

timber sales on these lands. Mineral rights on the ceded strip also remain held in trust by the United States for the benefit of Crow Tribal members. BIA has initial attack responsibility for trust lands on the ceded strip and functions in an assist role to the three Montana counties (Yellowstone, Big Horn, and Treasure Counties) that coordinate initial attack on the ceded strip.

3.4 FMU 005 Rangeland – (C-B)

These areas are similar ecologically to the south-central Montana Sage and Grass FMUs outside the Reservation border: dry, semi-arid shortgrass prairie. The Rangeland FMU encompasses a total of 1,049,490 acres. Much of this area's uplands were dry-farmed in the 1920's as part of the largest wheat farm in the world, Campbell Farming Corporation. Today that land is divided among grazing, wheat and badlands. Native grasses have been largely replaced by introduced and replanted vegetation.



Figure 5 – East end of the Pryors, overlooking the semi-arid prairie.

(a) Fire Occurrence

This FMU fire history for the twenty two year period experienced 895 fires burning 37,931.5 acres. The average size fire was just over 40 acres. There were 715 human caused fires that burnt 27,325.1 acres and 180 natural caused fires that burnt 10,606.4 acres.

(b) Objectives/Desired Future Conditions

Management objectives include protects and improve the range and agriculture resources of the Crow Tribe and its Allotees. Minimize the spread of noxious weeds during suppression and prescribed burn activities. Include effective collaboration with local fire departments to contain unplanned fires. Managing this FMU will be a challenge with the land ownership being intermingled consisting of tribal, and allotted, commonly described as checkerboard.

Fire Regime/Condition Class for this FMU:

Vegetation Type	Historical Fire Regime	Current Condition Class	Desired Condition Class
Rangeland	II	2 or 3	1 or 2
Riparian	III	2 or 3	1 or 2

(c) Fire Management Strategy

The fire suppression objective for FMU 005 (Rangeland) is to contain 90% of all human-caused wildland fires to less than 200 acres at all fire intensity levels. Use an analyzed management response to implement protection objectives in accordance with management objectives based on current conditions and fire location. Use prescribed fire, fire use, mechanical, chemical, biological, and cultural treatments that will enhance or maintain desired conditions. Management response strategies would be tailored to address areas of significant constraints including Areas of Critical Environmental Concern (ACECs), critical habitat for T&E species, areas of soil instability, and areas of other critical resource constraints.

(d) Management Constraints

The Crow Reservation's checkerboard land ownership pattern constrains the execution of the fire management program. The intermingling of allotted, tribal, and deeded tracts makes it much harder to acquire agreement from landowners for management practices such as prescribed fire and mechanical fuel reduction treatments. Another constraint to be considered is the economic impact that fuels treatments could have on landowner income. Grazing is the major source for income over most of FMU 005. Any action that reduces this income would likely be resisted by landowners, regardless of what resource benefits would be gained. Developments in the rangeland include many high-voltage power transmission lines, cell phone towers, propane tanks, natural gas pipelines, and other WUI hazards.

(e) Topographic Features

The majority of the FMU is prairie, with isolated hardwood brush and timber along the rivers and streams. A prominent ridge lying in the southwest portion of the FMU is commonly referred to as the Wild Horse Ridge. Most of the prairie was plowed historically. Several creeks are located in this FMU including Fly, Telegraph, North and South Fork Two Leggins, Big and Little Woody, Beauvais, East Pryor, West Wets, East Fork Pryor, and Flat Creeks. On the eastern

boundary of this FMU runs the Bighorn River, and to its north, the Two Leggins Canal. On the western side lies the large north-draining valley of Pryor Creek.

(f) Access

Partially within the north boundary is Old Highway 87, which provides access to a majority of the north end of this unit. To the north of the FMU is Interstate 90, which lies outside the reservation boundary but accesses the FMU from the South Billings Blvd., Lockwood, Fly Creek, Toluca and Hardin exits.

State Highway 313 provides access from Hardin southwest to St. Xavier, Fort Smith and the Bighorn Canyon Recreational Area. At St. Xavier, Route 313 meets BIA Route 91 from St. Xavier to Pryor, commonly referred as the "cut across," which runs east and west. To the west, the Pryor Creek Road runs north-south to provide access from Billings to Pryor (via Blue Creek Road from South Billings Blvd., or Highway 87 from Lockwood). The above routes interconnect and provide hard surface access for most vehicle types. The majority of the prairie (range) land is accessible by all-wheel drive, but steeper areas exist in some river break and badland areas, making access and control of some lightning fires difficult. Wet weather makes many two-tracks slick and boggy, or almost impassable.

(g) Protected Values

Life and WUI: Communities include Pryor, St. Xavier, and Fort Smith. Most other habitation is isolated homesteads in creek bottoms and creek valleys. Drainages include Pryor Creek valley, Hay, Beauvais, Woody, Soap, Rotten Grass, Lodge Grass, and Pass Creeks, and other creeks, as well as the broad valley of the Bighorn River between Ft. Smith and Hardin. Ground response times to grass fires can be more than one hour, but Crow's helitack operating July-September can reach most areas within 30 minutes.

Timber: The only timber in this FMU is non-commercial juniper on uplands, and ash and cottonwood in valleys.

Range/Agriculture: Today the land is divided among grazing, agriculture fields and badlands. Native grasses have been largely replaced by introduced and replanted vegetation. In August at the height of fire season, legions of combines harvesting wheat cross the FMU, often plowing around fires they have started, as BIA resources arrive.

Culture/Historical/Religious: These areas have unique cultural elements, including many historic battle sites and cultural sites. Many sites are unmarked and not generally advertised. A resource advisor or archeologist should be consulted on all fires in the rangeland.

General Climate/Weather: The Reservation has a modified continental climate and is characterized by hot summers and cold winters. Summer temperatures often exceed 100 degrees F. Dry lightning storms during the summer months are fairly common. Gustly winds are common in and around these thunderstorm cells. For a more detailed description of the local weather, the reader is referred to the Crow Agency Forest Management Plan.

