitions vary when describing fire and fuels risk analysis, and can mislead the reviewer in some cases. For purposes of this document, 2017 BHCCWPP at-risk communities (CARs) are adjacent to federal lands, and are consistent with the commonly used definitions of an intermix, interface, or occluded community associated with a "wildland-urban interface" (WUI). At-risk communities may also include other values at-risk, as defined by the Big Horn County CWPP Operating Group (OG). Other values at-risk may include Wildland-Industrial Interface (WII), municipal watersheds, and natural resources (wildlife and threatened, endangered, and sensitive habitats, rehabilitated and restored forests), Research Natural Areas (RNA)[2], and cultural or archaeological sites.

2.2.1 Wildland-Urban Interface

The WUI is defined in the publication: *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, 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***. Communities within the WUI face risk to life, property, and infrastructure and are commonly categorized as:

[2] A Research Natural Area (RNA) is any tract of land or water which supports high quality examples of terrestrial or aquatic ecosystems, habitats, and populations of rare or endangered plant or animal species, or unique geological study of the features, and is managed in a way that allows **natural** processes to predominate. There are no known RNAs in Big Horn County.

- The **Intermix Community** exists where structures are scattered throughout a wildland area. There is no clear line of demarcation; wildland fuels are continuous outside of and within the developed area. The developed density in the intermix community, ranges from structures very close together, to one structure per forty (40) acres. Local fire departments normally provide life and property fire protection and may also have wildland fire protection responsibilities.[3]

Figure 2-3. Structure within the Ranger Creek CAR (RACR) in Big Horn County, Wyoming. This structure occurs in what is described here as an "intermix" community.

- The **Interface Community** exists where structures directly abut wildland fuels. There is a clear line of demarcation between wildland fuels and residential, business, and public structures. Wildland fuels do not generally continue into the developed area. The development density for an interface community is usually three or more structures per acre, with shared municipal

[3]Forest recreation "cabin leases" are privately owned cabins located within the National Forest. Protection of structures from wildfire is the responsibility of county and state emergency management resources. Federal wildland firefighters are not trained in structure protection and are not responsible for protection of these values.

services. Fire protection is generally provided by a local fire department with the responsibility to protect the structure from both an interior fire and an advancing wildfire.

Figure 2-4. The town of Hyattville Wyoming is considered an "Interface Community". The town abuts wildland fuels consisting of riparian vegetation along Paintrock Creek as well as juniper and sagebrush vegetation communities in all directions surrounding the town. TFS photo July 2017.

- **Occluded communities** generally exist in a situation, often within a city, where structures abut an island of wildland fuels (e.g. park or open space). There is a clear line of demarcation between structures and wildland fuels. The development density for an occluded community is usually similar to those found in the interface community, but the occluded area is usually less than one thousand acres in size. Fire protection is normally provided by local fire departments.

2.2.2 Other Values at-risk

Other values at-risk may include Wildland-Industrial Interface (WII), municipal watersheds, and natural resources, (wildlife and threatened, endangered, and sensitive habitats, rehabilitated and restored forests), Research Natural Areas (RNA), and cultural or archaeological sites.

Example of Wildland-Industrial Interface (WII) in the Bighorn Basin. BLM Photo.

2.2.3 Fuels Hazard

Fuels 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.

2.2.4 Fuels

Fuels include dead or down woody debris, live vegetation, and human developments when those developments are capable of ignition and arranged in a manner that will affect fire behavior and severity.

2.3 Insect and Diseases (Forest Health)

Years of hot, dry summers, and above-normal winter temperatures over the past two decades, and densely stocked forest stands throughout much of the western United States and Rocky Mountain region, have combined to result in stressed forest conditions across the landscape. Stressed forest stands favor buildup of forest pathogens and insects above endemic levels and often results in the increase of available fuel in forest stands. In general, the Bighorn National Forest has fared better than other forests in the Rocky Mountains.

Wyoming's 2016 forest health Aerial Detection Survey (ADS) as well as some preliminary results of the 2017 survey revealed few current insect and disease concerns. [4] For Big Horn and Washakie counties, the forested areas surveyed by the ADS program were confined to the western slope of the Bighorn Mountains. Small clumps of declining subalpine fir were frequently mapped in eastern Big Horn and Washakie counties. Single trees and small groups of Douglas-fir trees affected by Douglas-fir beetle were occasionally mapped in eastern Big Horn and Washakie counties. Infrequent aspen discoloration and defoliation was mapped in eastern Big Horn and Washakie counties. Limber pine affected by mountain pine beetle was infrequently mapped in southeastern Washakie County. Douglas-fir affected by Western spruce budworm was infrequently mapped in southeastern Washakie County. Between 2015-2016 and 2016-2017, mapped acres affected by some damage agents, including mountain pine beetle, Douglas-fir beetle, Western balsam bark beetle (subalpine fir decline), Western spruce budworm, and aspen defoliation/decline may have slightly increased. However, it is important to note that any recent short-term slight increases are following significant long-term decreases in pest populations. In addition, all acreages and damage agents are currently minor and fluctuations from year to year are to be expected. Overall, forests of the Bighorn Mountains are among the healthiest in Wyoming (Ryan DeSantis, WSFD. Pers. Comm. 9/15/2017).

Bark beetles

Bark beetles can act as a stand replacement process similar to fire, but at times may occur at low "endemic" levels that affect small groups of trees and influence within stand structure more than landscape structure. Changes in stand composition and structure can be changed relatively rapidly by

[4] ADS has been used for over 70 years to detect broad-scale forest health. Trained surveyors fly over forest land annually, noting the location of forest damage as well as the damage size, tree type, damage agent, and approximate percent of tree and tree species affected.

insect attacks. Insects, along with fire, have been an important influence on the patch and landscape structure of the forest environment.

Bark beetles found in the Bighorn Mountains include:

- **Western balsam bark beetle** (*Dryocoetes confuses*) affects subalpine fir, other true firs, and very rarely, Engelmann spruce and lodgepole pine. According to 2016 ADS reports, the balsam bark beetle killed subalpine fir over approximately 4,000 acres, but subalpine fir decline complex, which includes *Armillaria* root disease, was not found in Bighorns.[5]
- **Mountain pine beetle** (*Dendroctonus ponderosae*) affects pine species primarily. Acres affected actually increased from 80 to 580 acres from 2015 to 2016, at least half of which was in lodgepole pine.[6]
- **Spruce beetle** (*Dendroctonus rufipennis*) affects Engelmann, and, during very large outbreaks, has also attacked lodgepole pine, though such occurrences are not common.[7] Acres affected increased, but only from 70 to 160 from 2015 to 2016.
- **Douglas-fir beetle** (*Dendroctonus pseudotsugae*) affects the Douglas-fir tree and shows very low mortality levels in recent surveys, only six acres detected.

Other insect pests

Western spruce budworm (*Choristoneura occidentalis*), attacks spruce and Douglas-fir trees. The insect, which eventually transforms to a gray moth, is native to Wyoming and about every 20 years appears in epidemic proportions.

Diseases

Diseases mostly operate within stands and influence growth and structure of individual trees. **Dwarf mistletoe** is noted for reducing tree growth and ultimately the supply of forest products. Dwarf mistletoe frequently works more slowly than insects, and may take decades to change forest stand composition or structure. Infections occur primarily on unharvested stands or stands which were

[5] The code used by ADS program for the subalpine fir decline in this instance is WBBB (Western balsam bark beetle). Other pathogens are likely involved but, without more ground checking, it's not possible to be certain of the exact cause of the mortality observed. "SFD" (subalpine fir decline) may be a better way to describe the decline seen in the subalpine fir. In some places it could be entirely WBBB, in others *Armillaria* could be involved, and it is also possible Balsam wooly adelgid could be a factor, although it has still not been positively identified within Wyoming.

[6] However, it is important to note that any recent short-term slight increases are following significant long-term decreases in pest populations. In addition, all acreages and damage agents are currently minor and fluctuations from year to year are to be expected.

[7] This has been recently documented quite a bit in Colorado.

selectively cut. Recent surveys show dwarf mistletoe is problematic in lodgepole pine but forest treatments are slowly improving conditions. No ADS acreage number available from the 2016 survey.

White pine blister rust, caused by the fungus (*Cronartium ribicola),* is an exotic disease introduced from Eurasia around 1910. White pine blister rust has spread across the forests of the west and probably has the most potential to continue to infect trees on the forests. Five-needle pine populations (limber and white bark pine in Wyoming) are not widespread on the Bighorn National Forest and therefore the impact of the disease on those populations could be significant. No ADS acreage number available from the 2016 survey.

Sudden Aspen Decline (SAD) continues to occur but ADS surveys show only a small area affected.

2.4 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 stand replacement) of the fire on the dominant overstory vegetation. The table below describes the fire regimes (taken from Interagency Fire Regime Condition Class Guidebook September 2010).

Group	Frequency	Severity	Severity description
I	0 – 35 years	Low / mixed	Generally low-severity fires replacing less than 25% of the dominant overstory vegetation; can include mixed-severity fires that replace up to 75% of the overstory
II	0 – 35 years	Replacement	High-severity fires replacing greater than 75% of the dominant overstory vegetation
III	35 – 200 years	Mixed / low	Generally mixed-severity; can also include low-severity fires
IV	35 – 200 years	Replacement	High-severity fires
V	200+ years	Replacement / any severity	Generally replacement-severity; can include any severity type in this frequency range

Note: These regime groups have been modified slightly from earlier versions (Hardy and others 2001; Schmidt and others 2002; FRCC Guidebook Version 1.2.0) to remain consistent with the ongoing LANDFIRE Project (specifically, Fire Regime III now includes low-severity fires and Fire Regime V includes fires of any severity type).

Wyoming big sagebrush vegetation community in a pristine condition. BLM photo.

The vegetation condition class (VCC) of wildland habitats describes the degree to which the current fire regime has been altered from its historical range, the risk of losing key ecosystem components, and the vegetative attribute changes from historical conditions (Fig. 2-5). There are three VCCs, which are classified according to degree of departure from the historical fire regime: low departure (VCC 1), moderate departure (VCC 2), and high departure (VCC 3). VCC is calculated based on changes to vegetation composition, structural stage, and canopy closure using methods described in the Interagency Fire Regime Condition Class Guidebook September 2010.[8]

[8] https://www.fs.fed.us/rm/pubs/rmrs_gtr292/2010_barrett.pdf

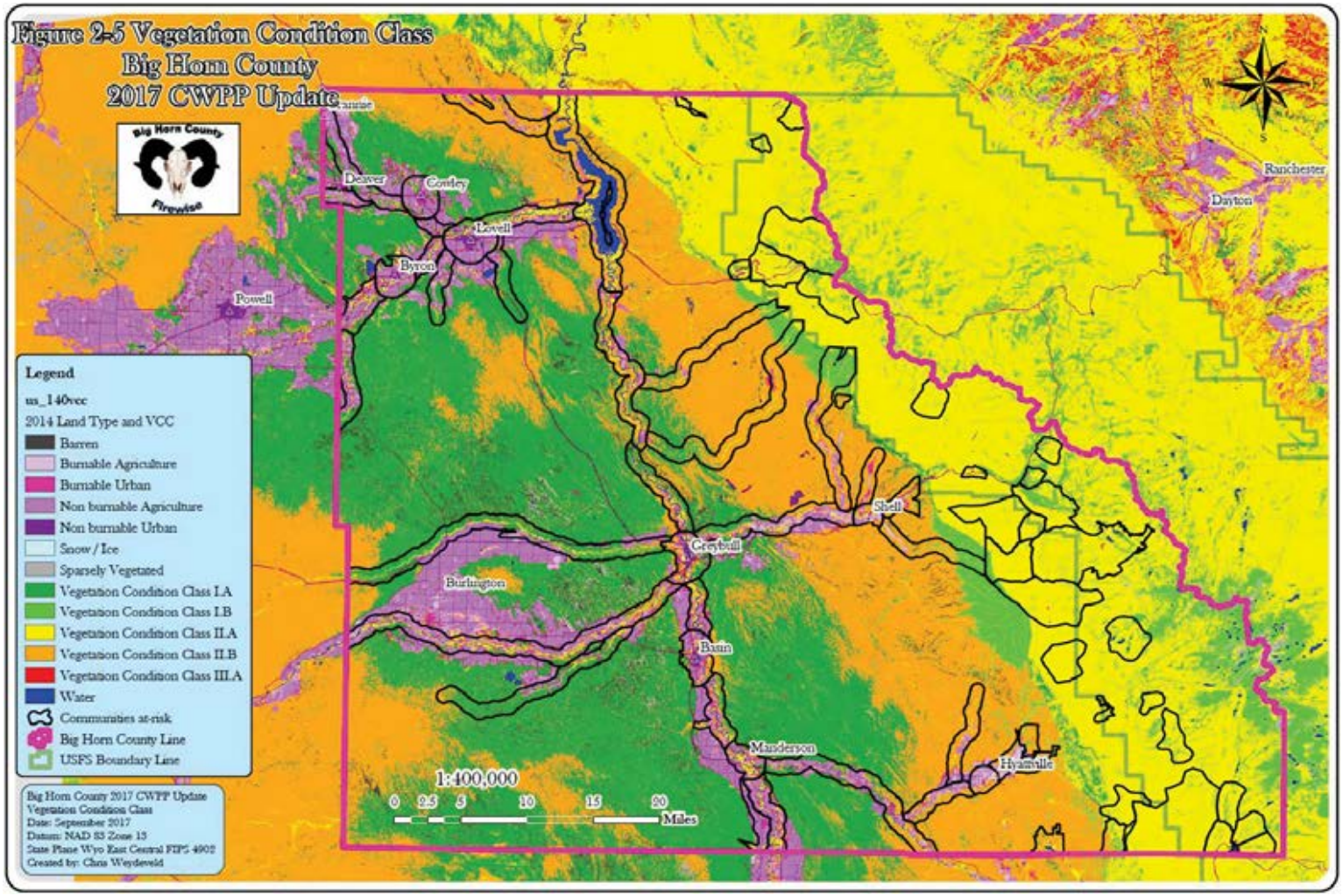

Figure 2-5. Vegetation Condition Class analysis for Big Horn County (2014 data).

