2.B.20. Wildland Fire Ecology and Management

Profile

Indicators

National and State BLM fire policy requires current and desired resource conditions related to fire management be described in terms of three condition classes and five fire regimes (Table 43). The Fire Regime Condition Classification System (FRCC) measures the vegetation's degree of departure from reference conditions, or how different current vegetation is from a particular reference condition. This could result in changes to key ecosystem components such as vegetation characteristics; fuel composition; fire frequency, fire severity and pattern; and other associated disturbances, such as insects and disease mortality (Table 44). FRCC is used to classify existing ecosystem conditions and to determine priority areas for treatment as mandated by national direction.

Table 43. Historic Fire Regime Definitions

Historic Fire Regime	Fire Frequency	Severity
I	0-35 years	Low (surface fires most common) to mixed severity with less than 75% of the dominant overstory vegetation replaced.
II	0-35 years	High (stand replacement) severity with greater than 75% of the dominant overstory vegetation replaced.
III	35-100+ years	Mixed severity with less than 75% of the overstory vegetation replaced.
IV	35-100+ years	High (stand replacement) severity with greater than 75% of the dominant overstory vegetation replaced.
V	200+ years	High (stand replacement) severity.

Table 44. FRCC Descriptions

FRCC	Condition Class Description
1	Fire regimes are within historic timeframes, and the loss of key ecosystem components from the occurrence of fire is low. Areas are considered to be healthy and functioning adequately.
2	Fire regimes have been moderately altered from their historic timeframes by either increased or decreased fire frequency and are at moderate risk of losing key ecosystem components. Areas are considered to be unhealthy, and their rate of deterioration is expected to increase moderately to rapidly.
3	Fire regimes have been significantly altered from their historic timeframes, and the loss of key ecosystem components is high. Areas are considered to be unhealthy and nonfunctioning.

FRCC is not an appropriate indicator for Wildland Urban Interface (WUI) areas since WUI areas may be maintained in an altered vegetative state to protect life and property. *The Idaho Interagency Assessment of Wildland Fire Risk to Communities*, finalized in 2007, maps communities most at risk from wildland fire in Idaho. Relative Risk Ratings are assigned using Hydrologic Unit Codes (HUC), with rating categories of Low, Low-Moderate, Moderate, Moderate-High, and High.

Current Condition

Between 1987 and 2006, more than 45,000 acres burned in the planning area each year on average, with a total of more than 900,000 acres burning during that 20-year period (Table 45); 170,000 of these acres burned more than once (Table 46). These figures reflect all burned acres within the planning area regardless of ownership.

Table 45. Number of Acres Burned and Ignitions for Fires Greater than Ten Acres, 1987-2006

Fire Year	Acres Burned[A]	Total Number of Fires
1987	71,000	21
1988	3,700	2
1989	2,300	8
1990	3,800	11
1991	11,000	11
1992	21,000	11
1993	720	3
1994	19,000	13
1995	170,000	35
1996	92,000	32
1997	8,100	17
1998	6,900	15
1999	69,000	39
2000	73,000	14
2001	32,000	14
2002	25,000	24
2003	4,900	4
2004	1,600	6
2005	220,000	20
2006	73,000	18
Total	**908,020**	**318**
Average per year	**45,401**	**15.9**

[A] Acres have been rounded.