(h) Political Boundaries

Adjoining IA forces include Bighorn County, Yellowstone County, Lockwood Volunteer Fire Department (VFD), Blue Creek VFD, Carbon County, and Edgar VFD. The National Park Service sponsors structural and wildland engines at Fort Smith, to assist near Bighorn Canyon National Recreation Area. Local farmers and ranchers often carry suppression equipment.

(i) Fuel Types

FMU 005 is characterized by a continuous perennial grass fuel type, dissected by cottonwood stands along the rivers, and is represented by National Fire Danger Rating System (NFDRS) Fuel Model L. Scott's 40 fuel models mainly include NB3, GR2, and SH5. Today the land is divided among grazing, wheat and badlands. Native grasses have been largely replaced by introduced and replanted vegetation.

(j) Proposed Treatments

Assist the range management staff in burning 100-500 acres or more of rangeland per year for range improvement, and noxious weed control. Mowing, mulching, thinning and burning in non-private WUI areas.

3.5 FMU 007 Fire Alley – (C-B)

This FMU is the most densely populated swath of the Reservation. Interstate 90, US Highway 87 (the major highway before the interstate was built), and the Burlington Northern Santa Fe railroad all run the length of this corridor. The Fire Alley FMU encompasses a total of 380,757 acres. From the Wyoming border northward, communities of Pass Creek, Wyola, Spear Siding, Lodge Grass, Sand Creek, Benteen, Garryowen, Crow Agency, Dunmore, Black Lodge, and Hardin lie within this FMU. Schools, day cares, clinics, and community halls are strung along the valley.



Figure 6 – Railroad and highway, housing and communities, surrounded by agricultural and grazing lands lie in Fire Alley (Crow Agency).

(a) Fire Occurrence

This FMU fire history for the twenty two year period experienced 1,639 fires burning 46,898.3 acres. The average size fire was slightly less than 30 acres. There were 1,534 human caused fires that burnt 39,043 acres and 105 natural caused fires that burnt 7,855.3 acres.

(b) Objectives/Desired Future Conditions

The management objective for this FMU will primarily protect life and property, and reduce incidence and size of human-caused fires. Minimize the spread of noxious weeds during suppression and prescribed burn activities. Include effective collaboration with local fire departments to contain unplanned fires. Managing this FMU remains a challenge with the land ownership being intermingled tribal, allotted, and deeded lands. In addition this corridor has scattered home sites throughout, mostly with agricultural farm type operations with irrigation systems. Many fires result from individuals burning irrigation ditches, fields, or trash, as well as vehicle and railroad causes, juveniles, and fireworks.

Fire Regime/Condition Class for this FMU:

Vegetation Type	Historical Fire Regime	Current Condition Class	Desired Condition Class
Rangeland	II	2 or 3	1 or 2
Riparian	III	2 or 3	1 or 2

(c) Fire Management Strategy

The fire control objective for FMU 007 (Fire Alley) is to contain 80% of all human-caused wildland fires to less than 50 acres at all fire intensity levels. Although more than 90% of fires in the FMU are human-caused, the FMU includes areas that have seen grassland fires of several thousand acres historically. Use an analyzed management response to implement protection objectives in accordance with management objectives based on current conditions and fire location. Use prescribed fire, fire use, mechanical, chemical, biological, and cultural treatments that will enhance or maintain desired conditions. Management response strategies would be tailored to address areas of significant constraints including Areas of Critical Environmental Concern (ACECs), critical habitat for T&E species, areas of soil instability, and areas of other critical resource constraints.

(d) Management Constraints

The Burlington Northern Santa Fe railroad runs the length of the FMU, and trains often prevent crossing the track right-of-way. Little Bighorn Battlefield National Monument has fire management constraints that reflect archeological values. Developments in the valley and benchlands include many electrical lines, propane tanks, natural gas pipelines, and other WUI hazards. Haz-mat concerns from corporate transportation are prominent along I-90, US 212, and the railroad.

(e) Topographic Features

Fire Alley follows the Little Bighorn valley south from the Bighorn River to Pass Creek valley and the Wyoming border. Benches rise east and west of the River, and include rolling hills accessed by two-tracks, and some steep ridges, arroyos and coulees. Several creeks are located in this FMU, including Onion, Shoulder Blade, Bear-in-Middle, Nest, North and South Sand, Sunday, North and South Good Luck, Alligator, Pass, North and South Reno, Shavings, Grey Blanket, Owl and Half Way Creeks.

(f) Access

The major route through this FMU is Interstate 90, running north-south from the northern boundary of the reservation to the Montana/Wyoming border. Highway 87 runs parallel to I-90 on its west side, through the Little Horn valley. On the east side of I-90, an east frontage road also runs north and south from the Sarpy road to Garryowen. From I-90, US Highway 212 runs west to east toward Busby. This route splits the North and South Wolf Mountain FMU. Roads and two-tracks lead to structures and developed areas, which is where most fires occur. Rural residences may have narrow driveways or be behind locked gates.

(g) Protected Values

Life and WUI: The developed corridor of the Little Bighorn River valley runs from the Bighorn River, south of the Reservation boundary at the city limits of Hardin, south fifty miles past the town of Wyola, near the Wyoming border. The great majority both of the Reservation population and of human-caused fires lie within this unit. The greatest risk to human safety and to structures from wildland fires is also here.

Interstate 90, US Highway 87 (a major highway before the interstate was built), and the Burlington Northern Santa Fe railroad all run the length of this corridor, past the neighborhoods of (from north to south) Hardin, Black Lodge, Dunmore, Crow Agency, Garryowen, Reno Creek, Benteen, Sand Creek, Lodge Grass, Spear Siding, Wyola, and Pass Creek. Schools, day cares, clinics, and community halls are strung along the valley. US Highway 212, a major road access to the Northern Cheyenne Reservation and eastern states, runs east from I-90 to the Reservation border. Ground response times to grass fires can be more than one hour, but the helitack operating July-September can reach most areas within 30 minutes.