LANDFIRE VCC is based on departure of current vegetation conditions from reference vegetation conditions only, whereas the Fire Regime Guidebook approach includes departure of current fire regimes from those of the reference period. Data obtained from LANDFIRE.gov (LANDFIRE, accessed August 2017) simulates historical vegetation reference conditions using the Vegetation Dynamics Development Tool, which is a vegetation and disturbance dynamics model. A current vegetation condition is then derived from a classification of existing vegetation type, cover, and height and is current to the vegetative landcover that existed on the landscape in 2012 (the most recent data set at time of analysis).

Vegetation Condition Class (VCC) represents a simple categorization of the associated Vegetation Departure (VDEP) layer and indicates the general level to which current vegetation is different from the simulated historical vegetation reference conditions. VDEP and VCC are based upon methods originally described in Interagency Fire Regime Condition Class Guidebook September 2010, but are not identical to those methods. Full descriptions of the methods used can be found in the VDEP product description.

In LANDFIRE 2012 (LF 2012), the original three VCC classes were divided in half to create six VCC classes to provide additional precision.[9] The table describes the classes:

LF 2012	LF 2001 National, LF 2001, LF 2008
VCC Ia: Very Low, VDEP 0 - 16	VCC I: Low departure, VDEP 0 - 33
VCC Ib: Low, VDEP 17 - 33	
VCC IIa: Moderate to Low, VDEP 34 - 50	VCC II: Moderate departure, VDEP 34 - 66
VCC IIb: Moderate to High, VDEP 51 - 66	
VCC IIIa: High, VDEP 67 – 83	VCC III: High departure, VDEP 67 - 100
VCC IIIb: Very High, VDEP 84 - 100	

[9] New VCC categories are defined as follows: Condition Class I.A: VDEP between 0 and 16 (Very Low Departure), Condition Class I.B: VDEP between 17 and 33 (Low to Moderate Departure); Condition Class II.A: VDEP between 34 and 50 (Moderate to Low Departure); Condition Class II.B: VDEP between 51 and 66 (Moderate to High Departure); Condition Class III.A: VDEP between 67 and 83 (High to Moderate Departure), and Condition Class III.B: VDEP between 84 and 100 (High Departure). Current vegetation conditions are derived from a classification of LF layers of existing vegetation type, cover, and height.

Condition Class

Condition Class 1

Within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency, severity and pattern; and other associated disturbances

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.

2.5 Relevant Fire Policies

2.5.1 State Policies

2.5.1.1 Wildland Fire Management Annual Operating Plan for Washakie, Big Horn, Park, Hot Springs, and Fremont, Counties (WSFD, District 3)

Each year an Interagency Group convenes to review and develop this document which provides an annual update of policies governing wildland fires in WSFD District which includes Big Horn County. The Annual Operating Plan is available by contacting the Wyoming State Forestry Division at (307) 777-7586.[10] Initial suppression action on State land will be taken by the Fire Districts within their capability. This initial action will be reported to the Wyoming State Forestry Division.

2.5.1.2 Forest Action Plan

The Statewide Assessment of Forest Resources identifies important forest landscapes across all ownerships based on an analysis of key data layers.[11] Products of the Assessment include a map of important forest landscapes and a description of the threats and priorities for those areas. The Assessment identifies 15 threats/priorities including forest health, wildfire management, the need for a viable forest products industry, the decline of riparian forests, the challenge of community forestry in Wyoming, protection of water quality and quantity, and more.

The Statewide Resource Strategy describes the strategies and tactics that can be used by landowners and land managers to address the threats and priorities identified by the Assessment.[12] The Strategy also identifies stakeholders, partners, and resources needed for implementation. The Strategy provides management direction that should help land managers plan activities and allocate limited state, private, and federal resources.

[10] https://drive.google.com/file/d/0B8XeycIbVsLRYXFGaVdLbE5GR0E/view

[11] http://slf-web.state.wy.us/forestrydivision/StatewideAssessment.pdf

[12] http://slf-web.state.wy.us/forestrydivision/Resource_Strategy.pdf

2.5.2 Federal Policies

2.5.2.1 Bighorn National Forest Revised Land & Resource Management Plan 2005

The current land management guiding documentation is the Bighorn National Forest Revised Land & Resource Management Plan 2005 (BNF 2005 LRMP) and Final Environmental Impact Statement.[13] Further revisions are not likely until perhaps 2027. The planning summarizes the reasons for choosing the Selected Alternative as the basis for the Revised Forest Plan. The long-term environmental consequences contained in the Final Environmental Impact Statement are considered in this decision.

2.5.2.2 Bighorn National Forest 2015 Fire Management Plan (BNF Fire Plan 2015)[14]

National Forest Fire Plans had traditionally been updated on a yearly basis. Forests have since adopted a "spatial" approach to fire management planning and changes to planning are now made in the Wildland Fire Decision and Support System (WFDSS).

2.5.2.3 Wildland Fire Use

In 2009 the Forest Service and the other Federal Fire Agencies implemented changes to the Implementation Guidance for the Federal Wildland Fire Management Policy and wildland fire decision processes. NOTE: This policy has had changes and could change in the future.

2.5.2.4 National Fire Plan

The National Fire Plan was funded by the U.S. Congress in 2001 to reduce hazardous fuels 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 plan for protecting communities and the environment (NFP). 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.

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[13] https://www.fs.usda.gov/detail/bighorn/landmanagement/planning/?cid=fswdev3_009165

[14] https://gacc.nifc.gov/rmcc/dispatch_centers/r2cdc/predictive/fuels_fire_danger/BHF%20FMP/BighornNF_2015_FMP.pdf

Since the inception of the NFP, administrative procedures and processes governing preparation of projects to reduce hazardous fuel and restore healthy ecological conditions on Federal land have undergone many changes. Many of these changes have occurred as a result of directives stated in the **Healthy Forests Initiative** (HFI) launched in 2002, and 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.

2.5.2.5 National Forest Landscapes for Priority Attention

The Agriculture Act of 2014, commonly referred to as the “Farm Bill,” sets forth a process where the Governor of a state may nominate area landscapes that are impacted by insects and disease, to the Secretary of Agriculture. If those landscapes are then designated by the Secretary, forest management in those areas will be pursuant to an efficient and prioritized planning process, with rigorous science and allowing for full public involvement. Only those areas characterized by declining forest health, a risk of substantially increased tree mortality, or an imminent risk to public infrastructure, health, or safety, may be nominated.

The 2017 CWPP 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.

2.5.2.6 Bureau of Land Management Resource Management Plan

In May 2015 the Bureau of Land Management signed the Bighorn Basin Resource Management Plan Revision Project RMP for the area administered by the Worland Field Office, including Big Horn County.[15]

2.5.3 Other Polices and Coordinating Groups

Other policies and groups include: the Wyoming Interagency Cooperative Fire Protection Agreement, Wyoming Interagency Fire Restriction Plan, and the Wyoming State Forestry Division *Mini Fire Mobilization Plan* 2017 (2017 Mini Mob Guide).[16]

2.5.4 Guidance Documents

Early guidance documents, following the 2001 National Fire Plan and 2003 HFRA, were referenced in the development of the 2017 BHCCWPP. Guidance documents that have assisted development of this CWPP include:

- *Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee, Society of American Foresters, National Association of Counties, and National Association of State Foresters 2004).
- *The Healthy Forests Initiative and Healthy Forests Restoration Act Interim Field Guide* (USDA Forest Service and Bureau of Land Management 2004).

[15] https://eplanning.blm.gov/epl-front-office/projects/lup/9506/58518/63310/BB_PRMP_FEIS.pdf

[16] https://gacc.nifc.gov/rmcc/dispatch_centers/r2rwc/Administrative/Plans_Guides/2017%20WY%20State%20Forestry%20Mob%20Guide.pdf

- Field Guidance. *Identifying and Prioritizing Communities at Risk, National Association of State Foresters*, 2003.

As additional guidance documents become available, any changes or amendments will be incorporated into this CWPP.

During analyses for the update of the 2005 CWPP and 2010 Addendum the Operating Group recognized that, in addition to guidance documents utilized during development of the those documents, advancements in wildfire fire risk assessments, responses, and public education have been made. The Operating Group has therefore reviewed the following documents as part of updating this document:

- *A National Cohesive Wildland Fire Management Strategy-Final Phase National Report* (WFLC 2012). WFLC 2014.
- *Community Guide to Preparing and Implementing a Community Wildfire Protection Plan. A supplemental guide to Preparing a Community Wildfire Protection Plan: A Handbook for Wildland-Urban Interface Communities* (Communities Committee et al. 2008) 2008 CWPP Guidance Report
- *A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment 10-Year Strategy Implementation Plan, December 2006* (10-yearstrategyfinal_dec2006.pdf).
- Fire Adapted Communities (FAC) Toolkit (International Association of Fire Chiefs, (http://www.iafc.org/facToolkit).
- Ready, Set, Go! (RSG) Program (International Association of Fire Chiefs, (http://www.wildlandfirersg.org/)
- National Fire Protection Association Firewise Communities (http://www.firewise.org)
- Fire Adapted Communities (http://www.fireadapted.org/)
- Fire Adapted Communities Learning Network (http://www.wildlandfirersg.org/)

3.0 Community Description

The assessment area is contained entirely in Big Horn County, Wyoming. High elevation forests consist of lodgepole pine, Engelmann spruce and subalpine fir. Low elevation forests consist of woodlands and savannas composed of ponderosa pine, limber pine and/or Douglas-fir. In these lower areas, when trees grow densely enough to be considered forests, the stands are small and located in ravines or on north slopes. Lowlands are a mixture of short grass prairie, sagebrush shrubland, and riparian area vegetation communities. Russian olive and tamarisk make up a significant threat to values-at-risk in the riparian areas of Big Horn County. Much work has been done treating Russian olive and tamarisk in the past decade but the potential for expansion exists and could greatly complicate the fuels complex in riparian areas. Aspen stands are older than was typical in the past, and increased amounts of conifer species have invaded the stands. Montane riparian areas have less aspen as a result of being crowded out by conifers. Understory herbaceous vegetation is reduced in stands encroached on by conifers, because of the increase in canopy cover.

3.1 "At-risk" Community (CAR) Delineation Process

Wildland-urban interface (WUI) areas and other values-at-risk, were determined using criteria specified in the 2003 Healthy Forest Restoration Act (HFRA). After these areas were identified, boundaries around these areas were established based generally on topographic and vegetative features considered capable of affecting fire behavior. The process of delineating CAR boundaries involved collaboration between the Big Horn County Fire Warden and local fire chiefs, USFS and BLM fire specialists, the Wyoming State Forestry Division (WSFD), planners, and natural resource specialists. The resulting Base Map underwent revisions by the Operating Group (OG) before the final draft was adopted. The guiding document for determination of at-risk communities and the consequent prioritization process is titled: Field Guidance. Identifying and Prioritizing Communities at Risk, prepared by the National Association of State Foresters, July 27, 2003 (CAR Field Guidance). Boundaries were adjusted as needed in response to direction from the Operating Group.

