

BIGHORN NATIONAL FOREST

FIRE MANAGEMENT PLAN

2016



2015 Sheep Creek Fire, Tongue River Canyon

Prepared and Updated by:

/s/ Jon Warder _____ 5/1/2016 _____
Forest Fire Management Officer Date

Summary

The implementation of Spatial Fire Management Planning became policy with the Forest Service in 2016 as documented in the Fire Management Planning Guide (replacing Forest Service Handbook 5109.19), including a Fire Management Reference System (previously the Electronic Reference File) which contains background documents that support fire management planning on the local unit (see attached). This is the latest direction in tiering fire management strategies to the Forest Plan direction, and replaces the designations formerly associated with Fire Management Zones (NFMAS) and Fire Management Units (FPA, manual) in prior years. It is compliant with the 2009 direction in the *Guidance for Implementation of Federal Wildland Fire Management Policy*. **Risk Management** and **Safety** are the overarching principles applied to any fire management strategy and incident objectives, and costs are managed commensurate with risk management and values at risk. The Forest also values its cooperators in fire management, and their input to incident related management is also considered in developing incident objectives, particularly in multi-jurisdictional fires. Additional objectives to consider, with template wording, are included in the large fire planning documents and the WFDSS section included in the reference system.

Spatial Information

The Bighorn Forest transitioned to Spatial Fire Management by including the following layers in the Wildland Fire Decision Support System (WFDSS), beginning April 27th of 2016. Following the description of the layers is also the summary of information that is pertinent from the Forest Plan for fire management, but is not able to be included only as represented from a map or spatial layer. Documentation of incident management decisions (including objectives and risk management) are authorized by the line officer through the WFDSS system, as informed by these layers and other information to be considered as described below. Line officers base their decisions on the Forest Plan direction, which was developed by considering resource information, social ramifications, and economic outcomes.

- **Strategic Objectives Map** – this coverage is identical to the Appropriate Management Response map that was included in the 2005 Land and Resource Management Plan (Appendix A). Areas identified as “Direct” and “Non-FS” were designated to denote Full Suppression and Cooperative Suppression, respectively, as wildfire management strategies, and included the larger concentrations of cabin/structure groups and private land. Areas identified as “Perimeter” were identified for strategies to be driven by Forest Plan Management Area direction and values including structures and infrastructure, municipal watersheds, etc and thus labeled Resource Value Dependent. The areas identified as “Prescription” were identified for the opportunity of managing wildfires for Resource Benefit objectives, corresponding to Wilderness and Recommended Wilderness areas in the Forest Plan, and other remote or undeveloped areas.
- **Forest Plan Management Areas** – these were duplicated from the 2005 Land and Resource Management Plan (Alternative D Final). The corresponding direction for any restrictions or requirements for these areas were included from the Forest Plan, and the following general guidance from the Forestwide Direction section also applies. Forest Plan Management Areas are summarized as follows:

[CATEGORY 1](#)
[1.11 Pristine Wilderness](#)

- [1.13 Semi-primitive Wilderness](#)
- [1.2 Recommended Wilderness](#)
- [1.31 Backcountry Recreation, Nonmotorized Use](#)
- [1.32 Backcountry Recreation, Nonmotorized Summer Use with Limited Winter Motorized Use](#)
- [1.33 Backcountry Recreation with Limited Summer and Winter Motorized Use](#)
- [1.5 National River System - Wild Rivers](#)

[CATEGORY 2](#)

- [2.2 Research Natural Areas](#)

[CATEGORY 3](#)

- [3.31 Backcountry Recreation, Year-round Motorized Use](#)
- [3.4 National River System – Scenic Rivers \(Outside Wilderness\)](#)
- [3.5 Plant and Wildlife Habitat Management](#)

[CATEGORY 4](#)

- [4.2 Scenery](#)
- [4.3 Dispersed Recreation](#)
- [4.4 Recreation Rivers](#)

[CATEGORY 5 \(SUITED TIMBER\)](#)

- [5.11 Forest Vegetation Emphasis](#)
- [5.12 Rangeland Vegetation Emphasis](#)
- [5.13 Forest Products](#)
- [5.4 Plant and Wildlife Habitat](#)
- [5.41 Deer and Elk Winter Range](#)
- [5.5 Dispersed Recreation and Forest Products](#)

[CATEGORY 8](#)

- [8.22 Ski-based Resorts, Existing/Potential](#)

[MEDICINE WHEEL](#)

- [MW – Medicine Wheel National Historic Landmark and Vicinity](#)

- Forestwide Guidelines
1. Apply a response to wildfire ignitions according to the Guidance for Implementation of Federal Fire Policy (2009), the Forest Fire Management Plan and the wildfire strategies map in Appendix A of the Revised Plan. Refer to the following table for tactical options and prescribed fire direction.

FMP Note: Per the 2009 Guidance document, wildfires that are caused by human ignition sources will be suppressed at the lowest cost with the fewest negative consequences with respect to firefighter and public safety. Also, a naturally ignited wildland fire may be concurrently managed for one or more objectives. Areas identified on the AMR map (Appendix A) as “prescription” represent the most likely areas where resource management goals may be included as objectives in incident management. Areas identified as “perimeter” may contain resource management goals, while areas identified as “direct” would not contain resource management goals due to the high concentration of structures or private property in these areas. However, the “direct” areas do not represent all the structures on the Forest, just higher concentrations.

