Fire Management Plan

Fire Management Program
Charles M. Russell National Wildlife Refuge

January 31, 2007

US Fish and Wildlife Service
Department of the Interior
Denver, Colorado

FIRE MANAGEMENT PLAN

FOR

CHARLES M. RUSSELL NATIONAL WILDLIFE REFUGE

Lewistown, Montana

Prepared by: _____ _____
Fire Management Officer, **Date**
Charles M. Russell National Wildlife Refuge

Recommended by: _____ _____
Project Leader, **Date**
Charles M. Russell National Wildlife Refuge

Reviewed by: _____ _____
Regional Fire Management Specialist, **Date**
Mountain-Prairie Region

Concurred by: _____ _____
Regional Fire Management Coordinator, **Date**
Mountain-Prairie Region

Concurred by: _____ _____
Refuge Supervisor, **Date**
Montana/Wyoming

Concurred by: _____ _____
Regional Chief, **Date**
National Wildlife Refuge System

Approved by: _____ _____
Regional Director, **Date**

Mountain-Prairie Region

Table of Contents

APPENDICES:

TABLES:

FIGURES:

1.0 INTRODUCTION

1.1 General

One of the primary objectives of the U.S. Fish and Wildlife Service (Service) in managing natural areas is the maintenance of ecosystems and their dynamic processes to ensure as nearly as possible a functional natural environment. As one of these processes, fire can constitute one of the greatest influences on an ecosystem.

U.S. Fish and Wildlife Service policy requires that an approved Fire Management Plan must be in place for all Service lands with burnable vegetation. This plan meets this requirement.

1.2 Description of Refuge

1.2.1 Location

The Charles M. Russell National Wildlife Refuge (CMR), located in the northeast quarter of Montana, encompasses nearly 1.1 million acres of land and water, and stretches 125 miles from the Fort Peck Dam west along the Missouri River (Figure 1). The Refuge contains portions of six counties (Fergus, Petroleum, Garfield, McCone, Valley, and Phillips), is divided into three management units (Figure 1a), and is administered from three substations located at Fort Peck, Jordan, and Roy. The Refuge Headquarters is located in Lewistown, Montana. The Satellite Refuges and Waterfowl Production Areas (WPAs) are managed out of the Lewistown headquarters (Table 1).

Table 1: Management Units

Management Unit	Acres
Charles M. Russell National Wildlife Refuge	1,094,301
Lake Mason NWR	16,786
War Horse NWR	3,232
Halfbreed NWR	4,286
Hailstone NWR	2,748
Waterfowl Production Areas	2,055

Lake Mason NWR, located eight miles northwest of Roundup, Montana, is divided into three units: Lake Mason, Willow Creek, and the North Unit. The Refuge includes 16,786 acres; 11,284 acres in fee title and 5,502 acres in Refuge easements.

Fig. 1 General Overview of the Charles M. Russell NWR

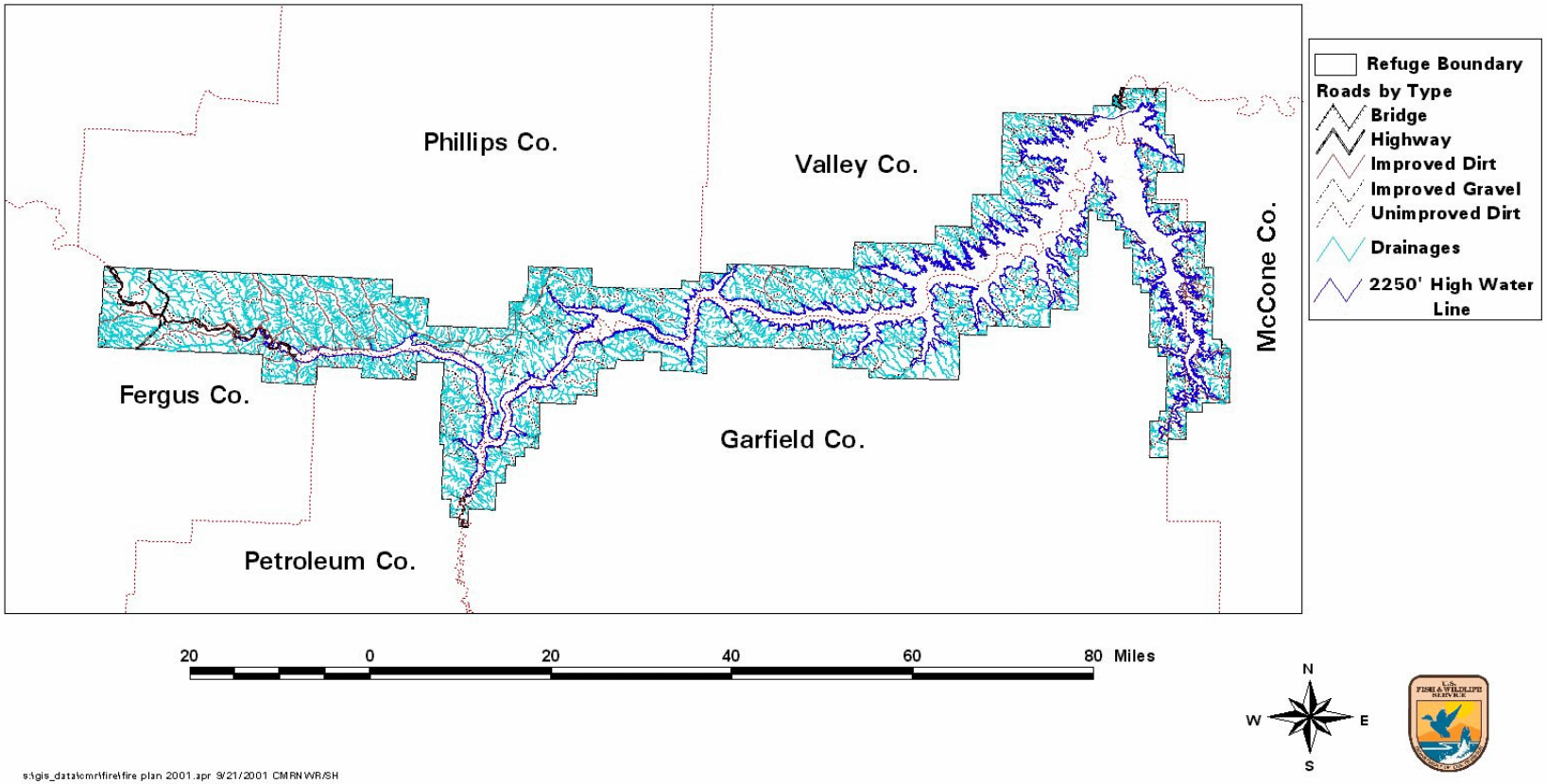
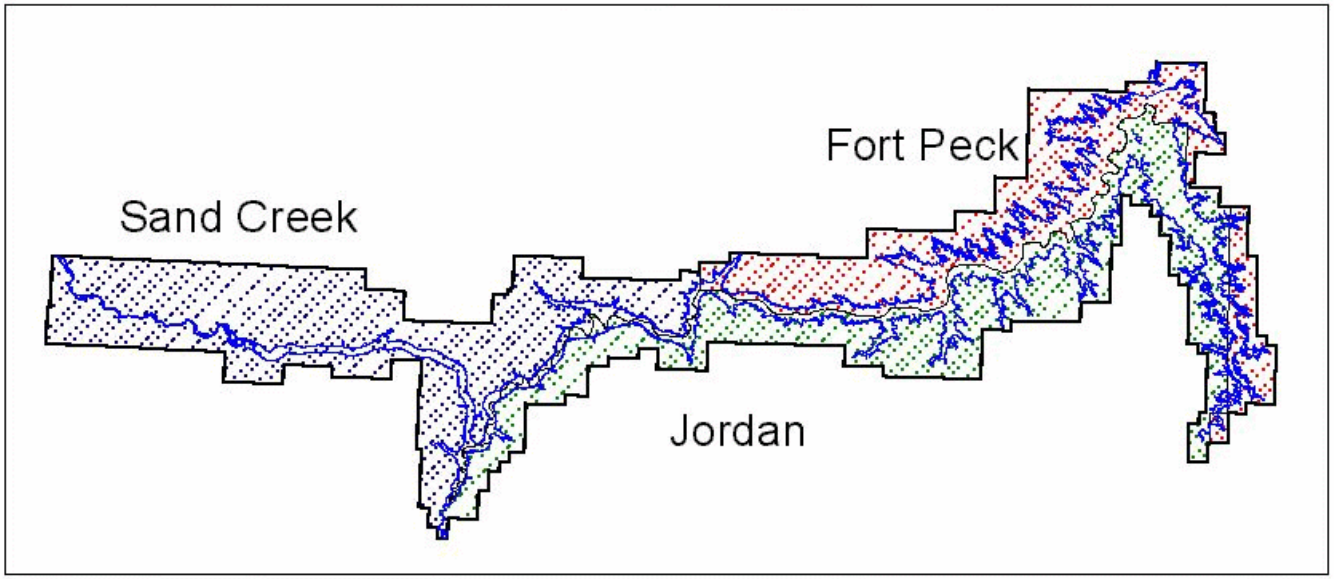


Fig. 1a Field Station Coverage of the Charles M. Russell NWR



40 0 40 80 Miles

N
W E
S

s:\gis_data\cmr\fire\fire plan 2001.apr 9/21/2001 CMR NWR/SH

War Horse NWR, near Winnett, Montana, consists of three separate upland units: War Horse, 1,152 acres; Wild Horse, 440 acres; and Yellow Water, 1,640 acres. These units consist of scattered Service land holdings adjacent to a lake (Wild Horse) or reservoirs constructed for the purpose of irrigation (War Horse and Yellow Water).

Hailstone NWR is located five miles northeast of Rapelje, Montana. It has a complex ownership and administrative pattern with 160 acres of fee title Refuge, 760 acres of Refuge easement, and 1,828 acres of Waterfowl Production Area (WPA). The habitat component, valuable to waterfowl and other wildlife at this site, is a 650-acre reservoir. Historically the area surrounding this Refuge was short-grass prairie, but over the years it was plowed and planted to wheat. Hailstone NWR was managed as a no-hunting Refuge easement from the mid-1930's until 1980 when the WPA was acquired.

Halfbreed Lake NWR is located six miles east of Rapelje, Montana. It was initially managed as a flowage and no-hunting Refuge easement. In 1987, 3,246 acres were purchased in fee title, which included most of the original easement. The Refuge now includes 3,246 acres in fee title, 640 acres of state land where FWS has acquired the grazing lease, and 400 acres of private land that is still covered by the original Refuge easement.

The Charles M. Russell Wetland Management District (WMD) consists of three units. The Spidel WPA, which is 1,246 fee title acres, is located three miles northeast of Broadview, Montana. It contains about 700 acres of natural marsh. The Tew WPA consists of 538 acres. It is located 15 miles northeast of Broadview, Montana and contains three wetlands which are about 20, 30, and 80 acres. The Clark's Fork WPA consists of 271 acres. It is located north of Bridger, Montana on the Clark's Fork of the Yellowstone River.

1.2.2 Topography

The main landforms—uplands, breaks and floodplains— dominate CMR and the surrounding area. Uplands are level-to-rolling prairies dissected by intermittent streams flowing toward the Missouri River in a generally eastward direction. These landforms support the sagebrush-grassland plains that are typical of eastern Montana.

The breaks lying adjacent to the Missouri River are typified by dissected, rough terrain often culminating in spectacular badlands. This topography is common to a strip of land 2-10 miles wide along the Missouri River and varies from low, barren hills of the Big Dry south of Fort Peck to severely eroded coulees of the Seven Blackfoot and Burnt Lodge areas and the juniper, pine, and grassland ridges on the western half of CMR. Approximately 40-50 percent of lands within the CMR consist of steep ridges and eroded coulees.

1.2.3 Slope

The Missouri and Musselshell Rivers flow through deep valleys with narrow flood plains lying 500-1000 feet below the average elevation of the surrounding uplands. Elevation varies from

slightly over 2,000 feet above mean sea level near Fort Peck Dam to over 3,200 feet in the Seven Blackfoot area.

1.2.4 Soils

Soils of the area generally have poorly developed or immature profiles; are highly erodible; and generally do not support dense vegetative cover except in alluvial deposits along the major drainages. The geologic processes of sedimentation, glaciation, and rapid erosion have produced the topographic features for which the "Missouri Breaks" region is noted; that of flat to gently rolling uplands that "break" into extremely steep, highly eroded canyons draining into the Missouri River. Four major soils orders are represented on the Refuge. They are Entisols (soils characterized by very limited development), Aridisols (well-developed soils formed in a dry environment), Mollisols (soils with surface layers (horizons) noticeably darkened by organic matter accumulations), and Vertisols (soils that have a self-plowing action because of high shrink-swell rates associated with varying moisture levels).

Entisols are typically found on the breaks portion of CMR. The vegetated surface is quite unstable on these steeply sloping breaks, and soils are poorly developed.

Aridisols present on CMR are composed of two types of sub-orders: those characterized by salt and clay accumulations below the surface, resulting in a relatively impervious subsoil, and those with no significant salt or clay accumulations. Aridisols are found on the more gentle slopes of CMR. Garfield and McCone counties most typically contain these soils, which are generally derived from sandstone or alluvium in sedimentary uplands.

Mollisols are prairie soils generally found in areas of higher rainfall than is received at the Refuge; their extent is very limited here.

Vertisols are most commonly associated with the very fine-textured Bearpaw shales and are generally located north of the Missouri River. They are typically found on strongly sloping sedimentary (Bearpaw shale) uplands or as fans or terraces formed below the Bearpaw shale.

1.2.5 Water

The most conspicuous water features in CMR are Fort Peck Reservoir and the Missouri River. The reservoir and river cover approximately 249,000 acres, over 18 million acre-feet of water, when the reservoir is at peak storage capacity, maximum pool level of 2,250 feet above msl. CMR embraces 35 miles of free-flowing Missouri River upstream of the Fort Peck Reservoir and one mile below the dam. The reservoir extends approximately 90 miles from east to west. Sediment loads in all streams are high as a result of the extremely erosive soils in the area. Numerous stock ponds and wells have been developed on CMR in the past. These stock ponds are normally less than one acre in size and are located near heads of small coulees.

1.2.6 Climate

Since the Refuge extends some 125 miles from east to west, the climate is extremely variable. As a rule, however, the winters are long, cold and windy. Arctic influence periodically drops temperatures to -40 degrees or more. These cold periods are often moderated by warming "chinook" winds. Summers are usually hot and dry with frequent summer thunder and lightning storms. Precipitation averages 10-14 inches, the bulk of which comes in the spring and early summer.

Climatic conditions of the CMR region are the primary factors contributing to the high occurrence of wildfires. Conditions are favorable in the conifer/grassland and shrub/grassland uplands to produce ample amounts of flashy fuels in most years. In addition, low annual precipitation, high summer temperatures and moderate to strong winds provide "ideal" wildfire conditions. The key factor contributing to wildfire at CMR is the almost daily occurrence of intense lightning storms during the summer months, June to September. Most summer storms come from the direction of the prevailing winds (west-northwest) and travel through the area in an easterly direction. These storms can cover a wide area in a single day and may or may not produce precipitation. Lightning usually strikes the higher elevation areas in the timbered breaks. Most of these lightning strikes do not produce fires or the fires that are ignited are self-extinguishing when precipitation happens to occur in conjunction with the lightning.

1.2.7 Vegetation

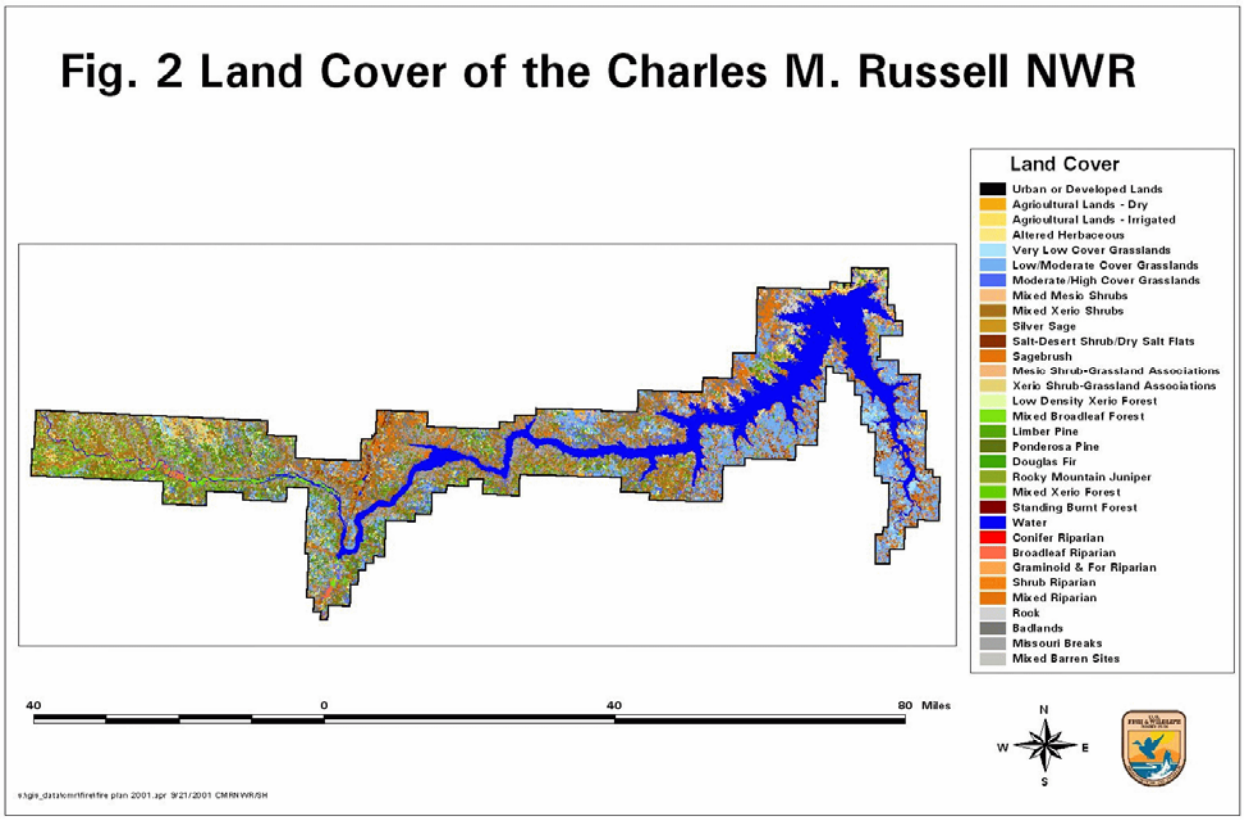
The Refuge is within the geographic area known as the Northern Great Plains and is classified vegetatively as mixed grasslands. Vegetal cover in the area consists primarily of short and midgrasses typical of the Northern Great Plains. Sagebrush is typically found on heavier soils and along stream bottoms and floodplains. Most trees in the area are scrub trees of little commercial value. Shrubs are commonly found in thickets along streams and draws.

Four primary vegetative (habitat) types exist on the Refuge (Figure 2). The largest vegetation type is the **sagebrush-greasewood-grassland type** that comprises more than 50 percent of the upland area. Big sagebrush and greasewood are the predominant shrubs, with species such as saltbush, silver sage, rubber rabbitbrush, and skunkbrush also present. Important grasses are western wheat grass, needle and thread, green needlegrass, bluegrama, Junegrass, Sandberg bluegrass, plains muhly, and bluebunch wheat grass.

Ponderosa pine-juniper type occurs on about 35 percent of the Refuge and includes three subtypes: ponderosa pine, Douglas fir, and juniper. Four coniferous tree species are indigenous: ponderosa pine, Douglas fir, limber pine, and Rocky Mountain juniper. Forest communities are found on some of the poorer soils.

Grassland and riparian land types occupy the remainder of the area and are classed as **grassland-deciduous shrub** and **riparian-deciduous riverbottoms** (including ash coulees). Although the riparian community was extensive before being inundated by Fort Peck Reservoir, it now occupies only 0.7 percent of the area. It provides one of the most important and

productive wildlife habitat types. Important shrub species include chokecherry, snowberry, Arkansas rose, western serviceberry, and buffalo berry. Where grassland predominates, the key



species are perennial grasses such as bunch bluegrass, western wheatgrass, and green needlegrass. Prairie forbs include sagewort, wild licorice, sunflower, dandelion, yellow Arkansas rose, plus many others.

In general, vegetative cover of the Refuge is timber-shrub grass association on the western portion of the Refuge and sagebrush-grass association to the east. North slope vegetation may include an overstory of Douglas fir, and ponderosa pine; shrubs include chokecherry, snowberry, skunkbrush; and grass associations include wheatgrasses, needlegrass and Junegrass. South slope vegetation cover may vary from sparse to moderate. Vegetation on the benches is primarily big sagebrush-grass complex. Sweetclover, a biannual common throughout the area, produces large amount of forage (fuel) during years with favorable moisture.

1.2.8 Wildlife

Wildlife is abundant throughout the refuge. Forty-five mammal species are present ranging from the common shrew to the large Rocky Mountain elk. Mule deer are the most common. Other species include the pronghorn, Audubon bighorn sheep, black-tailed prairie dog, bobcat, badger, coyote, striped skunk, white-tailed jackrabbit, raccoons, porcupine, and numerous small rodent species.

Because of its varied avian habitats, CMR attracts a large variety of birds. Over 245 species have been recorded of which nearly 80 percent are transient visitors. Sharp-tailed grouse are the primary management species at CMR but other common birds of conservation concern are the Mountain plover, Golden and Bald eagles, and the Burrowing owl in addition to many other passerine species. Peregrine falcon sightings occur infrequently.

Six species of amphibians and ten reptiles are known to occur in eastern Montana with ranges overlapping CMR. A listing of wildlife species is available at Refuge headquarters.

1.2.9 Threatened, Endangered Species, and Species of Conservation Concern

Since 1995, black-footed ferrets have been introduced on CMR. The efforts to reintroduce ferrets have been provisionally successful and free ranging ferrets now occur in the vicinity of UL Bend. Piping plover and Least tern nest along the shoreline of the Fort Peck Reservoir. Pallid sturgeon occur in the Missouri river. Candidate species include: black-tailed prairie dog, Mountain plover and Sage grouse. A listing can be found in Appendix A.

1.2.10 Land use

The predominate use on CMR has slowly changed over the years. When first established as a Refuge, the primary use on CMR was livestock grazing. Slowly, the transition has been towards recreation. In 2000, an excess of 200,000 recreational use days were recorded on the Refuge. This includes big game hunting, both archery and firearm, upland bird hunting, hiking, fishing, canoeing, wildlife observation, and boating.

1.2.11 Values and Improvements on and Adjacent to Station

Refuge administrative and maintenance facilities are located at Sand Creek, Fort Peck, Jordan and Lewistown. These facilities consist of administrative buildings, fire caches, bunkhouses, maintenance shops, equipment buildings and ware yards. Many miles of boundary and interior fences are also present. A ferret release camp is located at UL Bend. One National Register of Historical Places site, 155 historic era buildings, two national natural landmarks, four research natural areas, 13 wilderness study areas comprising 158,619 acres and the 20,819 acre UL Bend Wilderness are located within the Refuge. There are countless other areas that are not listed, such as private inholdings, ranches and well over 300 structures within the Recreational Areas around the Reservoir.