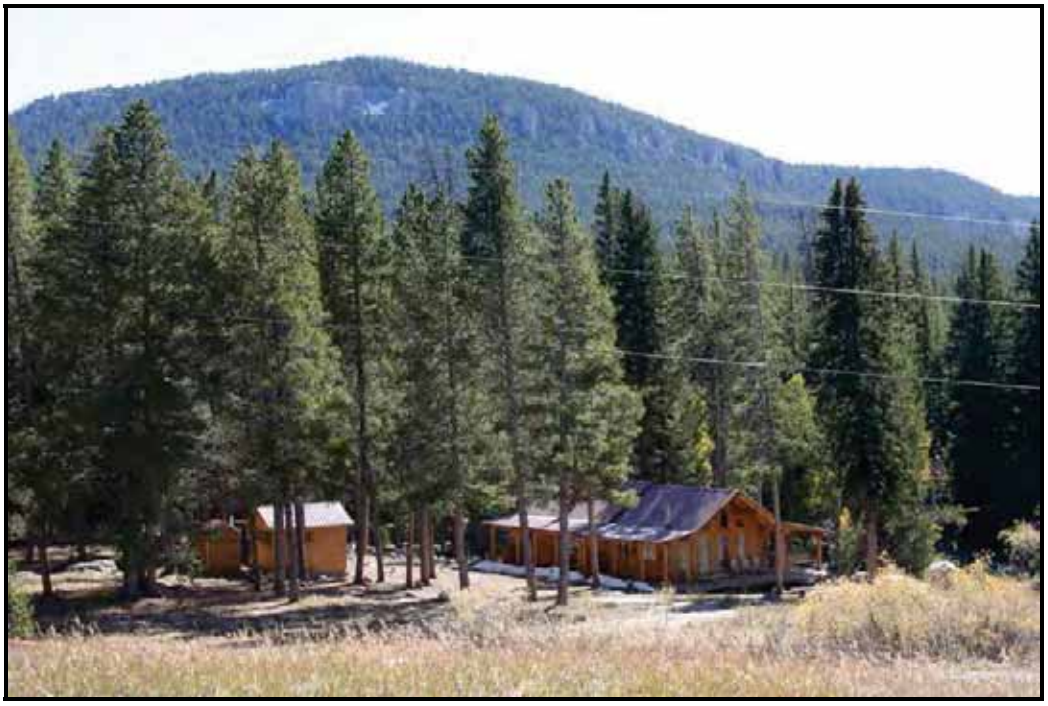


Figure 3-1. Home and outbuildings located in the community-at-risk (CAR) of Deerhaven (DEER). Funded by the National Fire Plan authority, the Big Horn County Firewise Coordinator develops defensible space plans for implementing fuels treatments in the Home Ignition Zone (HIZ).

3.2 Community Description

The assessment area contains 68 communities and comprises approximately 416,226 acres (see Table 4-1). During the development of the 2017 BHCCWPP, Operating Group members conducted a combination of site visits and aerial photo interpretation to complete "Community Scorecards" for each of the 68 communities (see section 4.1.2). Additionally, separate site visits were made to a subset of the at-risk communities conducting **Structure Ignitability Assessments** with funding through the USDA Forest Service Region 2, Cooperative Forestry Act of 1978 (grant number: 12-DG-11020000-031 CFDA # 10.664). The assessment criteria can be seen in Appendix 3. Historical weather data for the area can be found at the Western Regional Climate Center website: www.wrcc.dri.edu. Please note, a complete description of each community is beyond the scope of this document.

The 2017 BHCCWPP identifies the at-risk communities in the Base Map, Figure 2-2. 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 or other values-at-risk.

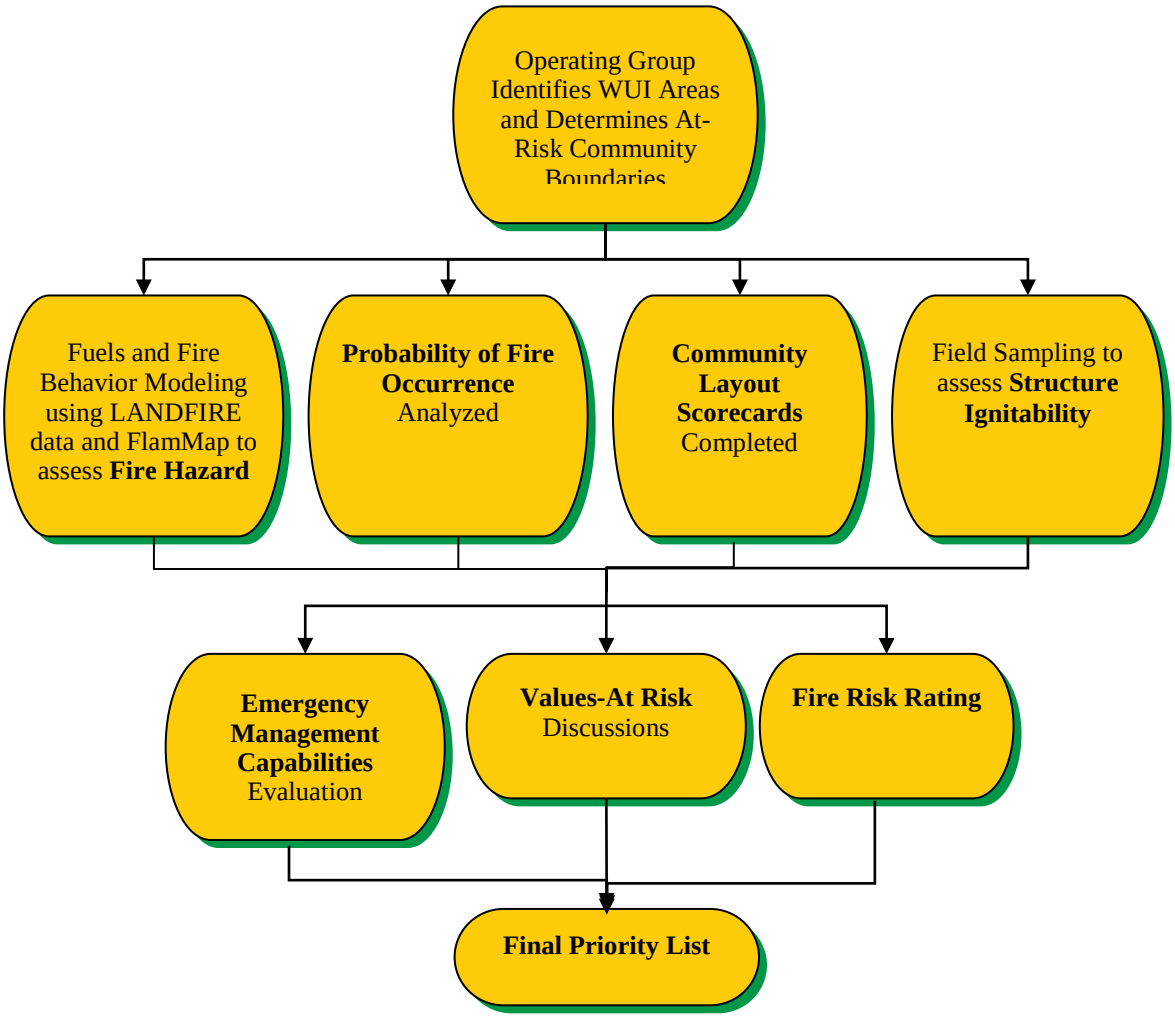
Figure 3-2. The 2012 Railroad Swamp Fire near Greybull Wyoming burned between the Burlington Northern Santa Fe Railroad tracks and the Bighorn River in a combination of sagebrush and riparian area fuels.

Fire burning in a riparian area fuels complex in the Yellowtail area of northern Bighorn County, Wyoming.

4.0 Community Assessment

The purpose of the 2017 BHCCWPP is to identify at-risk communities, prioritize these communities for hazardous fuels reduction treatments, and make recommendations for reducing the risk of wildfire threatening communities, and the unwanted effects caused by wildfire within at-risk communities. As described above in Section 2.0, a total of 68 at-risk communities were identified in the 2017 BHCCWPP assessment area. 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 68 communities underwent a *relative comparison* process to classify them into a roughly equal distribution of low, moderate and high fire risk

Figure 4-1. At-risk Community Analysis Process



4.1 2017 BHCCWPP Final WUI Rating

Fire behavior modeling, Community Layout analysis, Structure Ignitability Assessments,[17] and Operating Group input were the parameters used to determine a Final WUI Rating of the 68 at-risk communities in the 2017 BHCCWPP assessment area (Table 4-1). This Final WUI Rating serves as a priority list for addressing hazardous fuels conditions and administer fuels treatments aimed at reducing those hazards and the risk of catastrophic fire. The method used for determining the Final WUI Rating is described below. The 68 communities identified in the assessment area are classified as low, moderate, or high fire risk, and appear as green, yellow, and red respectively on the 2017 BHCCWPP Risk Rating Map (See Fig. 4-4).

The method for prioritizing communities involved Operating Group discussions of the at-risk communities, combined with the ratings derived from the fire behavior modeling of the communities.

4.1.1 Fire Behavior Modeling

The fire behavior modeling uses the following tools: ArcMap 10.5.2 Geographic Information Systems technology (GIS), fire behavior modeling software including FlamMap (Stratton 2004), and the geospatial land data product LANDFIRE[18]. A "virtual" wildfire was simulated through each of the 68 communities' at-risk identified in Big Horn County by the Operating Group. The impacts of wildfire on the landscape within these communities were then analyzed to assist in prioritizing communities on the basis of risk from wildfire.[19]

FlamMap is a fire behavior mapping and analysis program that computes potential fire behavior characteristics (spread rate, flame length, fireline intensity, burn severity) over an entire landscape.

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[17] The majority of Structure Ignitability Assessments occurred concurrently with the Operating Group meetings and analysis of CARs risk. Due to an incomplete dataset, Structure Ignitability ratings did not weigh heavy in the overall risk rating analysis. Further analysis of data collected in the 2017 Structure Ignitability Assessment is needed, dependent on future funding availability.

[18]LANDFIRE, http://www.landfire.gov/documents/LF_Data_Product_Descriptions_2016.pdf

[19] BH Co modeling NOTE: The LANDFIRE data does not accurately identify the invasive Russian olive and tamarisk on the river bottoms. The Operating Group chose to raise the risk rating by on index point for each river bottom community in which Russian olive and tamarisk are present.

Weather and fuel moisture conditions are set as constants in this model. Additionally, there is no temporal (time) component in FlamMap. The model uses information on topography and fuels to calculate fire behavior characteristics at one instant in time.

LANDFIRE also known as the Landscape Fire and Resource Management Planning Tools Project, contains data products including layers of topographic characteristics (slope, aspect, elevation), vegetation composition and structure, surface and canopy fuel characteristics,[20] and historical fire regimes. A principle purpose of LANDFIRE data is to: "*Supplement and assist prioritization of national hazardous fuel reduction projects*." The LANDFIRE data set used for the 2017 BHCCWPP was the latest version available. The associated metadata file is dated 5/31/2013, and indicates it uses data from 2000-2013. The FlamMap model was applied to predict fire behavior in the at-risk communities using LANDFIRE data as the existing conditions.

4.1.2 Community Rating Analysis

The Operating Group evaluated the 68 communities using the following analysis criteria: means of access, road characteristics, bridge weight limits, topographical characteristics, water sources, defensible space characteristics, placement of utilities, building construction, roofing assembly, available fire protection, and historical fire occurrence. Low, moderate, and high classifications were then assigned by using the score to divide the communities into thirds using the Equal Interval classification method.

"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." Field Guidance. Identifying and Prioritizing Communities at Risk, prepared by the National Association of State Foresters, July 27, 2003 (See Appendix 1).

[20]The 40 Scott and Burgan Fire Behavior Fuel Models were used in this analysis. This recently developed set of standard fire behavior fuel models represents more fuel models in every fuel type (grass, shrub, timber, and slash) than does Anderson's set of 13 fuel models. The main objective in creating the 40 Scott and Burgan Fire Behavior Fuel Models (FBFM40) is to increase the ability to illustrate the effects of fuel treatments using fire behavior modeling. The FBFM40 can serve as input to the FARSITE fire growth simulation model (Finney 1998), FlamMap fire potential simulator (Stratton 2004), BehavePlus fire behavior model (Andrews and others 2005), NEXUS crown fire potential model (Scott 2003), and FFE-FVS forest stand simulator (Reinhardt and Crookston 2003).

Fire occurrence within the at-risk communities was considered in the overall risk rating process. Data were obtained from the Federal Fire Occurrence Website, an official government website that provides users with the ability to query, research and download wildland fire occurrence data. The data available through this website contains over 726,888 fire records collected by Federal land management agencies for wildfires that occurred from 1980 through 2015 in the United States (Fire Occurrence 1980 - 2015).

Figure 4-2. 2016 Beaver Creek Fire in northern Colorado and southern Carbon County, Wyoming. Extensive bark beetle mortality is visible.

Fire occurrence data goes back to the 1980 for federal lands. A lack of State and county fire occurrence data, including fires occurring on private land, lends some bias to fire occurrence ratings for the 2017 BHCCWPP assessment area (Figure 4-3).