Timber: The only timber in this FMU is non-commercial juniper on uplands, and ash and cottonwood in valleys.

Range/agriculture: Farming and harvesting activities are widespread both in the irrigated valleys and on the bench lands. Pasturelands support grazing on the benches.

Culture/historical/religious: Each summer, Crow Fair creates the Tipi Capital of the World in the third week of August on the east bank of the Little Big Horn in Crow Agency. A multi-agency Crow Fair response plan is updated annually. Community halls, social and traditional religious functions take place throughout the year on each Reservation district. Little Bighorn Battlefield National Monument is under the fire protection of Crow Agency BIA, and receives about a

million visitors each summer. Numerous cultural sites are not advertised but will receive attention from a resource advisor in case of an incident affecting the site.

General Climate/Weather: The north end of Fire Alley is hotter and drier than most of the Reservation. Dry lightning storms with gusty outflows during the summer months are fairly common across the FMU. Typical winds are southwest. For a more detailed description of the local weather, the reader is referred to the Crow Agency Forest Management Plan.

Political boundaries: Big Horn County responds to all fires in the FMU, and to the north of the Reservation. The Crow Tribe supports structural engines in Crow Agency, which also respond elsewhere across the Reservation. Ranchester VFD can respond to fires along the Wyoming border.

(h) Fuel Types

FMU 007 is characterized by a continuous perennial grass fuel type, dissected by cottonwood stands along the rivers, and is represented by National Fire Danger Rating System (NFDRS) Fuel Model L. Scott's 40 fuel models mainly include GR1, GR2, GS1 and GS2, and SH9. Today the land is divided among dry and irrigated farming, grazing, and homesites. Native grasses have been largely replaced by introduced and replanted vegetation.

(i) Proposed Treatments

Use prescribed fire and mechanical treatments such as mowing, mulching, and thinning to treat 50-100 acres or more per year in Wildland Urban Interface areas to reduce fuel accumulations around structures.

3.6 FMU 008 Wolf Mountain North/South – (C-C)

The Wolf Mountains lie in a north-south alignment near the east boundary of the reservation and extend from the central portion to the southeast corner of the reservation at an elevation range between 3,800' and 5,365'. The Wolf Mountain North/South FMU encompasses 259,420 acres. To the north of the Wolfs lies an area in the northeast corner of the Crow Reservation known as the Sarpy Hills. The Sarpy Hills are separated from the Wolfs by a narrow divide northwest of Davis Creek, where Highway 212 passes through pine-covered hills.



Figure 7 – Wolf Mountains – Top of a ridge looking into Corral Creek. (Photo by CFI Crew)

(a) Fire Occurrence

Wolf Mountain North – The fire history for the twenty two year period experienced 27 fires burning 2,668.4 acres. The average fire size was approximately 100 acres. There were 8 human caused fires that burnt 55.8 acres and 19 natural caused fires that burnt 2,612.6 acres.

Wolf Mountain South – The fire history for the twenty two year period experienced 143 fires burning 13,160.3 acres, again an average of close to 100 acres. There were 41 human caused fires that burnt 12,207.1 acres and 102 natural caused fires that burnt 953.2 acres.

(b) Objectives/Desired Future Conditions

The primary management objective is to enhance and protect timber and range land resources. Minimize the spread of noxious weeds during suppression and prescribed burn activities. In the south FMU the desired future condition is to obtain and manage fuel loadings and timber stocking to near normal or historical levels. This FMU is primarily ponderosa pine timber and is a revenue source for the Crow Tribe.

Fire Regime/Condition Class for this FMU:

Vegetation Type	Historical Fire Regime	Current Condition Class	Desired Condition Class
Rangeland	II	2 or 3	1 or 2
Ponderosa Pine	I	2 or 3	1 or 2
Riparian	III	2 or 3	1 or 2

(c) Fire Management Strategy

The fire control objective for FMU 008 (Wolf Mountains North & South) is to contain 90% of all human-caused wildland fires to less than 100 acres at all fire intensity levels. Use an analyzed management response to implement protection objectives in accordance with management objectives based on current conditions and fire location. Use prescribed fire, fire use, mechanical, chemical, biological, and cultural treatments that will enhance or maintain desired conditions. Management response strategies would be tailored to address areas of significant constraints including Areas of Critical Environmental Concern (ACECs), critical habitat for T&E species, areas of soil instability, and areas of other critical resource constraints.

(d) Management Constraints

The Crow Reservation's checkerboard land ownership pattern constrains the execution of the fire management program. An extended attack fire commonly covers land of several different ownership types. The intermingling of allotted, tribal, and deeded tracts makes it harder to acquire agreement from landowners for management practices such as prescribed fire and mechanical fuel reduction treatments. Major sources for income over most of this FMU are timber and grazing activities. Any action that reduces this income would almost certainly be resisted by landowners, regardless of what resource benefits would be gained. Power lines, pipelines, cell towers and other developments exist in the FMU.

(e) **Topographic features**

North – This FMU lies primarily in the northeast corner of the Reservation in the upper region of the Little Bighorn valley. Benches rise east and west of the River, and include rolling hills accessed by two-tracks, and some steep ridges, arroyos and coulees. A small section of the Sarpy Mountains protrudes onto the Crow Reservation. Several creeks are located in this FMU such as Ash, East and West Tullock, and Sarpy Creeks.

South – This FMU lies primarily in the central and southwest portion of the reservation and contains the Wolf Mountains. The Wolf Mountains run the entire length of the FMU and are nestled on the eastern boundary of the reservation. Several creeks and larger drainages include Reno, Davis, Thompson, Corral, Cache, Spring, Indian, Sioux Pass, Little Owl, Bear and Little Bear, and Young's Creeks.