Management Area	Unplanned Ignitions Wildland Fire		Planned ignitions
	Must be managed as unwanted wildland fires if human-caused, if approved fire use plan does not exist, or when fire presents unacceptable threat to human safety or values to be protected.		May be implemented by mgmt action authorized by approved plans
	Tactical Options		Prescribed fire
Mechanized Equipment	Aerial Retardant Application		
1.11, 1.13	X ¹	X	
1.2	X ^{13b}	X	X
1.31	X ²	X	X
1.32, 1.33	X ^{3a}	X	X
1.5	X ³	X	X
MW	X ⁴	X	X
2.2	X ⁴	X	X
3.31	X	X	X
3.4	X ⁴	X	X
3.5	X	X	X
4.2	X	X	X
4.3	X	X	X
4.4	X	X	X
5.11, 5.12, 5.13, 5.4, 5.5	X	X	X
5.41	X	X	X
8.22	X	X	X

X – allowed
X# – allowed with line officer approval for specific incident.

¹ Dozers are prohibited except with Regional Forester approval. Use of helicopters, motorized equipment, and mechanical transport is prohibited except with Forest Supervisor approval.

^{13b} Dozers and engines are prohibited except with Forest Supervisor approval. Chainsaws, ATVs, and pumps are allowed without Forest Supervisor approval.

^{3a} Dozers are prohibited except with Forest Supervisor approval. Chainsaws, engines, ATVs and pumps are allowed without Forest Supervisor approval.

⁴ Dozers and motorized vehicles are prohibited except with Forest Supervisor approval. The prohibition of dozers and motorized vehicles does not apply in T58N, R89W, Sections 19 and 30 in the Little Bighorn River. Chainsaws and pumps are allowed without Forest Supervisor approval.

⁶ Subject to consultation with appropriate parties and/or Historic Preservation Plan (HPP).

	Unplanned Ignitions Wildland Fire		Planned ignitions
	Must be managed as unwanted wildland fires if human-caused, if approved fire use plan does not exist, or when fire presents unacceptable threat to human safety or values to be protected.		May be implemented by mgmt action authorized by approved plans
	Tactical Options		
Management Area	Mechanized Equipment	Aerial Retardant Application	Prescribed fire

2. In areas where perimeter or prescription strategies are described on the wildfire strategies map, natural ignitions may be used to accomplish resource management objectives.

FMP Note: This is interpreted to mean that this direction applies to areas identified as **perimeter or prescription** on the strategic objectives map. See note on #1 for further details.
3. Reduce the threat of wildfire to public and private developments by following guidelines in the National Fire Protection Association Publication 1144, *Standards for Protection of Life and Property from Wildfire*.
4. Reduce activity fuels resulting from all projects/activities to acceptable levels in a cost effective manner.
5. Avoid aerial application of retardant and use of foam within 300 feet of wetlands and riparian areas unless necessitated by human safety considerations. Refer to maps and direction in the Fire Management plan pursuant to national direction.

FMP Note: This direction (#5) was superseded in 2011 with the issuance of the national ROD and FEIS pertaining to aerial retardant use. Property loss is no longer a consideration in this guideline, but life and safety remain. Maps delineating the perennial and intermittent streams with a 300’ buffer to be avoided with retardant application have been generated and are included in the electronic reference file. Aerial retardant applied in these areas must have accompanying reporting and monitoring and are defined as a “misapplication”. However, retardant applied in or near intermittent streams, with no live water, are not considered a misapplication. There are no TES habitat areas identified on the Forest for excluding retardant, however there are cultural resource areas. Additional information is available at <http://www.fs.fed.us/fire/retardant/index.html>. The Forest has successfully used SEATS loaded with water only for fires to avoid the potential impacts of retardant.

- **Structures and Powerlines** – these point/line features were added to WFDSS and updated from the previous versions to show features that often become the focus for values at risk during incident management, as they relate to Wildland Urban Interface. Outbuildings were not captured, but main cabins, and those private land cabins or residences generally within one mile of the Forest boundary. This layer could be used to gather “number of structures threatened” information for 209 use.

- **Municipal Watersheds** – these areas were identified in the 2005 Forest Plan (Appendix A) to denote those portions of watersheds that have a direct influence on municipal water supplies, but were not inherently designated as such within Forest Plan Management Areas. These watersheds justify additional consideration in fire management response considering likely burn severity, extent, and rehabilitation measures. Forest-wide watershed protection measures were included in the Forest Plan (Soil, Water, Riparian Standards and Guidelines; and Fisheries Guidelines pg. 1-26 and 1-30 of Forest Plan). These incorporate by reference the Watershed Conservation Practices Handbook (FSH 2509.25). Specific direction for fire from this reference includes:

2509.25.12.4 (f.):

Do not build firelines in or around wetlands unless needed to protect life, property, or wetlands. Use hand lines with minimum feasible soil disturbance. Use wetland features as firelines if practicable.

2509.25.13.2 (e.):

Build firelines outside filter strips unless tied into a stream, lake, or wetland as a firebreak with minimal disturbed soil. Retain organic ground cover in filter strips during prescribed fires.

2509.25.13.2 (e.):

Build firelines with rolling grades and minimum downhill convergence. Outslope or backblade, permanently drain, and revegetate firelines immediately after the burn. Use certified local native plants as practicable; avoid persistent or invasive exotic plants.

2509.25.14.1:

Manage land treatments to limit the sum of severely burned soil and detrimentally compacted, eroded, and displaced soil to no more than 15% of any activity area.

2509.25.15.1(b):

Locate vehicle service and fuel areas, chemical storage and use areas, and waste dumps and areas on gentle upland sites. Dispose of chemicals and containers in State-certified disposal area.