Figure 4-3. Fire Occurrence Map

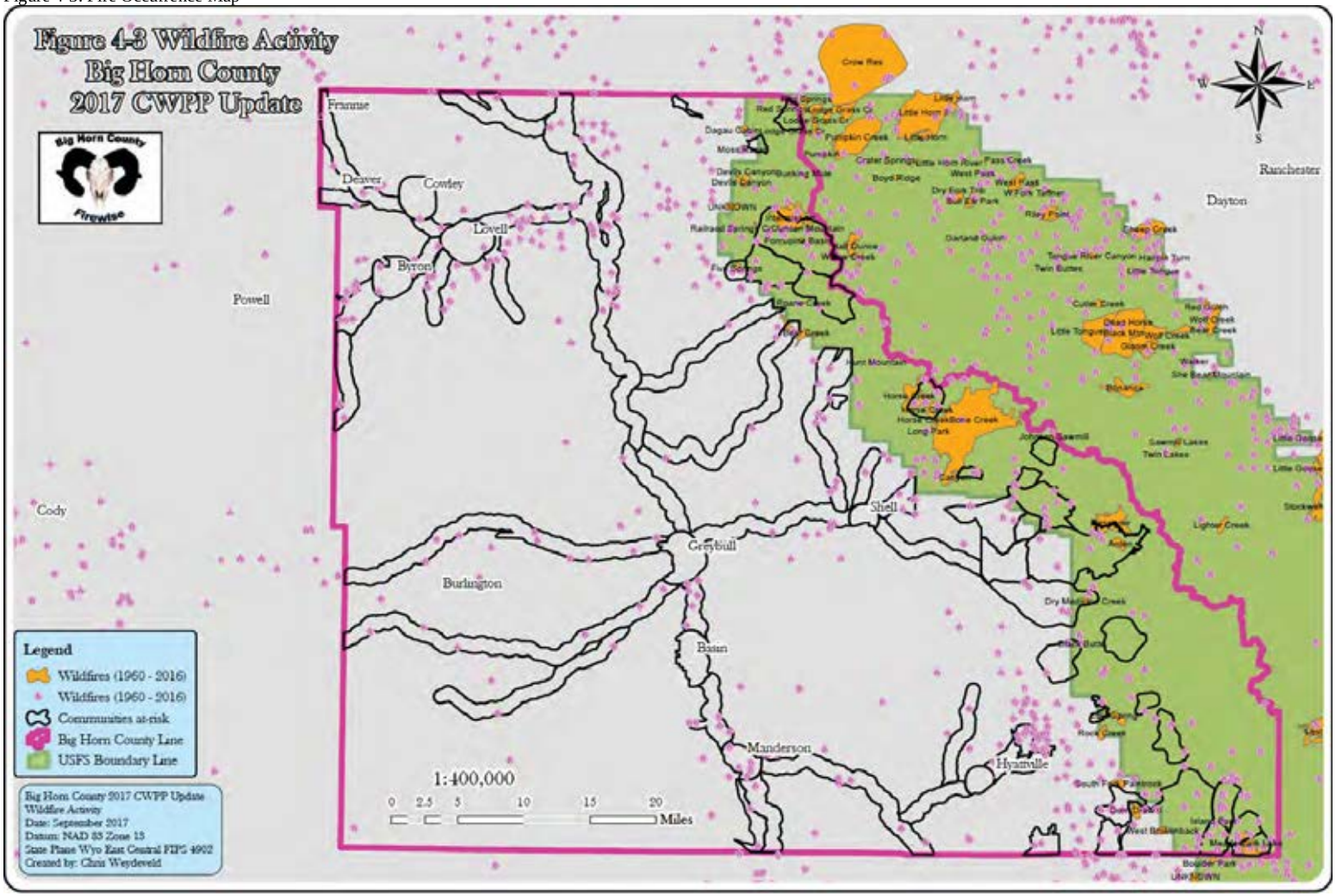


Table 4-1. 2017 BHCCWPP Final WUI Priority Rating (Red = High Risk; Yellow = Moderate Risk; Green = Low Risk)

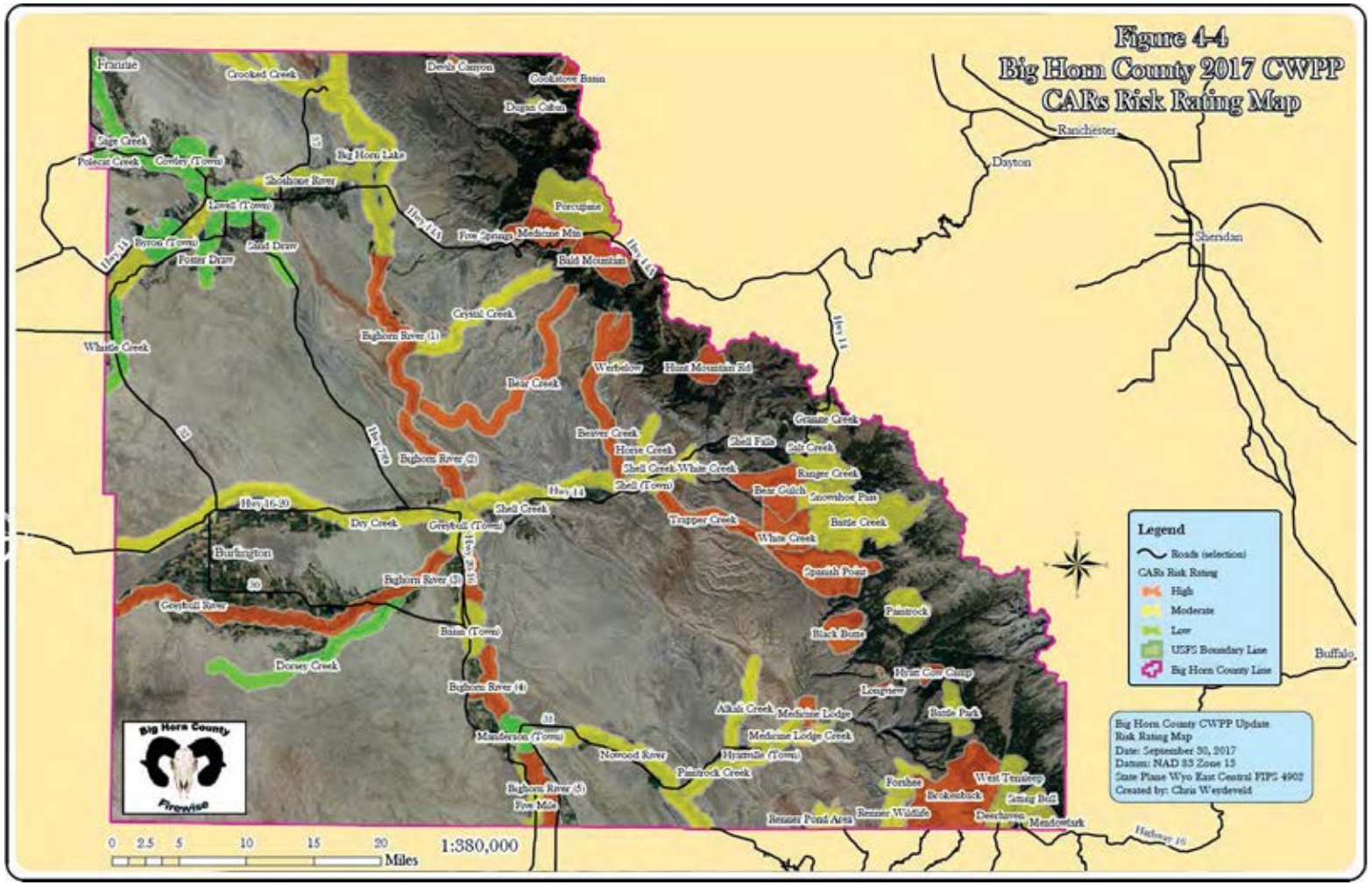
Number	CAR Name	CAR Code	Area acres	Risk rating
18	Bald Mountain	BAMO	6,293	3
41	Bear Creek	BECR	14,237	3
22	Bear Gulch	BEGU	8,081	3
39	Beaver Creek	BECR	11,866	3
50	Bighorn River (1)	BHRA	10,734	3
51	Bighorn River (2)	BHRB	6,156	3
35	Bighorn River (3)	BHRC	3,443	3
34	Bighorn River (4)	BHRD	5,034	3
33	Bighorn River (5)	BHRE	5,444	3
6	Black Butte	BLBU	4,681	3
4	Brokenback	BROC	19,564	3
15	Cookstove Basin	COBA	1,974	3
62	Devils Canyon	DECA	632	3
63	Five Springs	FISP	1,348	3
32	Greybull River	GRRI	20,389	3
14	Hunt Mountain Rd	HMRD	3,500	3
65	Hyatt Cow Camp	HYCC	1,291	3
23	Longview	LONG	813	3
17	Medicine Lodge	MELO	1,820	3
20	Medicine Mtn	MEMO	5,999	3
8	Spanish Point	SPPO	11,705	3
37	Trapper Creek	TRCR	6,271	3
21	White Creek	WHCR	6,116	3
47	Alkali Creek	ALCR	5,420	2
55	Basin (Town)	BASI	5,134	2
24	Battle Creek	BACR	17,806	2
66	Battle Park	BAPA	3,584	2
30	Big Horn Lake	BHLA	21,489	2
49	Crooked Creek	CRCR	7,032	2
42	Crystal Creek	CRYC	8,808	2
3	Deerhaven	DEER	2,763	2
25	Dry Creek	DRCR	19,991	2
61	Dugan Cabin	DUCA	799	2
67	Five Mile	FIMI	2,854	2
68	Forshee	FORS	3,418	2
13	Granite Creek	GRCR	1,826	2
57	Greybull (Town)	GRTO	5,996	2
38	Horse Creek	HOCR	2,987	2
59	Hyattville (Town)	HYAT	2,320	2
1	Meadowlark	MEAD	2,256	2
31	Medicine Lodge Creek	MLCR	4,394	2
29	Nowood River	NORI	12,405	2

Continued on next page…

Table 4-2. 2017 BHCCWPP Final WUI Priority Rating (Continued from previous page)

7	Paintrock	PARO	4,908	2
48	Paintrock Creek	PACR	4,067	2
19	Porcupine	PORC	12,437	2
9	Ranger Creek	RACR	6,708	2
60	Renner Pond Area	REPA	2,510	2
5	Renner Wildlife	RENN	2,456	2
12	Salt Creek	SACR	1,285	2
58	Shell (Town)	SHTO	1,996	2
40	Shell Creek	SHCR	9,706	2
36	Shell Creek-White Creek	SCWC	3,102	2
11	Shell Falls	SHFA	763	2
44	Shoshone River	SHRI	12,417	2
2	Sitting Bull	SIBU	2,710	2
10	Snowshoe Pass	SNPA	2,021	2
64	Werbelow	WERB	545	2
16	West Tensleep	WTEN	3,295	2
54	Byron (Town)	BYRO	4,979	1
53	Cowley (Town)	COWL	5,016	1
46	Dorsey Creek	DOCR	11,347	1
27	Foster Draw	FODR	4,077	1
52	Lovell (Town)	LOVE	6,469	1
56	Manderson (Town)	MAND	3,554	1
45	Polecat Creek	POLC	2,110	1
28	Sage Creek	SAGC	9,096	1
43	Sand Draw	SADR	4,581	1
26	Whistle Creek	WHIS	5,396	1
Total area (in acres) of Communities at-risk			**416,226**	

Figure 4-4. Community Fire Risk Rating Map



4.1.3 Values-at-risk

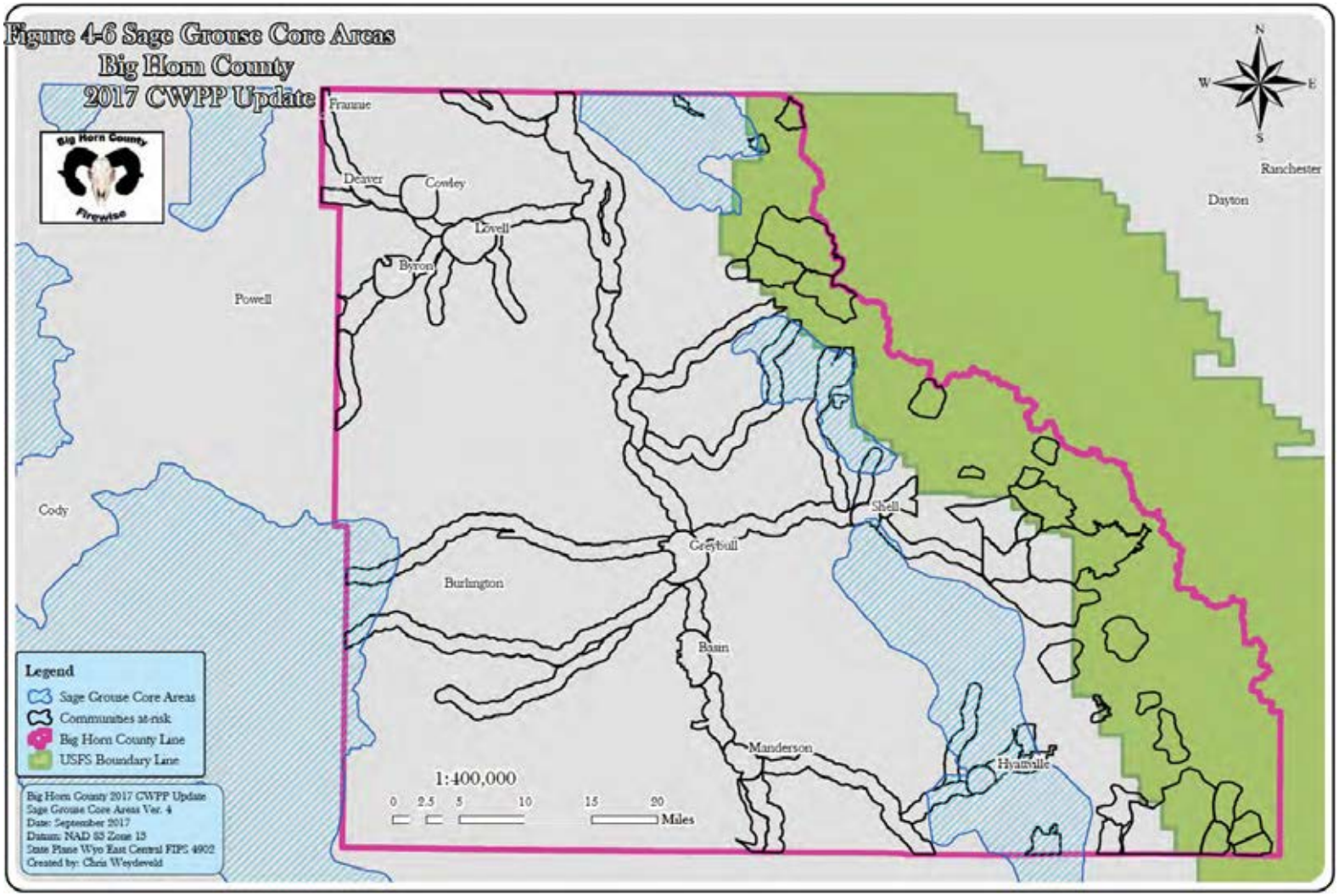
While determining priorities the Operating Group considered values such as Wildland-Industrial Interface (WII), municipal watersheds, natural resources (including wildlife and Threatened, Endangered, and Sensitive habitats), and rehabilitated and restored forests. The importance of these values within the at-risk community boundaries was evaluated in the at-risk community prioritization process.