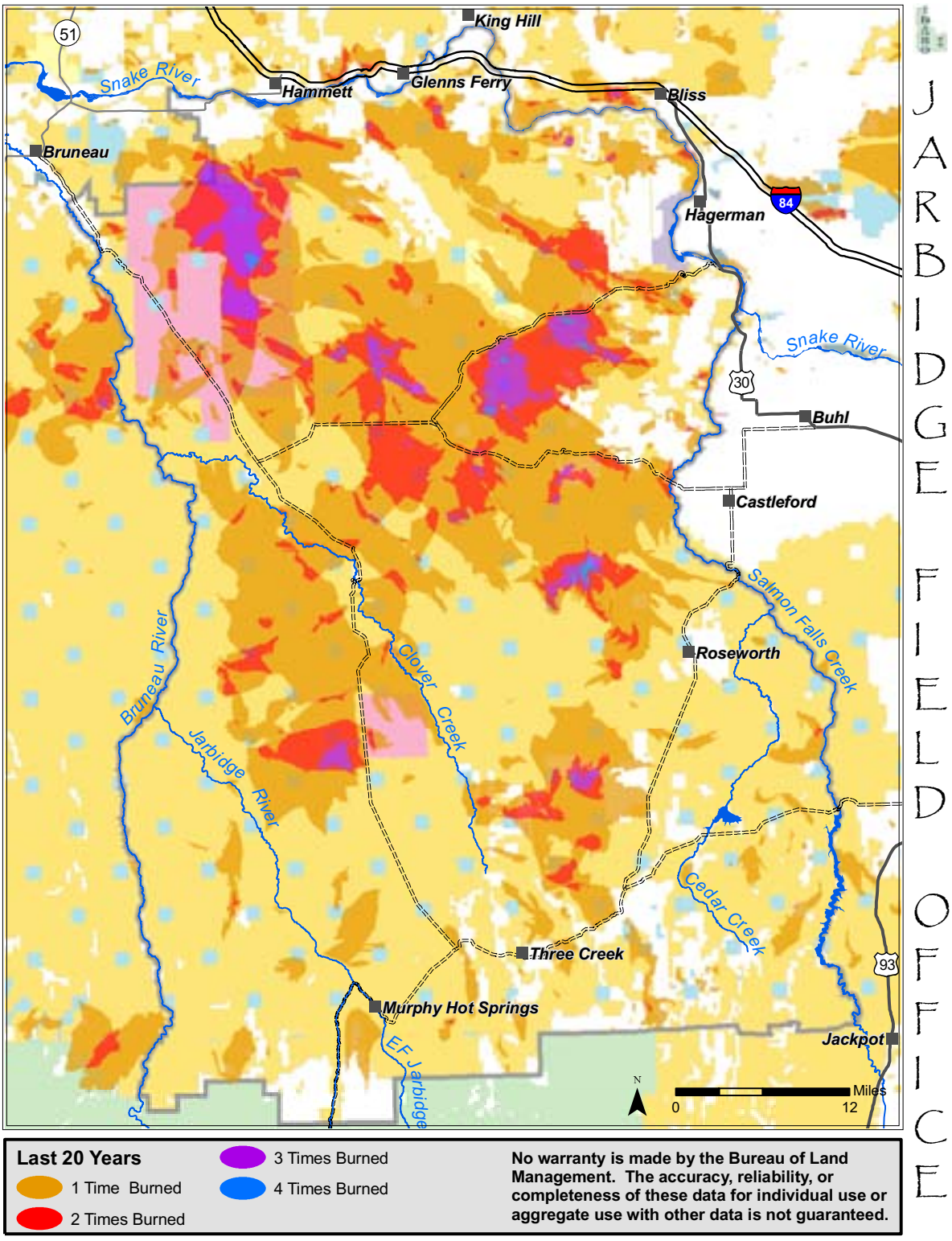
Between 1987 and 2006, 2,20 acres within the planning area burned four times (Table 46; Figure 26). The majority of burned acres, 526,786, only burned once during this 20-year period.

Table 46. Fire Frequency, 1987-2006

Fire Frequency	Acres[A]
Acres burned only once	530,000
Acres burned twice	130,000
Acres burned 3 times	37,000
Acres burned 4 times	2,200
Total Acres	**699,200**

[A] Acres have been rounded.

Figure 26. Fire Frequency, 1987-2006



Between 1987 and 2006, the majority of fire starts within the planning area, 347 out of 625 starts, were caused by lightning (Table 47). This includes all fire starts and not just those that resulted in fires greater than ten acres.

Table 47. Fire Ignitions by Source, 1987-2006

Cause	Number
Human	261
Natural	347
Unknown	17
Total	**625**

Table 48 describes the current vegetation types within the planning area and the historic fire regime they occupy by using Potential Natural Vegetation Group (PNVG). For example, annual grasses, dominated by cheatgrass (*Bromus tectorum*) within the planning area, did not historically occupy any areas. The area currently occupied by cheatgrass would have been sagebrush steppe, giving it a historic fire regime of IV (Table 43).

Appendix 12 outlines the overall FRCC classification for the planning area by PNVG. Two ratings, Fire Frequency-Severity Departure Rating and Vegetation-Fuel Stand Condition Class, are combined to reach an overall Stratum FRCC rating using standard methodology for FRCC[11]. Fire-Frequency-Severity Departure Rating is a representation of the contrast between the existing fire frequency and fire severity and the reference conditions. Vegetation-Fuel Stand Condition Class is a representation of the contrast between the existing condition of a vegetation-fuel class and the reference condition of that class. The greater of those two ratings determines the general FRCC rating for the PNVG type.