The Pines Recreational Area, Rock Creek Recreational Area and Duck Creek Recreational Area are within the Fort Peck Management Unit. All three have recreational cabin sites that are in the process of being transferred to private ownership. These areas are developing their own suppression capabilities but will continue to be a source of increased concern. A human caused fire in the Pines Recreational Area occurred in 1998. This 1,000 acre fire had the potential to destroy over 60 structures if the suppression tactics failed. There is a high probability of fires starting in one of these sites and burning onto CMR.

The Hell Creek Recreational Area is located in the Jordan Management Unit. Hell Creek consists of many recreational cabin sites which are in the process of being transferred to private ownership. The cabin owners are developing their own suppression capabilities but will continue to be a source of increased concern. There is a high probability of fires starting in Hell Creek and burning onto CMR.

1.2.12 Cultural Resources

Only ten percent of the Refuge has been surveyed. These surveys have found approximately 196 prehistoric sites and169 paleontological sites. Many cultural sites appear to be significant in the history or prehistory of the Refuge. Sites that have been identified include campsites, tipi rings, stone effigies, bison kill sites, homesteads, historic graves, and early townsites. Other sites have been identified but not recorded. Four historic sites have been nominated for or placed on the National Register: Rocky Point Townsite, Lewis and Clark campsites of 23 and 24 May 1805, and the Fort Peck Theatre.

In addition, there are two designated National Natural Landmarks - Hell Creek Fossil Area and Bug Creek Fossil Area - and four research natural sites.

1.2.13 Intrinsic Values, Socio-Political-Economic

Agriculture is the largest single income producing sector of the six-county regional economy. The regional trend is towards decreased agricultural operations as the areas population declines. The 2000 Census for eastern Montana showed an aging population with very little recruitment. All counties surrounding CMR declined in population, some significantly, since the 1990 Census. As the regional agriculture economy base declines, the recreational base increases. Recreational use of CMR was at an all time high in 2000.

1.3 Historical/Ecological Role of Fire

The Missouri River Breaks has had a long and rich history of wildfire occurrence. Fire was one of the natural forces maintaining northern grasslands. It has long been suggested that treeless grasslands are a product of repeated fire, sometimes as a direct result of man's activities. Lightning-set fires were common in the United States and Canada, however, fires set by native peoples were the type mentioned most often in historical journals, diaries and various other

accounts, including the journals of Lewis and Clark. These references occur so often in fact, the subject of historical fire in the northern grassland plains in incontestable — it was there and native people used it for a variety of reasons (Gleason 1988).

Lightning is an integral part of climate and the frequency and return interval of lightning-set fires undoubtedly played an important role in the species composition and ecology of grasslands of the northern grassland plains (Gleason 1988). Fire scar data collected on the Refuge indicate a fire frequency of 10-20 years prior to the homestead era. These data do not indicate the source of ignition.

Fire has been used inconsistently to manage native and tame grasslands in the Northern Great Plains of the north-central U.S. and south-central Canada, particularly the grasslands found in prairies, plains, agricultural land retirement programs, and moist soil sites. This has happened for three primary reasons: (1) the reduction of American Indian use of fire after 1875, (2) fire suppression and land use changes that put increasingly more acres under annual tillage since about the same time, and (3) a growing resistance to the use of fire since about 1940 (Higgins, et al. 1989).

Research within the past few decades has confirmed that fire has been an important natural component of many grassland communities. Prior to European settlement, fire was the most common and widespread influence on the landscape in the inter-mountain west (Gruell 1983). Natural fire replaced fire sensitive woody species with species that were more fire adapted (Gruell 1983). The reduction of American Indian use of fire after 1875 (Higgins, et al. 1989), and the break-up and reduction of fuels caused by grazing and cultivation that came with European settlement, and then the introduction of organized fire suppression, have caused a drastic decrease in fire occurrence and size (Gruell 1983; Swetnam 1990).

Fire exclusion has had the most marked effect on ecotones, tension zones between two different community types. With the omission of fire as a dominant ecological factor on many sites has come significant changes in vegetation. Successional changes that have occurred on some sites would unlikely have occurred in pre-European settlement environment, where frequent fires suppressed woody vegetation (Gruell 1983). As a result, an increase in density of woody species has occurred on some sites, as well as invasion of woody species onto sites where frequent fire used to preclude their dominance.

As indicated previously, three basic habitat/fuel communities: grasslands, shrublands and forest, are present on Service lands. Shrubland/grassland communities comprises more than 60 percent of the upland area of the complex and comprise the bulk of the land units devoted to livestock grazing. This also the primary habitat type to utilize prescribed fire. Wildland fire effects on specific species within each habitat type are well documented and can be found in the Fire Management Information System (http://www.fs.fed.us/database/feis/), and have been sumarize in Appendix R. In general, the effects of fire on grasses depends upon the growth form and how burning influences and is influenced by soil moisture and other environmental conditions. Many grass species are fairly fire resistant and can produce new shoot growth even after moderate to

high-severity burns. When desirable understory plants are present within the sagebrush community, prescribed fire can release these species. Spring or fall fires are most desirable and effective because the soils are moist and cool, and fire impacts are not as severe. Sprouting shrubs such as bitterbrush and mountain snowberry respond favorably, and perennial grasses are benefitted. Wildland fire can be used to increase edge effect and increase plant diversity (Browns 1982).

Shrubs are generally less tolerant of fire than grasses. However the season and intensity of fire on shrublands also determines the effects of fire. Sagebrush is the most common category of shrublands on the Refuge. Wyoming big sage and silver sage are the dominate species. Fire history of shrublands has not been firmly established, but fire was probably uncommon on drier sites because of sparse fuels, and more frequent, averaging 32 to 70 years, on more mesic sites with greater herbaceous production (Wright et al. 1979).

Approximately thirty percent of the Complex consists of timbered conifer community. Fire records show this community type to be most subject to wildfire occurrence. The predominate species on the Complex are ponderosa pine and Douglas fir. Fire exclusion in these forest types adapted to high frequencies of understory fires can lead to accumulations of understory dead woody fuels, as well as the establishment of trees that provide fuel ladders between the surface fuels and the tree crowns, and has substantially altered forest succession in some forest types (Barrett 1988, Stark 1977). Complete fire protection will allow less fire-tolerant species to replace more fire-tolerant species. This can be seen on CMR with the increased abundance of juniper throughout most of the Refuge. Wildland fire in this community type sets back succession, promotes mature ponderosa pine establishment, and retards juniper and Douglas fir encroachment.

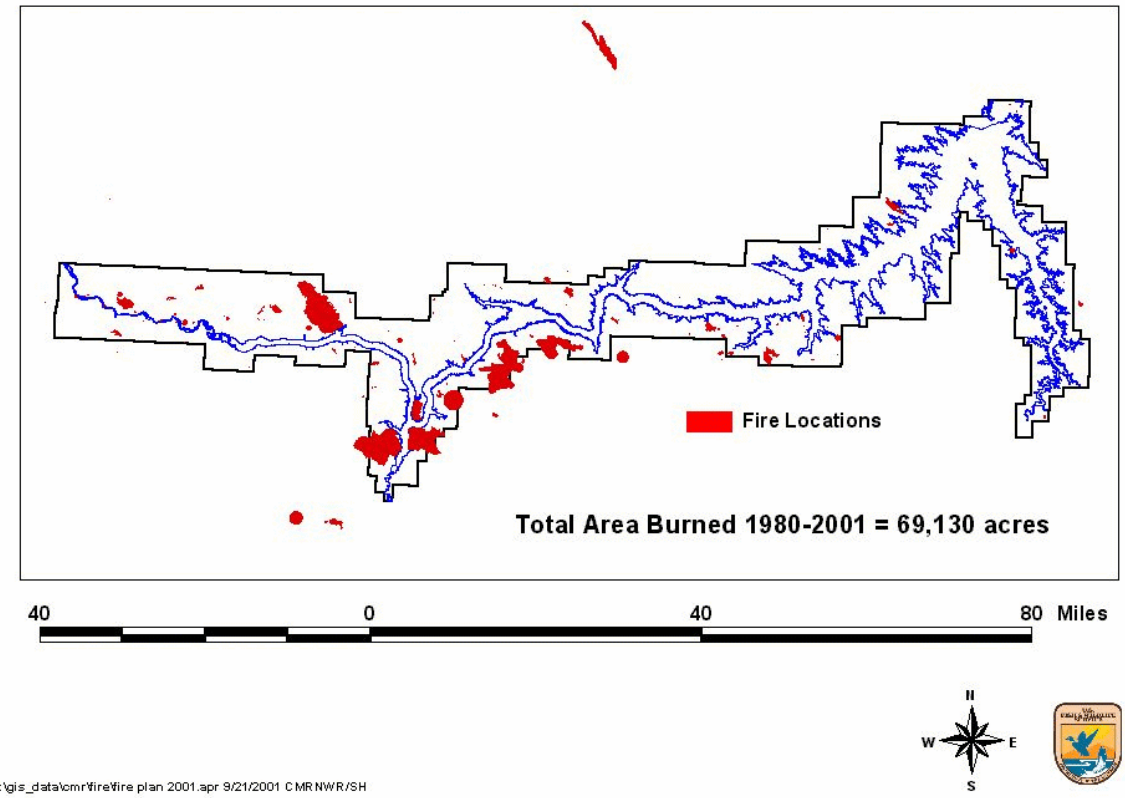
1.4 Refuge Fire History

Most fires occurring on the Refuge are directly influenced by local and general winds and have the potential to exhibit extreme fire behavior. Generally, larger fires will make an initial run, hit a natural barrier or burn into an area of little or no fuel. For example, in 1994, the CK Creek Fire made a run of six miles in one afternoon and burned over 11,000 acres before running out of fuel.

The Refuge has fire records that start in the 1960's (Appendix B). During that period of time the annual number of fires on the Refuge have varied greatly, ranging from 41 in 1988 to one in 1975. Since 1982 when records were entered into the national database, approximately 87 percent of the wildfires were lightning caused and occurred from mid-May through the end of September. Recorded fires during that period ranged in size from one-tenth of an acre to as large as 11,067 acres. Based on fire records for the past 19 years, the Refuge averages 7.7 fires annually, which on average burn 2,034 acres (FMIS 1992). If statistics for the past 38 years were used, the average fire frequency would be higher. A listing of past wildfires and other related information is included in Appendix B.

A map indicating all areas burned on the Refuge between 1980 and 2001, is included in this plan as Figure 3.

Fig. 3 Fire History of the Charles M. Russell NWR



2.0 POLICY COMPLIANCE - GOALS AND OBJECTIVES

2.1 Compliance with Service Policy

U.S. Fish and Wildlife Service policy requires that an approved Fire Management Plan must be in place for all Service lands with burnable vegetation. Service Fire Management Plans must be consistent with firefighter and public safety, protection values, and land, natural, and cultural resource management plans, and must address public health issues. Fire Management Plans must also address all potential wildland fire occurrences and may include the full range of appropriate management responses. The responsible agency administrator must coordinate, review, and approve Fire Management Plans to ensure consistency with approved land management plans.

Service policy allows for a wildland fire management program that offers a full range of activities and functions necessary for planning, preparedness, emergency suppression operations, emergency rehabilitation, and prescribed fire operations, including non-activity fuels management to reduce risks to public safety and to restore and sustain ecosystem health.

2.2 NEPA Compliance

This plan meets the requirements established by the National Environmental Protection Act (NEPA). Regulations published in the Federal Register (62FR2375) January 16, 1997, categorically excludes prescribed fire when conducted in accordance with local and State ordinances and laws. Wildfire suppression and prescribed fire operations are both categorically excluded, as outlined in 516 DM2 Appendix 1. The Service has determined that prescribed fire activities will only be carried out in accordance with a Fire Management Plan that tiers off a land management plan that has addressed the use of fire as a management tool and has been through the NEPA process. An Environmental Impact Statement and Record of Decision was completed for the Management of the Charles M. Russell NWR in 1985. Fire management objectives and limitations are clearly addressed in this document, therefore an EA will not be completed for this plan.

2.3 Authorities Citation

Authority and guidance for implementing this plan are found in:

- ☐ Protection Act of September 20, 1922, 42 Stat. 857;16 U.S.C. 594.
- ☐ Economy Act of June 30, 1932, 47 Stat. 417; 31 U.S.C. 315.
- ☐ Reciprocal Fire Protection Act of May 27, 1955, 69 Stat.66.67;42 U.S.C. 1856, 1856 a and b.
- ☐ National Wildlife Refuge System Administrative Act of 1966, as amended, 16 U.S.C. 668 dd-668 ee.
- ☐ Disaster Relief Act of May 22, 1974, 88Stat. 143; 42 U.S.C. 5121.
- ☐ Federal Fire Prevention and Control Act of October 29, 1974 , 88 Stat. 1535; 15 U.S.C.

2201.

- ☐ Federal Grants and Cooperative Act of 1977, Pub. L. 95-244, as amended by Pub. L. 97-258, September 13, 1982. 96 Stat. 1003 31 U.S.C. 6301-6308.
- ☐ Supplemental Appropriation Act of September 10, 1982, 96 Stat.837.
- ☐ Wildfire Assistance Act of 1989, Pub. L. 100-428, as amended by Pub. L. 101-11, April,1989.
- ☐ Department of Interior Departmental Manual, Part 620 DM-1, Wildland Fire Management (April 10, 1998).

2.4 Other Regulatory Guidelines

Fire Management activities within the Refuge will be implemented accordance with the following regulations and directions:

- ☐ Departmental Manual Part 519 (519DM)
- ☐ Code of Federal Regulations (36CFR 800)
- ☐ The Archaeological Resources Protection Act of 1979
- ☐ The Archaeology and Historical Preservation Act of 1974, as amended
- ☐ National Historic Preservation Act of 1966
- ☐ The Endangered Species Act of 1973, as amended
- ☐ The Provisions of the Clean Air Act, as amended 1990

2.5 Enabling Legislation and Purpose of Refuge (Mission Statement)

The area now known as CMR was withdrawn from the public domain by President Franklin D. Roosevelt under Executive Order 7509 in 1936. Initially it was called the Fort Peck Game Range. As outlined in the Executive Order, the primary purpose of the range was:

> "... for the conservation and development of natural wildlife resources and for the protection and improvement of public grazing lands and natural forage resources...natural forage resources therein shall be first utilized for the purpose of sustaining in a healthy condition a maximum of four hundred thousand (400,000) sharp-tailed grouse, and one thousand five hundred (1,500) antelope, the primary species and such non-predatory secondary species in such numbers as may be necessary to maintain a balanced wildlife population... "That all the forage resources within this range or preserve shall be available, except as herein otherwise provided with respect to wildlife, for domestic livestock..."

The mission of the Charles M. Russell NWR is to "preserve, restore, and manage in a generally natural setting a portion of the nationally significant Missouri River breaks and associated ecosystems for optimum wildlife resources and provide compatible human benefits associated with its wildlife and wildlands."

The mission of CMR satellite Refuges and WPAs are similar and are managed for optimum wildlife resources and provide compatible human benefits associated with its wildlife and wildlands.

2.6 Overview of Planning Documents

At present, the Refuge is still using the Final Environmental Impact Statement for the Management of the Charles M. Russell NWR, completed in 1985, to manage the Refuge. This document specifically calls for the use of both prescribed and wildland fire to achieve specific resource management objectives on the Refuge. The CCP planning process is scheduled to begin in 2005.

2.7 Land Management Goals and Objectives

General habitat management goals and wildlife management objectives are inseparable and are stated in Section II, Final Environmental Impact Statement, Management of the Charles M. Russell NWR, pp. 4-6. In addition, as part of implementation of the Record of Decision (ROD) for the Final Environmental Impact Statement, Habitat Management Plans (HMP) have been developed on each of the 65 management areas where livestock grazing occurs. Areas that are not grazed by livestock are also be managed under the authority of HMPs. Specific management goals and objectives, plus the strategies used to arrive at them, are addressed in these plans. The Goals identified in the Final Environmental Impact Statement pertaining to the resource management in priority order are:

- ☐ Attain and perpetuate a balanced, natural diversity of plant and animal communities favoring threatened and endangered species, then all other native species, and finally desirable exotics.

- ☐ Provide the habitat and necessary resources for recovery or reintroduction of species endangered or threatened with extinction, as recommended by approved recovery plans.

- ☐ Protect and maintain Congressionally established wilderness areas and state and nationally designated historic, cultural, and natural areas and objects unique to the Missouri River breaks.

- ☐ Restore and maintain habitat and other conditions necessary to sustain optimum populations of mammals and nonmigratory birds.

- ☐ Manage migratory bird habitats first for production and then for use during migration.

- ☐ Preserve and protect the integrity of the nationally significant Missouri River breaks ecosystem.

- ☐ Demonstrate and contrast management of wildlife through natural ecological processes, areas managed for maximum wildlife abundance and diversity, and areas managed especially for compatible public uses of wildlife and wildlands.

- ☐ Coordinate and integrate, where feasible, management of CMR with objectives of federal and state agencies and private landowners within and around CMR.

Objectives approved for CMR that evolved from its mission and goals that relate directly to fire management include:

- ☐ Maintain habitat for and reintroduce ... blackfooted ferrets...

- ☐ Maintain existing migration habitat for Bald eagles...

- ☐ Improve and maintain Sharp-tailed grouse habitat and habitat for associate species in good to excellent condition in the ponderosa pine-juniper, juniper, and grass-deciduous shrug types ...

- ☐ Improve and maintain pronghorn winter habitat in good to excellent condition on suitable sites in the juniper and sage-grasslands types...

- ☐ Improve and maintain mule deer habitat on the Refuge in sage-grassland, ponderosa-juniper, and grassland-deciduous shrub vegetative types in good to excellent condition..., in a manner that will also benefit Sharp-tailed grouse.

- ☐ Maintain elk habitat in good to excellent condition and improve security cover...

- ☐ Improve waterfowl habitat to good or excellent condition on all suitable ponds.

- ☐ Improve range condition and enhance productivity and stability of soil resources to complement wildlife objectives.

3.0. REFUGE FIRE MANAGEMENT OBJECTIVES

The goal of wildland fire management is to plan and make decisions that help accomplish the mission of the National Wildlife Refuge System. That mission is to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans. Fire management objectives (standards) are used in the planning process to guide management to determine what fire management responses and activities are necessary to achieve land management goals and objectives.

The primary goal is to provide for firefighter and public safety, public and private property, and cultural and natural resource values. Service policy and the Wildland Fire Policy and Program Review direct an agency administrator to use the appropriate management strategy concept when selecting specific actions to implement protection and fire use objectives. The resulting Appropriate Management Response are specific actions taken to implement protection and fire use objectives. With an approved Fire Management Plan, the Refuge staff may use wildland fire in accordance with local and State ordinances and laws to achieve resource management objectives (habitat improvement).

General Fire Management Goals are to:

- ☐ Protect life, property, and resources from wildfire.
- ☐ Use wildland fire to accomplish resource management objectives.
- ☐ Restore and perpetuate native wildlife species, by maintaining a diversity of plant communities.
- ☐ Retain wildland fire as an ecosystem process to the maximum extent feasible.

Specific objectives are to:

- ☐ Protect from fire important scientific, cultural, historic and prehistoric, and scenic resources, public campgrounds, recreational areas, and key visitor and administrative facilities from wildfire.
- ☐ Provide optimum sage grouse habitat by maintaining big sagebrush canopy cover at 15-25 percent.
- ☐ Maintain prairie by retarding the invasion of conifer species.
- ☐ Improve the vertical structure of the vegetation to provide optimum nesting and brood cover for sharp-tailed grouse.
- ☐ Stimulate production of browse species for elk, mule deer, and antelope.
- ☐ Increase edge effect between the woody and herbaceous cover types.
- ☐ Maintain vigor and palatability of perennial grasses and forbs.

- ☐ Provide an opportunity to increase public awareness of the beneficial effects of prescribed fire, especially when used to manage wildlife habitat.

4.0 FIRE MANAGEMENT STRATEGIES

4.1 General

It is the intention of the Refuge to manage all wildfires occurring on Service lands using the appropriate management response concept, consistent with resource management objectives and commensurate with values at risk. Prescribed fire, either alone or in combination with mechanical and other means, will be used under controlled conditions and defined weather parameters to achieve resource management goals and objectives, including hazardous fuel reduction. Fuels management could include only mechanical, chemical or biological treatments.

The BLM is in the process of completing a Fire Management Plan/Plan Amendment Environmental Assessment for Montana and the Dakotas. In the preferred alternative, prescribed burning as well as other fuel management strategies and suppression strategies identified for lands adjacent to CMR (Category B&C areas) will be based on careful consideration of resource management objectives. On Category B areas, an appropriate management response to a wildfire would involve rapid response, use of appropriate suppression techniques and tools. Aggressive suppression actions may be required to prevent unacceptable resource damage or to prevent loss of life and property. In Category C areas, suppression actions may be less aggressive. Minimal impact suppression methods would be applied where it is anticipated that the use of heavy equipment to suppress wildland fires would cause more adverse impacts than the fire itself (BLM Instruction Memo 2002-034).

The Refuge's strategy for managing wildfire is fairly similar. Strategies employing a range of suppression options will be considered. Each fire will be evaluated to determine the appropriate management response. The selected response (strategy) will be developed from an analysis of:

- ☐ Fire fighter and public safety
- ☐ The local wildland fire situation
- ☐ Land use and values-to-be-protected
- ☐ Management objectives
- ☐ External concerns

Benefits to resources will not be considered.

Generally, the primary suppression strategy employed will be indirect attack utilizing natural and man-made features as wildfire control points. However, there may be occasions when indirect attack is not feasible nor appropriate. For example, more aggressive actions will be taken to suppress Refuge fires threatening to leave Service lands and burn onto State and/or private lands or threaten structures and other improvements. In cases where indirect attack is not appropriate, direct attack will be employed. Minimum impact suppression techniques ("light-hand-on-the-land") will be utilized, where appropriate.

The decision matrix outlined in the following table is intended to provide the Incident Commander (IC) guidance when selecting the appropriate management response. The FMP is intended to provide guidance and set limits, but is the responsibility of the IC to make the final determination.

Table 2: Appropriate Management Response

SITUATION	STRATEGY	TACTIC

1. Wildland fire on Refuge lands which does not threaten life, natural or cultural resources or property values.	Restrict the fire within defined boundaries established either prior to the fire or during the fire.	1. Holding at natural and man-made barriers. 2. Burning out. 3. Observe and patrol.
1. Wildland fire on Service property with low values to be protected. 2. Wildfire burning on to Service lands. 3. Escaped prescribed fire entering another unit to be burned.	Take suppression action, as needed, which can reasonably be expected to check the spread of the fire under prevailing conditions.	1. Direct and indirect line construction. 2. Use of natural and man-made barriers. 3. Burning out 4. Patrol and mop-up of fire perimeter.
1. Wildland fire that threaten life, property or sensitive resources. 2. Wildland fire on Service property with high values to be protected. 3. Observed and/or forecasted extreme fire behavior.	Aggressively suppress the fire using direct or indirect attack methods, holding the fire to the fewest acres burned as possible.	1. Direct or indirect line construction 2. Engine and water use. 3. Aerial retardant 4. Burn out and back fire. 5. Mop-up all or part of the fire area.

All fire management activities will be conducted in a manner consistent with applicable laws, policies, and regulations.

