FIRE MANAGEMENT PLAN

FOR

MEDICINE LAKE NATIONAL

WILDLIFE REFUGE COMPLEX

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I. INTRODUCTION

This Fire Management Plan is written to update a current plan and to help achieve resource management objectives as defined in the Complex's approved Grassland Management Plan of March 3, 1993 (Appendix O), and Fire Management Plan dated January 26, 1984.

Regulations published in the Federal Register (62 FR 2375) January 16, 1997, categorically excludes prescribed fire when used for habitat improvement purposes and conducted in accordance with local and State ordinances and laws. Wildfire suppression actions are 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. This plan tiers off the Management of Upland Habitats at the Medicine Lake National Wildlife Refuge Complex (Plan), July 15, 1994 (Appendix L), which as been through the NEPA process; therefore an EA will not be completed for this plan.

The U.S. Fish and Wildlife Service Fire Management Handbook and the Departmental Manual 620 DM 1 require all refuges with burnable vegetation complete a fire management plan. This plan meets that requirement and provides fire management guidelines for the Medicine Lake National Wildlife Refuge Complex (Complex), which includes the Medicine Lake National Wildlife Refuge (NWR) and the Northeast Montana Wetland Management District (WMD).

The statutes cited herein authorize and provide the means for prevention, preparedness, control, and suppression of wildland fire on lands or threatening lands under the jurisdiction of the Department of the Interior, or lands adjacent thereto.

A. Protection Act of September 20, 1922 (42 Stat. 857; U.S.C. 594)

B. Economy Act of June 30, 1932 (47 Stat. 417; 31 U.S.C. 1535)

C. Taylor Grazing Act of June 28, 1934 (48 Stat. 1269; 43 U.S.C. 315)

D. Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 U.S.C. 1856a)

E. National Wildlife Refuge System Administration Act of 1966 as amended (80 Stat. 927; 16 U.S.C. 668dd through 668ee)

F. Federal Fire Prevention and Control Act of October 29, 1974 (88 Stat. 1535; 15 U.S.C. 2201)

G. Wildfire Suppression Assistance Act of 1989 (P.L. 100-428, as amended by P.L. 101-11, April 7, 1989)

II. COMPLIANCE WITH FISH AND WILDLIFE SERVICE POLICY

A. Medicine Lake National Wildlife Refuge Complex

Medicine Lake NWR

The Medicine Lake National Wildlife Refuge was established by Executive Order No. 7148, August 19, 1935, initiated by President Franklin D. Roosevelt (Figure 1). The purpose of the refuge was "to effectuate further the purposes of the Migratory Bird Conservation Act (45 Stat. 1222)...set aside...as a refuge and breeding ground for migratory birds and other wildlife." The majority of the 31,660 acre refuge, 19,953.2 acres, was acquired through emergency funds of the U.S. Resettlement Administration, 3.6 acres were a gift, while the rest was acquired with Migratory Bird Hunting Stamp Act funds.

The Medicine Lake Wilderness (Figure 2.) was enacted by Congress under Public Law 94-557 on October 19, 1976 (Appendix Q). The wilderness, totaling 11,366 acres, includes the entire body of water of Medicine Lake including several natural islands, and the 2,320 acre southern portion of the refuge known as the Sandhills Unit.

Four locations on the refuge were designated as Research Natural Areas (RNA) on November 11, 1972. They include Bruce's Island (367 acres), Big Island (251 acres), Tepee Hills (95 acres), and Homestead (39 acres). Both Bruce's and Big Islands are included within the Wilderness Area.

Tepee Hills was also included in the National Register of Historic Places on August 1, 1975 by the Montana Historical Society. This area has numerous tepee rings that are 2,000 to 4,000 years old, and was probably used by early man as a encampment for hunting forays into the surrounding area.

Medicine Lake was designated a National Natural Landmark on August 20, 1980 by the U.S. National Park Service to recognize the area's "...exceptional value as an illustration of the Nation's natural heritage..."