(f) **Access**

North – Route 384, the Sarpy road, provides access to the northern portion of this FMU with the West Fork Tullock road, a county road, providing access south into the unit. Another county road called Castle Rock road provides ranch access on the eastern section running north and south. On the southern end, county roads on Custer Creek and Ash Creek provide access. The remaining road network is suitable for 4-wheel drive vehicles, but other accesses are very limited.

South – I-90 provides access to the entire length of the west portion of this FMU, with BIA road 85, and county roads on Grey Blanket and Owl Creek, providing easterly access from I-90 at the town of Lodge Grass. The remaining road network is suitable for 4-wheel drive vehicles access to this FMU, but other accesses are very limited.

(g) **Protected Values**

Life: Suppression response strategies will be based on site priorities that factor in the ecological target stand condition; values at risk, potential fire behavior and predicted fire effects. Where fire has played its natural role in the low-elevation ponderosa pine ecosystem, values at risk are low.

Timber: The main commercial uses of this FMU are timber harvesting, grazing, and hay production.

Range/agriculture: Commercial uses of this FMU include grazing and hay production.

Culture/historical/religious: Cultural and religious resources on the Crow Indian Reservation encompass a wide range of tangible and intangible resources that not only include the standard definitions of archaeological and historical sites, but also sites and areas of broader cultural significance. The Wolf Mountain ranges remain culturally and spiritually important to the Crow Tribe. These areas continue to be used for fasting, purification and Sundance purposes.

Wildland Urban Interface (WUI): Several homesites and ranch headquarters exist.

General Climate/Weather: The Crow Indian Reservation has a modified continental climate and is characterized by hot summers and cold winters. Summer temperatures can exceed 90 degrees F., although the Wolfs receive about 30" of precipitation mostly as snow. Dry lightning storms during the summer months are fairly common, starting most of the fires in the Wolf Mountains. Gusty winds are common in and around these thunderstorm cells. For a more detailed description of the local weather, the reader is referred to the Crow Agency Forest Management Plan.

Political boundaries: The Northern Cheyenne Reservation adjoins this FMU to the east, and shares use of Crow's helicopter through the summer.

(g) Fuel Types

This area is characterized by a mixture of ponderosa pine lands and savannah, with interspersed grass, brush, slash, and Aspen stands. This area is characterized by NFDRS Fuel Models C (pine/grass), and K (pine/light slash). Scott's 40 fuel models SH1, SH5, NB2, GR2, TL8, and SB1 are represented in this area. Fire spread in the North and South Wolf Mountains is through grass and pine litter, with some areas of dead and downed woody fuels. Fires in this fuel type have a slower rate of spread, but are generally harder to control, due to more limited access, heavier fuel loadings, and extended mop-up operations. Crown fires are not common and generally would be dependent on a heavy fuel loading or brushy fuel ladder in the understory. Under low humidity, fire climbs the flaky bark, causing some "torching." Fuel loadings vary greatly, from light pine litter and grass, to old harvest areas, bug-killed patches of timber, and blowdown in some areas.

(h) Proposed Treatments

Use prescribed fire, mechanical treatment, and/or a wildland fire use fire to treat 80-100 or more acres per year in the North and South Wolf Mountains (on an experimental basis) to control hawthorn (*Crataegus spp.*), increase natural regeneration, and reduce fuel loadings and fire intensity levels.

3.7 FMU 011 Pryor Mountains – (C-C)

The limestone-based Pryor Mountains have flat to rolling mountain tops with narrow, steep dissecting canyons. Elevation ranges from 4,500 feet above sea level at Dry Head Creek to 7,343 feet near Crater Lake. The Pryor Mountain FMU encompasses a total of 207,376 acres. The mountain tops and steep valley sides are forested but give way to prairies at lower elevations. They are drained to the north by Pryor Creek, to the east by the Bighorn River, and to the south and west by Sage Creek, which flows into the Clark's Fork of the Yellowstone River and then into the Yellowstone River.



Figure 8 – (Pryor's) Photo near Crown Butte; showing Douglas-fir in the foreground and lodgepole pine and aspen on a distant ridge. (Photo by Bob Dillon)

(a) Fire Occurrence

This FMU fire history for the twenty two year period experienced 71 fires burning 11,166.3 acres. The average fire size was just over 150 acres. 16 human caused fires burnt 9,558.7 acres and 56 natural caused fires burnt 1,607.6 acres.

(b) Objectives/Desired Future Conditions

The primary management objective is to enhance and protect timber and range land resources. Minimize the spread of noxious weeds during suppression and prescribed burn activities. In the south FMU the desired future condition is to obtain and manage fuel loadings and timber stocking to near normal or historical levels.

Fire Regime/Condition Class for this FMU:

Vegetation Type	Historical Fire Regime	Current Condition Class	Desired Condition Class
Rangeland	II	2 or 3	1 or 2
Ponderosa Pine	I	2 or 3	1 or 2
Riparian	III	2 or 3	1 or 2
Lodgepole	IV	1, 2 or 3	1 or 2
High Elevation pine-spruce -fir	V	1 or 2	1 or 2

(c) Fire Management Strategy

The fire control objective for FMU 011 (Pryors) is to contain 85% of all human-caused wildland fires to less than 50 acres at all fire intensity levels. Use an analyzed management response to implement protection objectives in accordance with management objectives based on current conditions and fire location. Use prescribed fire, fire use, mechanical, chemical, biological, and cultural treatments that will enhance or maintain desired conditions. Management response strategies should be tailored to address areas of significant constraints including Areas of Critical Environmental Concern (ACECs), critical habitat for T&E species, areas of soil instability, and areas of other critical resource constraints.

(d) Management Constraints

The major source for income over most of FMU 011 is income derived from grazing. Any action that reduces this income would almost certainly be resisted by the tribe, regardless of what resource benefits would be gained. There has been a long standing issue with access to the Pryor Mountains. A locked gate across a county road called Pryor Gap road has been permanently locked by a local resident, thus preventing access to a majority of the Pryor Mountains. Since about 2004, access is typically accomplished by driving on gravel west of Pryor through Edgar and Bridger, Montana and traveling through the “back side” top of Pryor Gap to enter the Reservation on its extreme southwest corner. This makes ground response times to fires about two hours from Pryor, or more than three hours from Crow Agency.