4.2 Limits

- ☐ Smoke management will be carefully considered for all prescribed burns and will be conducted in accordance with Montana Air Quality guidelines.

- ☐ All fires occurring on the Refuge will be staffed or monitored until declared out.

- ☐ Prescribed burning in areas where threatened, endangered, and candidate species exist will not be conducted if the prescribed fire will be detrimental to the species or any adverse impacts cannot be mitigated. Section 7 clearance will be secured, as appropriate.

- ☐ Heavy equipment (dozers, discs, plows, and graders) will not be used for fire suppression, except in life threatening situations, without the express approval of the Project Leader or his or her designee.

- ☐ The use of prescribed fire to achieve management objectives must be conducted in a cost effective manner.

- ☐ Aerial Retardants and foams will not be used within 300 feet of any waterway as described in the Guidelines for Aerial Delivery of Retardant or Foam near Waterways.

- ☐ All suppression responses within these areas will comply with established Wilderness Policy regulations and guidelines.

4.3 Impacts of Fire Management Activities

In the past, the Complex's suppression strategies have had negligible impacts on surrounding neighbors. Even with the increased emphasis on resource management burns, hazard fuel reduction burns and mechanical treatment, the Complex's fire management program should not greatly impact surrounding neighbors, and may even be beneficial. With the increased emphasis on utilizing prescribed fire, several local ranchers may benefit, as the large herds of elk that currently overwinter on their lands may remain on CMR to take advantage of increased quality and quantity of forage.

The Pines Recreational Area, Rock Creek Recreational Area and Duck Creek Recreational Area are within the Fort Peck Management Unit. The Hell Creek Recreational Area, located in the Jordan Management Unit, consists of many recreational cabin sites which are in the process of being transferred to private ownership. There is a high probability of fires starting in these areas and burning onto CMR. Fuel management projects near these enclaves may protect both the developments and Service lands.

5.0 FIRE MANAGEMENT RESPONSIBILITIES

5.1 Refuge Staff Responsibilities

Fire management duties on the Refuge are the responsibility of the dedicated fire staff and other wildland fire qualified Refuge staff members. The Project Leader is responsible for planning and implementing an effective and the safest possible fire management program at the Refuge. The Project Leader is also ultimately responsible for all fire management decisions related to both wildfire and prescribed fire in the Refuge. The fire job responsibilities in the Fireline Handbook (PMS 410-1) and the ones described for the positions below are to be fulfilled. A listing of staff and their qualifications can be found in Appendix C.

5.1.1 Project Leader

- ☐ Responsible for the overall management of the Refuge including fire management.
- ☐ Ensures fire management policies observed.
- ☐ Fosters effective cooperative relations with the Refuge, cooperating fire organizations, and adjoining land owners.
- ☐ Within budgetary restraints, ensures sufficient firefighters meeting Service standards are available for initial attack.
- ☐ Approves individual prescribed fire plans.
- ☐ Serves as collateral duty firefighter, as qualified.

5.1.2 Fire Management Officer

- ☐ Responsible for planning and coordinating preparedness activities including:
  - Administering the Refuge fire training program.
  - Conducting physical fitness testing and Interagency Fire Qualification System data entry.
  - Coordinating with cooperative agencies on an area level. Revising cooperative agreements as necessary.
  - Insuring the Step-up Plan is followed.
  - Preparing annual FireBase budget request and manages and tracks use of FireBase accounts.
  - Issuing Red Cards to Refuge employees.
- ☐ Responsible for coordinating prescribed fire activities including:
  - Reviewing proposed annual prescribed fire program to ensure it meets resource management objectives.
  - Writing prescribed burn plans.
  - Completing daily validation that prescribed fires are under prescription and meet all other Service policy requirements.
- ☐ Maintains liaison with Zone Fire Management Officer, Regional Fire Management Coordinator, and Cooperators.
- ☐ Maintains fire records, enters completed DI-1202s into FMIS. Annually reviews and updates as necessary the Fire Management Plan.
- ☐ Serves as firefighter, as qualified.
- ☐ Serves as Prescribed Fire Burn Boss, as qualified

5.1.3 Assistant Fire Management Officer

- ☐ Supervises firefighters at Sand Creek.

☐ Serves as firefighter, as qualified.
☐ Serves as Prescribed Fire Burn Boss, as qualified.

5.1.4 Fire Ecologist

☐ Evaluates Refuge habitats and conducts fire research
☐ Evaluates habitats for possible use of prescribed fire.

5.1.5 Range Tech/Firefighter

☐ Maintains engine(s) in a state of readiness.
☐ Supervises and trains assigned engine crew, as qualified.
☐ Prepares units for prescribed burns.
☐ Serves as firefighter, as qualified.

5.1.6 Refuge Field Station Manager

☐ Coordinates dispatching and suppression activities with Refuge FMO.
☐ Supervises assigned firefighter and collateral duty firefighter staff.
☐ Serves as collateral duty firefighter, as qualified.

5.1.7 Administrative Officer

☐ Completes all necessary administrative documents associated with fire management activities.

5.1.8 Office Assistant

☐ Serves as Dispatcher, as qualified.

5.1.9 Seasonal and Collateral Duty Firefighters

☐ Responsible for their equipment and physical conditioning.
☐ Qualifies annually by completing the appropriate fitness test within 2 weeks of EOD date.
☐ Maintains assigned fire equipment in ready state and uses all assigned safety gear.
☐ Assists the FMO maintain accurate fire records by providing documentation for training and experience.
☐ Serves as fighter/collateral duty firefighter, as qualified.

5.1.10 Wildfire Incident Commander (as assigned)

☐ The Incident Commander (IC) is responsible for the safe and efficient suppression of the assigned wildfire as delegated by the Project Leader.
☐ Fulfills the duties described for the IC in the Fireline Handbook.
☐ Notifies the Fire Management Officer and/or Project Leader of all resource needs and situational updates, including the need for extended attack.
☐ Ensures wildfire behavior is monitored and required data is collected and all fire suppression personnel are informed of forecasted and expected fire weather and behavior. Informs fire suppression personnel of escape routes and safety zones. Posts lookouts.
☐ Ensures personnel are qualified for the job they are performing.

- ☐ Identifies and protects endangered and threatened species and sensitive areas according to the Fire Management Plan.
- ☐ Utilizes minimum impact tactics to the fullest extent possible.
- ☐ Ensures fire is staffed or monitored until declared out.
- ☐ Ensures that the fire site is fully rehabilitated or that management is notified that rehabilitation is required.
- ☐ Submits completed DI-1202 (wildfire report), Crew time sheets, a listing of any other fire related expenditures or losses to the Fire Management Officer, and completes taskbooks within 3 days of fire being declared out.

5.1.11 Prescribed Burn Boss (as assigned)

- ☐ Writes or reviews prescribed burn prescriptions and burn plans for assigned block(s).
- ☐ Implements approved prescribed burn plans.
- ☐ Assist with the administration, monitoring, and evaluation of prescribed burns.
- ☐ Submits completed DI-1202 (wildfire report), Crew time reports, a listing of any other fire related expenditures or losses to Fire Management Officer, and completes taskbooks within 3 days of fire being declared out.

5.2 Cooperator involvement

Along with other land management agencies, the Service has adopted the National Interagency Incident Management System (NIIMS) Wildland and Prescribed Fire Qualification Subsystem Guide, PMS 310-1 to identify minimum qualification standards for interagency wildland and prescribed fire operations. PMS 310-1 recognizes the ability of cooperating agencies at the local level to jointly define certification and qualification standards for wildland fire suppression. Under that authority, local wildland fire suppression forces will meet the standards established for their agency or department. All personnel participating in prescribed fire management activities must meet Service fitness and training standards.

CMR maintains a cooperative fire agreement with the Bureau of Land Management to provide mutual assistance on fires within and adjacent to the Refuge (Appendix D). The Lewistown, Miles City and Malta Field Offices will provide assistance when fires occur in an identified mutual threat zone (boundary fires); both BLM and CMR resources will respond to the fire. When land ownership has been established, the proper landowner will assume responsibility for fire suppression. Multi-jurisdictional fires will be managed utilizing Unified Command procedures. Likewise, CMR will provide assistance, when requested, to the BLM in this same response zone.

CMR has also entered into a Statewide Agreement with the Montana Department of Natural Resources and Conservation (DNRC). This plan establishes a formal fire protection exchange between the Montana Department of Natural Resources and Conservation and the Fish and Wildlife Service; and the Bureau of Land Management, Forest Service, and Montana Department of Natural Resources and Conservation. The agreement gives the Refuge primary wildland fire protection responsibilities for State Lands (approximately 35,000 acres) within the boundaries of CMR, in exchange, DNRC will provide wildland fire protection on refuges in Western Montana, including: Swan River National Wildlife Refuge, Flathead Waterfowl Production Area, Blasdel Waterfowl Production Area, Batavia Waterfowl Production Area, Smith Lake Waterfowl Production Area, Lost Trail National Wildlife Refuge, and Lee Metcalf National Wildlife Refuge (Appendix E).

Structural firefighting **is not** the functional responsibility of the Service (241 FW 7.1 and 095 FW 3.8.C.). Structural and vehicle firefighting is the responsibility of State and local fire jurisdictions. Service personnel may assist in structural fire suppression by directing traffic, providing structure protection, etc. Cooperative agreements with local structural fire departments should be pursued for the protection of Service owned structures. However, cooperative agreements will not commit Service personnel to structural fire suppression.

6.0 FIRE SEASON

6.1 Refuge Fire Frequency

Fire data prior to 1983 is incomplete. A comprehensive fire history/frequency study is being completed for the Refuge by the University of Montana. Fire records have been maintained in FMIS (Fire Management Information Systems) since 1982. From 1982 through 2001 records show that 154 fires, including natural outs, were reported on the Refuge. These wildfires burned a total of 40,885 acres. The average number of fires per year is 7.7 and the average number of acres per year burned is 2,034. If statistics for the past 38 years were used, the average fire frequency would be higher. The majority of the fires (118) fall in to Classes A, B, and C, or less than 100 acres in size (FMIS 1992). A complete fire history for the period can be found in Appendix B.

6.2 Refuge Fire Season

Based on past fire reports for the period 1983 to 2001, the wildfire season runs from May 1st to October 17th, with the peak being July 30th through September 17th (FMIS 1992). The Prescribed fire season runs from early-March to the middle of May and again from mid-September to early-November.

7.0 EQUIPMENT AND STAFFING NEEDS

7.1 Normal Unit Strength

7.1.1 Equipment and Supplies

All suppression activities originate from the three field stations located around the Refuge. Each field station has suppression capabilities, equipment storage and a fire cache. NUS for each fire cache can be found in Appendix F.

Engines are the primary initial attack resource on the Refuge. A full list of the Refuges equipment that can be used on fire are listed in Appendix F. Engines will be fully prepared and equipped for fire suppression activities prior to the established fire season. A list of required equipment for each engine is found in Appendix G.

7.1.2 Personnel and Level of Qualifications

The Refuge's fire program is complex and requires the involvement of all Refuge employees. The participation of non-fire funded personnel are an integral component of CMR's suppression capabilities and is critical to the mission of the Refuge and Service. These collateral duty firefighters augment a fire-funded staff that includes permanent and seasonal employees. In addition to the four permanent staff members, the Refuge will employ, at minimum, ten seasonal firefighters during the wildland fire season.

Permanent, fire-funded staff required to meet the Refuge's fire management needs include:

- ☐ Fire Management Officer stationed at the Refuge Headquarters in Lewistown.
- ☐ Assistant FMO stationed at the Sand Creek Field Station.
- ☐ Supervisory Range Technician/Firefighter stationed at the Sand Creek Field Station.
- ☐ Supervisory Range Technician/Firefighter stationed at the Jordan Field Station.

Following will be the minimum staffing requirements for each field station:

- ☐ **Sand Creek**
  - ■ 1-Permanent, GS-9, Assistant Fire Management Officer
  - ■ 1 - Permanent, GS-7, Supervisory Range Technician/Firefighter
  - ■ 1 to 2 - Seasonal, GS-5, Range Technician/Firefighter(s)
  - ■ 1 to 2 - Seasonal, GS-4, Range Technician/Firefighter(s)
  - ■ 1 to 2 - Seasonal, GS-3, Range Technician/Firefighter(s)
  - ■ 1 to 2 - Seasonal, GS-2, Range Technician/Firefighter(s)

- ☐ **Jordan**
  - ■ 1 - Permanent, GS-7, Supervisory Range Technician/Firefighter
  - ■ 1 to 2 - Seasonal, GS-5, Range Technician/Firefighter(s)
  - ■ 1 to 2 - Seasonal, GS-4, Range Technician/Firefighter(s)
  - ■ 1 to 2 - Seasonal, GS-3, Range Technician/Firefighter(s)

- 1 to 2 - Seasonal, GS-2, Range Technician/Firefighter(s)

☐ **Fort Peck**

- 1 to 2 - Seasonal, GS-5, Range Technician/Firefighter(s)
- 1 to 2 - Seasonal, GS-2/3/4, Range Technician/Firefighter(s)

In order to maintain the program, as employees are hired or transfer to the Refuge, they will be encouraged to take the necessary training and gain additional experience to fill additional positions at the Refuge and provide additional flexibility for the program. Minimum staffing needs are found in Table 3.

Table 3: Minimum Staffing Needs - Charles M. Russell NWR Complex

Position	Wildfire	Prescribed Fire
Incident Commander (ICT3)	1	
Incident Commander (ICT4)	4	
Engine Boss (ENGB)	8	2
Engine Operator (ENOP)	8	2
Firefighter Type 1 (FFT1)	8	2
Prescribed Burn Boss (RXB2)		2
Prescribed Burn Boss (RXB3)		2
Firefighter Type 2 (FFT2)	10	4

Note: One person can be qualified for more than one position.

8.0 PREPAREDNESS

8.1 Current Staff Available to meet Position Needs

The Refuge has adequate staff to meet current needs. Current staffing levels and qualifications can be found in Appendix C. An employee contact list will be maintained, updated and attached to the CMR Fire Management Plan each year (Appendix H).

Additional firefighters (emergency hire/casual firefighters) may be temporarily hired to supplement engine crews using severity or emergency preparedness funding when very high or extreme fire conditions warrant.

8.2 Pre-season Readiness Activities

Pre-season risk analysis is a process that requires fire managers to step back, review current and predicted weather and fuels information, compare this information with historic weather and fuels records, and predict the upcoming fire season's severity and duration. The same process can be used to implement step-up and pre-attack plans. These factors can provide the necessary justification for actions such as pre-positioning critical resources, requesting additional funding, or invoking Memoranda of Understanding (MOU) to meet anticipated needs. If an abnormal fire season is anticipated, the FMO may request additional funding in accordance with Service policy.

The Refuge will use the Palmer Drought Index, Energy Release Components and Burn Indexes as indicators to predict fire season severity and duration. These are the same indexes local cooperators (BLM, DNRC) use and are readily available from RAWS stations on and adjacent to the Refuge and Satellites. A severe drought is indicated by a Palmer Drought Index (PDI) reading of -4.0 or less.

Routine or reoccurring tasks are identified in Table 4. Guidelines for pre-season readiness activities can be found in Section 3.1 of the FWS Fire Management Handbook.

Table 4: Annual Refuge Fire Management Activities

ACTIVITY Activities should be completed prior to the end of the month(s) indicated.	1	2	3	4	5	6	7	8	9	10	11	12
Update Interagency Fire Agreements/AOPs	x	x	x									
Winterize Fire Management Equipment										x		
Inventory Fire Engine and Cache		x										
Complete Training Analysis									x			
Annual Refresher Training					x	x						
Annual Fitness Testing					x	x						
Pre-Season Engine Preparation			x									
Weigh Engines to verify GVW Compliance			x									
Prescribed Fire Plan Preparation	x											x
Review and Update Fire Management Plan		x										
Prepare Pre-season Risk Analysis					x							
Weather Station Maintenance and Calibration										x		
Live Fuel Moisture Monitoring					x	x	x	x				

8.2.1 Annual Refresher Training

The safety of firefighters and the public is the first priority. Persons engaged in fire suppression activities are exposed to a high element of risk. The Project Leader and fireline supervisors must make every effort to reduce the exposure to risk and enhance performance. One way is through formal and on-the-job training and improved physical fitness. The Service has adopted the training and fitness standards established in 310-1, and all firefighters employed by the Service must meet these and other standards established by the Service to participate in fire management activities.

All personnel involved in Fire Management activities are required to participate in 8 hours of fire management refresher training annually in order to be qualified for fire management activities in that calendar year. Refresher training will concentrate on local conditions and factors, the Standard Fire Orders, LCES, 18 Situations, and Common Dominators. NWCG courses Standards for Survival, Lessons Learned, Look Up, Look Down, Look Around, and others meet the firefighter safety requirement; but, efforts will be made to vary the training and use all or portions of other NWCG courses to cover the required topics. Fire shelter use and deployment under adverse conditions, if possible, must be included as part of the annual refresher.

8.2.2 Physical Fitness

All personnel involved in fire management activities will meet the fitness standards established by the Service and Region. At this time, firefighters participating in wildfire suppression must achieve and maintain an Arduous rating. Firefighters participating in Prescribed Burns must achieve and maintain, at a minimum, a Moderate rating. Information found in Appendix I provides specific instructions to administer the tests, a health screening questionnaire to aid in assessing personal health and fitness of employees prior to taking the test, an informed consent form, and safety considerations. A trained and qualified American Red Cross First Responder (or equivalent) who can recognize symptoms of physical distress and perform appropriate first aid procedures must be on site during the test.

Wildland fire fitness tests shall not be administered to anyone who has obvious physical conditions or known heart problems that would place them at risk. All individuals are required to complete a pre-test physical activity readiness questionnaire prior to taking a physical fitness test. They must read and sign the Par-Q health screening questionnaire, an informed consent form (Appendix I). If an employee cannot answer NO to all the questions in the PAR-Q health screening questionnaire, or is over 40 years of age, unaccustomed to vigorous exercise, and testing to achieve a Moderate or Light rating, the test administrator will recommend a physical examination. As noted below, all individuals over 40 years of age must receive an annual physical prior to physical testing.

8.2.3 Physical Examinations

In keeping with Service Policy, a physical examination is required for all new permanent employees and all seasonal employees assigned to arduous duty as fire fighters prior to reporting for duty. A physical examination may be requested for a permanent employee by the supervisor if there is a question about the ability of an employee to safely complete one of the work capacity tests. All permanent employees over 40 years of age who take the Pack or Field Work Capacity Test to qualify for a wildland or prescribed fire position are required to have an annual physical examination before taking the test.

8.3 Impacts of Regional and National Preparedness Levels on Station Activities

As indicated previously, periods of drought can greatly impact fire behavior and resistance to suppression. For that reason the Rangeland Fire Danger Index and Palmer Drought Index will be monitored at a minimum on a weekly bases throughout the prescribed fire and wildland fire season. All are available on the Internet at http://www.boi.noaa.gov/fwxweb/fwoutlook.htm.

Large scale fire suppression activities occurring in various parts of the country can have an impact on local fire management activities. For example, resources may be limited to implement prescribed fire activities because the closest available resources may be assigned to fire suppression duties or Refuge personnel may be involved as well. Regional drought conditions may also tie-up local resources that would normally be able to assist with Refuge fire management activities. It may be necessary to go out of Region to get the resources needed to staff the Refuge engines during periods of extreme drought or high fire danger.
The Refuge is in the Northern Rockies Geographic Area. During National and Regional Planning Levels IV and V, it is necessary to receive approval from the Regional Fire Management Officer and the concurrence of the Northern Rockies Geographic Area Coordination Group to conduct prescribed burns during PL IV and the concurrence of the National Coordination Group during PL V. Prescribed fire activities will not be conducted when the National Preparedness is at Levels IV, or V without concurrence of the Northern Rockies Geographic Area Coordination Group.

8.4 Step-Up Plan

All preparedness activities will be in accordance with the Refuge Step-up Plan (Appendix J).

8.5 Severity and Emergency Preparedness Funding

Severity funding is different from Emergency Preparedness funding. Emergency Preparedness funds are used to fund activities during short-term weather events and increased human activity that increase the fire danger beyond what is considered normal. Severity funding is requested to prepare for extreme fire potential caused by an unusual climate or weather event such as extended drought. Severity funds and emergency preparedness funds may be used to rent or preposition additional initial attack equipment, augment existing fire suppression personnel, and meet other requirement of the Step-up Plan.

Emergency Preparedness and Severity funds will be requested in accordance with the guidance provided in the Service's Fire Management Planning Handbook. As a general guide, Severity funding will be requested if a severe drought is indicated by a Palmer Drought Index (PDI) reading of -4.0 or less and a long-range forecast calling for below average precipitation and/or above average temperatures. Drought Indices are available on line at: http://www.boi.noaa.gov/fwxweb/fwoutlook.htm

9.0 WILDFIRE PROGRAM

9.1 Special Safety Concerns and Firefighter Safety

Safety of Service employees and cooperators involved in fire management activities is of primary concern. Only trained and qualified employees will be assigned to fire management duties. All fire management personnel will be issued appropriate personal protective equipment and will be trained in its proper use. No Service employee, contractor or cooperator will be purposely exposed to life threatening conditions or situations except when necessary to save the life of another person.

The primary threat to firefighter safety is from fast moving, wind-driven wildfires in light, flashy fuels that can quickly over take and trap firefighters. Due to terrain, often broken by series of moderately to deeply incised drainages and ridges, vehicle access to many wildfires is limited and terrain may make it difficult for an engine to out-run a fast moving fire. A fast moving wildfire can also quickly overtake any unaware firefighters constructing handline, especially in "chimneys or chutes" (upper end of a drainage), which dominate the terrain throughout most of the Refuge.

Additional safety concerns include:

- ☐ Narrow dirt roads
- ☐ Rolling rocks and other debris
- ☐ Loose footing
- ☐ Snags in certain areas
- ☐ Limited radio coverage
- ☐ Slope reversals
- ☐ Dehydration

It is important that firefighters practice LCES at all times! Spot weather forecasts should be requested early-on during initial attack to gain insight into the possibility of shifting winds from thunderstorms, approaching fronts, and other weather related phenomena.

Smoke from wildfires and prescribed fires is a recognized health concern for firefighters. Prescribed burn bosses and wildfire incident commanders must plan to minimize exposure to heavy smoke by incorporating the recommendations outlined in the publication Health Hazards of Smoke (Sharkey 1997), which is available from PMS or the Missoula Technology and Development Center.

The Goals and Objectives of the Refuge Safety Plan will be incorporated into all aspects of fire management. The Fire Management Plan will provide direction to accomplish safety objectives listed below during wildfire suppression actions and prescribed fire activities.

- ☐ Provide safe working conditions for employees.
- ☐ Provide safe environments for the visiting public.
- ☐ Protect and insure safety of government equipment.
- ☐ Promote a healthy attitude about safety.

9.2 Prevention Program

A review of fire records indicate only eighteen human caused fires occurred on the Refuge during the period 1983-2001 (FMIS 1992). Not all fires have been investigated, so the number of human-caused fires may be inaccurate, especially prior to 1988.

Thirteen of the reported human-caused fires occurred within the past six years (FMIS 1992). This may be attributable to increased river traffic associated with the Lewis and Clark Centennial. As indicated earlier, recreational use of the Refuge during summer and fall is rapidly increasing and it is reasonable to expect the number of human-caused fires to increase.