Figure 1: Medicine Lake NWR

Figure 2: Medicine Lake NWR Wilderness

Northeast Montana WMD

The Northeast Montana Wetland Management District was established in 1969 under the authority of the Migratory Bird Hunting and Conservation Stamp Act (16 USC 718). The purpose of the Northeast Montana WMD as stated in the Migratory Bird Conservation Act is to manage acquired lands

> "...as Waterfowl Production Areas" subject to "...all of the provisions of such Act except the inviolate sanctuary provisions..." 16 U.S.C. 718(c) (Migratory Bird Hunting and Conservation Stamp Act). Additionally under the Migratory Bird Conservation Act was added "... for any other management purpose, for migratory birds." 16 U.S.C. 715(d).

The primary purpose for establishment of lands within the Complex was migratory bird management. To manage for migratory birds requires the manipulation of grassland habitat.

One of the preferred methods to manage that habitat is through the use of fire. Fire is critical for many passerines like Baird's and grasshopper sparrows, shorebirds such as marbled godwit and upland sandpiper, as well as nesting waterfowl like mallard and northern shoveler. The periodic use of fire rejuvenates native and tame grasses providing more robust growth, the removal of the choked duff layer of dead material, and the incorporation of nutrients back into the soil.

Currently the station has no Master Plan, but the Comprehensive Conservation Planning process has been started. The draft mission of the station is "To protect, restore and manage biological communities of the northern Great Plains mixed grass prairie; provide nesting, feeding and migratory habitat for migratory birds; protect endangered, threatened, rare and unique species and their habitats; provide for biological diversity; protect unique designated areas; and increase public opportunities for compatible outdoor recreation and environmental education".

Goals and objectives including habitat management, resource protection, endangered species, other wildlife, interpretation, and environmental awareness, all are enhanced through the use of fire on the grassland habitat (Appendix M).

The grassland management goal as detailed in the Complex's Grassland Management Plan (Appendix O) calls for grasslands to be managed in such a way as to attain a high successional level. Fire is one of the tools outlined in the plan to attain that goal.

The majority of the Complex values at risk are located at the headquarters. Included are the office, two residences with garages, shop, nine storage buildings, water pump house, hazardous materials building, and sheds. All of the refuge vehicles, equipment, and supplies are located there as well. Additionally, the refuge office houses several historical artifacts and legal documents. The office, duck hospital, quarters #1, boat house, observation tower, and well house are all historical buildings, constructed during the 1930s. Large wooden signs and kiosks are located throughout the Complex. See Appendix K for a list of values at risk.

Values at risk bordering Complex lands include small grain cropland, hay fields, irrigated cropland, and livestock pasture land.

The Fire Management Plan for the Medicine Lake National Wildlife Refuge Complex is a detailed program of actions to implement fire management policies to achieve refuge management mission, goals, and objectives.

III. DESCRIPTION OF COMPLEX

The Complex is situated on the glaciated rolling plains in the far northeast corner of Montana. The NWR is located in Sheridan and Roosevelt counties while the WMD encompasses Sheridan, Roosevelt and Daniels Counties.

The Complex lies in the highly productive prairie pothole region and has relief typical of the glacial drift prairie, relatively gentle rolling plains with occasional shallow depressions. This area is located in the transition zone between the mixed grass and short grass prairie and is characterized by grass species such as needle and thread, western wheatgrass, and blue gramma. Native brush species consisting primarily of chokecherry, buffaloberry, and snowberry are common in coulees and sandhill areas. A few old shelterbelts, composed of a variety of introduced deciduous trees, still remain on the Complex and appear to be out of place on the prairie.

The soils of the Complex are primarily kame-terrace deposits of sand, gravel, and clay in higher lands; Mankato till, made up of a moderately consolidated mixture of clay, sand, gravel, and boulders in the intermediate elevations; and glacio-fluvial sand and gravel mixed with varying amounts of clay in the lower flats of creek drainages. The Big Muddy Creek valley is floored with alluvium, a fluvial deposit of silt, sand, and gravel creating a crumbly, dark, tight type soil. Soil types are composed largely of calcareous sands, silt, and clays, and fall within the classification of Northern Dark Brown (chestnut) Soils.