The analysis process provides the opportunity to break down the Vegetation-Fuel Stand Condition Class by successional class. Appendix 12 shows the individual class ratings for each PNVG. This appendix demonstrates individual classes may be in FRCC 1 either because there are sufficient or not enough acreage totals in that class. Some portions of the same PNVG are in a FRCC3 because there are too many acres in that successional class or because they are in a successional class that does not normally occur within that historical vegetation type (e.g., cheatgrass or crested wheatgrass). By doing this, the vegetation classes in need of treatment can be identified.

The largest potential vegetation type is Wyoming Sagebrush Steppe. As a whole, this vegetation type is given an overall condition class rating of 2, even though 55.4%, 688,400 acres, of that vegetation type are classified as uncharacteristic and given an individual rating of Condition Class 3.

The Vegetation-Fuel Stand Condition Class is higher than the Fire Frequency-Severity Departure Rating across all vegetation types within the planning area. This means alteration to the vegetation successional classes has had more influence than the changes in fire frequency and severity.

[11] For more information, see the Interagency FRCC website at www.frcc.gov. The Interagecy Fire Regime Condition Class Guidebook can be found at www.frcc.gov/docs/1.2.2.2/Complete_Guidebook_V1.2.pdf.

Table 48. Historic Fire Regimes by Current Vegetation Type Crosswalked to PNVGs

Vegetation Communities[A]	PNVGs	Historic Fire Regime
Agriculture Land	Not Classified	Not Rated
Aspen	Stable Aspen (R2ASPN)	I
Basin Big Sage	Basin Big Sagebrush (R2SBBB)	IV
Barren	Not Classified	Not Rated
Black sage/ bluebunch	Black and Low Sagebrush (R2SBDW)	III
Black sage/bluebunch/Idaho fescue	Black and Low Sagebrush (R2SBDW)	III
Black sage/Idaho fescue	Black and Low Sagebrush (R2SBDW)	III
Bluegrass	Not Classified (160 acres)	Not Rated
Breaks	Not Classified	Not Rated
Evergreen Mountain Brush	Mountain Shrub with tree (R2MSHBwt)	I
Greasewood/Basin Wild Rye	Salt Desert Shrub (R2SDSH)	V
Low sage/Idaho Fescue	Black and Low Sagebrush (R2SBDW)	III
Mountain Big Sage/bluebunch/Idaho fescue	Mountain Big Sagebrush (R2SBMT)	IV
Mountain Big Sage/Idaho Fescue	Mountain Big Sagebrush (R2SBMT)	IV
Mt. Mahogany	Curlleaf Mountain. Mahogany (R2MTMA)	III
No Data	Not Classified	Not Rated
Salt Desert Shrub	Salt Desert Shrub (R2SDSH)	V
Sand Dunes	Not Classified	Not Rated
Semi Wet Meadow	Not Classified	Not Rated
Water	Not Classified	Not Rated
Winterfat/Ricegrass	Salt Desert Shrub (R2SDSH)	V
Wyoming Sage/Bluebunch	Wyoming Sagebrush Steppe (R2SBWYse)	IV
Wyoming Sage/Bluebunch/annual	Wyoming Sagebrush Steppe (R2SBWYse)	IV
Wyoming Sage/Ricegrass	Wyoming Sagebrush Steppe (R2SBWYse)	IV
Wyoming Sage/Thurbers	Wyoming Sagebrush Steppe (R2SBWYse)	IV

[A] See Table 19

The number of fuels and restoration projects within the planning area is increasing in order to help address vegetation issues within the FO. Projects within the fuels program in the past five years have focused on achieving two goals: reducing fire hazard with an emphasis on WUI areas and restoring and/or improving FRCC within the planning area. Since the completion of the 1987 RMP, a approximately 642,000 acres[12] were treated using chemicals, seeding, chaining, and prescribed fire (Table 49). These treatments were completed for a variety of reasons including

[12] This number does not reflect unique acreage. Acres could have been seeded in multiple years.

fuels reduction, WUI, post-fire emergency stabilization and rehabilitation (ESR) and range infrastructure. Records on past vegetation treatments do not consistently identify the reason for those treatments. The majority of treatments were seedings; a total of 588,424 acres[13] were seeded with native or non-native species since 1987.

An active ESR program exists within the planning area. The size of the ESR program is in proportion to the severity of the wildfire season. Emergency stabilization is defined as "planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, to minimize threats to life and property resulting from the effects of a fire, or to repair/replace/construct physical improvements necessary to prevent degradation of land or resources" (620 DM 3.3E). These actions must be taken within one year following containment of a wildland fire. The objective of emergency stabilization is "to determine the need for and to prescribe and implement emergency treatments to minimize threats to life or property or to stabilize and prevent unacceptable degradation to natural and cultural resources resulting from the effects of a fire" (620 DM 3.4A).