The purpose of the Refuge's prevention program is to reduce the occurrence of human-caused fires through visitor and employee education. The Refuge will accomplish this goal through the following efforts:

- ☐ Integrate the prevention message into interpretive programs conducted or sponsored by the refuge.
- ☐ Make all staff aware of prevention efforts and be able to explain it to other interested parties and individuals calling the Refuge.
- ☐ Fire prevention will be discussed at appropriate safety meetings, prior to fire season and during periods of high fire danger.
- ☐ When available, Refuge employees will assist with local and regional Prevention Campaigns.
- ☐ Articles concerning fire prevention will be made available for statewide release.
- ☐ Areas may be closed to smoking, open fires, and Refuge access by the Project Leader during periods of high or extreme fire danger. Notices will be posted at appropriate entrances, trails and through local radio and news releases. Restrictions such as these have been utilized effectively during past periods of high fire danger
- ☐ Fire Danger Awareness signs (Today's Fire Danger is___) will be placed along the two major highways that intersect the Refuge at Jordan and Sand Creek.
- ☐ The Refuge Fire Management Officer will coordinate with other State and Federal Land Management Agencies in periods of extreme fire danger.

9.3 Detection

The CMR encompasses a vast, remote area, surrounded by private, State and other federal lands. Most fires are detected and reported by private land owners, recreationists, or commercial aircraft flying overhead.

During periods of high lightning activity, Refuge personnel may fly detection flights out of Lewistown, or request detection flights from Miles City or Lewistown BLM through the appropriate Dispatch Center. The Step-up plan provides for additional patrols as fire danger increases.

There may be occasions when Refuge personnel who are not qualified to fight wildfires, discover a wildland fire. When this occurs, the employee should report the fire and request assistance before taking action to suppress or slow the spread of the fire. If the fire poses an imminent threat to human life, the employee may take appropriate action to protect that life before requesting assistance. The unqualified personnel will be relieved from direct on-line suppression duty or reassigned to non-fireline duty when qualified initial attack forces arrive.

9.4 Initial Reporting and Dispatching

The Service provides funding to the BLM to provide for dispatch services for CMR. The Central Zone (Lewistown) and Eastern Zone (Miles City) Dispatch Centers are responsible for providing dispatching services for all Refuge fires.

The Refuge FMO will provide a staffing and availability report (Appendix K) of initial attack resources by 1000 Hours every day to both Dispatch Centers from June 15 to August 31 (this date may be extended depending on fire severity). The Refuge FMO or his/her designee will also provide Fire Intelligence Reports to each Dispatch Center on a weekly basis.

Fires discovered on CMR or adjoining lands can be reported to Refuge Headquarters Office in Lewistown or the Miles City or Lewistown Interagency Dispatch Centers. Whoever takes the report of fire will contact the appropriate agency if a wildfire is on or threatening another agency's lands.

Table 5: Wildfire Reporting Telephone Numbers

Center or Office	Phone Number
Lewistown Interagency Dispatch Center	406-538-1972
Miles City Interagency Dispatch Center	406-232-0323
Refuge Headquarters - Lewistown, Montana	406-538-8706

The person receiving a report of a wildfire will record the following information:

- ☐ Location - Geographical and legal description if possible.
- ☐ Size, if known.
- ☐ Fuels (Grass, Brush, Timber), if known.
- ☐ Fire behavior (Running, Crowning, Smoldering, etc.), if known
- ☐ Cause, if known.
- ☐ The number of resources on or dispatched to the fire.
- ☐ Name and phone number of person reporting the fire or the source of information if the fire was not reported by a person.(scanner traffic, etc.).

The assignment of CMR initial attack resources is a coordinated effort between the Refuge Fire Management Officer and each Field Station Manager. Upon receiving a report of a fire on Service lands, the person receiving the report will contact the CMR Fire Management Officer immediately. The FMO is responsible for notifying the Project Leader and other managers or Regional Office personnel of the situation, as warranted. It is the responsibility of the Station Managers to know the location and availability of all personnel at their respective station and maintain staff readiness commensurate with fire danger. The Refuge FMO is responsible for prioritizing needs and assigning CMR resources to wherever the need is greatest.

9.5 Pre-attack Plans

Copies of Pre-attack Plans are included in Appendix L.

9.6 Fire Suppression

9.6.1 Overview

All wildfires regardless of source of ignition will be suppressed. Service policy requires the Refuge to utilize the ICS system and firefighters meeting NWCG and Service qualifications for fires occurring on Service lands. All suppression efforts will be directed towards safeguarding life and property while protecting cultural and natural resources and other values at risk from harm. Once suppression forces are assigned to a fire, they become the number one priority.

When a fire is reported on Service lands, initial attack will be initiated utilizing Service resources. All fires occurring on the Refuge and staffed with Service employees will be supervised by a qualified incident commander (IC). A qualified Initial Attack IC employed by the Refuge will be assigned to direct all suppression efforts whenever possible. If a qualified IC is not available, one will be ordered through the appropriate Dispatch Center. Until the IC arrives, the highest qualified firefighter will assume the duties of the IC until relieved by a qualified IC or the fire is suppressed. The IC will be responsible for:

- ☐ Providing a size-up of the fire to the Dispatcher as soon as possible.
- ☐ Using guidance provided in the Fire Management Plan or in the Delegation of Authority, determining the strategy and tactics to be used.
- ☐ Determining the resources needed to manage the fire.
- ☐ Briefing assigned resources on the strategy and tactics to be used, expected fire behavior, historic weather and fire behavior patterns, impacts of drought, live fuel moisture, escape routes and safety zones, and radio frequencies to be used. Assigning lookout(s).
- ☐ Advising the Dispatcher of additional resources required to suppress the fire.
- ☐ Managing all aspects of the incident until relieved or the fire is suppressed

Procedures outlined in the dispatch section and elsewhere in this plan will be used to acquire Service and Interagency fire personnel and resources. Upon arriving at the scene, all resources, including mutual aid resources, will report to the IC (either in person or by radio) prior to deployment. Mutual aid forces will be first priority for release from the fire.

When a fire is reported in an area identified as a mutual threat zone (boundary fires), both BLM and Service resources will respond to the fire. When land ownership has been established, the suppression forces having jurisdiction will assume command of fire. **Multi-jurisdictional fires** will be managed utilizing the Unified Command structure.

9.6.2 Wildland Fire Implementation Plan

A Wildland Fire Implementation Plan (WFIP) will be prepared for all wildland fires. For most wildfires, all that will be required is the first stage, which can be completed as part of the size-up process. The WFIP Stage 1: Initial Fire Assessment will include the following elements:

- ☐ Fire Name
- ☐ Fire Number
- ☐ Jurisdiction
- ☐ Administrative Unit(s)
- ☐ Geographic Area
- ☐ Management Code(s)
- ☐ Start date/time
- ☐ Discovery date/time
- ☐ Current size
- ☐ Location
- ☐ Cause (If known)
- ☐ Fuel model(s) and condition
- ☐ Current weather
- ☐ Predicted weather
- ☐ Current fire behavior
- ☐ Predicted future fire behavior
- ☐ Availability of resources
- ☐ Recommended response action

A form that can be used to document this information can be found in Appendix T. The completed WFIP will be attached to the DI-1202 Fire Report.

The WFSA process will be used for the Stage II and Stage III assessments (Section 9.6 and Appendix N).

9.6.3 Initial Attack Strategies and Tactics

The appropriate management response concept will be used to suppress wildfires. Each individual wildfire will be evaluated and the suppression strategy and tactics to be used will be based on current and predicted conditions. The following factors will be considered when selecting strategies and tactics to be used to suppress a wildfire:

- ☐ Firefighter safety, commensurate with values at risk.

- ☐ In general, fire suppression techniques should not adversely impact natural and cultural resources.
- ☐ The current and predicted fire weather and behavior.
- ☐ The condition of fuels and expected fire behavior.
- ☐ The availability of resources.

Resource benefits will not be considered during the selection process.

In most cases, the primary response selected would be to limit the spread of the fire to a pre-identified area, such as a ravine, ridge, valley, etc. The appropriate tactics could include monitoring, indirect attack using available natural or man-made features as control lines, or a combination of direct and indirect attack. In those cases where a wildfire is burning in an area where State or private lands are threatened, or other property or critical habitat could be impacted, aggressive, direct attack action should be initiated.

During certain periods when fuels are impacted by drought, multiple fires are burning in the area, and/or resources are in short supply, it may be appropriate to take aggressive suppression action, even in an isolated area or an area managed as wilderness.

9.6.4 Minimum Impact Suppression Tactics

Service fire management policy requires the fire manager and firefighter to select an appropriate management response commensurate with the fire's potential or existing behavior, with minimal environmental impact. Utilizing minimum impact fire suppression tactics is a desirable goal of the Service if resource objectives can be achieved. The minimum impact tactics concept is defined as the aggressive application of those strategies and tactics which effectively meet management objectives with the least cultural and environmental impact. Minimum impact operations require that short- and long-term values at risk be evaluated and compared to suppression costs. This can be a difficult task and is often subjective.

Minimum impact operations emphasizes the need to manage a wildland fire while maintaining a high standard of caring for the land. The IC must consider what is necessary to manage fire spread and ensure it is contained within the fireline or designated perimeter boundary. Actual fire conditions and good judgment will dictate the actions to be taken. At no time should minimum impact tactics be used if suppression objectives cannot be accomplished.

Minimum Impact Operations are discussed in Section 3.2.6 of the Wildland Fire Management Handbook, and guidance can also be found in Appendix M.

9.6.5 Limits to Suppression Activities

- ☐ The suppression method chosen should accomplish the task while causing the least damage to the resource and the environment. Historically, in areas of sparse precipitation, suppression damage has been quite severe and long lasting. For that reason, heavy equipment (bulldozers, graders, etc.) will only be used in extreme emergencies with appropriate Line Officer approval. When heavy equipment is used for fireline construction, the Project Leader or his/her designated representative should assign a fireline qualified resource advisor to provide guidance to suppression forces.

- ☐ Designated Wilderness and Wilderness Study Areas are units that are managed in a manner designed to protect those values that made the area unique and worthy of consideration or designation. All suppression responses within these areas will comply with established Wilderness Policy regulations and guidelines. Suppression activities will usually be with hand tools and bladder bags, without the support of pumps, engines, motorized vehicles or aircraft. Exceptions can be made, but only with the approval of the Project Leader or other designated official.

- ☐ Aerial Retardants and foams will not be used within 300 feet of any waterway as described in the Guidelines for Aerial Delivery of Retardant or Foam near Waterways.

- ☐ The use of Air Tankers in areas designated as wilderness must have the approval of the Project Leader or his/her designee.

9.7 Escaped Fires/Extended Attack

The IC will notify the Refuge FMO, who will in turn notify the Refuge Manager, whenever it appears a fire will escape initial attack efforts, leave Service lands, or when fire complexity will exceed the capabilities of command or operational forces. The Refuge FMO will provide assistance, as available, with the implementation of the extended attack operations including:

- ☐ Assisting the Refuge Manager complete the WFSA (Wildland Fire Situation Analysis) (Appendix N).
- ☐ Assisting the Refuge Manager complete the Delegation of Authority (Appendix O), if needed.
- ☐ Ordering of appropriate resources through the appropriate Dispatch Center.

9.8 Mop up Standards and Rehabilitation

The IC will be responsible for mop-up and rehabilitation actions on Refuge fires. The standards established in the Fireline Handbook will be followed. Refuge fires will be patrolled or monitored until declared out.

Rehabilitation of suppression actions will take place prior to firefighters being released from the fire. Items that will be done include:

- ☐ All trash will be removed.
- ☐ Firelines will be refilled and waterbars added if needed.
- ☐ Hazardous trees and snags cut.
- ☐ Stumps cut flush.

Emergency stabilization is the use of appropriate emergency stabilization techniques in order to protect public safety and stabilize and prevent further degradation of cultural and natural resources in the perimeter of the burned area and downstream impact areas from erosion and invasion of undesirable species. The Incident Commandeer may initiate Emergency Stabilization actions before the fire is demobilized, as delegated by the Agency Administrator, but emergency stabilization activities may be completed after the fire is declared out.

Rehabilitation is the use of appropriate rehabilitation techniques to improve natural resources as stipulated in approved refuge management plans and the repair or replacement of minor facilities damaged by the fire. Total "rehabilitation" of a burned area is not within the scope of the Emergency Rehabilitation funding. Emergency Rehabilitation funding can be use to begin the rehabilitation process if other funding is committed to continue the rehabilitation throughout the life of the project (beyond the initial 3 years of Emergency Rehabilitation funding). Major facilities are repaired or replaced through supplemental appropriations of other funding.

Because of the emergency nature of the fire event of the **emergency stabilization** section of the ESR Plan must be developed expeditiously and is frequently developed by a local unit or designated burned area ESR team. The rehabilitation section of the ESR Plan is not considered an emergency, and is developed as other refuge land use plans. The Refuge Manager is responsible for supervising the preparation of all ESR Plans. In order to be funded, ESR Plans must meet resource management objectives and be approved by the Project Leader and the Regional Director.

If re-seeding is necessary, it will be accomplished according to Service policy and regulations (620 DM 3, Fire Management Handbook, 3.2.9).

10.0 PRESCRIBED FIRE PROGRAM

10.1 Program Overview

Prescribed fire has not been looked on favorably in many sections of the West, especially on CMR where reductions in grazing have been strongly contested. As the Refuge implements the prescribed fire program, additional efforts will be undertaken to dispel beliefs that all residual fuel (feed) burned in prescribed fires could have been better utilized by cattle. As public sentiment slowly changes and ecosystem management becomes a reality, the Refuge plans to increase its utilization of prescribed fire for habitat improvement and hazard fuel reduction purposes.

The Refuge will use prescribed fire as a tool in two management areas - habitat restoration and maintenance and hazardous fuel reduction. Resource management prescribed burning will be used to restore, create, and/or maintain a diversity of plant communities in order to restore and perpetuate native plant and wildlife species. The Refuge may use hazard fuel reduction prescribed burns alone or in combination with mechanical and/or chemical means to reduce the risk of damage from wildfire to Refuge developments, private inholdings, sensitive resources, and private and State lands out side the boundary. To the greatest extent possible, prescribed burns used to reduce accumulations of hazard fuels will only be carried out when they compliment resource management objectives.

Prescribed burning will be conducted in accordance with Service guidelines. Each prescribed burn will require a detailed and comprehensive prescribed burn plan that has been reviewed by the Zone FMO and approved by the Project Leader.

10.2 Resource Management Objectives

Prescribed fire can be a useful habitat management tool, if used correctly and for a specific purpose. An increased emphasis will be placed on expanding the use of prescribed fire as a habitat management tool.

The Final Environmental Impact Statement for the Management of CMR (1985) proposed prescribed burning be initiated at the Refuge for the primary purpose of stimulating browse and forb production for the benefit of wildlife. Development of individual Habitat Management Plans (HMPs) for each allotment has further identified opportunities to use prescribed fire to accomplish habitat objectives in every major vegetative (habitat) type present on the Refuge.

10.2.1 Refuge Resource Management Goals

- ☐ Retard invasion of conifer species into the prairie.
- ☐ Increase quantity and quality of browse for big game.
- ☐ Establish desired vegetation types as identified in HMPs.
- ☐ Set back succession and increase edge effect between the conifer and shrub-grassland communities.
- ☐ Restore and perpetuate native species of flora and fauna.

10.2.2 Program Objectives

- ☐ Accomplish the stated goals by treating with management ignited prescribed fire a minimum of 1,500 acres per year on CMR and Satellite Refuges.

10.3 Hazard Fuel Reduction

Hazard fuel reduction projects may involve the use of prescribed fire, either alone or in combination with mechanical or other means, to protect wildland-urban interface areas from catastrophic wildfire. Primary sites for the use of prescribed fire will be adjacent to the Corps of Engineers three Recreational Areas where approximately 300 cabins are located. Secondary benefit would be the added protection afforded Refuge lands through the creation of defensible space that can be used to control a wildfire before it could leave the area and burn onto Service lands.

A Plan will be developed for each project.

10.3.1 Hazard Fuel Reduction Goals

- ☐ Provide for firefighter and public safety.
- ☐ Protect public and private property.
- ☐ Reduce or eliminate the risk of a catastrophic wildland fire occurring in or around wildland-urban interface areas.

10.3.2 Hazard Fuels Prescribed Fire Objectives

- ☐ Utilize the most appropriate tool (mechanical or burning) to treat 200 to 300 acres per year.
- ☐ Treat units once every 3-8 years depending on fuel accumulations, funding and resource availability, and resource management considerations.
- ☐ Reduce dead grass fuel loadings by 75% or better in the treatment areas.
- ☐ Reduce woody shrub component by 50% or more in the areas treated.
- ☐ Reduce quantities of 100 and 1000 hour fuels by 50% or more in treatment areas.

10.4 Use of fire to Achieve Resource Objectives

Although a modified suppression strategy was briefly mentioned in the Final Environmental Impact Statement for the Management of CMR, a concept like Wildland Fire Use for Resource Benefit (WFURB) was not. Therefore,WFURB will not be used as a management tool on Complex lands at this time. In the future, if it is decided that Refuge managers want to consider resource benefits when determining the appropriate management response, the Refuge will complete an Environmental Assessment that fully addresses this management action.

10.5 Burning Season(s)

The normal prescribed fire burning season is bimodal with the first period beginning in late winter/early spring after snow melt is completed (March) and ending in late May when vegetative green-up has advanced substantially. The second period begins in August after plant maturity has occurred and extends into early winter (October) when average temperatures have fallen and precipitation has increased soil, duff and fuel moisture levels.

10.6 Potential Impacts

An escaped prescribed fire could erode support for the prescribed burn program, especially if neighboring private lands or improvements were impacted. An escape could be difficult to suppress and could potentially impact neighboring federal land. A limited number of structures and improvements such as fences could be destroyed. Grazing lands under permit on Service and BLM lands could also be burned, impacting the grazing rotation schedule or eliminating expected forage. A prescribed burn conducted without consideration for smoke dispersal could impact air quality in the area, including recreational developments in the vicinity of the burn.

10.7 Limits

- ☐ The use of earth moving equipment for line building activities (dozers, graders, plows) will only be permitted on a project specific basis as indicated in the approved burn plan.
- ☐ Prescribed burns will not be conducted when the Palmer Drought Index is in the "extreme drought" (-4 or less).
- ☐ The Refuge will not ignite prescribed fires when adjacent counties or the State of Montana has instituted burning bans.
- ☐ Multiple burns will not be conducted when staffing is not available to adequately respond to an escape.
- ☐ Prescribed fire activities may be limited during nesting season.
- ☐ Prescribed fires will not be conducted without the appropriate Montana DEQ Air Quality permit.
- ☐ Prescribed fires will be in compliance with air pollution regulations.
- ☐ Following burning or planting, there should be no grazing allowed for two or three years, or longer if necessary, to ensure successful establishment of the desired vegetation.

10.8 Complexity

Prescribed fire complexity will be determined by the U.S. Fish and Wildlife Service Region 6 Complexity Guide (Appendix P). A complexity analysis will be completed for each burn unit and will be attached as an element of the prescribed fire plan prior to the review and approval process.

Most burns on the Refuge fall within the low and normal complexity categories as determined by the Complexity Guide, requiring an RXB2 or RXB3 to manage the burn. However, the Refuge anticipates conducting landscape type burns in the future that will be highly complex, burning large areas through multiple burning periods and utilizing aircraft for ignition and holding. These burns will require an RXB1. The average number of personnel required to conduct a burn on the Refuge is 8-10, but some units may require 25 or more as specified in the individual burn plan.

10.9 Planning

Each prescribed fire must have a complete and approved formal Prescribed Fire Plan before it is funded and can be implemented. The Prescribed Fire Plan should be prepared and developed by an interdisciplinary team. Ideally, one member of the team should have completed the Prescribed Fire Planning and Implementation (PFPI) or Prescribed Burn Boss (RX-300) training course and be Burn Boss qualified. Guidance provided in Chapter 2 of the Fire Management

Handbook will be followed when developing Prescribed Fire Plans and conducting prescribed fire activities.

In accordance with Regional and national guidelines, individual resource management prescribed burns and hazard fuel treatment projects must be identified in advance and entered into FireBase for funding in out-years. In order to meet that requirement, the Refuge Fire Management Officer will coordinate with Refuge management to identify and develop a listing of projects that project the Refuge's fire program needs at least two years out. As the prescribed burn and hazard fuel reduction program evolves, the Refuge will develop a fuels management program that identifies units to be treated up to 5-years in advance. This will allow the Refuge better establish priorities and to complete projects requiring regularly scheduled treatment.

Currently, the Refuge does not have any predetermined treatment areas. The Project Leader is responsible for supervising the development of resource management objectives for individual management units. Refuge employees will monitor habitat and wildlife populations in these units. When it is determined that fire would be an appropriate management tool for a given block of land, a site-specific Prescribed Burn Plan designed to achieve the desired resource objectives will be prepared in accordance with the Region 6 format. Each Prescribed Burn Plan will be reviewed by the appropriate FMO and approved by the Project Leader. Before the plan is implemented, the assigned Prescribed Burn Boss must certify that the prescription will meet the stated resource objectives. The plan can be amended by the Project Leader after it has been approved. A copy of the amended prescription and a justification must be signed by the Project Leader and attached to the plan.

The Refuge will implement its fire management program within the constraints of the Endangered Species Act of 1973, as amended, and Service policy, which requires that State threatened and endangered species and federal candidate species be incorporated into planning activities. The Refuge will take appropriate action to identify and protect from adverse effect any rare, threatened, or endangered species located within the Refuge. All Prescribed Burn Plans will also be in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Each burn plan will be submitted for review by the Regional Archeologist or his/her designee.

Contingency planning is an integral part of the prescribed fire planning process, and begins with the first visit to the burn unit. It is important to identify in advance, circumstances or conditions that may require the implementation of the contingency plan. Each prescribed burn plan will include a section that thoroughly addresses the actions to be taken in the event a prescribed burn must be suppressed or managed as a wildfire.

The contingency plan will identify:

- ☐ The individual(s) who has the authority to activate the contingency plan.
- ☐ Clearly defined conditions (trigger points) that indicate the contingency plan should be activated.
- ☐ A listing of those to be notified or contacted.
- ☐ Who assumes the duties of the Incident Commander and what are the roles of others.
- ☐ The location of values at risk and other resources requiring protection.
- ☐ The preferred strategies and tactics.
- ☐ The location of containment lines or natural fuel breaks outside the burn unit.
- ☐ The location of water refill points, staged equipment, etc.

☐ Contingency forces (Type, number, location).

A prescribed burn will not be implemented unless all contingency forces are confirmed as being on-site or in standby status, as specified in the plan.

Multiple prescribed fires may be initiated at the same time within the Refuge. A qualified Prescribed Fire Manager will coordinate multiple burns. Depending on the complexity of the burns, the Prescribed Fire Manager need not be on scene but must be readily available by phone. The maximum number of simultaneous burns will depend upon the cumulative impacts of smoke on sensitive targets and the availability of the prescribed equipment and personnel.

The Refuge may also assist private landowners with prescribed burning to improve the value of their land as wildlife habitat. A Wildlife Extension Agreement with a written provision for the use of prescribed fire must be approved prior to implementing burns on private lands. Such assistance is subject to guidance provided within the Fire Management Handbook, private lands program policies, Region 6 Fire Management Guidelines, and funding and staffing restraints.