2509.25.15.1(c):

Locate...fire camps such that surface and subsurface water resources are protected. Consideration should be given to disposal of human waste, wastewater and garbage and other solid wastes.

2509.25.15.2.1(a.):

Install...berms....and use liners to prevent seepage of fuels to ground water. (e.g. pump locations in riparian areas).

And, FSM 2523 directs Burned Area Emergency Response (BAER) activities.

Non-Spatial Management Direction

While **noxious weed** infestations remain small on the Forest, the Forest specified a guideline in the Forest Plan pertaining to fire activities. Current locations of noxious weeds are maintained in the Forest's GIS database and are generally known to District resource advisors (range management specialists and wildlife biologists). The following is the Forest Plan direction for noxious weeds for fire (Forest Plan Pg. 1-51, Non-native and Invasive Species, Guideline 4):

4. To reduce transport or establishment of noxious weed seeds, wash all equipment used in ground-disturbing or fire suppression operations (except for initial attack) prior to arrival on the Forest.

There are **no threatened or endangered species** that currently reside on the Bighorn NF, and thus there is no Forest Plan management direction specific to them for consideration in fire management. Riparian dependent Forest Service **sensitive species** do occur on the Forest, and the Yellowstone cutthroat trout is the most often considered in fire management decisions. Protection of sensitive species is Forest Plan direction in TES Standard 3 (Pg. 1-40, Forest Plan) and is most often managed by the use of a resource advisor during larger fire events, to implement standard measures to avoid riparian impacts (e.g. fireline location and construction and reclamation methods, use of dams for temporary water sources, etc).

3. Avoid actions that would result in a trend toward federal listing or loss of population viability of sensitive species. The protection will vary depending on the species, potential for disturbance, topography, location of important habitat components and other pertinent factors. Give special attention during breeding, young rearing, and other times that are critical to survival of both flora and fauna.

The extent of **aquatic invasive species** (AIS) is currently limited on the Bighorn National Forest. To continue to prevent the spread of invasive species onto the BNF, several measures are warranted. These measures were not specified in the Forest Plan as AIS was not identified as an issue during plan preparation due to lack of information. In 2015, the State of Wyoming has adopted guidance that the Forest will honor, and is included in the Fire Management References section. The following guidelines are incorporated into fire management operations as Best Management Practices that would fit under Forest Plan Objective 1.a: Strategy 7, and Objective 1.b: Strategy 2. The following recommended actions were developed for the FMP in 2012 in consultation with aquatic program managers, and would be included for incidents regardless of size, and included for larger fires as referenced under Table 3 below, and as referenced in the electronic reference file.

- Avoid using known contaminated water sources for suppression efforts. Consult resource advisor/fisheries personnel for sources to avoid. Of greatest concern, currently, are sources of low elevation water (such as east side of Bighorns on private, and the Big Horn River on west side). Avoid dumping water from unknown source on a fire location that may directly runoff back into a riparian area. If contaminated and uncontaminated sites are within the fire area have 2 buckets and duplicate equipment for use in each respective water body and avoid interchanging equipment or water.
- If a resource (engine, tender, helicopter bucket) has been off Forest, or has been using a known infected site on Forest, clean and disinfect prior to next assignment. Equipment may be either cleaned on site, or back in town. Refer to the electronic reference file for disinfecting process options (quat or hot water), that can be set up as part of check-in and demob for incidents or within the dispatch zone, similar to noxious weeds. Note that the above direction would be desired for fixed wing aircraft (tankers) as well, though incidents would not be able to regulate that on site.
- Avoid back flushing pumps and charged hose into riparian areas to ensure water sources are not contaminated with chemicals and aquatic invasive species.
 - Whirling disease is not currently counted as a target species for mitigation by the WGFD.

The Bighorn NF is rich with **cultural resource sites**, which need to be considered in fire management decisions, particularly with ground disturbing suppression tactics (e.g. dozer line, fire camps). The figure below depicts known Historic Districts established during Forest Plan revision combined with the Appropriate Management Response map (both in Forest Plan

Appendix A). Management associated with the Districts is too dependent on specialist interpretation to include in WFDSS as a spatial layer. The districts have a high concentration of interrelated eligible sites within them. They were denoted to highlight potential conflicts and/or need for additional time and/or consultation during NEPA planning for implementation of site-specific program objectives through NEPA decisions. The map has been updated and adapted to display a variety of data for the management of cultural resources during implementation of fire management actions outlined in this document, and to meet the Forest's Programmatic Agreement (PA) with the Wyoming State Historic Preservation Office and the Advisory Council.

The current PA points out a need to survey certain areas, as identified on the map, prior to allowing wildland fire to be managed for resource objectives. However, the PA was written for "fire use" which was deemed at the time to be a management decision (like prescribed fire) rather than an emergency response. Regardless, the Forest has completed inventory and reporting for the Shell area (2012), Edelman Mine area (2013 and 2014), and the Tepee Pole Flats area (2014 and 2015). The map has not yet been updated to reflect these completed surveys. The map also shows areas where a cultural resource staff needs to be consulted before aerial retardant can be used, in interest of protecting rock art.