Rehabilitation is defined as "efforts undertaken within three years of containment of a wildland fire to repair or improve fire-damaged lands unlikely to recover naturally to management approved conditions, or to repair or replace minor facilities damaged by fire" (620 DM 3.3M). The objectives of rehabilitation are: 1) to evaluate actual and potential long-term post-fire impacts to critical cultural and natural resources and identify those areas unlikely to recover naturally from severe wildland fire damage; 2) to develop and implement cost-effective plans to emulate historical or pre-fire ecosystems consistent with approved land management plans, or, if that is not feasible, to restore or establish a healthy, stable ecosystem in which native species are well represented; and 3) to repair or replace minor facilities damaged by wildland fire (620 DM 3.4B).

Restoration is the continuation of post-fire rehabilitation beyond the initial three years following a wildfire and is outside the scope of the ESR program (620 DM 3.3 N).

Table 49. Vegetation Treatments, 1987-2006

Treatment Type	Acres
Prescribed Fire	6,000
Mechanical	100
Chemical	46,000
Seeding	590,000
Total	**642,100**

The TFD Fire Management program covers BLM and State lands within the Jarbidge FO boundary, as well as fires on private land within the planning area. The staff handles fire management responsibilities such as preparedness, suppression, and extended attack, with dispatching occurring from the South Central Idaho Dispatch Center in Shoshone, Idaho.

The suppression strategy currently in place for the planning area calls for Appropriate Management Response (AMR) on all wildland fires in accordance with management objectives

[13] This number does not reflect unique acreage. Acres could have been seeded in multiple years.

and based on current conditions and fire location. Every wildland fire is assigned an AMR to protect firefighters, the public, and values at risk and to minimize suppression cost. The protection of human life is the single overriding priority, with other priorities such as communities, property and improvements, natural and cultural resource values, human health and safety, and the costs of suppression. AMR can vary from aggressive initial action to monitoring. Currently, no areas within the Jarbidge FO are identified for Wildland Fire Use (WFU), the management of naturally ignited fires to achieve resource benefits where fire is a major component of the ecosystem.

Fire and fuels management activities in the planning area are described in the BLM's Fire Management Plans, which are updated yearly. These documents provide for firefighter and public safety and include fire management strategies, tactics, and alternatives (AMR to wildland fires and identification of areas for WFU). The plan identifies values to be protected and public health issues, describes fuels and restoration projects, and is consistent with resource management objectives. Suppression tactics outlined within the Jarbidge FO Fire Management Plan vary by vegetation type and resource values at risk. Land use management direction from the 1987 RMP is used to drive the direction of the Fire Management Plans.

WUI issues were not addressed in the 1987 RMP; they have emerged as the population begins to expand. Two communities at risk (CAR) within or near the boundaries of the planning area are listed in the Fire Management Plan including Hot Springs[14] and Three Creek. For purposes of the RMP, CAR includes only those listed in the Federal Register on August 17, 2001 (66 FR 43384). Two Community Wildfire Protection Plans were completed within the planning area, one for Twin Falls County and one for Owyhee County. These plans are completed on an interagency basis with participation by BLM.