(e) Topographic Features

The Pryor Mountains consist of flat timbered plateaus of lodgepole pine and heavily timbered steep slopes. For a detailed description of the reservation topography, the reader is referred to the Crow Reservation Forest Management Plan. Several creeks located in this FMU include Willow, Bird, East Pryor, Pryor, Spring, Flat, Grapevine, and Dry Creeks.

(f) Access

Access to this FMU is primarily the Pryor Creek road, BIA Route 418, that provides access from Billings to Pryor and runs in a north/south direction. From Crow Agency, BIA Route 1 and MT Highway 313 reach BIA Route 91 at st. Xavier, commonly referred as the "cut across," which runs west to Pryor and provides limited access to this FMU. The remaining road network is suitable for 4-wheel drive vehicles, but other accesses are very limited. To reach remote areas, response times by ground are more than two hours from either Crow Agency or Pryor. Helicopter response time is at least 30 minutes from Crow Agency. Because the Pryors are mostly limestones, water sources in the Pryors are limited to a small pond called Crater Lake, and to high tanks set up in creek bottoms. Creeks and tanks exist on the prairies near the mountains.

(g) Protected Values

Life: Suppression response strategies will be based on site priorities that factor in the ecological target stand condition, values at risk, potential fire behavior, and predicted fire effects. In some areas where fire plays a natural role in the ecosystem, values at risk are low, fire may have been excluded for a generation, and readmitting fire to the landscape will result in less severe fire effects from future fires, suppression strategies will be to manage the fire actively but without putting firefighters unnecessarily at risk.

Timber: The entire area is in reserved status and management will be limited to hazardous fuel treatments.

Range/agriculture: There are 1,089,783 acres leased for grazing on the Crow Reservation. The grazing period or season of use is from June 1 through October 31, except for the range unit in Garvin Basin, which can be used almost anytime during the year. There are 32 range units in the Pryor and Bighorn Mountains, totaling 195,300 acres.

Culture/historical/religious: Cultural and religious resources on the Crow Indian Reservation encompass a wide range of tangible and intangible resources that not only include the standard definitions of archaeological and historical sites, but also sites and areas of broader cultural significance. The Bighorn and Pryor Mountain ranges remain culturally and spiritually important to the Crow Tribe. These areas continue to be used for fasting, purification and Sundance purposes.

Wildland-urban interface (WUI): This FMU has very little land classified as WUI.

Other: General Climate/Weather: The Crow Indian Reservation has a modified continental climate and is characterized by hot summers and cold winters. While the Pryors are cooler than the prairie, summer temperatures can exceed 90 degrees F.

Lightning storms during the summer months are common, starting most of the fires in the Pryor Mountains. Gusty winds are common in and around these thunderstorm cells. Because the Pryors are mostly limestones, little surface water is available. For a more detailed description of the local weather, the reader is referred to the Crow Agency Forest Management Plan.

(h) Political Boundaries

The majority of the tribally owned trust lands are found in the Pryor and Big Horn Mountains of Fire Management Units (FMU) 011 and 012. A buffalo pasture and restricted access area exists in the Big Horn Mountains.

(i) Fuel Types

In the Pryor Mountains, there are large expanses of overmature and bug-killed lodgepole pine timber. Infestations are natural cycles that include increased mortality from various pine, spruce and fir beetles and diseases. Crown fires in this fuel type would be of the fast spreading "independent" variety, traveling ahead of the surface fire. This area is characterized by dense stands of overmature and bug killed lodgepole pine on the tops of the Pryors, and dense, overmature stands of spruce and fir, and is represented by NFDRS Fuel Model G, and Scott's 40 fuel models SH1, SH5, NB2, GR2, TL8, and SB1. Open fields of grass and sage, with scattered clumps of ponderosa pine and limber pine, are interspersed with the heavy timbered areas. Once leaving the lowlands or the flat plateau, slopes in this area can exceed 100%. Lack of access on slopes, and lack of ground access, combined with a heavy fuel loading, hampers firefighting efforts. The steep slopes of 100% or more, combined with heavy fuel loadings, set the stage for large stand replacement fires in this area.

(j) Proposed treatments

Prescribed fire, fire use, and mechanical treatment, will be used to treat 80-100 acres per year in the Pryor Mountains (on an experimental basis) to control insect and disease, to increase natural regeneration, increase forage, and reduce fuel loadings. Eventually treatment acres will be increased. Planned treatments include prescribed fire, brush mulching, thinning, and establishing shaded fuel breaks. Prescribed fire units of up to 2,500 acres will be set up in high use and high visibility areas. They will target areas of insect and disease activities and patches of dead trees. Planned and unplanned fires actively managed for resource benefit will treat areas up to 10,000 acres in remote, inaccessible areas. Mechanical brush mulching will be used to chop up brush along roads and around improvements. Thinning units will be set up along roads to establish fuel breaks and defensible space. Shaded fuel breaks will be established on ridges by thinning stands to leave space between adjacent crowns. Thinning projects will follow recommended fuel break specifications, and slash from thinning will be hand piled and burned when conditions are safe. Some projects will need to be repeated at three- to five-year intervals to maintain their effectiveness.

Both the Pryors and Big Horn Mountains have similar fuel types of overmature spruce/fir on the north slopes of the Mountains.