The 31,660 acre Medicine Lake NWR includes 14,557 acres of grasslands, 13,546 acres of open water and marsh, and 3,557 acres of cultivated lands, primarily former croplands. The surrounding private land is intensively farmed for small grain, but does include some livestock pastures.

Threatened and Endangered species occurring on the Complex include: American peregrine falcon (Falco peregrinus anatum), bald eagle (Haliaeetus leucocephalus), piping plover (Charadrius melodus), and whooping crane (Grus americana). Piping plover is the only one of these species that has been documented nesting on the Complex.

The WMD is bounded on the north by Canada, on the east by North Dakota, on the west by the Fort Peck Indian Reservation, and on the south by the Missouri River. It includes 44 waterfowl production areas (WPAs) totaling 11,772 managed acres. These WPAs vary in size from four acres to 2,012.5 acres. An additional 8,140 acres of privately-owned wetlands are protected from drainage, burning, leveling, and filling by perpetual wetland easements. Perpetual grassland easements encompass 9,500 acres protected from cultivation. Acquisition started in 1969, and though fee title acquisition has slowed since the early 1980s, grassland and wetland easements are still being acquired.

The Complex lies within the Williston Oil Basin which was one of the most active oil regions in the lower 48 states during the early 1980s. Oil exploration and development is widespread throughout the area. The NWR owns most of the mineral rights and has two oil wells within its boundaries. The majority of WPA tracts were acquired without the underground mineral rights. This resulted in reservations for development of the sub-surface rights by the owners or their assigned third party. For this reason, seismic exploration and oil well development is common on these tracts.

The climate is typical of the northern Great Plains with warm summers, cold winters, and marked variations in seasonal precipitation. Precipitation averages 14 inches per year. Temperatures can exceed 100^{o}F in the summer and may drop to minus 45^{o}F in the winter. Spring is generally the windiest period with velocities commonly exceeding 20 miles per hour. Passing weather fronts can bring gusty winds up to 50 mph.

Fire is a historical and critical process which has been instrumental in the shaping and maintaining of grasslands in the Northern Great Plains (Higgins, 1989). Once European settlement was established in this area during the early 1900s, the frequency of fire declined dramatically. Farmers and ranchers feared fire and could not see any benefits of it, so they strived to keep it under control and eliminate it as much as possible. The use of fire on the Complex was not started until 1984 when 147 acres were prescribe burned. Prior to that time the positive benefits of fire on grassland habitat were not well known, and the expertise and staff needed to use it as a management tool were not available. Since then prescribed burning has taken place nearly every year ranging from a few acres up to 1000. Although periodic wildland fires have resulted on the refuge since its establishment, most were aggressively attacked and extinguished. See Appendices F and G for Complex fire history and frequency.

Climatic conditions and vegetation on the Complex are the primary factors contributing to the occurrence of wildland fires. The grassland and associated shrub/grassland uplands produce ample amounts of flashy fuels in most years. In addition, low annual precipitation, high summer temperatures and moderate to strong winds provide "ideal" wildland fire conditions. One factor contributing to wildland fire is the occurrence of intense lightning storms during the summer months, June to September. These storms can cover a wide area in a single day and may or may not produce precipitation, making lightning-caused fires likely. Most summer storms come from the direction of the prevailing winds (west-northwest) and travel through the area in an easterly direction. Many of these lightning strikes do not produce wildland fires or are self-extinguishing when precipitation happens to occur with them.

The other cause of most wildland fires is human induced. The Complex is surrounded by private land that is either farmed cropland or grazed prairie. Human activities associated with farming and ranching cause many wildland fires. Equipment malfunction during harvest is one of the most common causes.

Wildland fire behavior is variable but generally predictable. The topography of the Complex is composed mostly of gently rolling hills to flat prairie. A majority of the fuels are grasses. Roads, fire breaks, and wetlands, scattered throughout the Complex, provide excellent barriers to fire spread. Indirect suppression tactics are most effective in these situations. The fires are usually allowed to burn to a natural barrier or road. Burnouts are frequently set from Complex roads or control points to contain a wildland fire.