10.10 Preparation and Implementation

☐ Preparation of prescribed burn units will be handled on a project specific basis with site preparation standards identified in the burn plan for that unit.

☐ Preparation of fire breaks or other site work may begin at any time after a decision has been made to conduct a burn in a specific area. The Refuge Manager will assign qualified individuals to conduct the work.

☐ Staff who are to work on the burn should be notified of the burn schedule at least a four weeks prior to the burn to ensure that they plan their work and leave accordingly.

☐ The week prior to the burn, all engines, tools, supplies and other items should be checked to assure that things are ready and in working order. On the day prior to the burn date, the Burn Boss will inspect tools and equipment to be used so that unexpected shortages do not occur on the burn day and delay or prevent the planned burning activity.

☐ The day prior to the burn, the Burn Boss will ensure all local, State and Smoke Management permits have been acquired.

☐ Public contacts will be completed as designated in the burn plan.

10.11 Monitoring and Evaluation

The Region 6 Monitoring Guidelines will be used during prescribed fire activities to monitor the various values (Appendix Q). Plant species composition, percent of cover, and changes in stand structure will be monitored to determine burn response and long-term (multiple treatment) vegetation responses. After each prescribed burn a permanent record will be made for filing which will include all pertinent information about the burn, including the objectives, weather, fire behavior, etc.

Prescribed fire is identified as an integral tool needed to meet resource management objectives. Although research provides managers and fire practitioners with a general understanding of fire ecology in the northern shrublands, site specific research in the Missouri breaks habitat type are lacking. Monitoring and evaluation of prescribed burns is essential in understanding fire as a tool to manipulate vegetation and landscapes in this habitat type. Information garnered from monitoring programs will be used to modify stated objectives, or the strategies used to meet those objectives. A sound monitoring approach will also allow managers to justify these objectives and strategies to potential critics both within and outside the Service.

The process of defining the needs and providing direction for station monitoring and fire research programs is listed below along with a short discussion of actions taken.

Prescribed Fire Monitoring and Evaluation Processes:

- ☐ Utilize all available sources of information to establish an accurate picture of natural historic fire regimes for the Refuge. Establish Refuge prescribed fire programs based on this knowledge to the extent practical.

- ☐ Combine the available knowledge concerning fire effects and fire ecology, historic fire regime and historic plant and animal species composition to determine the additional monitoring and evaluation needs for the Refuge.

- ☐ Develop management plans to outline the implementation of monitoring programs within the Refuge.

- ☐ Develop proposals and request funding for the various (level of intensity) monitoring programs from available sources.

- ☐ Conduct funded monitoring and research, basing future management decisions on program results. Utilize program results to prioritize fire treatments and schedules, alone or in combination with other treatments (e.g., grazing, mechanical, etc.).

- ☐ Minimize negative impacts on threatened, endangered and sensitive species.

11.0 FIRE MANAGEMENT UNITS

11.1 General

Fire Management Units (FMUs) are areas that have similar fuel and terrain characteristics, common fire management strategies, and require similar effort to control wildfire or implement a prescribed fire program. A FMU should not be confused with a prescribed fire burn block, fuel treatment area or management unit or area.

For general management purposes, the Refuge is divided into four program management areas, Sand Creek, Fort Peck, Jordan and the Satellite Units. The Congressionally designated UL Bend Wilderness Area and Wilderness Study Areas are located within the Sand Creek, Fort Peck, and Jordan program management areas.

Wilderness/WSAs are within the Fire Management Units described in this section. Thirteen wilderness study areas comprising 158,619 acres and the 20,819 acre UL Bend Wilderness are located within the Refuge (Figure 4). The wilderness areas include some of the remotest regions of the Refuge that are seldom seen and virtually unexplored by humans. Foremost among those regions is UL Bend Wilderness. UL Bend Wilderness is located at the tight U-shaped bend in the Missouri River in the western section of the CMR. The Wilderness is divided into four units: three small northern units and the large southern unit that borders the river. The area is almost entirely open grassland and sagebrush, without water and exposed to the prairie winds. **The UL Bend Wilderness and the Wilderness Study Areas require a special level of protection.**

As indicated in Section 9.6.5, Designated Wilderness and Wilderness Study Areas are units that are managed in a manner designed to protect those values that made the area unique and worthy of consideration or designation. **All suppression responses within these areas will comply with established Wilderness Policy regulations and guidelines.** Suppression activities will usually utilize handtools and bladder bags, without the support of pumps, engines, motorized vehicles or aircraft. Exceptions can be made, but only with the approval of the Project Leader or other designated official.

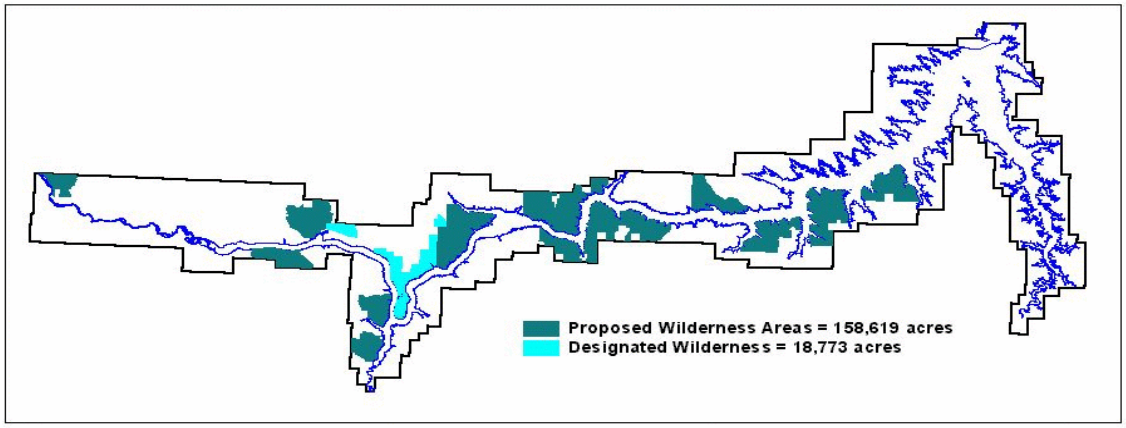
The Refuge has designated four FMUs (Table 6). These units correspond with the general management units.

Table 6: Fire Management Units

Fire Management Unit	Acres
Sand Creek	403,609
Fort Peck	293,382
Jordan	368,807
Satellites	29,107

The guidance provided in this section will pertain to both wildfire and prescribed fire.

Figure 4: **Proposed and Designated Wilderness on the Charles M. Russell NWR**



s:\gis_data\cmr\fire\fire plan 2001.apr 9/21/2001 CMRNWR/SH

11.2 Sand Creek Fire Management Unit

The Sand Creek Unit includes all Refuge lands west of the Musselshell River and all Refuge lands north of the Missouri River to the Phillips County/Valley County line, and includes the UL Bend Wilderness.

A Station Manager, the AFMO, Supervisory Range Tech/Firefighter, two Refuge Operation Specialists, one permanent Range Tech, a maintenance man and five temporary firefighters are stationed at Sand Creek. A fire cache, two Type 6X and one Type 4X engines, one grader and one Type II dozer are available for suppression work at the unit. Firefighters assigned to this unit will be available to help suppress fires on the other two units of the Refuge when needed.

11.2.1 Fire Management Objectives

- ☐ Provide for firefighter safety first.
- ☐ Keep damage from suppression efforts to Refuge resources to a minimum.
- ☐ Control the fire in the most cost effective manner consistent with values at risk.
- ☐ On extended attack fires, prevent the fires from burning off of the Refuge and onto private lands.
- ☐ Utilize prescribed fire as appropriate to achieve resource management objectives and reduce accumulations of hazard fuel.

11.2.2 Unit Strategies

The appropriate management response concept will be used to suppress wildfires in consideration of firefighter safety, commensurate with values at risk. Most fires occurring in this unit will eventually burn to a ridge top, natural barrier, sparse fuels, or other barrier, and an extensive road system will generally provide good access to most fires occurring outside the UL Bend Wilderness. The primary strategy selected in most cases will be indirect attack and the fires will be held to predetermined areas. In general, suppression forces will limit aggressive suppression actions and practice minimum impact suppression tactics (MIST) whenever and wherever possible, especially in sensitive habitats.

11.2.3 Unit Tactics

- ☐ Utilize existing roads, ridgetops and other natural and man-made barriers as primary control lines, anchor points, escape routes and safety zones, whenever appropriate.

- ☐ When possible, conduct burn-out operations or backfiring operations from existing roads and/or natural barriers to halt the spread of fires

- ☐ Use burnouts to stabilize and strengthen primary control lines.

- ☐ All constructed fireline will be rehabilitated prior to releasing all personnel from the fire.

- ☐ Create prescribed burn units that use natural and man-made barriers as control lines.

- ☐ If control lines are required to safely conduct a prescribed burn, use techniques such as wet-lining to reduce possible impact to natural and cultural resources.

- ☐ Utilize hazardous fuel reduction burns to reduce the risk of catastrophic wildfire in wildland-urban interface areas of the unit.

11.2.4 Habitat Types

Habitat types, fuel types, fire history and fire behavior characteristics of the unit are consistent with other units on the Refuge and are discussed in the first section of this plan.

11.2.5 Fuels

NFFL Fuel Models 1, 2 & 5 are the most abundant fuel types found on the unit and are largely represented by NFDRS Fuel Models C (open pine with grass understory), L (perennials) and T (sagebrush with grass). The primary fire behavior (NFFL) models are discussed below:

- ☐ **NFFL FM 1** - Fire spread in this fuel type is governed by fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one third of the area.

- ☐ **NFFL FM 2** - Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stemwood from the open shrub or timber overstory contribute to the fire intensity.

- ☐ **NFFL FM 5** - Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs, and the grasses or forbs in the understory. The fires are generally not very intense because surface fuels load are light, the shrubs are young with little dead material, and the foliage contains little volatile material.

- ☐ **NFFL FM 8** - Slow moving ground fires with low flame lengths are generally the case, although the fire may encounter an occasional “jackpot” or heavy fuel concentration that

can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose a fire hazard.

11.2.6 Fuel Loading and Unusual Fire Behavior

Fires normally react to terrain and will burn up-slope rapidly and make significant runs during high wind events. Most fires on the Refuge will either burn themselves out of available fuel, into natural barriers or be extinguished by suppression forces within 1-2 burning periods.

Typical fuels in this unit are light and flashy, and quickly respond to changes in relative humidity or precipitation. Fine fuel loading for each fuel model will be at the upper end as grazing is limited on the Refuge.

During periods of high fire danger (BI >35, PDI - 4 or less), fires on CMR have the potential to make significant runs and burn several thousand acres in one burning period.

11.2.7 Expected Fire Effects

Expected fire effects for selected plant and animal species on the Refuge can be found in the Fire Effects Information System (http://www.fs.fed.us/database/feis/) and in Appendix R.

11.2.8 Limits to Strategy and Tactics

- ☐ All suppression responses within these areas will comply with established Wilderness Policy regulations and guidelines. Exceptions can be made, but only with the approval of the Project Leader or other designated official.

- ☐ The use of heavy equipment (dozer or plow) to construct control lines will not be permitted on Service lands except to protect life or improvements such as buildings or bridges, and only with the approval of the Project Leader or his/her acting.

- ☐ If mechanical treatment is approved by the Project Leader, control lines will be constructed along existing roads, if possible.

- ☐ Retardant or foam will not be used within 300 feet of a stream or other water feature.

- ☐ Retardant use in an area managed as wilderness must be with the approval of the Project Leader or his/her designee.

11.3 Fort Peck Fire Management Unit

The Fort Peck Unit includes all Refuge lands north of the Missouri River from the Phillips County/Valley County line east to Fort Peck and south along the Big Dry Arm to the junction of highways 24 and 200. Fire frequency in this unit is low. Severe weather patterns tend to go south and west of the unit.

A Station Manager, a Refuge Operations Specialist, a Range Technician and two temporary firefighters are stationed at Fort Peck. A small fire cache, 1 Type 6X engine and one grader are available for suppression work at the unit.

Firefighters at this unit will be available to help suppress fires on the other two units of the Refuge when needed.

11.3.1 Fire Management Objectives

- ☐ Provide for firefighter safety first.
- ☐ Keep damage from suppression efforts to Refuge resources to a minimum.
- ☐ Control the fire in the most cost effective manner consistent with values at risk.
- ☐ On extended attack fires, prevent fires from burning off of the Refuge and onto private lands.
- ☐ Utilize prescribed fire as appropriate to achieve resource management objectives and reduce hazardous fuel loading.

11.3.2 Unit Strategies

The appropriate management response concept will be used to suppress wildfires in consideration of firefighter safety, commensurate with values at risk. Most fires occurring in the unit will eventually burn to a ridge top, natural barrier, or into sparse fuels, and an extensive system of roads will generally provide good access to most fires. The primary strategy selected in most cases will be indirect attack and the fire will be confined to a predetermined area. In general, suppression forces will limit aggressive suppression actions and practice minimum impact suppression tactics (MIST) whenever and wherever possible, especially in sensitive habitats.

The Pines Recreational Area, Rock Creek Recreational Area and Duck Creek Recreational Area are within this unit. All three have recreational cabin sites which are in the process of being transferred to private ownership. The landowners are developing their own suppression capabilities but will continue to be a source of increased concern. A human caused fire in the Pines Recreational Area occurred in 1998. This 1,000 acre fire had the potential to destroy over 60 structures if the suppression tactics failed. There is a high probability of fires starting in one of these sites and burning onto Service lands. If this situation occurs, every effort will be made to

use a direct attack strategy to hold the fire to the least acreage possible, while providing protection to the structures and other improvements.

11.3.3 Unit Tactics

- ☐ Utilize existing roads, ridgetops and other natural and man-made barriers as primary control lines, anchor points, escape routes and safety zones, as appropriate

- ☐ When possible, conduct burnout or backfiring operations from existing roads and natural barriers to halt the spread of fires.

- ☐ Use burnouts to stabilize and strengthen primary control lines.

- ☐ All constructed fireline will be rehabilitated prior to all forces being released from the fire.

- ☐ Create prescribed burn units that use natural and man-made barriers as control lines, as conditions allow.

- ☐ If control lines are required to safely conduct a prescribed burn, use techniques such as wet-lining to reduce impact to natural and cultural resources.

- ☐ Utilize hazardous fuel reduction burns to reduce the risk of catastrophic wildfire in urban interface areas of the unit.

11.3.4 Habitat Types

Habitat types, fuel types, fire history and fire behavior characteristics of the unit are consistent with other units on the Refuge and are discussed in the Introduction Section.

11.3.5 Fuels

NFFL Fuel Models 1, 2 & 5 are the most abundant fuel types found on the unit and are largely represented by NFDRS Fuel Models C (open pine with grass understory), L (perennials) and T (sagebrush with grass). Fire Behavior (NFFL) Fuel Models are discussed below:

- **NFFL FM 1** - Fire spread in this fuel type is governed by fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one third of the area.

- **NFFL FM 2** - Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity.

- **NFFL FM 5** - Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs, and the grasses or forbs in the understory. The fires are generally not very intense because surface fuels load are light, the shrubs are young with little dead material, and the foliage contains little volatile material.

11.3.6 Fuel Loading and Unusual Fire Behavior

Fires normally react to terrain and will burn up-slope rapidly and make significant runs during high wind events. Most fires on the Refuge will either burn themselves out of available fuel, into natural barriers or be extinguished by suppression efforts within 1-2 burning periods.

These fuels quickly respond to changes in relative humidity or precipitation. As grazing is limited on the Refuge, fine fuel loadings will be at the upper end for each fuel model.

During periods of high fire danger (BI >35, PDI - 4 or less), fires on CMR have the potential to make significant runs and burn several thousand acres in one burning period.

11.3.7 Expected Fire Effects

Expected fire effects for selected plant and animal species on the Refuge can be found in the Fire Effects Information System (http://www.fs.fed.us/database/feis/) and Appendix R.

11.3.8 Limits to Strategy and Tactics

- ☐ All suppression responses within areas managed as wilderness will comply with established Wilderness Policy regulations and guidelines. Exceptions can be made, but only with the approval of the Project Leader or other designated official.

- ☐ The use of heavy equipment (dozer or plow) to construct control lines will not be permitted on Service lands except to protect life or improvements such as buildings or bridges, and only with the approval of the Project Leader or his/her acting.

- ☐ If mechanical treatment is approved by the Refuge Manager, construct control lines along existing vehicle access routes, if possible.

- ☐ Retardant and foam will not be used within 300 feet of a stream or other water feature.

- ☐ Retardant can only be used in an area managed as wilderness with the approval of the Project Leader or his designee.

11.4 Jordan Fire Management Unit

The Jordan Unit includes all Refuge lands west of Highway Junction 24 and 200 and east of the Musselshell River, south of the Missouri River.

A Station Manager, a Refuge Operations Specialist, a Supervisory Range Tech/Firefighter and six temporary firefighters are stationed at Jordan. A small fire cache and 2 Type 6X engines are available for suppression work at the unit.

Firefighters at this unit will be available to help suppress fires on the other two units of the refuge when needed.

11.4.1 Fire Management Objectives

- ☐ Provide for firefighter safety first.

- ☐ Keep damage from suppression efforts to Refuge resources to a minimum.

- ☐ Control the fire in the most cost effective manner consistent with values at risk.

- ☐ On extended attack fires, prevent fires from burning off of the Refuge and onto private lands.

- ☐ Utilize prescribed fire as appropriate to achieve resource management objectives and reduce hazardous fuel loading.

11.4.2 Unit Strategies

The appropriate management response concept will be used to suppress wildfires in consideration of firefighter safety, commensurate with values at risk. Most fires occurring in the unit will eventually burn to a ridge top, natural barrier, or into sparse fuels, and an extensive system of roads will generally provide good access to most fires. The primary strategy selected in most cases will be indirect attack and the fire will be confined to a predetermined area. In general, suppression forces will limit aggressive suppression actions and practice minimum impact suppression tactics (MIST) whenever and wherever possible, especially in sensitive habitats.

The Hell Creek Recreational Area is located in this unit. Hell Creek consists of many recreational cabin sites which are in the process of being transferred to private ownership. The cabin owners are developing their own suppression capabilities but the area will continue to be a source of increased concern. There is a high probability of fires starting in the area and burning onto Service lands. If this situation occurs, every effort will be made to hold fire to the least acreage possible.

11.4.3 Unit Tactics

- ☐ Utilize existing roads, ridgetops and other natural and man-made barriers as primary control lines, anchor points, escape routes and safety zones, as appropriate.

- ☐ When possible, conduct burnout operations and backfiring operations from existing roads and natural barriers to halt the spread of fires.

- ☐ Use burnouts to stabilize and strengthen primary control lines.

- ☐ All constructed fireline will be rehabilitated prior to releasing all firefighters from the fire.

- ☐ Create prescribed burn units that use natural and man-made barriers as control lines.

- ☐ If control lines are required to safely conduct a prescribed burn, use techniques such as wet-lining to reduce impact to natural and cultural resources.

- ☐ Utilize hazardous fuel reduction burns to reduce the risk of catastrophic wildfire in wildland-urban interface areas of the unit.

11.4.4 Habitat Types

Habitat types, fuel types, fire history and fire behavior characteristics of the unit are consistent with other units on the Refuge and are discussed in the Introduction Section.

11.4.5 Fuels

NFFL Fuel Models 1, 2 & 5 are the most abundant fuel types found on the unit and are largely represented by NFDRS Fuel Models C (open pine with grass understory), L (perennials) and T (sagebrush with grass). The following fire behavior (NFFL) fuel models are discussed below:

- **NFFL FM** 1 - Fire spread in this fuel type is governed by fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one third of the area.

- **NFFL FM 2** - Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity.

- **NFFL FM 5** - Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs, and the grasses or forbs in the understory. The fires are generally not very intense because surface fuels load are light, the shrubs are young with little dead material, and the foliage contains little volatile material.

- **NFFL FM 8** - Slow moving ground fires with low flame lengths are generally the case, although the fire may encounter an occasional "jackpot" or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose a fire hazards.

11.4.6 Fuel Loading and Unusual Fire Behavior

Fires normally react to terrain and will burn up-slope rapidly and make significant runs during high wind events. Most fires on the Refuge will either burn themselves out of available fuel, into natural barriers or be extinguished by suppression efforts within 1-2 burning periods.

These fuels quickly respond to changes in relative humidity or precipitation. As grazing is limited on the Refuge, fine fuel loadings will be at the upper end for each fuel model.

During periods of high fire danger (BI >35, PDI - 4 or less), fires on CMR have the potential to make significant runs and burn several thousand acres in one burning period.

11.4.7 Expected Fire Effects

Expected fire effects for selected plant and animal species on the Refuge can be found in the Fire Effects Information System (http://www.fs.fed.us/database/feis/) and Appendix R.

11.4.8 Limits to Strategy and Tactics

- ☐ All suppression responses within areas managed as wilderness will comply with established Wilderness Policy regulations and guidelines. Exceptions can be made, but only with the approval of the Project Leader or other designated official.

- ☐ The use of heavy equipment (dozer or plow) will not be used to construct control lines on Service lands except to protect life or improvements such as buildings or bridges, and only with the approval of the Project Leader or his/her acting.

- ☐ If mechanical treatment is approved by the Project Leader, construct control lines along existing vehicle access routes, if possible

- ☐ Retardant and foam will not be used within 300 feet of a stream or other water feature.

- ☐ Retardant can only be used in an area managed as wilderness with the approval of the Project Leader or his designee.

11.5 Satellite Fire Management Unit

Descriptions of the Satellite Refuges can be found in the Introduction Section.

A Satellite Refuge Manager stationed in the Lewistown Headquarters office is responsible for these units. No facilities or structures are located on the satellites. Fire occurrence in this unit is very low.

11.5.1 Fire Management Objectives

- ☐ Provide for firefighter safety first.

- ☐ Keep damage from suppression efforts to Refuge resources to a minimum.

- ☐ Control the fire in the most cost effective manner consistent with values at risk.

- ☐ On extended attack fires, prevent fire from burning off of Service lands and onto private lands.

- ☐ Utilize prescribed fire as appropriate to achieve resource management objectives and reduce hazardous fuel loading.

11.5.2 Unit Strategies

The appropriate management response concept will be used to suppress wildfires in consideration of firefighter safety, commensurate with values at risk. Most fires occurring in the unit will eventually burn to a ridge top, natural barrier, or into sparse fuels, and an extensive system of roads will generally provide good access to most fires. The primary strategy selected in most cases will be indirect attack and the fire will be confined to a predetermined area. In general, suppression forces will limit aggressive suppression actions and practice minimum impact suppression tactics (MIST) whenever and wherever possible, especially in sensitive habitats.

11.5.3 Unit Tactics

- ☐ Utilize existing roads, ridgetops and other natural barriers as primary control lines, anchor points, escape routes and safety zones, as appropriate.
- ☐ When possible, conduct burnout operations and backfiring operations from existing roads and natural barriers to halt the spread of fires.
- ☐ Use burnouts to stabilize and strengthen primary control lines.
- ☐ All constructed fireline will be rehabilitated prior to releasing all firefighters from the fire.
- ☐ Create prescribed burn units that use natural and man-made barriers as control lines, when appropriate.
- ☐ If control lines are required to safely conduct a prescribed burn, use techniques such as wet-lining to reduce impact and cultural resources.
- ☐ Utilize hazardous fuel reduction burns to reduce the risk of catastrophic wildfire in wildland-urban interface areas of the unit.