4.1.3.1 Wildlife habitat

Critical big game winter range is considered a valued resource and occurs within the project area. Sage grouse core areas are present within some at-risk communities (see Figure 4-6). While wildfire is generally beneficial to most wildlife species, negative impacts can occur where significant areas of sagebrush are burned within crucial mule deer winter range and sage-grouse breeding and winter habitats. Crucial migration routes should also be considered.

Figure 4-5. Elk calf. TFS photo.

Figure 4-6. Sage Grouse Core Areas version 4 (current at time of printing). Sage grouse habitat occurs primarily outside of forested areas. Core areas do overlap some of the identified at-risk communities in the 2017 BHCCWPP project area.



Identification of important wildlife, fish, and rare plant habitats, can enable informed decision making to avoid unnecessary impacts to these resources during wildfire suppression activities and planned fuel reduction projects. Federally listed Species for Washakie and Big Horn Counties include the Canada Lynx and the rare plant Ute Ladies—tresses (*Spiranthes diluvialis*). Federally listed Species of Concern include the Bald Eagle, Mountain Plover, Greater Sage Grouse and White-tailed Prairie Dog (https://www.fws.gov/wyominges/species_WYESlist.php).

Figure 4-7. Male Greater Sage grouse during courtship display.

Figure 4-8. The rare plant Ute Ladies—tresses (*Spiranthes diluvialis*).

Figure 4-9. Bald eagle (*Haliaeetus leucocephalus*) . A federally listed species of concern (Photo credit Jeramie Prine).

4.1.4 2017 BHCCWPP Final WUI Rating Map

The methodology described above served to generate the final rating in which each of the 68 communities receives a rating of low, moderate, or high overall fire risk. This overall rating is a product of the combined ratings of each of the two methods of analysis. The final rating was accepted by the Operating Group, and became the 2017 BHCCWPP Final WUI Rating (Table 4-1).

Wyoming Game and Fish Department non-game biologist, releases a white-tailed prairie dog. Ninety percent of a black-footed ferret's diet is prairie dogs. Powell Tribune photo by Gib Mathers.

5.0 Recommendations for Reducing Risk of Catastrophic Fire

Sections 2.0 and 3.0 provide a Base Map and list of at-risk communities for the area assessed in this CWPP Update. Section 3.0 outlines the process used for delineating the at-risk communities. Section 4.0 defines the analysis process used to assess overall fire risk, and from that analysis, sets priorities for hazardous fuels reduction treatments. The current section 5.0 recommends fuels treatments, administrative actions, policy changes, and other management considerations aimed at reducing the risk and effects of catastrophic wildland fire within the WUI.

5.1 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 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)).

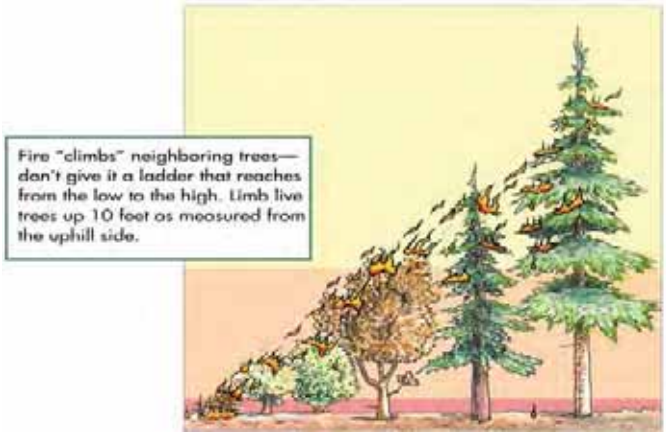
The Forest Service is required by laws, regulations, and policies to assess potential effects of proposed activities on National Forest land for all resources, including wildlife, fish, and rare plants. This includes wildfire suppression activities. As Big Horn County works with the Forest Service to propose and design fuel reduction projects, an interdisciplinary team will provide guidance and recommendations to minimize impacts to resources, and look for opportunities to enhance resource conditions. Federal fire managers should discuss risk based decision making with local fire managers prior to the beginning of fire season. During wildfire events, a Wildland Fire Decision Support System (WFDSS) team will usually have a Resource Advisor to identify resource values and make recommendations to protect and minimize impacts to these resource values. Before implementing land treatments on private land it is recommended that landowners consult with the following entities:

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

5.2 Fuels Treatments

Appendix 5 of this document provides a table of recommended fuels treatment projects in Big Horn County. This table is meant to guide County Firewise mitigation efforts in the coming years and will be updated and amended as needed.

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. In all treatments some basic guidelines apply. Most down and dead woody material should be disposed of so it does not remain as surface fuels. When practical, trees should be pruned so that the bottom one-quarter of limbs are removed. Other ladder fuels, in the form of young tree regeneration, should be removed or reduced to decrease chance of surface fire transitioning into the crowns. Removal of young trees especially benefits ponderosa pine ecosystems. Trees containing nests and snags with apparent cavity nesters would be retained.



5.2.1 Shaded fuel breaks

The objective of this treatment 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 reducing fire spread and intensity and would maintain the primary ingress/egress and escape routes. Trees on both sides of roads and ridges would be thinned by hand or mechanically so that trees are separated by no less than ten feet between crowns. Crown spacing should be dependent on topography, fuels, and other natural and or manmade features. In addition, trees in this zone should have all limbs removed (pruning) in the lower 25 percent of total tree height.

Figure 5-1. Shaded fuel break.

The total width of the shaded fuel break would vary depending on fuels, topography, and other natural and or man-made features such as roads or rock features. In general, the center of the fuel break would be approximately 100 feet in width and would resemble a shaded open park-like environment. 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 existing 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 generally be removed in the shaded fuel breaks, and trees scheduled for harvest would be marked with paint for sale preparation. All trees infected with bark beetles would be removed in the shaded fuel breaks, as would trees with poor form or low vigor, or tree species not present in their historical range of variability (for example juniper encroachment). All woody surface materials and ladder fuels would be cleared within the fuel breaks.

It should be noted, the removal of too many trees during one harvest entry may result in tree blowdown, particularly in lodgepole pine and spruce forest stands. Harvest design may include a series of entries over a 10 to 30 year period, allowing a time between entries for residual trees to become windfirm.

Shrubs that were not removed would be thinned, in most cases by hand, at ground level so that crowns are separated by at least two crown widths (at the widest part of the crown). 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, for burning, chipping, or utilized as an economic product if feasible. 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 treatment 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 firebreaks 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 mature 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. In addition, forest stands outside of their historical range of variability, would be assessed for to develop a management regime aimed at increasing overall forest health through management.

The objective of the harvest in these areas is to reduce very high fuel loads by removing trees in each stand so that the final density of trees is between 60 and 150 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 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 undesirable competing vegetation.

Figure 5-2. Managed stand of lodgepole pine within a Home Ignition Zone . Selective tree harvest was used in this example following a Wildfire Mitigation Plan (WMP) written for the homeowner. This homeowner has greatly improved conditions for making this home defensible in the event of a threat from wildfire.

All trees infected with bark beetles would be removed in these treatment areas, as would trees that have poor form or low vigor. Depending on management objectives, snags left for cavity nesters and birds of prey, may be recommended for retention.

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, often 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 natural openings, clearcuts are a tool for reestablishing these openings (meadow retention) 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 stands of healthy, vigorous aspen, all conifers within, and one tree length in distance from, the aspen clones could be removed to encourage aspen growth and clone spread. Prescribed fire would be used as necessary to stimulate regeneration of the aspen. In the past, fencing of aspen treatments has reduced the detrimental effects of browsing animals on young aspen shoots. Fencing, however, can be

expensive and can be counterproductive (animals can be trapped within a fenced area if the fence is compromised). Instead, consider making aspen treatments large enough to spread out browsing of aspen shoots.

Figure 5-3. Aspen stand with encroaching conifers . Aspen can serve as a natural fuel break that can aid in slowing the progress of wildfire. Without the removal of conifer encroachment into aspen stands, these stands can be at risk of type conversion into a conifer community.

Once an aspen stand has become decadent, dead or burned, trees can be cut and stacked in a crisscross pattern in areas of young shoots to help deter browsing in the area. This practice helps deter wildlife and livestock from browsing the shoots. This does, however, lead to a buildup of ground fuels and the increased surface fire potential should be considered when implementing this practice.

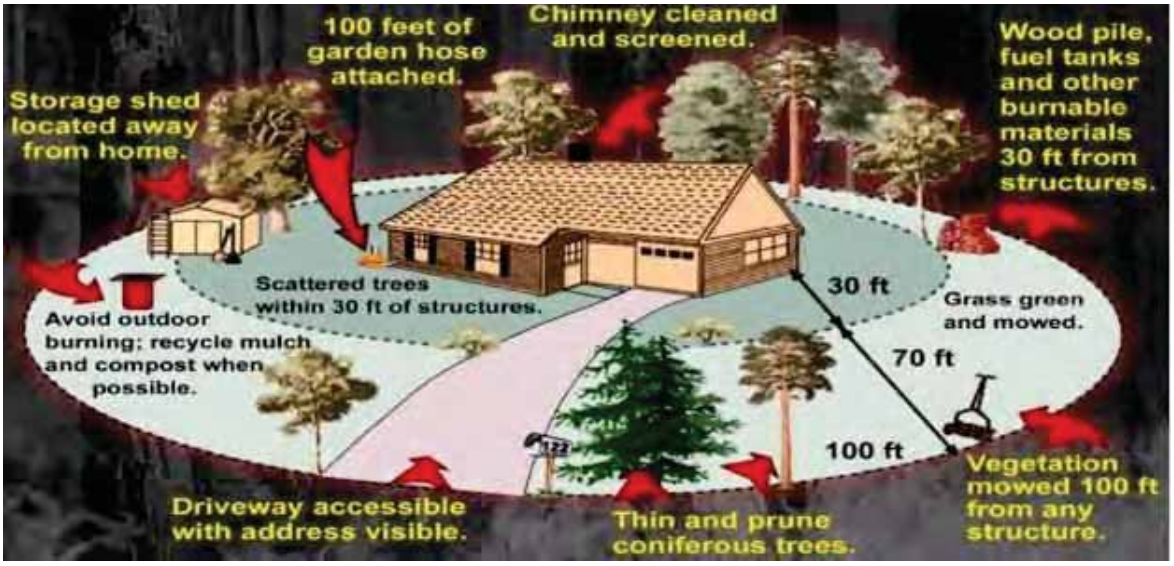
5.2.5 Pre-commercial/Commercial thinning/Brush Reduction/Hand Thinning:

This treatment involves the cutting and removing of 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 at least two crown widths in distance, and greater distances on steep slopes. Trees and shrubs would be piled and burned when conditions are favorable or used as an economic product if feasible. 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 Defensible Space

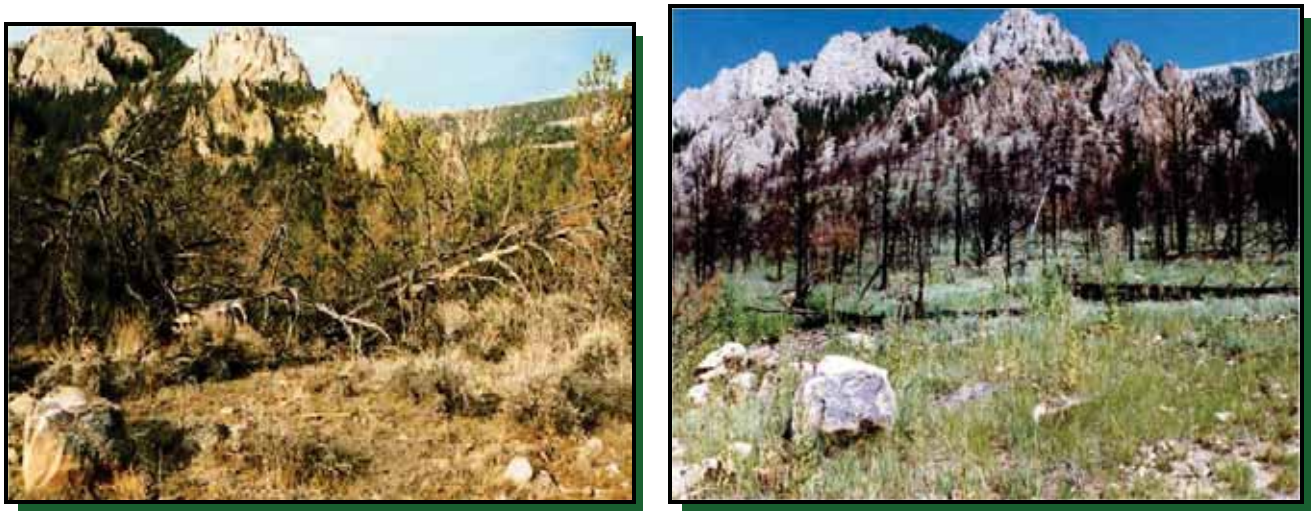
Defensible space treatments occur within the 100 feet radius area around structures known as the "home ignition zone" (Defensible Space Guidelines).[21] In these areas defensible space would be improved with the help of hand crews.