3.8 FMU 012 Bighorn Mountains East/West – (C-C)

The Big Horn Mountains (only the mountain range is “Big Horns” with two words) lie in the south central portion of the reservation, southeast of the Pryors across the Bighorn Canyon National Recreation area. The Bighorn Mountain East/West FMU encompasses a total of 328,957 acres. These mountains rise from about 3,560 feet, which is the high water mark of Bighorn Lake, to 9,132 feet at Windy Point Lookout and 9,257 feet on the Wyoming state line. These are very rugged mountains with rocky soils and talus slopes. The north and east facing aspects tend to be forest, but are relatively steep. The ridges, southern and westerly slopes are typically sagebrush and grassland habitat types, and provide spectacular vistas of the surrounding countryside. Garvin Basin is an arid region about 70,000 acres in size which is in the rain shadow of the Big Horns and Pryors and lies between the Bighorn River and the Big Horns. The Bighorn River to the west and the Little Bighorn to the east drain these areas.



Figure 9 – Bighorns – North end looking south into Big Bull Elk Canyon; area is steep and rugged. (Photo by David Walks)

(a) Fire Occurrence

Bighorn East – The fire history for the twenty-two year period experienced 58 fires burning 6,470.2 acres. The average fire size was approximately 110 acres. There were 15 human caused fires that burnt 374.2 acres and 43 natural caused fires that burnt 6,096 acres.

Bighorn West – The fire history for the twenty two year period experienced 14 fires burning 2,182.8 acres. There were 1 human caused fire that burnt 0.2 acres and 13 natural caused fires that burnt 2182.6 acres.

(b) Objectives/Desired Future Conditions

The major objective is to enhance and protect timber, range land, and culture resources in this FMU. Minimize the spread of noxious weeds during suppression and prescribed burn activities.

Fire Regime/Condition Class for this FMU:

Vegetation Type	Historical Fire Regime	Current Condition Class	Desired Condition Class
Rangeland	II	2 or 3	1 or 2
Ponderosa Pine	I	2 or 3	1 or 2
Riparian	III	2 or 3	1 or 2
Lodgepole	IV	1, 2 or 3	1 or 2
High Elevation pine-spruce -fir	V	1 or 2	1 or 2

(c) Fire management strategy

The fire control objective for FMU 012 (Bighorns) is to contain 85% of all human-caused wildland fires to less than 200 acres at all fire intensity levels. Use an analyzed response to implement protection objectives in accordance with management objectives based on current conditions and fire location. Use prescribed fire, fire use, mechanical, chemical, biological, and cultural treatments that will enhance or maintain desired conditions. Management response strategies would be tailored to address areas of significant constraints including Areas of Critical Environmental Concern (ACECs), critical habitat for T&E species, areas of soil instability, and areas of other critical resource constraints.

(d) Management constraints

The major source for income over most of this FMU is income derived from grazing. Any action that reduces this income would almost certainly be resisted by the tribe, regardless of what resource benefits would be gained.

(e) Topographic features

The Big Horn Mountains consist of flat timbered plateaus of lodgepole pine/fir, surrounded by heavily timbered steep slopes. For a detailed description of the reservation topography, the reader is referred to the 2009 Crow Reservation

Forest Management Plan. Separated by high plateau, prominent canyons run in a north westerly direction in this FMU: Devils, Big Bull, and Black Canyon Creek. Garvin Basin is in the extreme southwest corner of this FMU.

(f) Access

Primary access to this FMU is through the Rotten Grass Road, BIA Route 463, which intersects with Lodge Grass Creek Road, BIA Route 451, east of Lodge Grass. The Soap Creek county road is an alternate access, as is the Ok-a-Beh road from Fort Smith. The remaining road network is suitable for 4-wheel drive vehicles, but other accesses are very limited. To reach remote areas, response times by ground can be more than two hours from either Crow Agency or Pryor. Helicopter response time is about 30 minutes from Crow Agency. Water sources in the Big Horns are limited to Bighorn Lake and to a few canyon bottoms.

(g) Protected Values

Human Life: Suppression response strategies will be based on site priorities that factor in the ecological target stand condition; values at risk, potential fire behavior and predicted fire effects. Where fire plays a natural role in the ecosystem, values at risk are low, fire may have been excluded for a generation, and readmitting fire to the landscape will result in less severe fire effects from future fires, then suppression strategies in some areas will be to manage the fire actively, but without putting firefighters unnecessarily at risk.

Timber: The entire area is in reserved status and management will be limited to hazardous fuel treatments.

Range/agriculture: The grazing period or season use in the Big Horns is from June 1 through October 31, except for the range unit in Garvin Basin, which can be used almost anytime during the year. There are 32 range units in the Pryor and Big Horn Mountains, totaling 195,300 acres.

Culture/historical/religious: The Big Horn Mountains are historically, culturally and spiritually important to the Apsaalooke people (Crow Tribe). For this reason, the Tribe has chosen to limit development, and restrict access to the area. Tangible evidence of the spiritual importance can be seen in the numerous fasting (vision quest) sites that occur along the exposed upland ridges overlooking Bighorn Canyon (original home of the Little People before the Yellowtail Dam was built), and Hole in the Rock, and the Black Canyon areas. Many areas in the Big Horns have been used historically for fasting (areas such as "the place where they seen the rope") and continue to be used by current Apsaalooke Tribal members. The prehistoric and historic spiritual importance of the Big Horns can also be seen in the construction of medicine wheels, the most notable of which is the Bighorn medicine wheel, located in the Big Horns just south of the Reservation in Wyoming. The Fort Smith medicine

wheel is located on the Reservation along the Bighorn River, just north of the mountains, and other medicine wheels have been reported in the Big Horns, but not formally recorded.

Wildland-urban interface (WUI): This FMU has very little land classified as WUI.

Other: General Climate/Weather: The Crow Indian Reservation has a modified continental climate and is characterized by hot summers and cold winters. Even in the cold, windy Bighorns, summer temperatures can reach 90 degrees F. Dry lightning storms during the summer months are fairly common, starting most of the fires in the Big Horn Mountains. Gusty winds are common in and around these thunderstorm cells. For a more detailed description of the local weather, the reader is referred to the 2009 Crow Agency Forest Management Plan.