11.5.4 Habitat Types

Habitat types, fuel types, fire history and fire behavior characteristics of the unit are consistent with other units on the Refuge and are discussed in the Introduction Section.

11.5.5 Fuels

NFFL Fuel Models 1, 2 & 5 are the most abundant fuel types found on the unit and are largely represented by NFDRS Fuel Models C (open pine with grass understory), L (perennials) and T (sagebrush with grass). The fire behavior (NFFL) fuel models are discussed below:

- **NFFL FM 1** - Fire spread in this fuel type is governed by fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured grass and associated material. Very little shrub or timber is present, generally less than one third of the area.

- **NFFL FM 2** - Fire spread is primarily through the fine herbaceous fuels, either curing or dead. These are surface fires where the herbaceous material, besides litter and dead-down stemwood from the open shrub or timber overstory, contribute to the fire intensity.

- **NFFL FM 5** - Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs, and the grasses or forbs in the understory. The fires are generally not very intense because surface fuels load are light, the shrubs are young with little dead material, and the foliage contains little volatile material.

- **NFFL FM 8** - Slow moving ground fires with low flame lengths are generally the case, although the fire may encounter an occasional "jackpot" or heavy fuel concentration that can flare up. Only under severe weather conditions involving high temperatures, low humidities, and high winds do the fuels pose a fire hazards.

11.5.6 Fuel Loading and Unusual Fire Behavior

Fires normally react to terrain and will burn up-slope rapidly and make significant runs during high wind events. Most fires on the Refuge will either burn themselves out of available fuel, into natural barriers or be extinguished by suppression efforts within 1-2 burning periods.

These fuels quickly respond to changes in relative humidity or precipitation. As grazing is limited on the Refuge, fine fuel loadings will be at the upper end for each fuel model.

During periods of high fire danger (BI >35, PDI -4 or less), fires on CMR have the potential to make significant runs and burn several thousand acres in one burning period.

11.5.7 Expected Fire Effects

Expected fire effects for selected plant and animal species on the Refuge can be found in the Fire Effects Information System (http://www.fs.fed.us/database/feis/) and Appendix R.

11.5.8 Limits to Strategy and Tactics

- The use of mechanical equipment (dozer or plow) to construct control lines will not be permitted on Service lands except to protect life or improvements such as buildings or bridges, and only with the approval of the Project Leader or his/her acting.

- If mechanical treatment is approved by the Refuge Manager, construct control lines along existing vehicle routes, if possible.

☐ Retardant or foam will not be used within 300 feet of a stream or other water feature.

12.0 ADDITIONAL OPERATIONAL ELEMENTS

12.1 Public Safety

Firefighter and public safety will always take precedence over public and private property and cultural and natural resource protection during any fire management activity. Firefighter safety was covered previously. This section will deal with public safety.

Fire fronts in grass fuel models move rapidly and are dangerous. As is common in the West, Refuge neighbors show up to help fight fire. A real concern for Refuge firefighters are neighbors who initiate their own suppression actions without proper training, equipment, or communications. Entrapment of the public is a real threat in these situations. The Refuge staff will attempt to keep the fire scene clear of people except for Service firefighters and members of cooperating volunteer fire departments.

Smoke from a Refuge fire could impair visibility on roads and become a hazard. During wildfires, the local law enforcement agency having jurisdiction is responsible for managing traffic hazards from smoke. Smoke from prescribed fires will be addressed in individual prescribed burn plans and its management and mitigation are the responsibility of the Burn Boss. Actions to reduce the hazards associated with smoke which may impact public health or safety include: use of road guards and pilot car, signing, altering ignition techniques and sequence, halting ignition, suppressing the fire, and use of local law enforcement for traffic control.

Wildfires that might escape Service lands and spread to inhabited private property are also a concern. The IC is responsible for contacting the local law enforcement agency having jurisdiction so they can warn and evacuate the public from potentially dangerous situations. Additionally, the Refuge will use prescribed fire and other management techniques to manage hazard fuels in high risk areas in the vicinity of private homes and other development.

12.2 Public Information and Education

Informing the public is an important aspect of fire suppression, fire prevention, prescribed fire, and the Service's mission. Information and education are critical to gaining public support for the Refuge's fire management programs. The Refuge FMO will coordinate the distribution of information to the press and or public.

12.2.1 Wildfire Suppression

During wildfire suppression, the IC will keep the Refuge FMO informed of the fire status and/or any significant events. The IC may delegate this responsibility if needed. The FMO will be responsible for contacting and informing the press, concerned media and the general public of the fire situation.

12.2.2 Prescribed Fire

An informed public is a vital component of the prescribed fire program. The Refuge FMO will seek every opportunity to promote the Refuge's prescribed fire program.

Areas that have been burned will present opportunities for the public to actually see the effects of fires, and offer staff members an opportunity to explain the purpose of the burns to the public. The following will be used to promote the prescribed fire program to the public:

- ☐ Talks in local schools.
- ☐ Attendance at local volunteer fire department meetings.
- ☐ Including prescribed fire benefits in Refuge interpretive publications.
- ☐ Personal contacts with bystanders during prescribed burns.
- ☐ Developing a quantitative fire effects monitoring program and sharing the results with the public.

12.3 Reports

Following the suppression of a wildfire or the completion of a prescribed burn, the IC or Burn Boss will:

- ☐ Complete a DI-1202 Fire Report.
- ☐ Include a list of all expenses and/or items lost or expended on the incident and list personnel assignments on the DI-1202.
- ☐ Complete a Crew Time Reports for all personnel assigned to the wildfire or prescribed fire.
- ☐ Submit the documents to the Refuge FMO within 3 days of the fire being declared out.

The Refuge FMO will enter the information into the FMIS database within 10 days after the fire is declared out.

12.4 Fire Critique and Review

12.4.1 Wildfire Review

Wildfires will be critiqued by the IC and the results documented in the DI-1202. The Refuge FMO, Regional Fire Management Coordinator and/or Zone FMO will conduct formal critiques in the event of:

- ☐ Significant injury, accident, or fatality.

- ☐ Significant property or resource damage.
- ☐ Significant safety concerns are raised.

12.4.2 Prescribed Burn Review

Prescribed fires will be critiqued by the Burn Boss and documented in the prescribed burn plan. The Refuge FMO, Regional Fire Management Coordinator and/or Zone FMO will conduct formal critiques in the event of:

- ☐ Significant injury, accident, or fatality.
- ☐ An escaped prescribed fire occurs.
- ☐ Significant safety concerns are raised.
- ☐ Smoke management problems are reported.

12.5 Annual Fire Management Plan Review

The Fire Management Plan will be reviewed annually to ensure the fire program advances and evolves with the Service's and the Refuge's mission. The plan will also be reviewed following completion of the CCP process and new habitat management plans.

13.0 AIR QUALITY AND SMOKE MANAGEMENT GUIDELINES

The management of smoke is incorporated into the planning of prescribed fires, and to the extent possible, in suppression of wildfires. Sensitive areas are identified and precautions are taken to safeguard visitors and local residents. Smoke dispersal is a consideration in determining whether or not a prescribed burn is within prescription. Generally the fine grass fuels and small burn size generate low volumes of smoke for short duration (4-5 hours).

The Refuge's fire management activities which result in the discharge of pollutants (smoke, carbon monoxide, particulate, and other pollutants from fires) are subject to and must comply with all applicable Federal, State, and local air pollution control requirements as specified by Section 118 of the Clean Air Act, as amended 1990.

Montana Department of Environmental Quality (DEQ) has developed guidelines for the emission of particulate matter (PM) into the environment. Refuge staff are dedicated to the preservation of air quality and will abide by the Cooperative Smoke Management Plan for Montana as agreed to in the Montana Smoke Management Memorandum of Understanding dated July 31, 1978 (Appendix S). The objectives of this agreement are to minimize or prevent the accumulation of smoke in Montana when prescribed burning is necessary and to develop a smoke management plan for reporting and coordinating burning operations on all forest and range lands in the state.

All fire management activities will comply with these regulations and the guidelines established in the Idaho - Montana Airshed Group Operating Guide (Appendix S).

14.0 CULTURAL RESOURCES

Fire Management activities at the Refuge will be implemented in accordance with the regulations and directions governing the protection of cultural resources as outline in Departmental Manual Part 519, Code of Federal Regulations (36 CFR 800), the Archeological Resources Protection Act of 1979, as amended, and the Archeological and Historic Preservation Act of 1974. All fire management activities will be in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended.

Currently wildfires are suppressed. However, historical evidence demonstrates that natural and artificial fires were regular events in the mixed grass prairie. In recent years, fire suppression has resulted in a steady buildup of grassland and riparian fuel loads, colonization of disturbed soils by invading plant species, and natural vegetative growth, increasing the chances of an uncontrolled wildfire that could potentially endanger the Refuge's cultural resources as well as surrounding private property. Although over 20 years of fire ecology research allows ecologists to predict impacts on biotic communities, the possible impacts of prescribed burning (and wildfires) on archeological resources are not well known. Research conducted in North Dakota indicated that fire-related impacts to buried artifacts are negligible, but effects on surface-exposed artifacts will be significant, depending on artifact type and size (Seabloom et al. 1991).

Impacts to archeological resources by fire resources vary. The four basic sources of damage are (1) fire intensity, (2) duration of heat, (3) heat penetration into soil, and (4) suppression actions. Of the four, the most significant threat is from equipment during line construction for prescribed fires or wildfire holding actions (Anderson 1983).

The refuge has approximately 196 known prehistoric sites, 169 paleontological sites, one site on the National Register of Historic Places (Rocky Point Townsite), and 155 historic era sites and two National Natural Landmarks (Hell Creek Fossil Area and Bug Creek Fossil Area). Many cultural sites appear to be significant in the history or prehistory of the refuge. Sites that have been identified include campsites, tipi rings, stone effigies, bison kill sites, homesteads, historic graves, and early townsites.

Fires should have little impact on the archeological sites known to exist within the Refuge but could be detrimental to its historical resources. The refuge has a rich history of use along the Missouri River, trading posts, homesteads, etc. Those sites remaining can be completely destroyed by fire. Efforts will continue to protect these areas from wildfire. The following actions will be taken to protect archeological and cultural resources:

- ☐ Files and records of cultural resources should be consulted by the staff when planning prescribed burns, developing pre-attack plans, and performing other preparedness actions. The potential for adverse impacts to cultural resources will be evaluated prior to prescribed burning and in the selection of fire suppression strategies during wildfires.

- ☐ The Regional Archeologist or his/her designee will be contacted during the development phase of the burn plan writing process when cultural resources are suspected or known to exist in the project area.

- ☐ The Montana State Historic Preservation Officer (SHPO) will be contacted by the Regional Archeologist when it is known a planned management action may impact archeological or cultural resources. The SHPO has 30-days to respond. The Refuge will follow any programmatic archeological/cultural resources management plan that may be implemented in the future.

- ☐ Low impact wildfire suppression tactics (cold-trailing, use of foam/wet-water/water, use of natural and manmade barriers, change in vegetation, mowing, etc.) will be used to the fullest extent possible. Line construction for prescribed fire activities will follow the same principle. Maps indicating the known location of significant cultural resources will be consulted prior to laying out burn units, and whenever possible, before constructing fireline to halt the spread of a wildfire.

- ☐ Prescriptions for management ignited prescribed fires will take into account the presence of known cultural sites. Cooler fires with short residence time will be used in areas containing known cultural sites, whenever possible.

- ☐ Known surface sites will be marked, protected, and excluded from the burn, if possible. Foam will not be used in areas known to harbor surface artifacts.

- ☐ The use of mechanize equipment within the refuge must be approved by the Refuge Manager on a fire by fire basis, and the use of these resources will be considered in the approval process for any planned management actions. When the use of heavy equipment is authorized, its use will be monitored.

- ☐ The location of sites discovered as the result of fire management activities will be reported by the Refuge Manager to the Regional Archeologist.

- ☐ Rehabilitation plans will address cultural resources and will be reviewed by the Regional Archeologist or his/her designee.

15.0 RESEARCH NEEDS

Fire behavior data will be collected on all fires occurring at the Refuge. Long-term monitoring to establish prescribed fire intervals and long-term changes in wildlife habitat and range conditions will comply with accepted scientific methods and will be funded from sources other than Fire. These data, along with information gathered through research studies, will be used to improve the effectiveness of the fire management program.

Burning of Sage grouse habitat (sagebrush) is extremely controversial at this time. A better understanding of what is causing the decline of Sage grouse throughout the west is needed. CMR is an ideal location to conduct research in the northern range of Sage grouse. The Refuge will continue to encourage fire related research on Service lands where research operations will not conflict with resource management objectives.

Specific research projects that would greatly benefit the fire management program at the Complex are:

- ☐ Conduct extensive background research to access available knowledge pertaining to fire ecology and fire effects within the various fuel models, plant and animal species and habitat types found in the Missouri Breaks Ecosystem.

- ☐ Explore historic documentation to understand the natural occurring flora and fauna of the area prior to European settlement. Contrast vegetation changes since pre-settlement times and document factors implicated in these changes.

Research will be conducted on an interagency basis whenever possible.

16.0 CONSULTATION AND COORDINATION

General consultation and coordination during the development of this plan was provided by the following:

Mike Hedrick, Project Leader, Charles M. Russell National Wildlife Refuge Complex
Bob Rebarchik, Zone FMO - Montana/Wyoming/Utah, Missoula, Montana
Phil Street, Regional Fire Management Coordinator - Mountain-Prairie Regional Office
Jim Kelton, Regional Fire Management Specialist - Mountain-Prairie Regional Office
Rhoda Lewis, Regional Archeologist - Mountain-Prairie Regional Office
Carl Douhan, Contractor, Littleton, Colorado
John Thompson, Planner and Environmental Specialist, BLM, Billings, Montana

Copies of this plan will be circulated to cooperators and other interested parties.

17.0 BIBLIOGRAPHY

Anderson, B.A. 1983. Archaeological Considerations for Park and Wilderness Fire Management Planning. Paper presented at Wilderness Fire Symposium at the University of Montana, Missoula. Unpublished. 13pp.

Anderson, Hal E. 1982. Aids to Determining Fuel Models for Estimating Fire Behavior. General Technical Report INT-122. USDA Forest Service. Intermountain Forest and Range Experiment Station. Ogden, Utah. 22pp.

Barrett, S.W. 1988. Fire suppression's effect on forest succession within a central Idaho wilderness. 3:76-80.Western Journal of American Forestry.

Brown, David E. 1982. Great Basin montane scrubland. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants. 4(1-4):83-84.[8890]

FMIS 1992. An interactive data base. Fire Management Information System. USDOI. Fish and Wildlife Service. Boise, Idaho.

Guell, G.E. 1983. Fire and vegetative trends in the northern Rockies: interpretations from 1871-1982 photographs. USDA Forest Services. Gen. Tech. Rep. INT-158. Intermountain Research Station. Ogden, Utah. 117 p.

Higgins, K.F., A.D. Kruse, and J.L. Piehl. 1989. Prescribed burning guidelines in the northern great plains. South Dakota State University Ext. Circ. 760. Brookings. 36pp

National Wildland Fire Coordination Group (NWCG) 1999. Fireline Handbook - NWCG Handbook, National Wildfire Coordinating Group. Washington, D.C.

National Wildland Fire Coordination Group (NWCG) 1998. Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide. NIFC. Boise, Idaho. 81pp.

Rothermel, R. 1983. General Technical Report INT 143 - How to Predict the Spread and Intensity of Forest and Range Fires. USDA Forest Service. Intermountain Forest and Range Experiment Station. Ogden, Utah.

Seabloom, R.W., et al. 1991. Effects of Prairie Fire on Archeological Artifacts. Park Science Volume 11-Number 1. 3pp.

Sharkey, Brian, ed. 1997. Health hazards of smoke: recommendations of the April 1997 Consensus Conference. Tech. Rep. 9751-2836-MTDC. USDA Forest Service, Missoula Technology and Development Center. Missoula, Montana. p 4-5.

Sheppard, G and Farnsworth, A. 1997. Fire Suppression in Threatened, Endangered, and Sensitive Species Habitat. Proceedings - fire Effects on Range and Endangered Species and Habitats Conference, Nov 13 - 16, 1995. Coeur d' Alene, Idaho. Wildlife Forever & Washington Foundation for the Environment. 337-340p. Fairfield, Washington.

Stark, N. M. 1977. Fire nutrient cycling in a Douglas fir/larch forest. Ecology 58:16-30.

Swetham, T. 1990. Fire history and climate in the southwest United States, pp. 6-17. In Proc. Of Symposium: Effects of Fire Management of Southwestern Natural Resources. USDA Forest Service. Gen. Tech. Rep. RM-191. Rocky Mountain Forest and Range Experiment Station. Fort Collins, CO.

U.S. Fish and Wildlife Service (FWS) 1985. Final Environmental Impact Statement for the Management of the Charles M. Russell National Wildlife Refuge. US Department of the Interior. U.S. Fish and Wildlife Service. Regional Office. Denver, Colorado. 453 p.

Wright, Henry A.; Neuenschwander, Leon F.; Britton, Carlton M. 1979. The role and use of fire in sagebrush-grass and pinyon-juniper plant communities: A state-of-the-art review. Gen. Tech. Rep. INT-58. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station. 48 p.[2625]

18.0 GLOSSARY OF TERMS

Agency Administrator: The appropriate level manager having organizational responsibility for management of an administrative unit. May include Director, State Director, District Manager or Field Manager (BLM); Director, Regional Director, Complex Manager or Project Leader (FWS); Director, Regional Director, Park Superintendent, or Unit Manager (NPS), or Director, Office of Trust Responsibility, Area Director, or Superintendent (BIA).

Appropriate Management Action: Specific actions taken to implement a management strategy.

Appropriate Management Response: Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

Appropriate Management Strategy: A plan or direction selected by an agency administrator which guide wildland fire management actions intended to meet protection and fire use objectives.

Appropriate Suppression Response: Selecting and implementing a prudent suppression option to avoid unacceptable impacts and provide for cost-effective action.

Emergency Fire Rehabilitation/Burned Area Emergency Rehabilitation (EFR/BAER): Emergency actions taken during or after wildland fire to stabilize and prevent unacceptable resource degradation or to minimize threats to life or property resulting from the fire. The scope of EFR/BAER projects are unplanned and unpredictable requiring funding on short notice.

Extended attack: A fire on which initial attack forces are reinforced by additional forces.

Fire Suppression Activity Damage: The damage to lands, resources and facilities directly attributable to the fire suppression effort or activities, including: dozer lines, camps and staging areas, facilities (fences, buildings, bridges, etc.), handlines, and roads.

Fire effects: Any consequences to the vegetation or the environment resulting from fire, whether neutral, detrimental, or beneficial.

Fire management: All activities related to the prudent management of people and equipment to prevent or suppress wildland fire and to use fire under prescribed conditions to achieve land and resource management objectives.

Fire Management Plan: A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program in the approved land use plan. The plan is supplemented by operational procedures such as preparedness plans, preplanned dispatch plans, prescribed fire plans and prevention plans.

Fuels: Materials that are burned in a fire; primarily grass, surface litter, duff, logs, stumps, brush, foliage, and live trees.

Fuel loadings: Amount of burnable fuel on a site, usually given as tons/acre.

Hazard Fuels: Those vegetative fuels which, when ignited, threaten public safety, structures and facilities, cultural resources, natural resources, natural processes, or to permit the spread of wildland fires across administrative boundaries except as authorized by agreement.

Initial Attack: An aggressive suppression action consistent with firefighter and public safety and values to be protected.

Maintenance burn: A fire set by agency personnel to remove debris; i.e., leaves from drainage ditches or cuttings from tree pruning. Such a fire does not have a resource management objective.

NFDRS Fuel Model: One of 20 mathematical models used by the National Fire Danger Rating System to predict fire danger. The models were developed by the US Forest Service and are general in nature rather than site specific.

NFFL Fuel Model: One of 13 mathematical models used to predict fire behavior within the conditions of their validity. The models were developed by US Forest Service personnel at the Northern Forest Fire Laboratory, Missoula, Montana.

Preparedness: Actions taken seasonally in preparation to suppress wildland fires, consisting of hiring and training personnel, making ready vehicles, equipment, and facilities, acquiring supplies, and updating agreements and contracts.

Prevention: Activities directed at reducing the number or the intensity of fires that occur, primarily by reducing the risk of human-caused fires.

Rehabilitation: (1) Actions to limit the adverse effects of suppression on soils, watershed, or other values, or (2) actions to mitigate adverse effects of a wildland fire on the vegetation-soil complex, watershed, and other damages.

Suppression: A management action intended to protect identified values from a fire, extinguish a fire, or alter a fire's direction of spread.

Wildfire: An unwanted wildland fire.

Wildland Fire: Any non-structure fire that occurs in the wildland.

APPENDIX A

Threatened and Endangered Species

APPENDIX B

Fire History - CMR

APPENDIX C

Staff Listing & Qualifications

APPENDIX D

Cooperative Agreement - CMR/BLM

APPENDIX E

Statewide Agreement

APPENDIX F

Normal Unit Strength

Table 1 **Charles M. Russell NWR Normal Unit Strength - Equipment**

Item	Year Purchased	% of Fire Funding	Have	GVW	Need	GVW
Engine Type 4X- heavy (500-1000gal) 6X-medium (200-400 gal) 7X-light (50-150 gal)	1997 1990,2000	100 100	1 6	25,000/32,000 12,000, 15,000	2 6	same 15,000
Slip-on unit(s)	N/A					
Water Tender(s)	N/A	N/A	0	2,500 & 5,000 Gallon	1	N/A
Portable Pump(s) Standard float-a-pump	 1995-1999 1997-1999	 100 100	 6 1		 6 2	
Power Saw(s)	Various	100	6		6	
Grader(s)	1975, Excess Property	Zero	2		3	
ATV(s) 4 wheel	 1998	 100	 2		 3	
Radios Narrow band Portable Narrow Band Mobile High Band Portable	 1996-2000 1996-2000 1996-2000	 100	 20 30 15		 20 30 15	

All engines are outfitted with the required minimum gear to support local fire operations. The Refuge has six Type 6 engines and one Type 4 engine. These engines are outfitted with a full accompaniment of equipment as outlined in the NWCG Fireline Handbook (PMS 410-1) and the Northern Rockies Coordination Group interagency standards for Type 4 & 6 engines in this geographic area.

APPENDIX G

Standard Engine Inventory

APPENDIX H

Employee Contact List

APPENDIX I

Fitness Testing - Par-Q Form

Job-Related Work Capacity-Tests for Wildland Firefighters

Background: Studies of wildland firefighting clearly show the link between fitness and work performance. Fit workers can do more work with less fatigue, and still have a reserve to meet unforseen emergencies. They perform better in a hot environment, and recover faster from adverse firefighting conditions like long shifts and reduced rest. In short, fitness is the most important factor in work capacity.

Since 1975 Federal Agencies have used a 5-minute step test and an alternative 1.5 mile run test to screen candidates for wildland firefighting. In 1994 the Missoula Technology & Development Center (MTDC) began a review of work capacity testing alternatives. MTDC conducted a comprehensive job task analysis and extensive laboratory and field studies of candidate tests. The result is a family of job-related field tests.