[21] http://www.firewise.org/wildfire-preparedness/be-firewise/home-and-landscape/defensible-space.aspx

5.2.7 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).



Bureau of Land Management, Cody Field Office area watershed enhancement/fuel reduction work. The photos show before prescribed fire (left) and after fire and vegetation re-growth (right). BLM Photos.

Prescribed fire can be beneficial in a fire adapted ecosystem where fire has been absent or suppressed. Prescribed fire aids in natural succession, and reduces uncharacteristic fuel loading. Prescribed fire is an especially useful tool for removing conifer encroachment, (particularly juniper), into sagebrush and meadow communities. This is important for maintaining wildlife habitat and livestock forage.

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. With the oversight of qualified fire specialists, prescribed fire, mechanical, and chemical treatments can be used to reduce hazardous fuels and improve forest and rangeland health. Prescribed fire is generally cheaper than any other treatment and is the only treatment that returns nutrients into the soil immediately.

5.2.8 Riparian Area Fuels Modifications

Riparian vegetation in those communities with river bottoms should be assessed for treatments to reduce fire hazard by removing introduced species and fuel ladders of live and dead vegetation. As a cautionary note, 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 or find online at: https://drive.google.com/file/d/0B-77TmKmw7MyYUVoMzU5Q09mc1E/view

5.2.9 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

Discourage building homes in fire prone areas.

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.

If a dependable water source is available, evaluate the possibilities for installing sprinkler systems around structures as an option open to home owners in areas with limited options for reducing structure ignitability.

The Big Horn County Fire Warden, local Fire District staff, or WSFD personnel can assist with recommendations for reducing structure ignitability.

5.4 Recommendations for Promoting Public Outreach

- Education programs for home 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.

- Work with local, state and federal agencies to support the growth of forest industry and forest products to ensure infrastructure and funding is in place to conduct landscape level forest restoration and help achieve community wildfire preparedness objectives.
- Outreach to power and pipeline companies.
- Assist the local Conservation Districts in the dissemination of accurate information on the WUI and related topics.
- Establish and promote a countywide public emergency mass notification system.
- Place fire-danger information signs on major access roads throughout the WUI. Community bulletins and other public service announcements concerning wildfire threat and preparedness should be developed with assistance from WSFD.

5.5 Recommendations for Emergency Management Services

Fire suppression

- Develop Pre-suppression Community Wildfire Mitigation Plans for each of the Communities-at-risk (see example in Appendix 4)
- Update mapping capabilities of local fire departments and districts.
- Encourage fire departments and districts to participate in annual multiagency wildfire safety training before the fire season.
- Acquire GIS and GPS (Global Positioning System) software and laptops to update mapping capabilities of local fire departments.
- Maps showing locations of water sources accessible to draft water, and helicopter dip sites.

Training

- Continue the aggressive training program in wildland firefighting principles. Encourage interagency fire training and communication.

- Develop a pre-suppression plan with local fire departments along the community WUI boundaries.

Emergency Equipment

- Strategically locate additional water-storage tanks, wells, or other water sources for tender filling throughout the fire departments and districts.

5.6 Encourage Local Wood Products Industry

The economic downturn beginning during the last years of the 2000 – 2010 decade had a significant impact on the wood products industry in Wyoming. Sawmills, both large and small, were unable to survive the hardships and were forced to close. Big Horn County encourages the participation of local contractors in fire mitigation work and the extraction of saleable materials from fuel reduction projects. Reducing the risk of catastrophic fires through utilization of woody biomass is supported. This plan also encourages the development of markets and industries that will utilize all size-classes of wood products resulting from hazardous fuel reduction activities. Examples of possible income generating products/projects include but are not limited to: biomass utilization (including co-generation capabilities), house logs, post and poles, firewood, pellets, and mulch.

The 2017 BHCCWPP encourages the participation of local contractors in fire mitigation work and the extraction of saleable materials from fuel reduction projects. Reducing the risk of catastrophic fires through utilization of woody biomass is supported. Opportunities that would sustain private contractors participating in fuels reduction activities while generating an income from the sale of products are encouraged.

5.7 Miscellaneous

Planning and Zoning

Develop and promote planning recommendations for new home construction in the WUI based on National Fire Protection Association Standards and the International Fire Code. Consult with the County Fire Warden and local Fire Chiefs for guidance on planning and zoning or development standards.

Funding Opportunities

- Work with elected officials to develop opportunities for enhanced funding through national, state and local sources for implementing the action recommendations of the 2017 CWPP.

6.0 MONITORING AND ASSESSING FOREST AND RANGELAND HEALTH

Monitoring is critical to ensure that 2017 BHCCWPP 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 (HFRA).

The 2017 BHCCWPP 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.

7.0 Declaration of Agreement and Concurrence

The following partners in the development of this Big Horn County 2017 Community Wildfire Protection Plan Update have reviewed and do mutually agree or concur with its contents:

Agreement

_____ _____

Brent Godfrey, Big Horn County Fire Warden Date

_____ _____

Felix Carrizales, Big Horn County Commissioner/Chairman Date

_____ _____

Joy Hill, Big Horn County Land Planner Date

_____ _____

Josh Shroyer, Wyoming State Forestry Division Date

_____ _____

Brian Russell, Wyoming State Forestry Division Date

Concurrence

_____ _____

Marvin Mathiesen, USDA United State Forest Service, Bighorn NF Date

_____ _____

Eve Warren, USDI Bureau of Land Management, Worland Field Office Date

_____ _____

Tim Haas, USDI Bureau of Land Management, Cody Field Office Date

_____ _____

LaRae Dobbs, Office of Homeland Security Date

_____ _____

Monte Bush, USDA Natural Resources Conservation District Date

8.0 Literature Cited

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Brown, Richard T., James K. Agee, Jerry F. Franklin. 1995. Forest Restoration and Fire: Principles in the Context of Place.

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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. BHCCWPP Operating Group

First Name	Last Name	Agency/Organization	Job Title	Business Address	Business Phone	Cell Phone	Email
Monte	Bush	Natural Resources Conservation District	District Conservationist	408 Greybull Ave Greybull, WY 82426-2036	(307) 765-2483		Monte.Bush@wy.usda.gov
LaRae	Dobbs	County Office of Homeland Security	Emergency Mng Coordinator	355 East 5th Street Lovell, WY 82431	(307) 548-2516		bhcemc@gmail.com
Tony	Giles	Assistant Fire Warden	Hyattville Fire	291 Hwy 31 Hyattville, WY	(307) 258-0347		anthony.giles@wyo.gov
Brent	Godfrey	Big Horn County	County Fire Warden	Box 213 Basin WY 82410	(307) 568-2324	(307) 272-2820	Bhcofirewarden@gmail.com
Joy	Hill	Big Horn County	Big Horn County Assessor/GIS	420 W. C Street Basin WY 82410	(307) 568-2424		joy.hill@bighorncountywy.gov
Marvin	Mathiesen	USDA Forest Service	FMO	95 Highway 16/20 Greybull, Wyoming 82426	(307) 765-4435		mmatthiesen@fs.fed.us
Tim	Haas	Cody BLM	Fuels Specialist	1002 Blackburn St, Cody, WY 8241	(307) 578-5921		tihaas@blm.gov
Reed	Oldenburg	Wyoming State Forestry Division	Senior Fuels Manager	5500 Bishop Blvd, Cheyenne, WY 82002	(307) 777-6137	(307) 630-2001	reed.oldenburg@wyo.gov
Curtis	Rasmuson	USDA Forest Service	FMO	1415 Fort Street Buffalo, WY 82834	307-684-4644	307-763-0474	crasmuson@fs.fed.us
Brian	Russell	Wyoming State Forestry Division	District 3 Forester	2500 Academy Court Riverton WY 82501	(307) 856-8655	(307) 714-1977	brian.russell@wyo.gov
Josh	Shroyer	Wyoming State Forestry Division	District 3 District Forester	2500 Academy Court Riverton WY 82501	(307) 856-8655		josh.shroyer@wyo.gov
Lori	Smallwood	Big Horn County	County Clerk	420 W. C Street Basin WY 82410	(307) 568-2357	(307) 272-6255	lori.smallwood@bighorncountywy.gov
Eve	Warren	WRBB BLM	District Fire	101 S. 23rd St. Worland WY 82401	(307) 347-5109	(307) 431-4431	eve_warren@blm.gov
Chris	Weydeveld	Technical Forestry Services, LLC	Project Manager/Forester	6628 W. Riverside Dr. Casper, WY 82604	(307) 333-1098	(307) 272-9533	cweydeveld@wytfs.com
Cliff	Winters	Big Horn County Weed & Pest	Weed & Pest Director	Box 567 Greybull WY 82426	(307) 765-2855	(307) 272-0659	bhcwp@tctwest.net
George	Wynn	Technical Forestry Services, LLC	Forester	824 Country Club Casper WY 82609	(307) 333-2887	(307) 921-2847	gwynn@wytfs.com
Rich	Zimmerlee	Worland BLM	FMO	101 S. 23rd St. Worland WY 82401	307-347-5188	307-921-2381	rzimmerl@blm.gov
Bryan	McKenzie	Cody BLM	Fire and Fuels	1002 Blackburn St, Cody, WY 8241	(307) 578-5921		bmckenzie@blm.gov

Appendix 3. Community Layout Scorecard

Big Horn and Washakie County 2017 CWWP Update
Structure Assessment Form

Date:_____ **County:** **Big Horn** **Washakie**

Physical Address: _____

Photo Number:_____ **GPS Coordinates: Lat.** _____ **Long.**_____

Property Owner:_____

Mailing Address: _____

_____

Email:_____ **Phone:**_____

Type of Structure: Primary Seasonal Outbuilding Care Facility Hotel/Lodge/Camp Public Facility Other

Number of Occupants: _____ **# of Additional Structures & Types:** _____

_____

Responding Fire Department: _____ **Phone:** _____

Assessor: _____ **Phone:** _____

Email: _____ **Wildfire Mitigation Plan:**_____

Notes:_____

Wildfire mitigation is intended to reduce risk, not eliminate the risk of wildfire. It is important to note that wildfire is a natural and inevitable phenomenon in Wyoming. It is a dynamic event influenced by several factors including weather (winds, temperature, relative humidity), topography (steepness of slope, the direction that slope faces, and terrain features such as canyons and saddles), and fuels (light or heavy loading, height, continuity, and volatility) as well as human activity, response times, and seasonal trends. *There will always be some risk of wildfire, regardless of mitigation efforts and structural characteristics.*