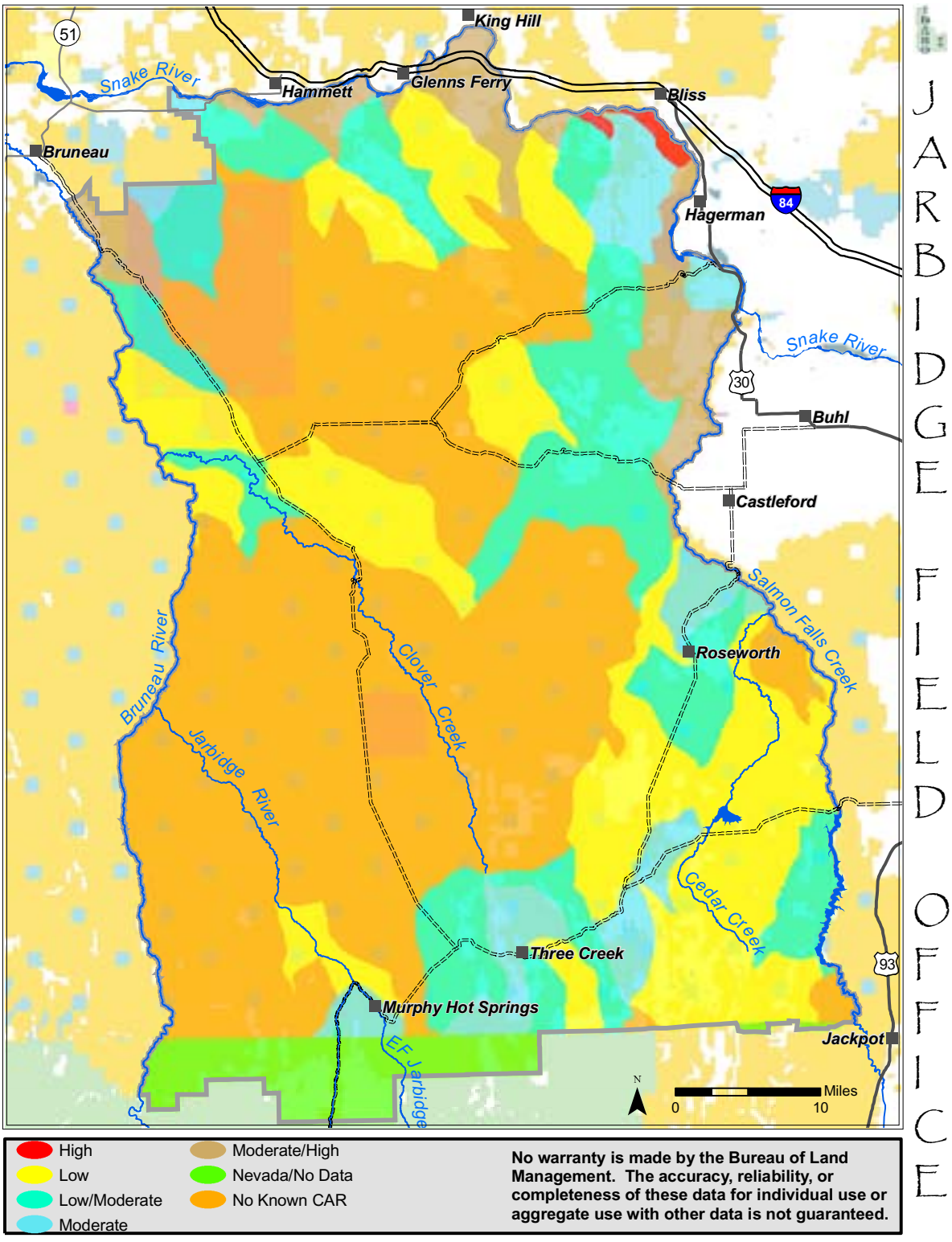
The *2007 Idaho Interagency Assessment of Wildland Fire Risk to Communities* identifies the number of acres in each hazard risk category for the Jarbidge FO, excluding Nevada. Approximately 225,800 acres are rated moderate or higher within the planning area boundary (Table 50, Figure 27).

Table 50. Hazard Risk Rating Acres

Hazard Risk Rating	Acres
Not Rated (Outside inhabited area)	830,000
Low	390,000
Low-Moderate	310,000
Moderate	110,000
Moderate-High	110,000
High	5,800
No data (Nevada acres)	72,000
Total	**1,827,800**
[A] Acres have been rounded.	

[14] The community of Hot Springs is listed in the Fire Management Plan and Federal Register Notice as Bruneau Hot Springs.

Figure 27. Hazard Risk Rating Map



The BLM works with local rural fire departments when possible to reduce the risk of wildland fire in these communities, thereby protecting homes and adjacent Federal lands. The BLM provides wildland firefighter training and assistance with Community Fire Plan development. BLM personnel provide public education through programs including Smokey Bear and fire education programs in schools, Fire Wise programs, and open houses focusing on fire education, fire-safe homes, and WUI community awareness.

Trends

The Potential Natural Vegetation map (Table 22; based on soils information, SSURGO) for the planning area shows the historical dominant vegetation type was Wyoming big sagebrush/Thurbers needlegrass, occupying a total of 48% of the planning area. The current vegetation map shows it occupying only approximately 35,000 acres or 2.2% of the planning area. Conversely, the most significant increase in vegetation type from potential within the planning area is with crested wheatgrass vegetation types. The crested wheatgrass vegetation type increased from 0 potential acres to approximately 300,000 current acres, or 19.6%, while the Wyoming big sagebrush/crested wheatgrass type increased from 0 potential acres to approximately 57,000 current acres, or 3.7%.