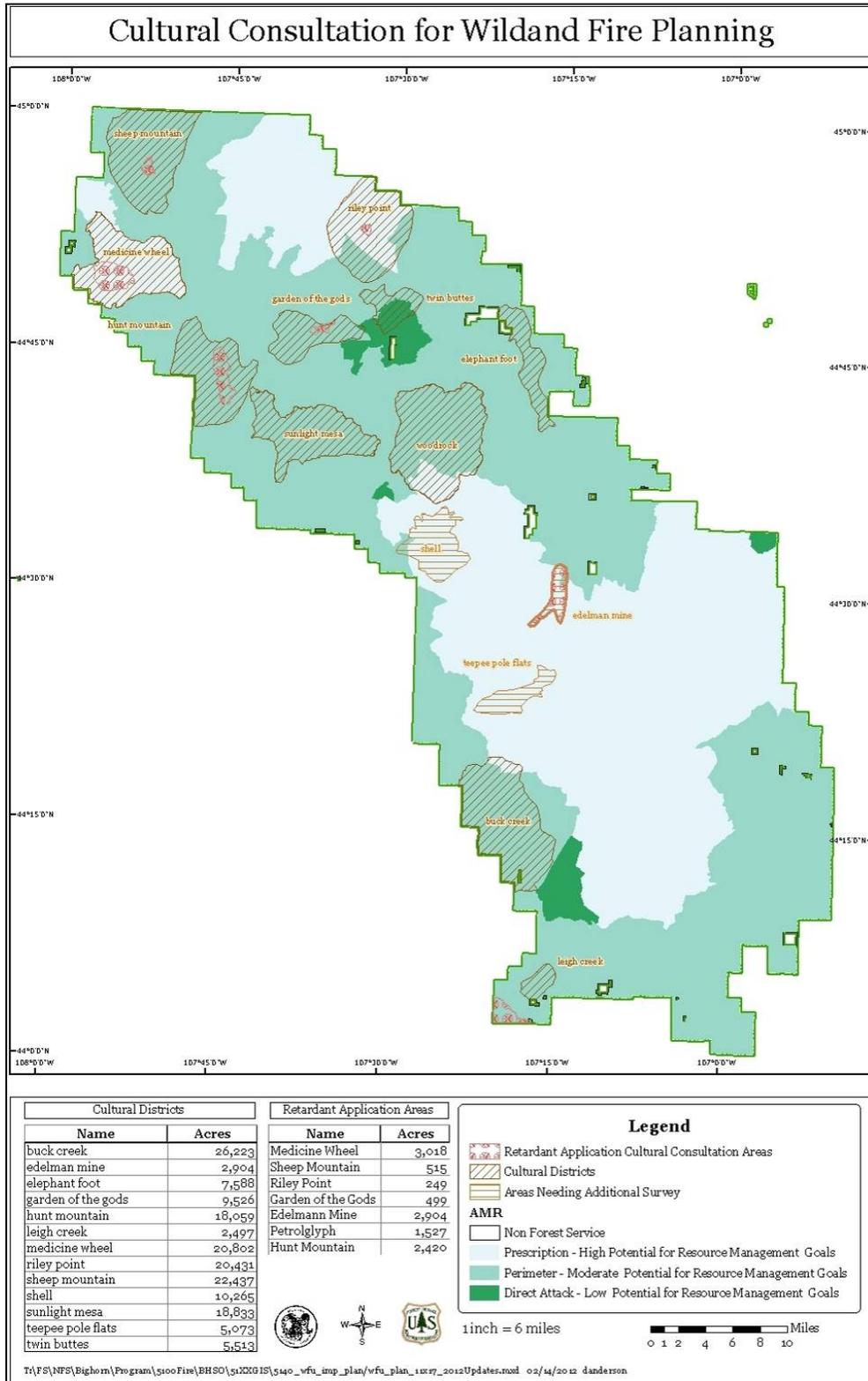
During any wildland fire management activity, a cultural resource specialist (CRS) will be consulted to carry out procedures outlined in the Forest's PA, Appendix G (*refer to Cultural Resource folder, electronic document file*). A brief summary of a CRS roles are:

- Participate on an interdisciplinary team to determine if the fire should be managed to incorporate resource management objectives,
- Prepare management response options to protect identified or unidentified historic properties,
- Implementation of site-specific protection measures that will be undertaken to prevent damage or loss,
- Re-validate protective needs for historic properties, in accordance with changes in fire behavior, and
- Conduct post-fire assessment when needed and report the findings to SHPO.

Additional direction outside the Forest's PA (Appendix G) includes:

- The Historic Preservation Plan for the **Medicine Wheel/Medicine Mountain** National Historic Landmark (NHL). The plan contains direction for wildland fire, and is included in the reference file for this FMP (Cultural Resource folder).
- Forest wide direction for cultural resources that should be considered is within the Forest Plan (Pg. 1-52) under Social, Heritage Resources, and are:
 - Guideline 2: Protect heritage resources from damage or vandalism through project design, specified protection measures, monitoring, and coordination.
 - Guideline 5: To ensure proper resource protection and to ensure that proper procedures are conducted, refer to the map of Historic Districts in Appendix A of the Plan during site-specific project planning (36 CFR 800).

Cultural Resource Historic Districts and Concern Areas (Adapted from the Forest Plan, Appendix A maps).



Fire Season and Weather Information

The Forest's typical fire season has been identified to be from June 15 to September 30, however it can begin earlier and extend later depending on weather conditions, particularly on the east and west faces of the Forest. The Forest averages about 20 fires per year, with approximately 50% of those being human caused (e.g. abandoned campfires). Most fires remain small after detection, however large fire events typically occur every 5-10 years, associated with drought and/or wind events that carry crown fire. Forest fire weather is monitored through four long term Remote Automated Weather Stations (RAWS), and one portable station as needed. The figure below depicts where the stations are located on the Forest, and the table references specific station details. Note that the Boyd Ridge RAWS was removed in 2016 to provide parts for Schoolhouse station.