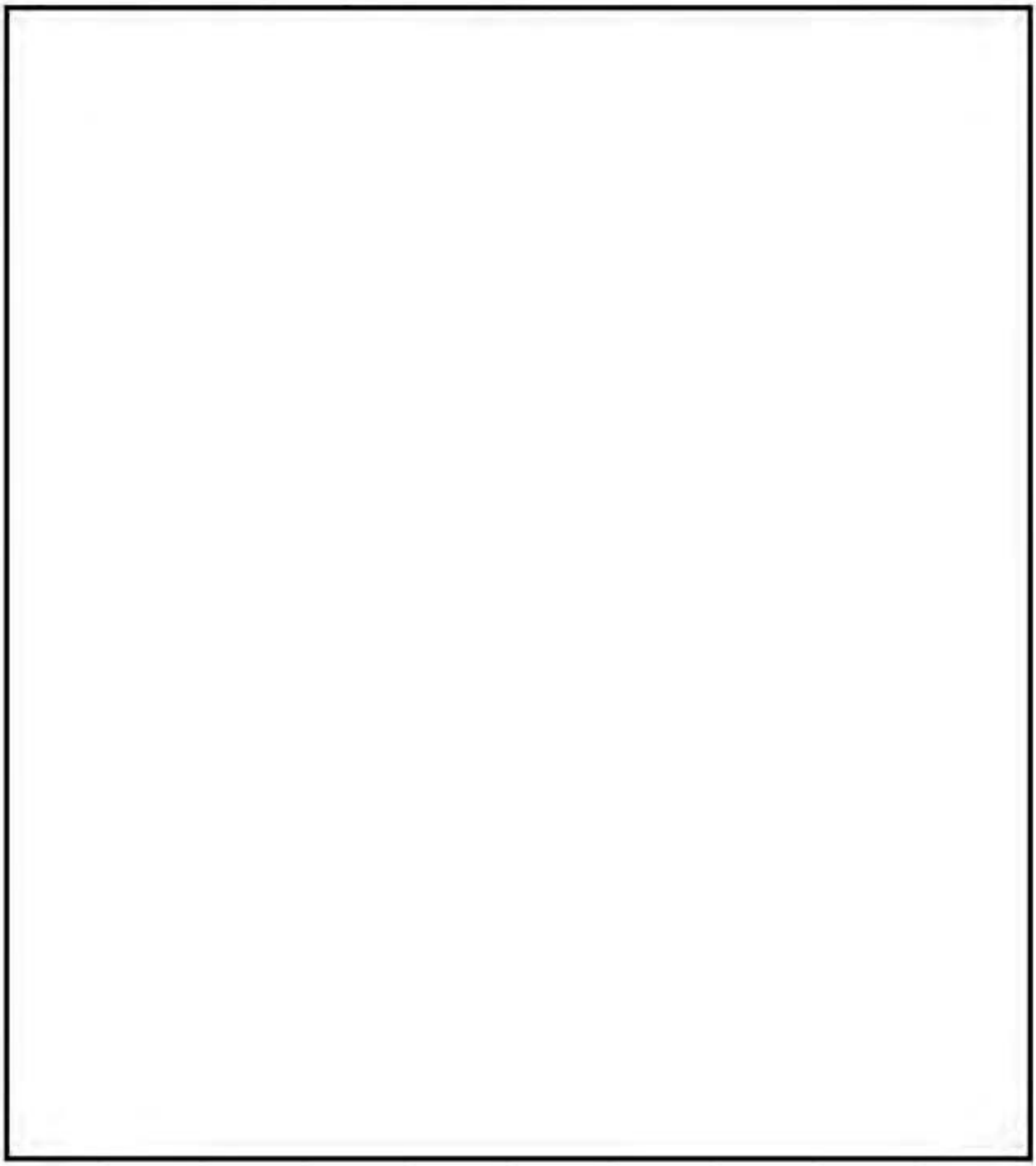
This assessment is designed to identify vulnerabilities around the home, and offer recommendations for improvement.

In a wildfire situation, home ignitions can occur in multiple ways, including:

In a wildfire situation, home ignitions can occur in multiple ways including:

1. Firebrands or ember-wash – This is the most common way that homes ignite during wildfire. Wildfires may produce high winds that loft burning fuel particles up to a mile ahead of a fire. This often explains how fires grow so quickly. Closer to the fire, small embers swirl around like a blizzard, and accumulate in corners and crevices. These may ignite combustible materials such as tree needles, leaves, wooden decks, siding, or enter through gaps, cracks, or vents in an attic, soffit, or crawlspace to ignite combustible materials within.
2. Radiant & convective heat – When intense enough, heat produced by a fire will ignite the home, or preheat siding and other materials which then ignite more readily when in direct contact with flames or embers.
3. Direct flame – Vegetation or fuels near the home ignite, subsequently igniting the home.

Provide a sketch or photo of the home and property. Include distinguishing features, vegetation, firewood, topography, predominant wind direction, water sources, propane tank, parking area and access routes.



Topography and Terrain	
Slope within 150 feet of structure: 0-20% 21-40% > 40% **Structure setback from the edge of the slope:** Adequate > 150 feet Inadequate < 150 feet	**Position of structure on the slope:** Valley bottom or lower slope Mid-slope Upper-slope Ridge top/chimney
Roof Assembly	
Material: Metal or tile Asphalt/composition shingles Other noncombustible material Untreated wood shakes	**Cleanliness:** No combustible material Scattered combustible material < .5 in. depth Clogged gutter, combustible material > .5 in. depth
Eaves	
Type: Boxed-in or fire-treated Non-boxed and not treated	
Exterior Walls & Siding	
Material: Noncombustible or metal Log or heavy timber Smooth wood or vinyl siding Wood shake or ember receptive siding	
Vents	
All structure vents have: Noncombustible ¼ - ½ inch protective screen Noncombustible screen > ¼ inch No screens	
Attached Combustibles	
Attached combustibles are: Not present or clear of receptive fuel Have receptive fuel adjacent Have receptive fuel below	

Vegetation	
Ember resistant zone within 3 feet of structure: Y or N Y or N	**Propane clearance:** Yes or not present No

Position of structure on the slope:
- Valley bottom or lower slope
- Mid-slope
- Upper-slope
- Ridge top/chimney

Tree canopy 0-30 feet from structure:
- None
- Deciduous - good separation
- Deciduous – continuous
- Mixed – good separation
- Mixed – continuous
- Coniferous – good separation
- Coniferous - continuous

Ladder fuels 0-30 feet from structure:
- Absent
- Scattered
- Abundant

Combustibles 30-100 feet from structure:
- None
- Light
- Moderate
- Heavy

Surface fuels 30-100 feet from structure:
- Lawn, mowed or no material
- Tall grass, not mowed or cut

Brush/light dead wood material
- Heavy down woody material

Combustibles0-30 feet from structure:
- None
- Light
- Moderate
- Heavy

Surface fuels 0-30 feet from structure:
- Lawn, mowed or no material
- Tall grass, not mowed or cut

Brush/light dead wood material
- Heavy down woody material

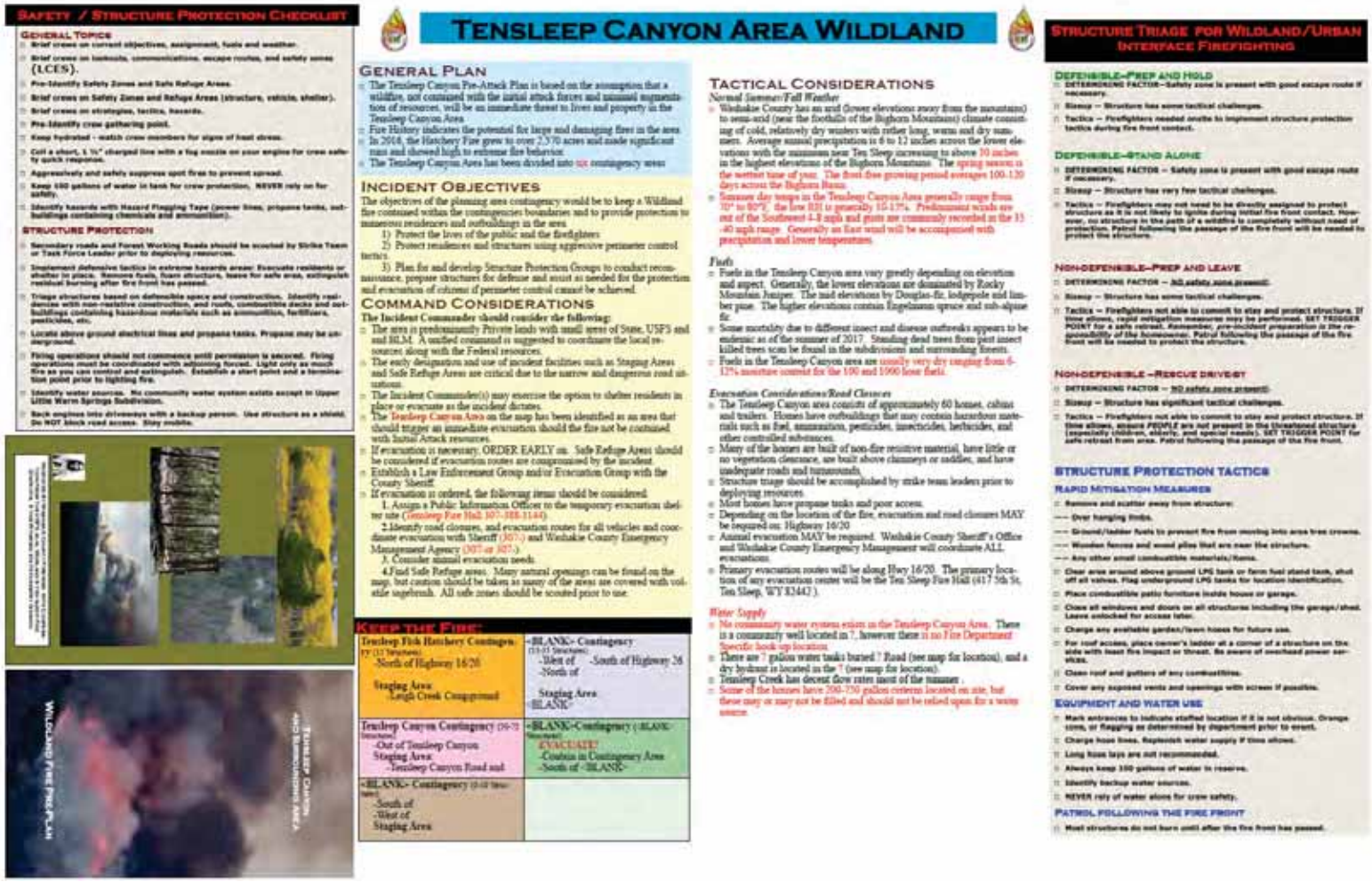
Tree canopy 30-100 feet from structure:
- None
- Deciduous - good separation
- Deciduous – continuous
- Mixed – good separation
- Mixed – continuous
- Coniferous – good separation
- Coniferous – continuous

Ladder fuels 30-100 feet from structure:
- Absent
- Scattered
- Abundant

Heavy and/or continuous conifer trees 100-200 feet from structure:
Y or N

Water Source	
Onsite water: Pressurized hydrant Dry hydrants Creek/pond/lake Accessible swimming pool None or not sufficient	
Access	
Address visible: Y or N	**Adequate turnaround:** Y or N
Locked gate blocking access: No Yes and fire dept has access Yes and fire dept does not have access **Community Ingress/Egress:** Two or more roads in/out One road in/out **Width of driveway:** Inaccessible <12 feet or less >13 feet or more	**Bridge weight limits:** Y or N Unknown Not applicable **Length of driveway:** Inaccessible < 50 feet 50 to 150 feet 150 to 500 feet 500 feet or more
Risk to Firefighters	
Access: Y or N **Overhead powerlines:** Y or N **Septic:** Y or N **Poor Escape:** Y or N	**Propane or gas:** Y or N **Animals:** Y or N **HazMat:** Y or N

Appendix 4. Pre-suppression Community Wildfire Mitigation Plan (Example)



SAFETY / STRUCTURE PROTECTION CHECKLIST

GENERAL TOPICS

- Brief crews on current objectives, assignment, fuels and weather.
- Brief crews on lookouts, communications, escape routes, and safety zones (LCES).
- Pre-Identify Safety Zones and Safe Refuge Areas.
- Brief crews on Safety Zones and Refuge Areas (structure, vehicle, shelter).
- Brief crews on strategies, tactics, hazards.
- Pre-Identify crew gathering point.
- Keep hydrated - watch crew members for signs of heat stress.
- Call a short, 1 ½" charged line with a fog nozzle on your engine for crew safety quick response.
- Aggressively and safely suppress spot fires to prevent spread.
- Keep 150 gallons of water in tank for crew protection; NEVER rely on for safety.
- Identify hazards with Hazard Flagging Tape (power lines, propane tanks, outbuildings containing chemicals and ammunition).

STRUCTURE PROTECTION

- Secondary roads and Forest Working Roads should be scouted by Strike Team or Task Force Leader prior to deploying resources.
- Implement defensive tactics in extreme hazards areas: Evacuate residents or shelter in place. Remove fuels, burn structure, leave for safe area, extinguish residual burning after fire front has passed.
- Triage structures based on defensible space and construction. Identify residences with non-resistive construction, and roofs, combustible decks and outbuildings containing hazardous materials such as ammunition, fertilizers, pesticides, etc.
- Locate above ground electrical lines and propane tanks. Propane may be underground.
- Firing operations should not commence until permission is secured. Firing operations must be coordinated with adjoining forces. Light only as much fire as you can control and extinguish. Establish a start point and a termination point prior to lighting fire.
- Identify water sources. No community water system exists except in Upper Little Warm Springs Subdivision.
- Back engines into driveways with a backup person. Use structure as a shield. Do NOT block road access. Stay mobile.

TENSLEEP CANYON AREA WILDLAND

GENERAL PLAN

- The Tensleep Canyon Pre-Attack Plan is based on the assumption that a wildfire, not contained with the initial attack forces and unusual augmentation of resources, will be an immediate threat to lives and property in the Tensleep Canyon Area.
- Fire History indicates the potential for large and damaging fires in the area.
- In 2016, the Hatchery Fire grew to over 2,370 acres and made significant runs and showed high to extreme fire behavior.
- The Tensleep Canyon Area has been divided into six contingency areas.

INCIDENT OBJECTIVES

The objectives of the planning area contingency would be to keep a Wildland fire contained within the contingencies boundaries and to provide protection to numerous residences and outbuildings in the area.

1) Protect the lives of the public and the firefighters.
2) Protect residences and structures using aggressive perimeter control tactics.
3) Plan for and develop Structure Protection Groups to conduct reconnaissance, prepare structures for defense and assist as needed for the protection and evacuation of citizens if perimeter control cannot be achieved.