The connection between current and historical vegetation, FRCC, and land treatments are apparent. The low elevation shrub type (e.g., Wyoming sagebrush) is classified as FRCC 2, indicating the area burns too frequently. The majority of the historic Wyoming sagebrush vegetation type was reseeded after fires using crested wheatgrass and is now following the fire regime for perennial grasses, Fire Regime 2. The reference fire frequency for Wyoming sagebrush is 75 years and the current fire frequency based on fire polygons is 43.68 years.

Figure 28 shows the acres burned annually from 1970 to the present. Fire records became consistent in 1970, making it the logical choice for a starting date. There is no statistically significant trend[15] in the number of acres burned that time period.

The average annual acreage burned for the 15-year period from 1971 to 1985 (Green, 1985) is similar to the average annual acreage burned from 1992-2006. The average annual acreage from 1971 to 1985 was approximately 67,000, decreasing to approximately 54,000 acres from 1992-2006. There is a slight increase in the average annual ignitions based on a 12-year average from 1974-1985 to 1995-2006. The average annual ignition from 1974-1985 was 16.6, increasing to 19.8 from 1992-2006. Acreage differences could be a result of improved mapping and an increase in fire suppression capabilities. This would have a direct impact on the size of the fire, but not necessarily the number of ignitions.

[15] r=.081

Figure 28. Acres Burned by Year, 1970-2006

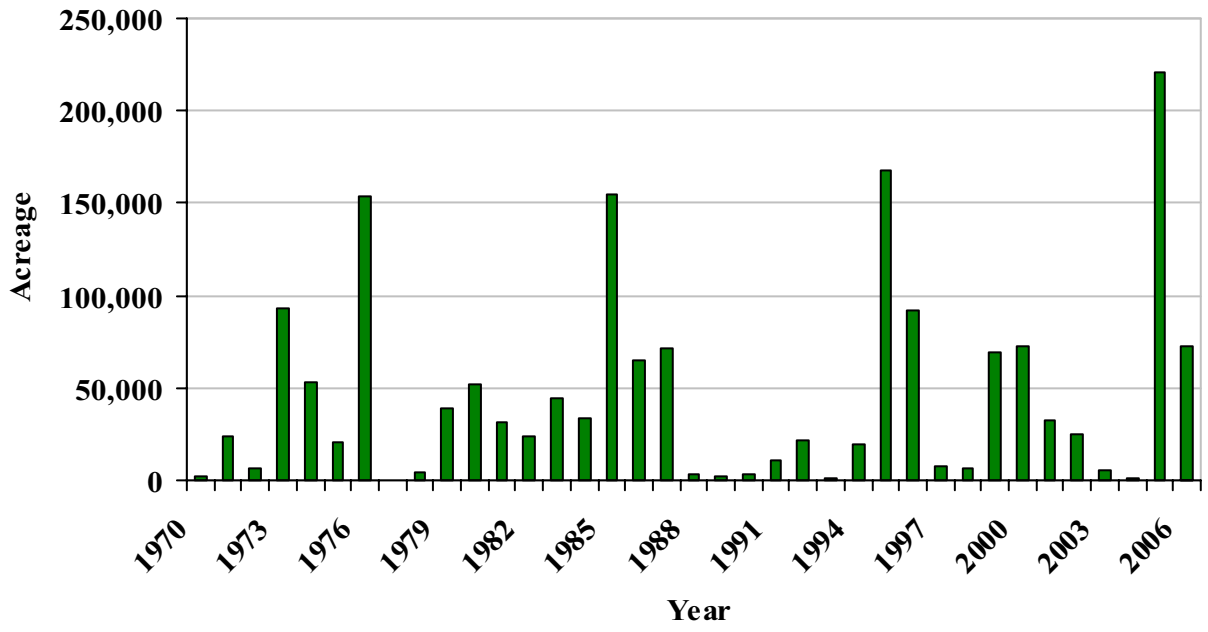


Figure 29 shows fire ignitions by year from 1970 to the present. Once again, 1970 was chosen as the starting year since it is the point at which the recording of fire ignitions for the district became consistent. There is no statistically significant trend for ignition data[16].

There is a correlation between the number of acres burned and precipitation. Data provided by the National Weather Service for the Twin Falls area for 1970 to 2006 show the year following a high precipitation year tends to have more acres burned. Years with lower precipitation tend to have fewer acres burned the following year. This could be explained by the lack of fine grasses present to carry fire due to the low precipitation (Figure 30).