The topography of the Bighorn NF is that of an uplifted geologic island of forested land surrounded primarily by plains on adjacent lands. On the east and west faces of the Forest, topography rises steeply through canyons or rock faces, giving way to more gentle terrain that occupies the bulk of the Forest. Natural breaks in the forested vegetation occur in meadows/sage, in lakes/streams, and rock/scree. The core of the Forest is exposed granite rock outcrops, which comprise the bulk of the Cloud Peak Wilderness. Elevation ranges from approximately 6,000' to over 13,000'.

The Forest prepared a Fire Regime Condition Class layer associated with the Forest Plan, which was tied to current vegetation types and age class structures from large scale aerial photo interpretation. There is also the Landfire database from satellite generated sampling. Otherwise, there are no compiled fuels databases for use in project planning. Forested vegetation is predominantly lodgepole pine, with stringers of spruce/fir in drainages or at higher elevations. The steep canyons on the east and west faces have a predominance of Douglas-fir and ponderosa pine. Aspen is a very limited vegetation type, and is dominated by conifers in many areas. Livestock grazing typically reduces fine fuels in meadows and shrub communities to limit wildfire potential in non-forested areas.

Typical diurnal/nocturnal wind patterns influence fire weather in the drainages on the Forest. Most weather systems approach the Forest from the northwest. Strong southwest winds associated with fronts or high pressure systems may be associated with large fire days in periods of drought. Daily thundercell formation is also typical in the summer months that can influence fire behavior with winds associated with passing cells. Precipitation ranges from 15" at lower elevations to over 25" at over 9,000'. Prevailing winds are westerly to southwesterly. Typical diurnal/nocturnal wind patterns influence fire weather in the drainages on the Forest. Severe fire years have typically been associated with prolonged drought.

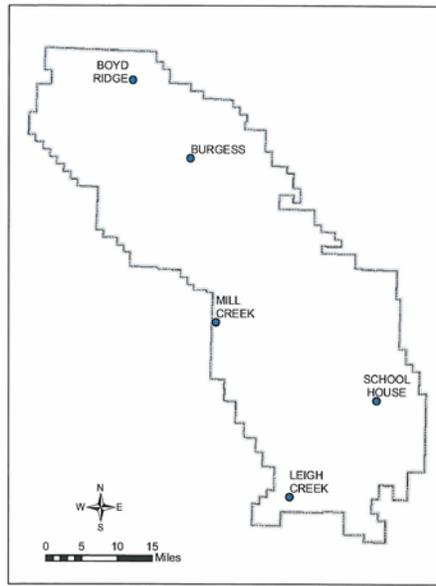
Fuels conditions that support large fires are evident when Energy Release Component (ERC) indicators reach 90th percentile, although large fires can occur below this level also. 1,000 Hour fuel moistures also tend to be a good indicator of the potential to support large fires, as evidenced when these levels drop below 11% moisture.

Fire history on the Forest indicates that while the annual number of fire starts is not high, the fire environment is complex as high intensity fires with rapid rates of spread are common during active burning years. The fire environment is further complicated by mature forest conditions, steep terrain, and frequent wind events that are not always well forecasted. There have been two entrapments on the Forest (Little Goose "near miss" 2007; Stockwell 1997). There are inherent safety issues with the volume of public recreation occurring with cabins, lodges, dispersed sites occupied with trailers and tents, fishing at lakes, etc. that create the potential for firefighters to actively engage fire in an effort to protect public safety.

There has been little coordinated advanced planning to protect structures in these high use areas, although the Forest has begun to reduce fuels in the areas. Structures to protect have been mapped on the Forest, and include adjacent private land structures, with maps residing in initial attack vehicles and Forest offices and GIS. Fire prevention contacts are made during periods of restrictions, and proactively at cabin owner meetings to stress fuels reductions. There are only a few pockets of private inholdings within the Forest, with none larger than a few thousand acres (Dome Lake is largest).