Work Category	Test	Distance	Pack	Time
Arduous	Pack Test	3 Miles	45 lbs	45 min
Moderate	Field Test	2 Miles	25 lbs	30 min
Light	Walk Test	1 Mile	none	16 min

Pack Test The test consists of a 3 mile hike with a 45 pound pack (fire-suppression water bag) over level terrain. A time of 45 minutes, the passing score for the test, approximates a step test score of 45 (ml/kg.min), the established standard for wildland firefighters. The test is a valid, job-related test of the capacity for arduous work, defined as: "Duties involve field work requiring physical performance calling for above average endurance and superior conditioning. These duties may include an occasional demand for extraordinarily strenuous activities in emergencies under adverse environmental conditions and over extended periods of time. Requirements include running, walking, climbing, jumping, twisting, bending, and lifting more than 50 pounds; the pace of work typically is set by the emergency condition." The energy cost of the test is similar to that demanded on the job. The Pack Test is correlated to measures of aerobic and muscular fitness, as well as performance in field tasks such as working with hand tools, or carrying loads over rough terrain. The duration of the test insures the capacity to perform prolonged arduous work under adverse conditions, with a reserve to meet emergencies.

Field Test: A 2 mile hike with a 25 pound pack in 30 minutes, approximates a step test (max V02) score of 40. A job-related test of work capacity designed for those with moderately strenuous duties: "Duties involve field work requiring complete control of all physical faculties and may include considerable walking over irregular ground, standing for long periods of time, lifting 25 to 50 pounds, climbing, bending, stooping, squatting, twisting, and reaching. Occasional demands may be required for moderately strenuous activities in emergencies over long periods of time. Individuals usually set their own work pace.

Walk Test This one mile walk test approximates a step test score of 35 is a test to determine the ability to carry out light duties: "Duties mainly involve office type work with occasional field activity characterized by light physical exertion requiring basic good health- Activities may include climbing stairs, standing, operating a vehicle, and long hours of work, as well as some bending, stooping, or light lifting. Individuals almost always can govern the extent and pace of their physical activity."

Instructions

The Pack Test is a 3 mile hike with a 45 lb. pack over level terrain. Field studies show . that performance on the pack test is significantly related to performance of firefighting tasks, including line construction with hand tools. Studies conducted at the University of Montana Human Performance Laboratory indicate that the energy cost of the test is similar to the cost of firefighting tasks. A score of 45 minutes on the Pack test approximates a Step Test Score of 45 (ml/kg-min). Because of its length, the Pack Test is an excellent indicator of sustained work capacity. Scores on a flat course are highly related to performance on a hilly course. And performance on the Pack Test is significantly related to vascular fitness, including measures of upper and lower body strength. The Pack Test is: job-related, safe, inexpensive, and easy to administer. It is a valid, reliable, and objective measure of work capacity that does not adversely impact workers on the basis of gender, ethnicity, age, height, or weight. **(These instructions apply to the Field and Walk Tests).**

The Course

Course must be essentially level and have a firm, relatively smooth walking surface. Course length (3 miles) must be accurate: double-check measurements. Use a measuring wheel or a calibrated bicycle computer. Vehicle odometers are not sufficiently accurate.

Loop or out-and-back courses are preferable. Avoid one-way courses where unfavorable conditions (wind, grade) are not offset. A moderate grade (2-3%) is acceptable if the course starts and finishes at the same place. Have lap counters available for multi-loop courses. Use course monitors when needed.

Candidates must be informed of the course layout (use a map or sketch of the course). Use distance markers (e.g., at 1 or 1.5 miles) to aid candidates. Use hazard and traffic makers as needed.

Equipment

Packs: The 5 gallon backpack pump water bag (NSN8465-01-321-1678, cost $35.23) used in test development is recommended: The number required will depend on the number of candidates to be tested simultaneously. If other packs are used the test administrator must insure the correct weight (45 lbs).

Pack liners: (NSN8465-01-321-1679, cost $6.51): Have at least one extra liner for each pack.

Canteens:(NSN8465-00-102-6381, cost $0.43): Use up to 2 in pack pocket to obtain proper weight (45 +/- 2 1bs).

Safety Vests/Route Markers: As needed.

Distance Markers: Use mile and mid-point markers so candidates can maintain proper pace.

Stop watches: Utilize 2 watches to provide back-up timing.

Vehicle: Bicycle or other vehicle to monitor candidates on the course.

Radios: As needed for monitoring and safety.

Scale: An accurate hanging style spring scale is recommended for weighing packs.

Forms: **PAR-Q** health screening questionnaire and an informed consent form (attached).
Data collection form (should include: site, date, conditions, test administrator, and column for name, gender, age, height, weight, Pack Test and other scores - step test, 1.5 mile run, etc.).

Test Administration

One person can administer the test when:

- ☐ The administrator is a trained First Responder (American Red Cross) or equivalent.
- ☐ The timer can monitor the course.
- ☐ The safety/med evacuation plan can be executed.
- ☐ Five or fewer people are being tested at one time.
- ☐ Candidate safety and compliance with test requirements can be assured.

For larger groups or when course monitoring is difficult, a 2 to 3 person team should be used.

Testing Tips

- ☐ Fill packs the night before to check for leaks (use plumber's Teflon tape to stop leaks in threaded fitting).
- ☐ Weigh bags before test. Check weight after the test if necessary. Note: Bags are used without trombone pumps.
- ☐ Group or staggered starts can be used. Many candidates will benefit from the support provided by a group start.

Environment: Administer the test in moderate environmental conditions**;** do not test new recruits when the temperature is high or when the temperature and humidity combine to create high heat stress conditions (see heat stress chart); if necessary, test early in the day to avoid high temperature /humidity combinations; avoid high winds that may affect performance.

Hydration: If the weather is hot, encourage candidates to drink fluids prior to the test, and provide fluid replacement mid way in the course. Candidates may carry a water bottle.

Altitude: Use this chart to adjust for tests administered at elevations above 4,000 ft.

Table 1: Altitude Corrections for Work Capacity Tests*

Altitude	Pack Test	Field Test	Walk Test
8-9,000 ft	90 sec	60 sec	30 sec
7-8,000 ft	75	50	25
6-7,000	60	40	20
5-6,000	45	30	15
4-5,000	30	10	10

* Add correction to required test time (e.g., Pack Test at 6-7,000 ft, add 60 seconds to test standard (45 min) for altitude adjusted standard of 46 n-dn

The altitude adjustment assumes that the candidate has had an opportunity to acclimate to the altitude of the test site. If a candidate doesn't meet the required standard, even with the adjustment, he or she should be encouraged to train at the altitude and retake the test.

Instructions for Candidates

In advance of test: Distribute confidential PAR Q physical activity readiness questionnaire so candidates can decide if they should seek medical advice before taking the test. Have candidates read and sign an informed consent form.

Clothing: Candidates may select the clothing worn during the test. "T" Shirts and shorts are acceptable. Footwear that provides ankle height support, such as hiking boots or ankle height sport shoes, is required for the Pack and Field tests, and recommended for the walk test.

Safety: Brief candidates on the test, the course, safety considerations, and accommodations. Tell candidates to terminate the test if they experience major physical problems or discomfort, or feel the need to terminate for any reason.

Pace: Demonstrate to candidates how they should hike (power walk) the course as fast as possible without jogging. The heel of one foot must make contact before the opposite toe leaves the ground. jogging or running will invalidate the test and require a retest.

Accommodations: Candidates may use gloves or other padding to make the pack more comfortable. A candidate-provided walking staff may be used during the test.

Hydration: If weather is hot, tell candidates to drink plenty of fluids prior to the test. Candidates may elect to carry a water bottle, but the extra weight will not be counted as part of the pack weight.

Essentials of Good Testing:

- ☐ An accurately measured flat course with good surface.
- ☐ Proper weight packs. Use the specified water bags and verify pack weight with a calibrated scale. If alternative packs are used encourage candidates to adjust them properly.
- ☐ Duplicate and accurate timing. Give candidates split times along the course (e.g., at one mile or the mid point - 1.5 mile for Pack Test).
- ☐ Candidates should be rested and well informed about the course and the need to maintain a fast pace.
- ☐ Favorable environmental conditions. Avoid adverse conditions.
- ☐ Complete the PAR Q physical activity readiness questionnaire and sign an informed consent form.

Safety

- ☐ A locally developed safety/med evacuation plan must be prepared for the course.
- ☐ A trained and qualified American Red Cross First Responder (or equivalent) who knows the symptoms of physical distress and appropriate first aid procedures must be on site during the test.
- ☐ Avoid use of roads and intersections where traffic is a problem or concern. When using roads, use traffic control devices and traffic controllers in hi-visibility vests as needed.
- ☐ Require candidates to read and sign the PAR Q health screening questionnaire and an informed consent form.
- ☐ Check to see that candidates are wearing proper (above ankle) footwear.
- ☐ Encourage candidates to stretch and warm up prior the test.
- ☐ Do not test tired or injured individuals, or test during conditions that could compromise health or safety.
- ☐ Monitor candidates to identify those having difficulties and encourage them to terminate the test if necessary.

- ☐ Encourage fluid intake and replacement and provide fluids in route when heat stress conditions (temperature /humidity) exist.
- ☐ At the mid-point, terminate those who are substantially behind the required pace (22.5 minutes for 1.5 miles and/or are having difficulty maintaining the pace. Candidates cannot jog or run to make up time.
- ☐ Encourage a cool down with an easy walk after the test. Monitor the recovery of candidates who appear exhausted or distressed.
- ☐ Recommend several weeks of training before retaking the test.

Training for the Pack Test

Begin at least 4 to 6 weeks before you report for duty. Train by hiking or power walking, using the ankle height footwear you will use in the test.

Hike a 3 mile flat course without a pack. When you can cover the course in less than 45 minutes; Add a pack with about 25 pounds to your training hikes;

Increase the pack weight until you can hike 3 miles in 45 minutes with a 45 pound pack. Also:

- ☐ Hike hills (w/pack) to build leg strength and endurance
- ☐ Jog the flat course (w/o pack) to build aerobic fitness.
- ☐ Hike/jog over distance for stamina.
- ☐ Engage in cross-training (mountain biking, weight lifting).
- ☐ Finally, do job-specific tasks and training to become work hardened for the coming season. Wear work boots on extended hikes. Work with hand tools to prepare trunk and upper body muscles for prolonged work. Work hardening insures that the hands, feet, muscles, tendons and ligaments used on the job are tough and ready to go.

Informed ConsentWork Capacity Tests 2/97

Pack Test is intended for those involved in arduous duties (defined as requiring a max V02 of 45, lifting more than 50 pounds and occasional demand for extraordinarily strenuous activities). The 3 mile test with a 45 pound pack in 45 minutes is strenuous, but no more so than the duties of wildland firefighting.

Field Test is intended for those with moderately strenuous duties (requires a max V02 of 40, lifting 25 to 50 pounds, and occasional demand for moderately strenuous activity). The 2 mile test with a 25 pound pack in 30 minutes is fairly strenuous, but no more so than field duties.

Walk Test intended for those whose duties involves light work with occasional field activity (required max V02 of 35). The -1 mile walk in 16 minutes is moderately strenuous, but no more so than the duties assigned.

Risks: There is a slight risk of injury (blisters, sore legs, sprained ankle) for those who have not practiced the test. If you have been inactive and have not practiced or trained for the test, you should engage in several weeks of specific training before you take the test. Be certain to warm up and stretch before taking the test, and to cool down after the test. The risk of more serious consequences (e.g., respiratory or heart problems) is diminished by completing the PAR Q physical activity readiness questionnaire.

If you cannot answer NO to all the questions in the PAR Q health screening questionnaire, or if you are over 40 years of age and unaccustomed to vigorous exercise, you should contact your physician, by phone or in person, before you take the test. Your physician may want to see PAR Q and information about the test or job demands.

1. I have read the information on this form and understand the purpose, instructions, and risks of the job-related work capacity test.
2. I have read, understood, and truthfully answered the PAR Q physical activity readiness questionnaire.
3. I believe I have the ability to complete the test and carry out the assigned duties of the position (e.g., wildland firefighter).
4. I assume responsibility and release the US Government from liability for injuries sustained in testing that result from any physical or mental disorders.* Reference EEOC #915.002 (5/19/94)

Test (circle) Pack Field Walk

Signature _____ Date _____

Print Name _____ Witness _____

PAR-Q and YOU
(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: Check YES or NO.

YES	NO		
___	___	1.	Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?
___	___	2.	Do you feel pain in your chest when you do physical activity?
___	___	3.	In the past month, have you had chest pain when you were not doing physical activity?
___	___	4.	Do you lose your balance because of dizziness or do you ever lose consciousness?
___	___	5.	Do you have a bone or joint problem that could be made worse by changes in your physical activity?
___	___	6.	Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
___	___	7.	Do you know of any other reason why you should not do physical activity?

IF YOU ANSWERED YES TO ONE OR MORE QUESTIONS

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

You may be able to do any activity you want - as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.

Find out which community programs are safe and helpful for you.

IF YOU ANSWERED NO TO ALL QUESTIONS	**DELAY BECOMING MUCH MORE ACTIVE:**
	If you are not feeling well because of a temporary illness such as a cold or fever - wait until you feel better; or If you are or may be pregnant - talk to your doctor before you start becoming more active.
If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can: Start becoming more physically active - begin slowly and build up gradually. This is the safest and surest way to go. Take part in a fitness appraisal - it is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively.	**PLEASE NOTE:** If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q The Canadian Society for Exercise Physiology, Health Canada and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

You are encouraged to copy the PAR-Q but only if you use the entire form

Note: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction.

Name: _____

Signature: _____ Date: _____

Signature of Parent or Guardian: _____
(For participants under the age of Majority)

Witness: _____ Date: _____

APPENDIX J

Step-up Plan

APPENDIX K

Staffing and Availability Report

APPENDIX L

Pre-attack Plans

APPENDIX M

MIST Guidelines

The following guidelines for minimum impact tactics are available for Agency Administrators, Incident Management Teams, Initial Attack Incident Commanders, and firefighters to consider:

Fire Line Construction Phase.

- ☐ Select procedures, tools, and equipment that least impact the environment. Give serious consideration to use of water only (e.g.: fireline constructed using backpack pumps and swatters or wetliners).
- ☐ In light fuels, consider:
  - ■ Cold trailing
  - ■ Allow fire to burn to natural barrier.
  - ■ Burn out
  - ■ The use of "gunny" sacks or swatters.
  - ■ Constantly re-check cold-trailed fireline
- ☐ When constructing fireline is necessary,
  - ■ Use minimum width and depth necessary to check fire spread.
  - ■ In medium/heavy fuels, consider use of natural barriers and cold-trailing.
  - ■ Cooling with dirt and water.
  - ■ Minimize bucking to establish fireline; preferably build line around logs.
- ☐ Aerial fuels-brush, trees, and snags:
  - ■ Adjacent to fireline: limb only enough to prevent additional fire spread.
  - ■ Inside fireline: remove or limb only those fuels, which if ignited would have potential to spread fire outside the fireline.
  - ■ Brush or small trees that are cut during fireline construction will be cut flush with the ground.

Live Trees, Burned Trees, and Snags

- ☐ MINIMIZE cutting of trees, burned trees, and snags.
- ☐ Live trees will not be cut, unless it is determined they will cause fire spread across the fireline or seriously endanger workers. If tree cutting occurs, cut stumps flush with the ground.
- ☐ Scrape around tree bases near fireline only if hot and likely to cause fire spread.
- ☐ Identify hazard trees by posting an observer, flagging and/or glow-sticks.

When Using Indirect Attack

- ☐ Do not fall snags on the intended unburned side of the constructed fireline, unless they are an obvious safety hazard to crews working in the vicinity. On the intended burn-out side of the line, fall only those snags that would reach the fireline should they burn and fall over. Consider alternative means to falling, i.e., bucket drops. Mop-up Phase: Consider using "hot-spot" detection devices along perimeter (aerial or hand-held).
- ☐ Light fuels: Cold-trail areas adjacent to unburned fuels. Do minimal spading; restrict spading to hot areas near fireline only. Use extensive cold-trailing to detect hot area.
- ☐ Medium and heavy fuels: Cold-trail charred logs near fireline; do minimal scraping or tool scarring. Minimize bucking of logs to check for hot spots or extinguish fire: preferably roll the logs. Return logs to original position after checking or ground is cool. Refrain from making bone-yards: burned/partially burned fuels that were moved are to be arranged in natural position as much as possible. Consider allowing larger logs near the

fireline to burnout instead of bucking into manageable lengths. Use lever, etc., to move large logs. Aerial fuels-brush, small trees and limbs: remove or limb only those fuels which, if ignited, have potential to spread fire outside the fireline. Burning trees and snags: First consideration is allow burning tree/snag to burn themselves out or down. Identify hazard trees with either an observer, flagging, and/or glow-sticks. If burning trees/snag pose serious threat of spreading fire brands, extinguish fire with water or dirt. FELLING by chainsaw will be last means.

Camp Sites

- ☐ Use existing campsites if available. If existing campsites are not available, select campsites that are unlikely to be observed by visitors/users.
- ☐ Select impact-resistant sites such as rocky or sandy soil, or opening within heavy timber. Avoid camping in meadows, along streams or lake-shores.
- ☐ Change camp location if ground vegetation in and around the camp shows signs of excessive use.
- ☐ Do minimal disturbance to land in preparing bedding and campfire sites. Do not clear vegetation or do trenching to create bedding sites.
- ☐ Toilet sites should be located a minimum of 200 feet from water sources. Holes should be dug 6-8 inches deep.
- ☐ Select alternate travel routes between camp and fire if trails become excessive.
- ☐ Evaluate coyote camps versus fixed campsite in sensitive areas.

Restoration of Fire Management Activities

Firelines

- ☐ After fire spread is secured, fill in deep and wide firelines, and cut trenches.
- ☐ Water bar, as necessary, to prevent erosion, or use wood material to act as sediment dams.
- ☐ Ensure stumps from cut trees/large size brush are cut flush with ground.
- ☐ Camouflage cut stumps, if possible.
- ☐ Any trees or large size brush cut during fireline construction should be scattered to appear natural.

Camps

- ☐ Restore campsite to natural conditions as much as possible.
- ☐ Scatter fireplace rocks, charcoal from fire; cover fire ring with soil; blend area with natural cover.
- ☐ Pack out all garbage.
- ☐ Remove all signs of human activity (plastic flagging, small pieces of aluminum foil, litter).
- ☐ Restore helicopter landing sites
- ☐ Cover, fill in latrine sites.

APPENDIX N

Wildland Fire Situation Analysis

WILDLAND FIRE SITUATION

ANALYSIS

Incident Name: _____
Jurisdiction: _____

Date and Time Completed: _____

This page is completed by the Agency Administrator(s).

Section I, WFSA Information Page

A. Jurisdiction(s): Assign the agency or agencies that have or could have fire protection responsibility, e.g., USFWS, BLM, etc.

B. Geographic Area: Assign the recognized "Geographic Coordination Area" the fire is located in, e.g., Northwest, Northern Rockies, etc.

C. Unit(s): Designate the local administrative unit(s), e.g., Hart Mountain Refuge Area, Flathead Indian Reservation, etc.

D. WFSA #: Identify the number assigned to the most recent WFSA for this fire.

E. Fire Name: Self-explanatory.

F. Incident #: Identify the incident number assigned to the fire.

G. Accounting Code: Insert the local unit's accounting code.

H. Date/Time Prepared: Self-explanatory.

I. Attachments: Check here to designate items used to complete the WFSA. "Other could include data or models used in the development of the WFSA. Briefly describe the "other" items used.

I. Wildland Fire Situation Analysis

To be completed by the Agency Administrator(s)

A. Jurisdiction(s)	**B. Geographic Area**
C. Unit(s)	**D. WFSA #**
E. Fire Name	**F. Incident #**

G. Accounting Code:

H. Date/Time Prepared _____@_____

I. Attachments

- Complexity Matrix/Analysis * _____
- Risk Assessment/Analysis * _____
  - Probability of Success * _____
  - Consequences of Failure * _____
- Maps * _____
- Decision Tree ** _____
- Fire Behavior Projections * _____
- Calculations of Resource Requirements * _____
- Other (specify) _____

* Required

** Required by FWS

This page is completed by the Agency Administrator(s).

Section II. Objectives and Constraints

A. Objectives: Specify objectives that must be considered in the development of alternatives. Safety objectives for firefighter, aviation, and public must receive the highest priority. Suppression objectives must relate to resource management objectives in the unit resource management plan.

Economic objectives could include closure of all or portions of an area, thus impacting the public, or impacts to transportation, communication, and resource values.

Environmental objectives could include management objectives for airshed, water quality, wildlife, etc.

Social objectives could include any local attitudes toward fire or smoke that might affect decisions on the fire.

Other objectives might include legal or administrative constraints which would have to be considered in the analysis of the fire situation, such as the need to keep the fire off other agency lands, etc.

B. Constraints: List constraints on wildland fire action. These could include constraints to designated wilderness, wilderness study areas, environmentally or culturally sensitive areas, irreparable damage to resources or smoke management/air quality concerns. Economic constraints, such as public and agency cost, could be considered here.

II. Objectives and Constraints

To be Completed by the Agency Administrator(s)

A. Objectives (Must be specific and measurable)

1. *Safety*

   - Public

   - Firefighter

2. *Economic*

3. *Environmental*

4. *Social*

5. *Other*

B. Constraints

This page is completed by the Fire Manager and/or Incident Commander.

Section III. Alternatives

A. Wildland Fire Management Strategy: Briefly describe the general wildland fire strategies for each alternative. Alternatives must meet resource management plan objectives.

B. Narrative: Briefly describe each alternative with geographic names, locations, etc., that would be used when implementing a wildland fire strategy. For example: "Contain within the Starvation Meadows' watershed by the first burning period."

C. Resources Needed: Resources described must be reasonable to accomplish the tasks described in Section III.B. It is critical to also look at the reality of the availability of these needed resources.

D. Final Fire Size: Estimated final fire size for each alternative at time of containment.

E. Estimated Contain/Control Date: Estimates of each alternative shall be made based on predicted weather, fire behavior, resource availability, and the effects of suppression efforts.

F. Cost: Estimate all incident costs for each alternative. Consider mop-up, rehabilitation, and other costs as necessary.

G. Risk Assessment - Probability of Success/Consequences of Failure: Describe probability as a percentage and list associated consequences for success and failure. Develop this information from models, practical experience, or other acceptable means. Consequences described will include fire size, days to contain, days to control, costs, and other information such as park closures and effect on critical habitat. Include fire behavior and long-term fire weather forecasts to derive this information.

H. Complexity: Assign the complexity rating calculated in "Fire Complexity Analysis" for each alternative, e.g., Type II, Type I.

I. A map for each alternative should be prepared. The map will be based on the "Probability of Success/Consequences of Failure" and include other relative information.

III. Alternatives (To be completed by FMO / IC)			
	A	**B**	**C**
A. Wildland Fire Strategy			
B. Narrative			

C. Resources needed Handcrews Engines Dozers Airtankers Helicopters			
D. Final Size			
E. Est. Contain/ Control Date			
F. Costs			
G. Risk Assessment **- Probability of success** **- Consequence of failure**			
H. Complexity			
I.	**Attach maps for each alternative**		

This page is completed by the Agency Administrator(s), FMO and/or Incident Commander.