[16] r=.067

Figure 29. Fire Ignitions by Year 1970-2006

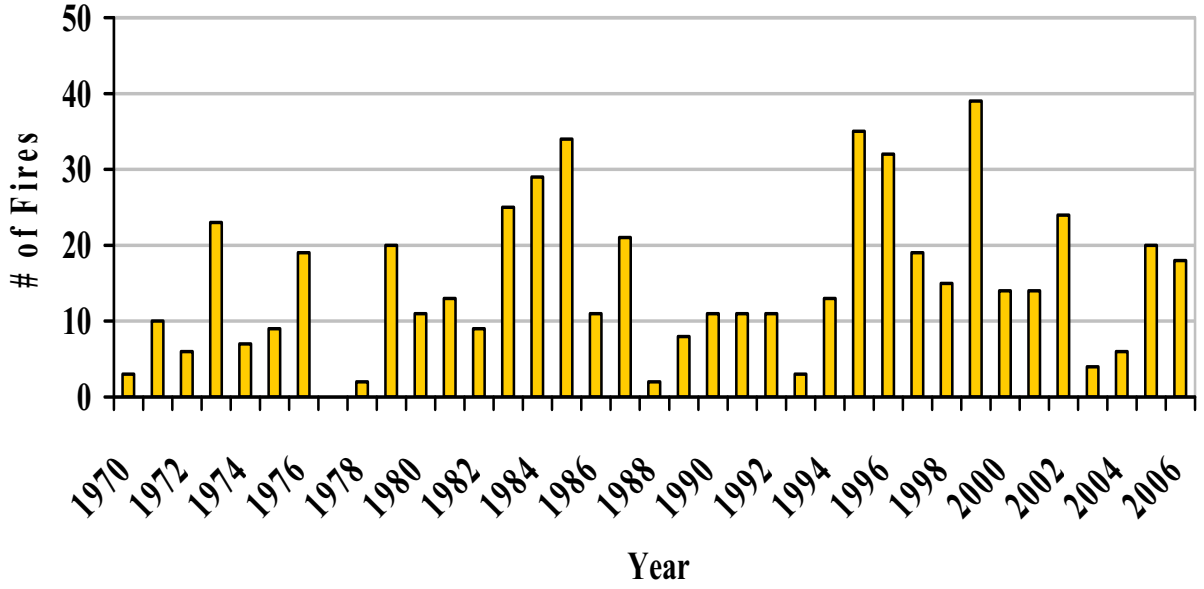
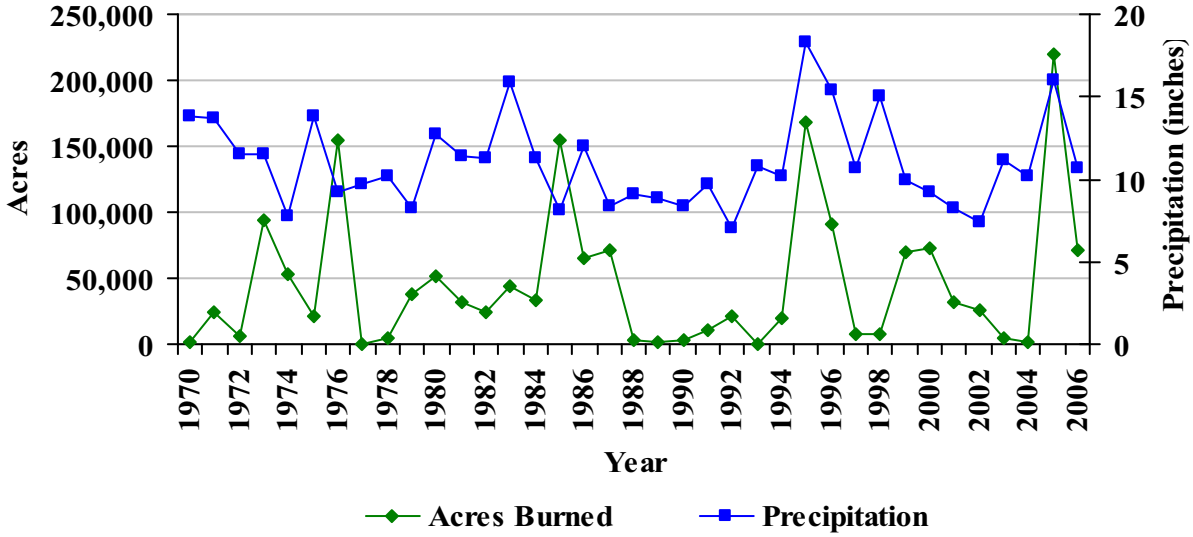


Figure 30. Precipitation and Fire Acreage Burned



Forecast

Current management does not lend itself to dealing with fires within the planning area. The total numbers of acres treated yearly under the fuels and ESR programs do not address large-scale ecosystem management issues such as the loss of soil and native vegetation. Increased fire frequency, limited funds for ESR and fuels treatment projects, limited seed availability, and the changing climatic conditions make restoration of damaged ecosystems difficult.