Bighorn NF RAWS Station Locations

Bighorn National Forest Weather Stations

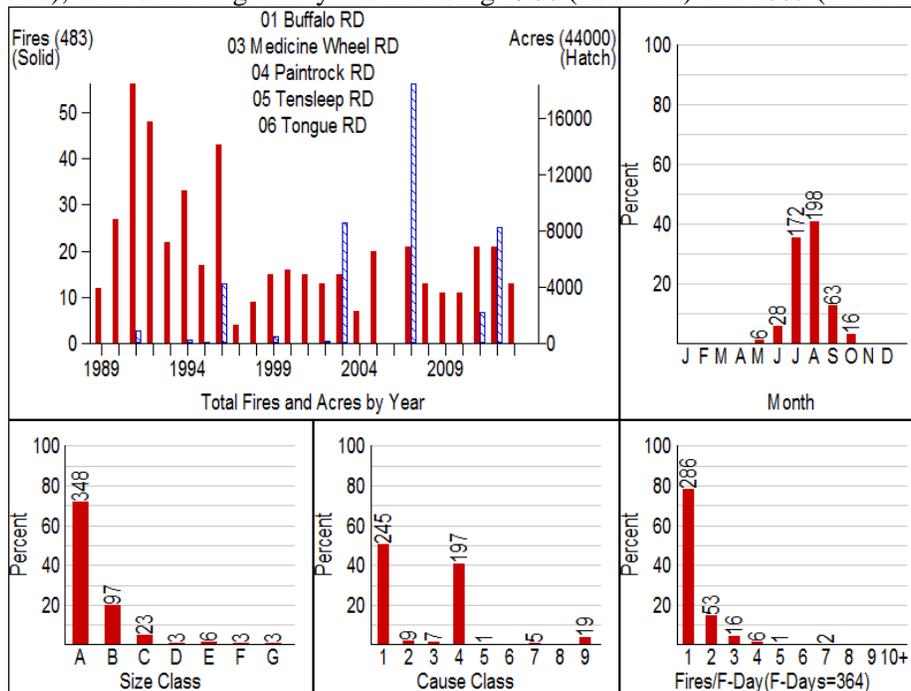


Bighorn NF Weather Station Specifics

Bighorn National Forest Weather Stations					
Station Name:	School House Park	Mill Creek	Burgess Junction	Boyd Ridge - Decomissioned	Leigh Creek
Station Abbr:	SCHLPK	MILLCR	BURGES	BOYDRIDG	LEIGH
Station Nbr	481002	480306	480403	480404	480906
Latitude:	44 18 23	44 27 21	44 47 10	44 56 29	44 06 24
Longitude:	106 58 55	107 26 58	107 32 09	107 42 32	107 13 26
Fire WX Zone	284	284	284	284	284
Elevation (FT.)	8069	8898	7975	7510	8202
Aspect	S	S	SW	SE	S
Site	Ridgetop	Ridgetop	Flat	Ridgetop	Mid-Slope
Slope Class	3	3	3	3	2
Fuel, Climate, & Plant	G3PEY	G3PEY	G3PEY	G3PEY	G3PEY
Fire Danger Indicator	ERC	ERC	ERC	ERC	ERC
90-97%	Refer to current NFDRS Fire Danger Rating Operating Plan in Fire Reference File				

*Normal Green-up	6/01	6/10	6/10	6/01	6/10
County	Johnson	Bighorn	Sheridan	Sheridan	Washakie
Drainage	Mid Clear Crk	Mill Crk	Tongue River	Little Big Horn	Leigh Creek
District	Powder River	Paintrock/ Med Wheel	Tongue	Paintrock/ Med Wheel	Powder River
Raws I.D.	3239F5B2	323A0238	32304060	3249760A	32829234
1 st Yr. Open.	1989	1989	1992	1998	1998

The following figure demonstrates the recent fire history on the Bighorn NF (1989-2013), applicable to all FMUs. 2014 was not a significant fire year for the Forest, and 2015 had one larger fire (300 ac on FS) in Tongue Canyon. The largest fire was the Bone Creek Fire in 2007 (13,000 acres), with other large fire years including 1988 (Lost Fire) and 2003 (Little Horn Fire).



Fire Management Organization, Procedures, and Response to Incidents

The Forest Supervisor is responsible for establishing fire management priorities and coordinating all fire suppression activities. Management of the forest fire program has been delegated to the Resource Staff Officer, who is assisted by the Forest Fire Management Officer. District Rangers are directly responsible for all fire management activities within the District protection boundaries, and are assisted by their Fire Management Officers and the Forest FMO. The Medicine Wheel retains an Assistant Fire Management Officer on staff to assist with the complexities of additional fire management areas (NPS and BLM), and a larger fire program associated with hosting the Wyoming Hotshots. In addition to District Ranger involvement in fire management activities, the Cloud Peak Wilderness area necessitates coordination with the Forest’s wilderness coordinator. **In multiple fire start situations**, the Forest FMO and Resource Staff Officer, in conjunction with District Rangers and FMOs, may set priorities for incident response based on safety, threat to life or property, cost, resource values, current and predicted weather, and resource availability. Similarly, multiple fires within the Cody Interagency Dispatch zone would be prioritized by Forest FMOs in conjunction with line officers, as

described in the Annual Operating Plan for CDC (see electronic reference file) via the use of a Local Multi Agency Coordinating Group (LMAC).

Sample delegations of authority and other **large fire planning documents** to assist in hosting an Incident Management Team are contained in the electronic file for this FMP. This also includes **WFDSS** guides and documents, and **resource advisor** planning tools.

To provide for **firefighter and public safety**, this is the first objective of every fire management activity. The 30 Mile Accident Prevention Plan and Missionary Ridge Action Plan items are reviewed on fires to ensure compliance, according to national policy (10% of Type 3 thru 5 fires, all Type 1 and 2 fires). These review items have been incorporated into the Cody Dispatch Zone **Incident Organizer**, included in the electronic file for this FMP. In addition, all standard safety practices including the 10 Fire Orders and 18 Watch-out Situations, LCES, work-rest guidelines, personal protective equipment (PPE), defensive driving and seat belt use, fire danger pocket cards, and after action reviews are mandated in fire responses. Readiness inspections are performed on Forest firefighting resources. *While the Forest's engines and initial response vehicles have red lights meeting NFPA standards, Forest employees are not authorized to drive outside of the established laws governing the use of these lights, and lights are to be used as a visual awareness for firefighter safety only.* Thus, there is no need to document or certify drivers for use of the lights, as allowed for in agency policy (FSM 5126.5 and 5127.1). Incident traffic signing and other signing is accomplished through the Incident Sign Installation Guide (MTDC 2005). Employee fire qualifications and training are tracked through the Incident Qualification system (IQCS) with records maintained at the Supervisor's Office. IQCS committee operating guidelines are contained in the electronic file system. The Forest has embraced the High Reliability Organizing concepts to its fire management programs to enhance risk management procedures. Annual readiness reviews are conducted on Forest firefighting resources to ensure standard safety components are in place. These are retained in a separate file (5120) in the Supervisor's Office. There are **no oil/gas wells** or hazards from mining related activities. The highways (14 and 16) provide public access that is often busy during summer months with traffic towards Yellowstone NP, and as such are a known safety issue. Rattlesnakes may be found at lower elevations along the east and west faces of the Forest. Environmental hazards include steep, rocky and difficult terrain. Air quality is generally excellent, with the only non-attainment zone for smoke being located in the City of Sheridan. Smoke management requirements are in the reference file.