COMMAND CONSIDERATIONS

The Incident Commander should consider the following:

- The area is predominantly Private lands with small areas of State, USFS and and BLM. A unified command is suggested to coordinate the local resources along with the Federal resources.
- The early designation and use of incident facilities such as Staging Areas and Safe Refuge Areas are critical due to the narrow and dangerous road situations.
- The Incident Commander(s) may exercise the option to shelter residents in place or evacuate as the incident dictates.
- The Tensleep Canyon Area on the map has been identified as an area that should trigger an immediate evacuation should the fire not be contained with Initial Attack resources.
- If evacuation is necessary, ORDER EARLY on. Safe Refuge Areas should be considered if evacuation routes are compromised by the incident.
- Establish a Law Enforcement Group and/or Evacuation Group with the County Sheriff.
- If evacuation is ordered, the following items should be considered:
  1. Assign a Public Information Officer to the temporary evacuation shelter site (Tensleep Fire Hall 307-388-1144).
  2. Identify road closures, and evacuation routes for all vehicles and coordinate evacuation with Sheriff (307-) and Washakie County Emergency Management Agency (307 or 307-).
  3. Consider animal evacuation needs.
  4. Find Safe Refuge areas. Many natural openings can be found on the map, but caution should be taken as many of the areas are covered with volatile sagebrush. All safe zones should be scouted prior to use.

KEEP THE FIRE:

Tensleep Fish Hatchery Contingen. (?? (?? Structures)) -North of Highway 16/20 Staging Area: -Leigh Creek Campground	-BLANK- Contingency (?-?-?? Structures) -West of -South of Highway 26 -North of Staging Area: -BLANK-
Tensleep Canyon Contingency (50-?? Structures) -Out of Tensleep Canyon Staging Area: -Tensleep Canyon Road and	-BLANK- Contingency (-BLANK- Structures) -EVACUATE! -Confusa in Contingency Area -South of -BLANK-
-BLANK- Contingency (?-?? Structures) -South of -West of Staging Area:	

TACTICAL CONSIDERATIONS

Normal Summer/Fall Weather

- Washakie County has an arid (lower elevations away from the mountains) to semi-arid (near the foothills of the Bighorn Mountains) climate consisting of cold, relatively dry winters with rather long, warm and dry summers. Average annual precipitation is 6 to 12 inches across the lower elevations with the maximum near Ten Sleep increasing to above 30 inches in the highest elevations of the Bighorn Mountains. The spring season is the wettest time of year. The frost-free growing period averages 100-120 days across the Bighorn Basin.
- Summer day temps in the Tensleep Canyon Area generally range from 70° to 80°F; the low RH is generally 10-15%. Predominant winds are out of the Southwest 4-8 mph and gusts are commonly recorded in the 15 -40 mph range. Generally an East wind will be accompanied with precipitation and lower temperatures.

Fuels

- Fuels in the Tensleep Canyon area vary greatly depending on elevation and aspect. Generally, the lower elevations are dominated by Rocky Mountain Juniper. The mid elevations by Douglas-fir, lodgepole and limber pine. The higher elevations contain Engelmann spruce and sub-alpine fir.
- Some mortality due to different insect and disease outbreaks appears to be endemic as of the summer of 2017. Standing dead trees from past insect killed trees scm be found in the subdivisions and surrounding forests.
- Fuels in the Tensleep Canyon area are usually very dry ranging from 6-12% moisture content for the 100 and 1000 hour fuels.

Evacuation Considerations/Road Closures

- The Tensleep Canyon area consists of approximately 60 homes, cabins and trailers. Homes have outbuildings that may contain hazardous materials such as fuel, ammunition, pesticides, insecticides, herbicides, and other controlled substances.
- Many of the homes are built of non-fire resistive material, have little or no vegetation clearance, are built above chimneys or saddles, and have inadequate roads and turnarounds.
- Structure triage should be accomplished by strike team leaders prior to deploying resources.
- Most homes have propane tanks and poor access.
- Depending on the location of the fire, evacuation and road closures MAY be required on: Highway 16/20
- Animal evacuation MAY be required. Washakie County Sheriff's Office and Washakie County Emergency Management will coordinate ALL evacuations.
- Primary evacuation routes will be along Hwy 16/20. The primary location of any evacuation center will be the Ten Sleep Fire Hall (417 5th St, Ten Sleep, WY 82442).

Water Supply

- No community water systems exists in the Tensleep Canyon Area. There is a community well located in ?, however there is no Fire Department specific hook-up location.
- There are ? gallon water tanks buried ? Road (see map for location), and a dry hydrant is located in the ? (see map for location).
- Tensleep Creek has decent flow rates most of the summer.
- Some of the homes have 200-750 gallon cisterns located on site, but these may or may not be filled and should not be relied upon for a water source.

STRUCTURE TRIAGE FOR WILDLAND/URBAN INTERFACE FIREFIGHTING

DEFENSIBLE–PREP AND HOLD

- DETERMINING FACTOR—Safety zone is present with good escape route if necessary.
- Sleep – Structure has some tactical challenges.
- Tactics – Firefighters needed onsite to implement structure protection tactics during fire front contact.

DEFENSIBLE–STAND ALONE

- DETERMINING FACTOR – Safety zone is present with good escape route if necessary.
- Sleep – Structure has very few tactical challenges.
- Tactics – Firefighters may not need to be directly assigned to protect structure as it is not likely to ignite during initial fire front contact. However, no structure in the path of a wildfire is completely without need of protection. Patrol following the passage of the fire front will be needed to protect the structure.

NON-DEFENSIBLE–PREP AND LEAVE

- DETERMINING FACTOR – NO safety zone present.
- Sleep – Structure has some tactical challenges.
- Tactics – Firefighters not able to commit to stay and protect structure. If time allows, rapid mitigation measures may be performed. SET TRIGGER POINT for a safe retreat. Remember, pre-incident preparation is the responsibility of the homeowner. Patrol following the passage of the fire front will be needed to protect the structure.

NON-DEFENSIBLE –RESCUE DRIVE-BY

- DETERMINING FACTOR – NO safety zone present.
- Sleep – Structure has significant tactical challenges.
- Tactics – Firefighters not able to commit to stay and protect structure. If time allows, ensure PEOPLE are not present in the threatened structure (especially children, elderly, and special needs). SET TRIGGER POINT for safe retreat from area. Patrol following the passage of the fire front.

STRUCTURE PROTECTION TACTICS

RAPID MITIGATION MEASURES

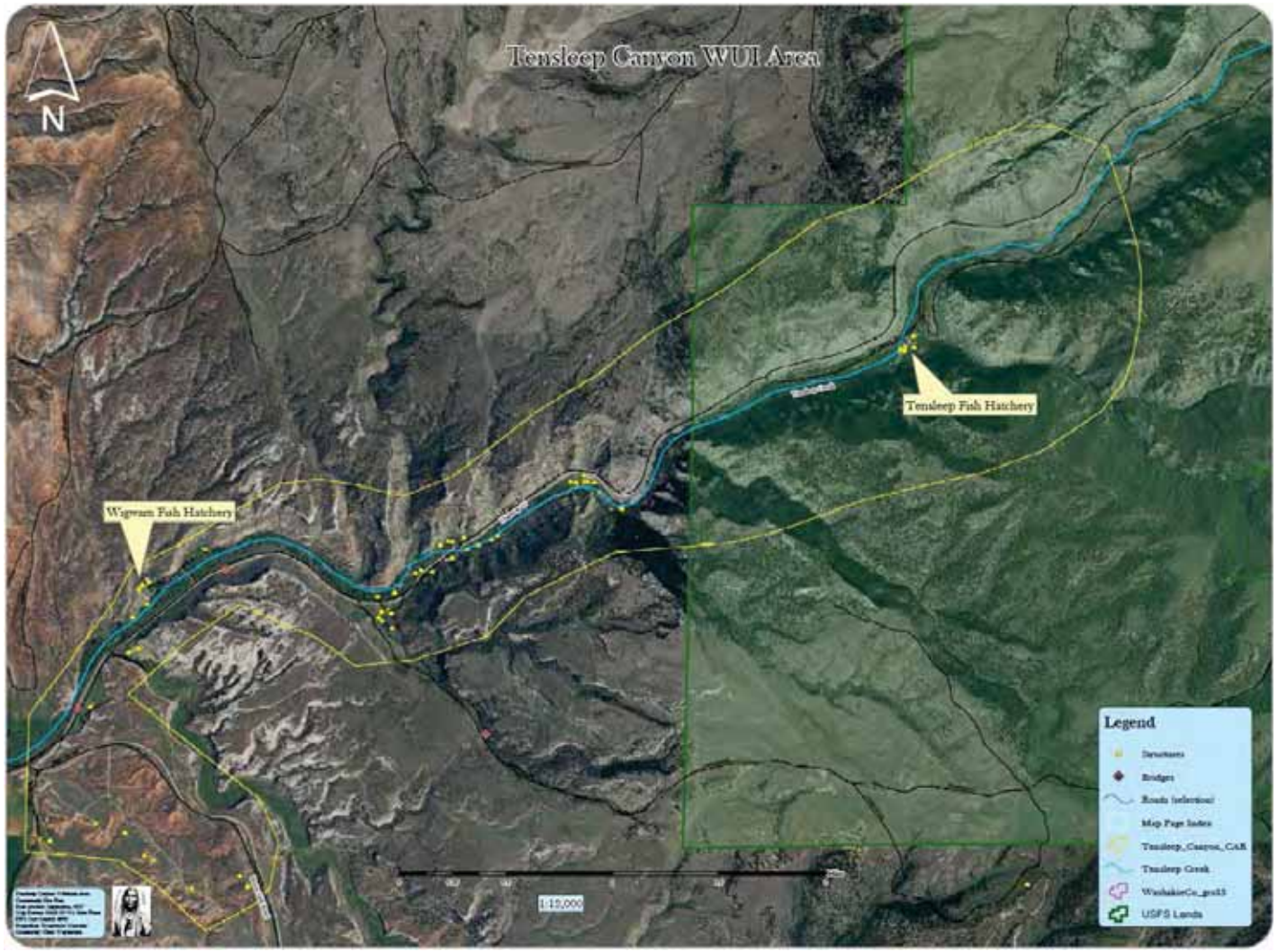
- Remove and scatter away from structure:
  - Over hanging limbs.
  - Ground/ladder fuels to prevent fire from moving into area tree crowns.
  - Wooden fences and wood piles that are near the structure.
  - Any other small combustible materials/items.
- Clear area around above ground LPG tank or farm fuel stand tank, shut off all valves. Flag underground LPG tanks for location identification.
- Place combustible patio furniture inside house or garage.
- Close all windows and doors on all structures including the garage/shed. Leave unlocked for access later.
- Charge any available garden/lawn hoses for future use.
- For roof access, place owner's ladder at a corner of a structure on the side with least fire impact or threat. Be aware of overhead power services.
- Clean roof and gutters of any combustibles.
- Cover any exposed vents and openings with screen if possible.

EQUIPMENT AND WATER USE

- Mark entrances to indicate staffed location if it is not obvious. Orange cone, or flagging as determined by department prior to event.
- Charge hose lines. Replenish water supply if time allows.
- Long hose lays are not recommended.
- Always keep 150 gallons of water in reserve.
- Identify backup water sources.
- NEVER rely of water alone for crew safety.

PATROL FOLLOWING THE FIRE FRONT

- Most structures do not burn until after the fire front has passed.


Tensleep Canyon WUI Area
N
Tensleep Fish Hatchery
Wigwam Fish Hatchery
1:10,000
Legend
Bridges
Tensleep Creek
USFS Lands

Appendix 5. Communities at-Risk (CARs) Summaries

Appendix 5 – Big Horn County Firewise Project Table

Project Name	Target	Lat/Lon (dec deg)	Projected Start Date	Actual Start Date	Projected End Date	Actual End Date	CAR
Basin Recreation Area	29.0 ac	44.369/-108.369	TBD	TBD	TBD	TBD	BASI
Groseclose (Private) – Dry Cr	32.5 ac	44.504/-108.07	TBD	TBD	TBD	TBD	DRCR
Walton (Private)	17.0 ac	44.473/-108.05	TBD	TBD	TBD	TBD	GRTO
Reasoner (Private)	3.0 ac	44.275/-107.96	TBD	TBD	TBD	TBD	MAND
Heiser (Private)	24.5 ac	44.697/-108.144	TBD	TBD	TBD	TBD	BIRI(1)
Lewis TSI (Private)	42.0 ac	44.213/-107.365	12/31/17	12/31/17	9/30/21	TBD	BROK
Dry Creek (BLM)	30 ac/yr	44.496/-108.194	2018	TBD	2020	TBD	DRCR
Antelope Butte Area (USFS)	350 ac	44.607/-107.51	TBD	TBD	TBD	TBD	GRCR
Porcupine Cabin Area (USFS)	150 ac	44.83/-107.85	TBD	TBD	TBD	TBD	PORC
Hazard Tree Removals - Medicine Lodge Park (State)	TBD	44.29/-107.54	Ongoing	Ongoing	TBD	TBD	MELO
Russian Olive Removal (W&P/NRCS)	TBD	County-wide	Ongoing	Ongoing	TBD	TBD	County
Cottonwood Canyon (BLM)	TBD	44.87/-108.00	TBD	TBD	TBD	TBD	County