(h) Political boundaries

The majority of the Reservation's tribally owned trust lands are found in the Pryor and Bighorns Fire Management Units (FMU) 011 and 012. A buffalo pasture and restricted access area exist in the Big Horn Mountains.

(i) Fuel types

In the Big Horn Mountains, there are large expanses of overmature and bug-killed lodgepole pine timber. Crown fires in this fuel type would be of the fast spreading "independent" variety, traveling ahead of the surface fire. This area is characterized by dense stands of overmature and bug-killed lodgepole pine on the tops of the Bighorns, and dense, overmature stands of spruce and fir in the Bighorns, and is represented by NFDRS Fuel Model G. Scott's 40 fuel models SH1, SH5, NB2, GR2, TL8, and SB1 also represent this area. Open fields of grass and sage, with scattered clumps of ponderosa pine, and limber pine, are interspersed with the heavy timbered areas. Off of the lowlands or flat plateau, slopes in this area can exceed 100%. Lack of access to slopes, and long response times combined with heavy fuel loadings, hamper firefighting efforts. Slopes of 100% or more combined with heavy fuel loadings set the stage for large, stand replacement fires in these areas.

(j) Proposed treatments

Prescribed fire, fire use, and mechanical treatment will be used to treat 80-100 acres per year in the North and South Bighorns FMU (on an experimental basis) to control insect and disease, to increase natural regeneration, increase forage, and reduce fuel loadings and intensity levels. Eventually treatment acres will be increased. The entire area is in reserved status, and management will be limited to hazardous fuel treatments. Planned treatments include prescribed fire, brush mulching, thinning, and establishing shaded fuel breaks. Prescribed fire units of up to 2,500 acres will be set up in high use and high visibility areas. They will

target areas of insect and disease activities and patches of dead trees. Active management of fire for resource benefit will treat areas up to 10,000 acres in remote, inaccessible areas. Mechanical brush mulching will be used to chop up brush along roads and around improvements. Thinning units will be set up along roads to establish fuel breaks and defensible space. Shaded fuel breaks will be established on ridges by thinning stands to leave space between adjacent crowns. Thinning projects will follow recommended fuel break specifications, and slash from thinning will be hand piled and burned when conditions are safe. All of these projects will need to be repeated at three- to five-year intervals to maintain their effectiveness.

CHAPTER 4 – WILDLAND FIRE OPERATIONAL GUIDANCE

4.1 Management of Unplanned Ignitions

Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fires is based on ecological, social and legal consequences of the fire. The circumstances, in which a fire occurs, and the likely consequences for firefighter and public safety and welfare, natural and cultural resources, and values to be protected, all dictate the appropriate response to the fire. Fires will be suppressed at minimum cost, considering firefighter and public safety, and all values to be protected, consistent with resource objectives.

4.1.1 Suppression/Preparedness Actions

To remain consistent with the IAM, Part 90, Chapter 1 the Fire and Aviation program will ensure the capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight. All unplanned fires will be suppressed utilizing an analyzed management response as fire behavior and environmental conditions dictate. An analyzed management response includes the full range of suppression options, chosen based on qualitative and quantitative benefits to the land resource. Responses are dictated by the range of potential resource benefits combined with the program's capabilities to safely suppress a fire providing for firefighter and public safety. The BIA is committed to a policy of aggressive effective management of all unplanned fires on the reservation.

4.1.1.1 Cooperation

Cooperative agreements exist at several levels of organization. Interagency cooperative agreements signed at the Regional Office level include those covering the Native American Crews program and participation within Billings Dispatch Center's eastern Montana interagency zone. The zone covers Crow as well as the Northern Cheyenne Agency, Fort Peck Agency, and BIA Rocky Mountain Regional Office, BLM Billings Field Office and Montana State Office, USFS Custer National Forest, USFWS Prairie-Mountain Region, and Montana Department of Natural Resources & Conservation Southern Land Office. These blanket agreements are described in the Billings zone fire plan.

4.1.1.2 Intergovernmental Relationships

The BIA has a cooperative agreement with the Crow Tribe to provide manpower and equipment for suppression activities. The BIA works with the Tribal Forestry department to coordinate the use of personnel and equipment. Also reference Appendix J, Tribal Protection Act of 2004 in the Forest Management Plan.

Crow Agency BIA Fire & Aviation Management has interagency agreements with the Little Bighorn Battlefield National Monument, and Big Horn Canyon National Recreation Area. Operating plans are in place with Big Horn County, Yellowstone and Treasure Counties in the State of Montana, and Sheridan, Johnson, and Campbell Counties in the State of Wyoming. A set of these agreements and operating plans are kept in the fire dispatch office.

4.1.1.3 Training.

Crow participates in national, regional and zone interagency training, entering all training records into IQCS (Incident Qualifications and Certification System). GS employees are given priority in career development, but AD employees may be offered training opportunities on a case-by-case basis. Each year Crow offers several NWCG-standard (National Wildfire Coordination Group) courses. Crow Agency personnel are certified by the standards of the PMS 310-1 NWCG training protocols, and function under the NIMS (National Incident Management System) interagency all-hazard standards of the Department of Homeland Security. In 2009, personnel qualifications include several ICT3s, two RXB2s, a PSC2, and ADs qualified as FSC2 and PIO2. GS personnel are all actively pursuing taskbooks for further certifications. Crow must continue to actively develop and reinforce staff's qualifications to fill and retain positions necessary in a high complexity fire organization.

Crow Agency BIA trains, qualifies and outfits more than 100 AD/EFF firefighters each year, participating in the Native American Crews program. In 2009, Crow had one Type 2IA (initial attack) crew and one Type 2 crew available in ROSS for off-reservation dispatch. In recent years, rookie school has been offered biennially. Conditions of hire for AD/EFF firefighters include annual safety refresher training and pack test, as well as annual urinalysis and a firefighter physical every three years for those under age 45, yearly for those over 45. Per DOI 620 DM1 Part 1.10, all personnel meet minimum wildland fire qualification requirements which are equal to or exceed those recommended by the NWCG.