Section IV. Evaluation of Alternatives

A. Evaluation Process: Conduct an analysis for each element of each objective and each alternative. Objectives shall match those identified in Section II.A. Use the best estimates available and quantify whenever possible. Provide ratings for each alternative and corresponding objective element. Fire effects may be negative,

cause no change, or may be positive. Examples are: 1) a system which employs a "-" for negative effect, a "0" for no change, and a "+" for positive effect; 2) a system which uses a numeric factor for importance of the consideration (soils, watershed, political, etc.) and assigns values (such as -1 to +1, - 100 to +100, etc.) to each consideration, then arrives at a weighted average. If you have the ability to estimate dollar amounts for natural resource and cultural values, this data is preferred. Use those methods which are most useful to managers and most appropriate for the situation and agency. To be able to evaluate positive fire effects, the area must be included in the resource management plan and consistent with prescriptions and objectives of the fire management plan.

Sum of Economic Values: Calculate for each element the net effect of the rating system used for each alternative. This could include the balance of:
pluses (+) and minuses (-), numerical rating (-3 and +3), or natural and cultural resource values in dollar amounts. (Again, resource benefits may be used as part of the analysis process when the wildland fire is within a prescription consistent with approved Fire Management Plans and in support of the unit's Resource Management Plan.)

IV. Evaluation of Alternatives			
To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander			
A. Evaluation Process	**A**	**B**	**C**
Safety Firefighter Aviation Public			
Sum of Safety Values			
Economic Forage Improvements Recreation Timber Water Wilderness Wildlife Other (specify)			
Sum of Economic Values			
Environmental Air Visual Fuels T & E Species Other (specify)			
Sum of Environmental Values			
Social Employment Public Concern Cultural			

Other (Specify)			
Sum of Social Values			
Other			

This page is completed by the Agency Administrator(s) and Fire Manager and/or Incident Commander.

Section V. Analysis Summary

A. Compliance with Objectives: Prepare narratives that summarize each alternative's effectiveness in meeting each objective. Alternatives that do not comply with objectives are not acceptable. Narrative could be based on effectiveness and efficiency. For example: "most effective and least efficient," "least effective and most efficient," or "effective and efficient." Or answers could be based on a two-tiered rating system such as "complies with objective" and "fully complies with or exceeds objective." Use a system that best fits the manager's needs.

B. Pertinent Data: Data for this Section has already been presented, and is duplicated here to help the Agency Administrator(s) confirm their selection of an alternative. Final Fire Size is displayed in Section III.D. Complexity is calculated in the attachments and displayed in Section III.H. Costs are displayed on page 4. Probability of Success/Consequences of Failure is calculated in the attachments and displayed in Section III.G.

C. External and Internal Influences: Assign information and data occurring at the time the WFSA is signed. Identify the Preparedness Index (1 through 5) for the National and Geographic levels. If available, indicate the Incident Priority assigned by the MAC Group. Designate the Resource Availability status. This information is available at the Geographic Coordination Center, and is needed to select a viable alternative. Designate "yes," indicating an up-to-date weather forecast has been provided to, and used by, the Agency Administrator(s) to evaluate each alternative. Assign information to the "Other" category as needed by the Agency Administrator(s).

Section IV. Decision

Identify the alternative selected. Must have clear and concise rationale for the decision, and a signature with date and time. Agency Administrator(s) is mandatory.

V. Analysis Summary

To be Completed by the Agency Administrator(s) and Fire Manager / Incident Commander

Alternatives	A	B	C
A. Compliance with Objectives Safety Economic Environmental Social Other			
B. Pertinent Data Final Fire Size Complexity Suppression Cost Resource Values Probability of Success Consequences of Failure			

C. External / Internal Influences

National & Geographic Preparedness Level _____

Incident Priority _____

Resource Availability _____

Weather Forecast (long-range) _____

Fire Behavior Projections _____

VI. Decision

The Selected Alternative is: _____

Rationale:

_____	_____
Agency Administrator's Signature	Date/Time

This Section is completed by the Agency Administrator(s) or designate.

Section VII. Daily Review

The date, time, and signature of reviewing officials are reported in each column for each day of the incident. The status of Preparedness Level, Incident Priority, Resource Availability, Weather Forecast, and WFSA validity is completed for each day reviewed. Ratings for the Preparedness Level, Incident Priority, Resource Availability, Fire Behavior, and Weather Forecast are addressed in Section V.C. Assign a "yes" under "WFSA Valid" to continue use of this WFSA. A "no" indicates this WFSA is no longer valid and another WFSA must be prepared or the original revised.

Section VIII. Final Review

This Section is completed by the Agency Administrator(s). A signature, date, and time are provided once all conditions of the WFSA are met.

VIII. Daily Review

To be completed by the Agency Administrator(s) or Designate

Selected to be reviewed daily to determine if still valid until containment or control

			PREPAREDNESS LEVEL	INCIDENT PRIORITY	RESOURCE AVAILABILITY	WEATHER FORECAST	FIRE BEHAVIOR PROJECTIONS	WFSA VALID
Date	**Time**	**By**						

If WFSA is no longer valid, a new WFSA will be completed!

VIII. Objectives Final Review

The elements of the selected alternative were met on: _____ _____
Date Time

By:_____
(Agency Administrator(s)

A GUIDE FOR ASSESSING FIRE COMPLEXITY

The following questions are presented as a guide to assist the Agency Administrator(s) and staff in analyzing the complexity or predicted complexity of a wildland fire situation. Because of the time required to assemble or move an Incident Management Team to wildland fire, this checklist should be completed when a wildland fire escapes initial attack and be kept as a part of the fire records. This document is prepared concurrently with the preparation of (and attached to) a new or revised Wildland Fire Situation Analysis. It must be emphasized this analysis should, where possible, be based on predictions to allow adequate time for assembling and transporting the ordered resources.

Use of the Guide:

1. Analyze each element and check the response "yes" or "no."

2. If positive responses exceed, or are equal to, negative responses within any primary factor (A through G), the primary factor should be considered as a positive response.

3. If any three of the primary factors (A through G) are positive responses, this indicates the fire situation is, or is predicted to be, Type I.

4. Factor H should be considered after all the above steps. If more than two of these items are answered "yes," and three or more of the other primary factors are positive responses, a Type I team should be considered. If the composites of H are negative, and there are fewer than three positive responses in the primary factors (A-G), a Type II team should be considered. If the answers to all questions in H are negative, it may be advisable to allow the existing overhead to continue action on the fire.

GLOSSARY OF TERMS

Potential for blow-up conditions - Any combination of fuels, weather, and topography excessively endangering personnel.

Rate or endangered species - Threat to habitat of such species or, in the case of flora, threat to the species itself.

Smoke management - Any situation which creates a significant public response, such as smoke in a metropolitan area or visual pollution in high-use scenic areas.

Extended exposure to unusually hazardous line conditions - Extended burnout or backfire situations, rock slide, cliffs, extremely steep terrain, abnormal fuel situation such as frost killed foliage, etc.

Disputed fire management responsibility - Any wildland fire where responsibility for management is not agreed upon due to lack of agreements or different interpretations, etc.
Disputed fire policy - Differing fire policies between suppression agencies when the fire involves multiple ownership is an example.

Pre-existing controversies - These may or may not be fire management related. Any controversy drawing public attention to an area may present unusual problems to the fire overhead and local management.

Have overhead overextended themselves mentally or physically - This is a critical item that requires judgment by the responsible agency. It is difficult to write guidelines for this judgment because of the wide differences between individuals. If, however, the Agency Administrator feels the existing overhead cannot continue to function efficiently and take safe and aggressive action due to mental or physical reasons, assistance is mandatory.

FIRE COMPLEXITY ANALYSIS

A.	FIRE BEHAVIOR: Observed or Predicted		**Yes/No**	
	1. Burning Index (from on-site measurement of weather conditions). Predicted to be above the 90% level using the major fuel model in which the fire is burning.		___	___
	2. Potential exists for "blowup" conditions (fuel moisture, winds, etc.)		___	___
	3. Crowning, profuse or long-range spotting.		___	___
	4. Weather forecast indicating no significant relief or worsening conditions.		___	___
		Total	___	___
B.	RESOURCES COMMITTED			
	1. 200 or more personnel assigned.		___	___
	2. Three or more divisions.		___	___
	3. Wide variety of special support personnel.		___	___
	4. Substantial air operation which is not properly staffed.	___	___	
	5. Majority of initial attack resources committed.		___	___
		Total	___	___
C.	RESOURCES THREATENED			
	1. Urban interface.		___	___
	2. Developments and facilities.		___	___
	3. Restricted, threatened or endangered species habitat.	___	___	
	4. Cultural sites.		___	___
	5. Unique natural resources, special designation zones or wilderness.		___	___
	6. Other special resources.		___	___
		Total	___	___
D.	SAFETY			
	1. Unusually hazardous fire line conditions.	___	___	
	2. Serious accidents or facilities.		___	___
	3. Threat to safety of visitors from fire and related operations.		___	___
	4. Restricted and/or closures in effect or being considered.		___	___
	5. No night operations in place for safety reasons.	___	___	
		Total	___	___
E.	OWNERSHIP		**Yes/No**	

1.	Fire burning or threatening more than one jurisdiction.	___	___	
2.	Potential for claims (damages).		___	___
3.	Conflicting management objectives.		___	___
4.	Disputes over fire management responsibility.		___	___
5.	Potential for unified command.		___	___
	Total		___	___

F. EXTERNAL INFLUENCES

1.	Controversial wildland fire management policy.	___	___	
2.	Pre-existing controversies/relationships.		___	___
3.	Sensitive media relationships.		___	___
4.	Smoke management problems.		___	___
5.	Sensitive political interests.		___	___
6.	Other external influences.		___	___
	Total		___	___

G. CHANGE IN STRATEGY

1.	Change in strategy to control from confine or contain.		___	___
2.	Large amount of unburned fuel within planned perimeter.		___	___
3.	WFSA invalid or requires updating.		___	___
	Total		___	___

H. EXISTING OVERHEAD

1.	Worked two operational periods without achieving initial objectives.		___	___
2.	Existing management organization ineffective.		___	___
3.	IMT overextended themselves mentally and/or physically.		___	___
4.	Incident action plans, briefings, etc., missing or poorly prepared.		___	___
	Total		___	___

Signature_____

Date_____ **Time**_____

APPENDIX O

Delegation of Authority

DELEGATION OF AUTHORITY

Charles M. Russell National Wildlife Refuge Complex
Lewistown, Montana

As of (Time) and (date), I have delegated authority to manage the (Fire/Incident Name and Fire Number) , Charles M. Russell National Wildlife Refuge Complex, to Incident Commander (Name) and his incident management team.

As Incident Commander, you are accountable to me for the overall management of this incident including it's control and return to local forces. I expect you to adhere to relevant and applicable laws, policies, and professional standards. While the suppression of the fire is your primary task, you are expected to do so in a manner that provided for the safety and well being of involved personnel. Consideration for the needs of local residents and communities is essential for successful management of the incident.

I am assigning (Name) As the line officer representative to act as liaison and provide any help you need. (S)He is authorized to speak for me in the event a decision is needed.

My specific considerations for management of this fire are:

1. Ensure the safety of firefighters, visitors, and public.

2. Protect private and refuge property to the extent possible.

3. Minimize damage to environmental resources.

4. Key resource considerations are: protecting rare, threatened, and endangered species; preserving as much wildlife habitat as possible; avoiding wildlife entrapment situations; protecting cultural resources; and limiting degradation of the Complex's aesthetic values.

5. Restrictions for suppression actions are no earthmoving equipment (dozers, discs, plows, graders) without my approval or the approval of my acting.

6. Manage the fire cost-effectively for the values at risk.

7. Provide training opportunities for Service personnel when ever possible in order to strengthen our organizational capabilities.

Signed: _____ Date: _____
Project Leader

APPENDIX P

Prescribed Fire Complexity Rating Guide

APPENDIX Q

Monitoring Guidelines

RECOMMENDED FIRE MONITORING STANDARDS

REGION 6

The following are the recommended standards to be used when planning, implementing, and evaluating prescribed burns. These should be viewed as minimum values to be monitored and the information contained in this check list incorporated into a monitoring record sheet.

Planning and Preparation

Environmental Conditions Prior to the Burn

Photo Points Established

Fuel

- Model(s)
- Loading (By Size Class)
- % Cover (Type/Model)
- Continuity
- Crown ratio
- Depth of Fuel Bed
- Other

Air Temperature (Maximum - Minimum to develop trends)

Relative Humidity (Maximum - Minimum to develop trends)

Wind Speed and Direction (Eye-level/20 Foot)

Fuel Moisture

- Dead Fuel Moisture (Use of Fuel Sticks and/or Drying Ovens highly recommended)
- Live Fuel Moisture (Fuel Models 2,4,5,7,10)

Soil Moisture (Dry, Moist, Wet)

Drought Indicator (Track One or More)

Execution

Environmental Conditions During the Burn

Date/Time	
Air Temperature	(Every 30 minutes)
Relative Humidity	(Every 30 minutes)
Wind Speed and Direction	(Eye Level) (Every 30 minutes)
Cloud Cover	
Fuel Moisture (Indicate How Determined: Calculated, Actual)	

Dead Fuel Moisture (Using above values, calculate every 30 minutes utilizing Tables and Worksheets, Nomograms, BEHAVE, etc.)
Live Fuel Moisture (Fuel Models 2,4,5,7,10 - Collect immediately prior to the burn and evaluate later)

Fire Behavior

Flame length	(Head, Flank, Backing)
Rate of Spread	(Forward, Flank, Backing)
Resistance to Control	
Spotting Distance	

Smoke/Air Quality

Mixing/Dispersal	(Good, Fair, Poor)
Trajectory of Column	(Surface/Upper Level)
Duration	(Active Burning/Smoldering)
Problems	

Note: It is recommended that photos be taken to document smoke dispersal.

Post Burn

First Order Fire Effects

Photo Point
Percent of Area Burned
Percent of Fuels Consumed (By Fuel Loading Size Class, when possible)
Percent of Thatch/Duff Consumed
Scorch Height
Mortality

Note: The information in the first two categories will be used to determine the amount of particulate matter produced, and may/will be used by State Air Quality Regulators.

APPENDIX R

Fire Effects for Selected Species

FIRE EFFECTS ON SELECTED SPECIES (TAKEN FROM FEIS)

SPECIES	FIRE ECOLOGY/ADAPTATION
Achillea millefolium (western yarrow)	Generally increases after fire of low to moderate intensity. Resprouts from extensiv
Agropyron cristatum (crested wheatgrass)	Minimum leafy material transfers little heat below surface. Rapid regrowth of tiller
Ambrosia psilostachya (western ragweed)	Top killed by fire but rhizomes survive. Considered an increaser post fire.
Artemesis cana ssp. cana (silver sagebrush)	Mortality directly related to fire intensity and season. Fall burning and higher inten mortality. Resprouts after most fires and is considered moderately tolerant of fire.
Artemisia nova (black sagebrush)	Plants are readily killed by most fires. Re-establishment occurs through off site see will not carry a fire.
Artemesia spinescens (bud sage)	Plants killed by fire. Would be nearly impossible to carry fire due to lack of fuels.
Artemisia tridentata ssp. tridentata (Wyoming big sagebrush)	Plants killed by most fires. Re-establishment through on site seed and off site sour
Artemisia tridentata ssp. vaseyana (mountain big sagebrush)	Plants killed by most fires. Re-establishment through on site seed and off site sour
Artemisia tridentata ssp. wyomingensis (Basin big sagebrush)	Plants killed by most fires. Re-establishment through on site seed. Seed in surface low intensity fires.
Atriplex canescens (fourwing saltbush)	Reported as tolerant of fire. Sprouts vigourously after fire and quickly recovers to p volitization rate, very difficult to burn.
Atriplex confertifolia (shadscale saltbush)	Low volitization rate, very difficult to burn.
Atriplex gardneri (Gardner's saltbush)	Low volitization rate, very difficult to burn. Very low fuel load.
Bromus inermis (smooth brome)	Tolerant of fire when dormant due to extensive rhizomes. Mortality increases with during active growth.
Bromus tectorum (cheatgrass)	Frequent fire favors cheatgrass. Annual reproducing by seed quickly re-establishes
Calamagrostis canadensis (bluejoint reedgrass)	Generally survives most fires through extensive rhizomes. Fires of high intensity w temps. kill rhizomes.
Carduus nutans (musk thistles)	Biennial plant colonizes disturbed sites through wind dispersed seed. If plant can b development, it may prevent additional seed dispersal. Difficult to burn before plan seed.
Centaurea repens (Russian knapweed)	May be top killed by fire, but sprouts from rhizomes and re-established from seed.
Cirsium arvense (Canada thistle)	Survives most fires through perennating buds located on underground roots. Also r seed.
Cornus sericea (red-osier dogwood)	Sprouts from roots and stolons. Considered semi-tolerant of fire. Light fires which stimulate germination of buried seed.
Elaeagnus commutata (Silverberry)	Reportedly tolerant of fire and readily resprouts from rhizomes following fire.
Eleocharis palustris (common spikerush)	Plants survive fire through extensive rhizomes. Postfire production is generally high generally moist, however drought may cause fire to burn into organic matter and kil

SPECIES	FIRE ECOLOGY/ADAPTATION
Elymus elymoides (bottlebrush squirreltail)	Rapid combustion of folilage with little downward heat transfer makes the plant tol Damage has been reported when burned during May and when successive years of increasing fire loads.
Elytrigia repens (quackgrass)	Tolerant of fire when dormant. May be injured severly if burned while actively gro
Festuca idahoensis (Idaho fescue)	Considered fire sensitive and is severely damaged by summer and fall fires due to i fine dense tuft.
Grindella squarrosa (curlycup gumweed)	Top killed by fire, but quickly re-established after a fire.
Halogeton glomeratus (halogeton)	Burning does not appear to control halogeton as it readily re-invades sites.
Juncus balticus (baltic rush)	Plants survive fire through extensive rhizomes. Postfire production is generally hig generally moist, however drought may cause fire to burn into organic matter and ki
Lepidium latifolium (perennial pepperweed)	Survives by sprouting from underground tap root and rhizomes.
Leymus cinereus (Basin wildrye)	Considered adapted to fire. Coarse stems insulate perennating buds. Burning duri encourages rapid recovery
Oryzopsis hymenoides (Indian ricegrass)	May be slightly damaged by higher intensity fires. Low culm density reduces char surface.
Phalaris arundinacea (reed canarygrass)	Fire top kills plant, but resprouts from extensive rhizomes.
Phleum pratense (timothy)	Generally well adapted to fire. Fire may stimulate the production of reproductive ti
Poa pratensis (Kentucky bluegrass)	Tolerant of fire when dormant. Mortality increase when plant is actively growing.
Poa secunda (Sandberg bluegrass)	Relatively fire resistant due to low fuel loads and its rapid maturation.
Populus angustifolia (narrowleaf cottonwood)	Reported to sprout after low intensity fires, however several studies indicate even m cool fires. Fire should not be used where maintenance of mature cottonwoods is de
Rhus trilobata (skunkbush sumac)	Generally sprouts vigourously from root crown and rhizomes following fire. Crow coverage often increase following fire.
Ribes aureum (Golden currant)	regeneration probably favored by low to moderate intensity fire because germinatio is generally enhanced by scarification in Ribes spp.
Rosa woodsii (Wood's rose)	Moderately tolerant of fire and usually favored by low intensity fires, as root crown survive.
Salix bebbiana (Bebb willow)	Sprouts vigourously from the basal stem following fire. Quick hot fires maximize s
Salix exigua (sandbar willow)	Sprouts from roots after fire. High fuel and soil moisture content reduces fire ignitio
Salsola kali (Russian thistle)	No data on effects. Can spread fire by rolling.
Sarcobatus vermiculatus (black greasewood)	Resprouts readily following fire. Small fuel loads limit burning to extreme conditio
Scirpus validus (soft-stem bulrush)	Sprouts from rhizomes following fire. Fire increases protein content in Scirpus acut
Shepherdia argentea (Silver bufaloberry)	Fair tolerance to fire in dormant state and can sprout from root crown after fire.
Solidago missouriensis (prairie goldenrod)	Good tolerance to fire when dormant.

SPECIES	FIRE ECOLOGY/ADAPTATION
Sporobolus airoides (alkali sacaton)	Clumped growth habit and loose coarse culms limit heat transfer into the root crow plants to survive fire.
Stipa comata (needle-and-thread)	Can be severely damaged by fire. Re-establishes through seed.
Tamarix ramosissima (saltcedar)	Considered to be fire adapted. High fule moisture and salt content make ignition di flowering and seed production after fire.
Typha latifolia (cattail)	Quickly regrows from rhizomes after fire. Mosaic burns may enhance habitat for s Manipulation of water levels pre and post fire have provided control of cattail at so

APPENDIX S

Smoke Management Guidelines

APPENDIX T

Wildland Fire Implementation Plan

Attachment 1: Fire Situation Recording Sheet

To be completed within first hour of fire being reported as part of Stage I evaluation.

Fire Situation

Fire Name					
Fire Number					
Jurisdiction(s)					
Administrative Unit(s) eg: CMR, BLM, etc.					
Fire Management Unit					
Geographic Area		Northern Rockies Area			
Management Code					
Start Date/Time		Date:		Time:	
Discovery Date/Time		Date:		Time:	
Current Date/Time		Date:		Time:	
Current Size					
Location:	Legal Description	T.	R.	Sec.	Sub.
	Latitude				
	Longitude				
	UTM				
	County(ies)				
	State(s)				
Cause					
Fuel Model/Conditions					
Weather	Current				
	Predicted				
Fire Behavior	Current				
	Predicted				
Available Resources					

Recommended Response Action	Action	
	MMA	
	Restrictions	

TABLE 2: WILDFIRE FREQUENCY AND SIZE ON CMR

1964-2000

Year	No. of Fires*	Acre Burned	Largest Fire	Support Actions
1964*	6	398	250	?
1965*	2	.5	.5	?
1966*	19	9802	4526	?
1967*	5	122	70	?
1968*	6	27	20	?
1969*	9	436	350	?
1970*	5	92	70	?
1971*	5	2020	1648	?
1972*	0	0	0	?
1973*	18	14610	5120	?
1974*	7	230	80	?
1975*	1	15	15	?
1976*	2	1	.7	?
1977*	0	0	0	?
1978*	1	.5	.5	?
1979	1	130	130	?
1980	12	442	300	1
1981	2	265	250	0
1982	14	6543	6450	0
1983	16	2238	1365	2
1984	18	2406	2127	0
1985	10	357	180	2
1986	4	249	245	0
1987	6	64	55	2
1988	41	3897	1600	7
1989	19	392	306	1
1990	16	198	86	8
1991	12	1246	800	2
1992	10	995	480	2
1993	3	34	24	2
1994	10	11,464	11067	10
1995	8	443	200	7

Year	No. of Fires*	Acre Burned	Largest Fire	Support Actions
1996	15	11,147	10,031	12
1997	12	1139	692	2
1998	18	8148	3880	6
1999	9	280	100	7
2000	10	1744	650	9
Total: 37 Years Average:	**352 Fires 9.5/year**	**81,575 acres 2205 acres/year**	**232 acres/fire**	**73**

* Includes some BLM, private, state, or COE lands.

Fig. 1 General Overview of the Charles M. Russell NWR