It is unknown whether actions taken on the ground within the northern portion of the FO using current management direction would result in a change in condition class within the life of the revised RMP. Some literature challenges our ability to return areas converted to non-native annual grasses to the original natural vegetation group as a result of long-term climate change and the passing of a physical or biotic threshold that will not allow transition back to the previous state (Roundy, 2005; West, 1999). There are nearly 170,000 unique acres within the planning area that burned at least twice between 1987 and 2006 (Table 46). Acres that have burned numerous times may have crossed the threshold for restoration potential.

The majority of areas currently classified as FRCC 2 and 3 will most likely continue in an accelerated fire-return interval under current management practices. Areas classified as FRCC 2 may gradually shift to FRCC 3, especially given the full suppression strategies and fuels capabilities outlined in the current Fire Management Plan. Without an increase in the prescribed fire and mechanical treatment programs in FRCC 2 areas, especially those concentrated in the southern portion of the planning area, fuel loads will continue to build and, more than likely, burn under stand replacement conditions. Vegetation within those areas could be permanently altered without proper rehabilitation treatments following wildland fire.

WUI issues are expected to increase within the planning area as the population base and interest in public land use grows. While the majority of the planning area is far removed from private land, it is currently used by members of the public for hunting, fishing, recreation, and other authorized and permitted uses. Ensuring the public understands the importance of BLM land, native vegetation, and the role fire plays in ecosystem management will be crucial as the population grows and use increases.

Key Features

Vegetation values are the most applicable drivers for determining key features associated with fire within the planning area, especially areas with an intact native vegetation component.

The Jarbidge River, Salmon Falls Creek, and Bruneau River/Sheep Creek WSAs require alternative fire suppression techniques, as well as special attention during fuels and ESR projects. These areas should be managed to ensure suitability for wilderness designation.

Three ACECs within the planning area require special attention to fire management. The Sand Point, Bruneau-Jarbidge River, and Salmon Falls Creek ACECs currently call for suppression using Minimum Impact Suppression Techniques (MIST). MIST techniques should also be applied when working within the Oregon NHT corridor. Examples of MIST techniques include using the minimum amount of line construction necessary to suppress the fire, cutting brush and trees flush to the ground, minimizing the number of snags felled, and using natural barriers where possible to create a firebreak. Suppression, ESR treatments, and fuels reductions projects within these areas should be modified to address the special features for which the ACEC was created.

Current Management

The 1987 Jarbidge RMP prescribed full fire suppression for the entire FO. The FO is currently

managed under AMR, which includes full suppression and a range of suppression techniques. A Fire Management Plan is completed and updated yearly. The plan includes prohibiting mechanized equipment on Oregon NHT segments, specific paleontological sites, WSAs, river canyons, and ACECs. Fire lines are also prohibited across the Oregon NHT. Priorities for fire suppression are safety, personal property, and resource values.

The 1987 Jarbidge RMP identified acreage amounts for rehabilitation of existing burns. The need for fire rehabilitation is assessed on each fire. Acreage targets under the 1987 RMP have been exceeded.

Management Opportunities

Current management direction does not address changing conditions on the landscape and management actions such as fuels and ESR treatments that may take place to address the landscape level issues. Desired outcomes need to address the altered fire return intervals within the planning area as well as how management affects the FRCC of the landscape.

Fire suppression for Saylor Creek Range and Juniper Butte Range are managed under an agreement with MHAFB (see Military).

While the 1987 Jarbidge RMP called for full fire suppression, some areas of the FO, especially those in FRCC 2, could use prescribed or wildland fire under appropriate conditions to maintain their condition class or move to a lower class. Options to use AMR in Fire Management Plans could allow suppression strategies ranging from full suppression to monitoring.

Prohibitions on mechanized equipment for fire suppression and fuels treatments could be expanded to include habitats for special status species including sage-grouse, pygmy rabbits, and slickspot peppergrass.

ESR efforts could focus on maintaining those areas with an intact native vegetation component. Restoration efforts could focus on areas previously converted to seedings and non-native annual grass. In general, native vegetation should be managed to promote ecosystem diversity and ensure connectivity between the remnant native patches.