Fire Danger/Planning levels are prescribed through the CDC Zone Fire Danger Rating Operations Plan, included in the reference file for this FMP. Refer also to the **Bighorn NF drawdown matrix/planning level guide** and **preparedness plan**, associated with this document. All initial attack dispatching on the Bighorn NF is handled through Cody Interagency Dispatch center. The front desks of each Forest office have been used as backup radio management sources during radio failures at CDC. Staffing may vary annually based on budget and/or availability of severity resources. Severity resources may be requested upon approval of Regional Office fire managers after certain criteria have been met. Sample **severity requests** are contained in the reference file. Extended attack management teams (Type 3) are configured at the Cody Dispatch zone level, and are assessed weekly by fire managers to see if individuals need retained at the local unit to be able to fill out needed organizations. **Fire resource responses** are determined by the current staffing, weather and fuels, and incident information and location. At a minimum, the closest resource (Engine or IA module or other resource) will be dispatched to the fire, and the duty officer contacted, who may then modify the response as needed. The "run cards" in dispatch (WILDCADD dispatch strategy) direct this response. Fire response times will

vary from less than 1 hour to more than 3 hours depending on location and available resources. In general, 7 day staffing occurs on the Forest through at least one IA resource identified on each District during the peak fire period. Each resource (e.g. engine or crew module) does not have 7 day coverage, rather, overlapping schedules are developed each year.

Fire restrictions are implemented through Forest Supervisor declared special orders, in conjunction with District Rangers and Fire Management Officer input. Sample fire restriction orders are included in the reference file. In general, fuels conditions, season remaining, availability of resources, and the amount of human activity and starts are considered in applying the different stages of restrictions. Signing and public media contact are done by the Forest/Districts. Districts may also issue campfire permits during periods of restrictions. Contractors (e.g. timber sale operators) must also comply with restriction orders, unless otherwise stated in the special order. Restrictions are coordinated through a statewide database hosted by the BLM. The following are the categories and conditions of restrictions considered:

No restrictions – Operational all times of the year, except when superseded by a restriction. Fire Danger index is low to moderate.

Partial restrictions – The Forest is responsible for implementation (Stage 1 and Stage 2). The Forest and Districts are responsible for enforcement of the restrictions. Stage 1 restricts welding, chainsaws, campfires and smoking to certain areas or conditions. Stage 2 prohibits campfires and welding and chainsaw use, while restricting other activities. *Consideration* will be given to implementing partial restrictions if four or more of the criteria are present.

1. Fire Danger index level rating is very high or greater.
2. 1000 Hour Fuel Moistures are above 90th percentile.
3. ERC (energy release component) above 90th percentile.
4. Fires are affecting available suppression resources making adequate initial attack difficult.
5. Area is receiving a high occurrence of human caused fires.
6. Adverse fire weather conditions and risks are predicted to continue.
7. Forest Preparedness Plan level three or greater
8. Regional Preparedness Plan level four or greater.
9. National Preparedness Plan level four or greater.

Full restrictions - Area closures will be considered for isolated incidences when fire danger is very high to extreme and five or more of the above criteria are met and expected to continue for a week or more. A communication/enforcement plan is needed. Area closures should only be considered when Stage 1 and 2 (partial) restrictions are not effective and human-caused fires are still occurring.

Restrictions or closures should be rescinded when the criteria that implemented the action have lessened. These criteria should be reviewed carefully and frequently.

Aviation hazards are identified on the Forest Aviation Hazard Map included in the reference file. High winds and terrain-influenced winds that affect aviation operations are common. There are powerlines (low voltage) along portions of Highway 14 and 16 that provide power to recreation cabins and lodges, and a few communication sites with towers.

There is additional guidance for fires detected in the Cloud Peak Wilderness. The Rock Creek recommended wilderness is managed to a less restrictive level, but the Minimum Impact Suppression Tactics (MIST) guidelines should be employed. The MIST tactics are included in the reference file for this FMP.

Wilderness direction is summarized in Section 2(c) of the Wilderness Act as follows: “A wilderness, in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean in this chapter an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation.”

The fire suppression policy for the Cloud Peak Wilderness is to conduct all fire management activities in a manner compatible with overall wilderness management objectives. The fire management objectives in wilderness, as stated in the Forest Service Manual (FSM2324.21) are:

Permit lightning caused fires to play, as nearly as possible, their ecological role within the wilderness.

Reduce to an acceptable level the risks and consequences of wildfire within wilderness or of wildfire escaping from wilderness.