4.1.1.4 Initial Attack Resources

In 2009, IA resources at Crow include three Type 6 engines, one heavy Type 6 engine, and one water tender, as well as a Type 3 helicopter from July 1 to September 30 yearly. Resources at Pryor include one Type 6 engine and one heavy Type 6 engine.

The Crow Agency BIA Fire and Aviation Management complex includes a dispatch, training room and offices adjoining a warehouse with 8 garage bays. The Forestry office is in the brick building to the west across the street. A cache van by the warehouse can equip 40 Type 2 crewmembers or at least one Type 3 incident.

The helibase has its own office with 2 garage bays and 3 haz-mat sheds. Pilots' quarters and 2 mobile trailers are adjoining.

The Pryor station contains an office room with a dispatch desk, three garage bays, and a cache van and mobile trailer.

Crews, single resource personnel, and (in times of low fire danger) engines are dispatched to off-reservation incidents. The Type 3 helicopter contracted from July through September is based in Crow Agency but is shared with the Northern Cheyenne Reservation, and is sometimes available to dispatch to nearby incidents off-reservation. Crow occasionally cooperates with more distant BIA units to concentrate resources into regions with higher fire danger.

2010 Table of Organization for Crow Agency Fire & Aviation

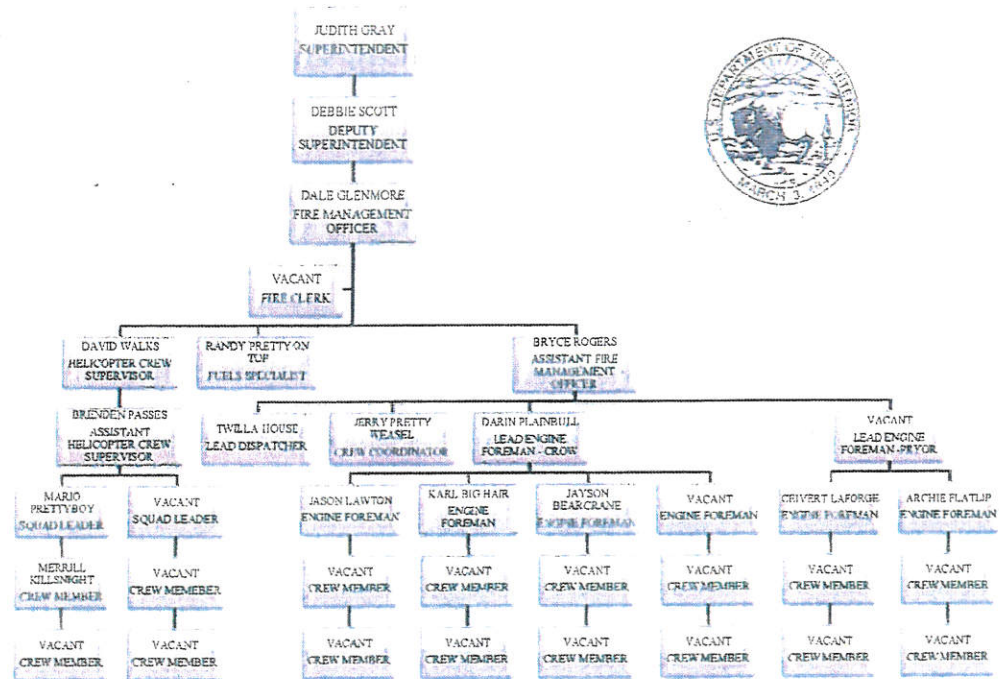


Table 2 – 2010 Table of Organization for Crow Agency Fire & Aviation

4.1.1.5 Preparedness Levels

The agency has established preparedness levels which identify fire severity, activity and resource commitment on the unit, as well as actions to be taken by

personnel to ensure appropriate readiness and response capabilities for potential situations. Refer to the current approved Preparedness Plan.

4.1.1.6 Size-up, initial response, and extended response procedures

Initial report of wildland fire information is received by the dispatch office: size-up and initial weather observations, fire behavior and rate of spread. Information is received by radio communication for deploying resources.

All wildland fires occurring on the Crow Indian Reservation will be immediately reported to the FMO. Dispatching duties will be directed by the FMO/AFMO. First resource on scene gives the dispatch a size-up of the fire as soon as possible, determines resources needed to the fire, briefs assigned resources on expected fire behavior, weather, escape routes and radio frequency.

All fires will be managed with suppression actions consistent with preplanned dispatch protocols, in conformance with resource management objectives identified in this plan. Tactics and strategies will be based on the current and predicted weather and fire behavior. In areas where hazards have been identified, less aggressive attack strategies may be used to insure firefighter safety.

Extended attack positions are available within the Crow Fire and Aviation organization, such as ICT3. These resources can be ordered as needed by the initial attack Incident Commander. The initial incident commander will be or will immediately appoint a qualified IC for wildland fires. The IC will be responsible for all aspects of the management of the fire. Direction for extended attack operations can be found in the Interagency Standards for Fire and Fire Aviation Operations.

Request for assistance from cooperators on wildland fires not threatening the Crow Indian Reservation must be made to, and approved by, the FMO or delegate. Only qualified and properly equipped resources will be dispatched either on or off the reservation.

4.1.2 Incident Management

Crow Agency dispatches its own initial and extended attack. Crow's zone dispatch, Billings (East Zone Northern Rockies Interagency) Dispatch Center, acts as IA dispatch for nearby state and USFS resources, and flight follows aviation resources that respond from off the Reservation to Crow fires. Courtesy calls to Billings Dispatch (BDC) to coordinate and confirm resource movement, especially of aircraft, are vital. Billings zone reports to the Northern Rockies Coordination Center in Missoula. When not confirmed directly in ROSS (Resource Ordering Status System), orders for complex interagency resources such as aviation resources or fire teams go through Billings Dispatch.