The **goal** of fire management in the Wilderness is best achieved when the effects of fire as a natural agent are observed, and the affects of fire management activities are not. Fire managers shall give preference to using methods and equipment that cause the least:

1. Alteration of the wilderness landscape
2. Disturbance of the land surface
3. Disturbance to visitor solitude
4. Adverse effect on other air quality related values

If suppression of wildfire in Wilderness is necessary, preference must be given to those suppression methods and strategies that provide for firefighter and public safety first and that have the least physical impact on the land consistent with other management considerations. Minimum Impact Management Action Guidelines should also be recognized. Preference will be given to use of natural fuel breaks. In some cases direct attack with a minimum width hand line, or wet line using power driven pumps and hose may be most cost-effective and cause the least overall damage to Wilderness values.

A Wilderness Resource Advisor will be assigned to all fires within or expected to enter the Cloud Peak Wilderness – typically the wilderness rangers employed on the Forest who are fire qualified. Wilderness resource advisors will be listed in the Delegation of Authority letter for any fire requiring suppression in the wilderness by an Incident Management Team.

The Wilderness Resource Advisor on the Bighorn NF will be Brian Boden, or contact SHF for a qualified advisor (Bill Oliver, etc).

The following chart shows the delegated authorities for approving motorized and mechanical equipment within the Cloud Peak Wilderness on the Bighorn National Forest. The same approvals also occur (per 7/1/2005 R2 Memo) for resource benefit fires.

▪ Motorized/Mechanical Request	▪ Authorized for Non-Emergency	▪ Authorized for Emergency
▪ Chainsaws, Pumps	▪ Regional Forester	▪ Forest Supervisor
▪ Helicopters-Fixed Wing ▪ Retardant Delivery ▪ Bucket Work ▪ Personnel Shuttle	▪ Regional Forester	▪ Forest Supervisor
▪ Transport and Supply by aircraft, air drop and mechanical transport	▪ Regional Forester (2326.1)	▪ Forest Supervisor
▪ Helispot construction	▪ Regional Forester	▪ Forest Supervisor
▪ Motor Vehicle	▪ Regional Forester	▪ Forest Supervisor
▪ Tractors (Heavy Equipment)	▪ Regional Forester	▪ Regional Forester
▪ Management Ignited Fire in Wilderness	▪ Regional Forester	▪ N/A
▪ Wildland Fire Use in Wilderness	▪ N/A	▪ Forest Supervisor (where WFU plan is established)
▪ Burned Area Emergency Rehabilitation (BAER) projects in Wilderness	▪ Regional Forester	▪ Forest Supervisor

When considering mechanical transport or motorized equipment use for fire suppression in wilderness, the following criteria should be used to evaluate whether or not Approval or Disapproval is appropriate for the recommended actions.

APPROVE use of Motorized Equipment (chainsaws, portable pumps, etc.) when:

- There is a threat to life, property, public or firefighter safety that can only be mitigated with the use of motorized equipment.
- Potential effects to cultural and natural resources will be outside the range of acceptable effects, unless motorized equipment is used.
- Rate of spread is 10 chains per hour or greater in timber fuel models.
- Fuel loading is greater than 30 tons per acre.
- Technically difficult trees (usually "C" level of difficulty) must be felled for firefighter safety, and where using a crosscut saw substantially increases risk to the sawyer.
- Use of motorized equipment will result in substantially less impact to the wilderness resource (i.e. using pump to establish a "wet line", versus using hand tools to dig line).

- Weather patterns, potential fire behavior, and limited resource availability (e.g. National Planning Level V) indicate a long term fire suppression effort is not feasible to manage.

APPROVE use of Mechanized Transport (off-highway vehicles, wagons, carts, helicopters, etc.) when:

- There is threat to life, property, public or firefighter safety that can only be mitigated with the use of mechanized transport.
- Potential effects to cultural or natural resources will be outside the range of acceptable effects, unless mechanized transport is used.
- Use of mechanized transport will result in substantially less impact to the Wilderness resource (i.e. Using helicopters to ferry crews to / from an off site base camp, versus establishing a camp in a sensitive environment).

DO NOT APPROVE use of Mechanized Transport to retrieve firefighters or their equipment from Wilderness unless:

- Ongoing fire situation dictates prompt retrieval of specialized personnel or equipment, and there is no other practical means of retrieval.

APPROVE the use of fire retardant chemicals in wilderness when:

- There is threat to life, property, public or firefighter safety that can only be mitigated with the use of fire retardant chemicals.
- Potential effects to cultural or natural resources will be outside the range of acceptable effects, unless fire retardant chemicals are used.
- Use of fire retardant chemicals will result in substantially less impact to the Wilderness resource (i.e. using fire retardant to substantially extinguish a fire, versus using handcrews and motorized equipment). Remember retardant dyes can last for years on rocks and logs, dependent on weather an exposure.

Construction of Helispots within Wilderness:

Per FSM 2326.04c. “The Forest Supervisor approves the use of motorized equipment or mechanical transport under condition described in section 2326.1”.

If permission is granted, consider the following:

- Consider using helispots outside the Wilderness whenever feasible.
- Provide for risk assessments and safety.
- Use natural openings where possible, or areas that minimize needed tree felling.
- Consider the visual impacts of potential locations; when possible, locate helispots away from main trails and popular attractions.

- Where possible, select locations that can be easily restored to their natural appearance.

DO NOT APPROVE Burned Area Emergency Rehabilitation (BAER) projects within Wilderness unless:

- Necessary to prevent an unnatural loss of the Wilderness resource.
- To protect life, property, and other resources values outside of wilderness.

The Forest will make provisions for fighting fires in wilderness when motorized or mechanized equipment cannot be used. This would include having alternate suppression equipment available, special training for fire suppression crews, and using MIST guidelines.