Direct suppression tactics are used when a wildland fire threatens private property or when fire would be detrimental to current wildlife management strategies. With good road access to most of the Complex many wildland fires can be controlled by direct attack, taking into consideration variable climatic conditions.

IV. COMPLEX FIRE MANAGEMENT OBJECTIVES

A. General Fire Management Objectives:

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.

1. Protect life, property, and other resources from unwanted fire.
2. Use fire to accomplish resource management objectives.
3. Restore fire as a natural ecological process.

B. Specific Objectives:

1. Protect from fire important scientific, cultural, historic, and scenic resources, recreational areas, and key visitor and administrative facilities.
2. Restore and perpetuate native wildlife species by maintaining a diversity of plant communities.
3. Maintain natural wildland fire as an ecosystem process to the maximum extent feasible.
4. Employ prescribed fire to enhance vegetation for wildlife by burning 2000 acres annually.
5. Maintain and enhance native prairie by retarding the invasion of exotic species.
6. Improve the vertical structure of the vegetation to provide optimum nesting and brood cover for grassland birds.
7. Maintain vigor of perennial native grasses and forbs.
8. Provide an opportunity for public education and interpretation of how prescribed fire can be used to manage wildlife habitat.
9. Use prescribed fire to reduce hazardous fuel levels by treating 1000 acres annually.

C. Identification of Fuels/Hazardous Fuels Problems:

The vast majority of the Complex falls under fuel model I (short grass). Wetland edges are comprised of fuel model III (tall grass), and a few shelterbelts comprised of 1000 hr fuels remain. Hazard reduction prescribed fires comprised of dead trees and discarded timbers will be conducted in the winter to reduce the amount of 1000 hr fuels on the Complex. Hazard reduction prescribed fires will also be used in fire adapted communities that have not had a significant fire for more than twice the normal fire frequency for that community type.

V. FIRE MANAGEMENT STRATEGIES

A. Wildland Fire Suppression Policy

U.S. Fish and Wildlife Service policy requires that an approved Fire Management Plan must be in place for all of 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.

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 Refuge Manager 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 must meet these and other standards established by the Service to participate in fire management activities.

B. Implementation Strategies

The following will be employed to meet fire management objectives:

1. Suppress all wildfires in a safe and cost effective manner consistent with resources and values at risk. Use of minimum impact strategies will be used when possible.

2. Conduct all fire management programs in a manner consistent with applicable laws, policies, and regulations.

3. Utilize prescribed fire as a tool for hazard fuel reduction and meeting resource management objectives. As much as possible, hazard fuel reduction prescribed fires will be used only when they compliment resource management objectives. Resource management prescribed fire will be used to accomplish specific objectives established for individual burn units.
4. Initiate cost effective fire monitoring which will inform managers if objectives are being met. Monitoring information will also be used to refine prescribed fire plans to better meet objectives.

C. Limits to Implementation Strategies

1. Heavy equipment (bulldozers, discs, plows, and graders) will only be used in extreme emergencies and only with the approval of the Project Leader or his designate.

2. Heavy equipment will only be used in the Wilderness Area during the most extreme conditions and only with the approval of the Project Leader or his designate.

3. Prescribed burning in areas where threatened, endangered, and candidate species exist will not be conducted if the prescribed fire is detrimental to the species or any adverse impacts cannot be mitigated. A Section 7 consultation will be sought, when appropriate.

4. 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.

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

D. Appropriate Management Response

Using the Appropriate Management Response concept, suppress all wildfires in a safe, cost effective manner consistent with resources and values at risk. Minimum impact suppression tactics will be used when possible.

Table 1: Appropriate Management Response

SITUATION	STRATEGY	TACTIC
1. Wildland fire on Refuge lands which does not threaten life, natural or cultural resources or property values. 2. Wildland fire occurring in July and August in areas not accessible to vehicles and equipment.	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, such as important scientific, cultural, historic and scenic resources. 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 and 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.

E. Additional Guidance

G The decision to contain a fire to a predefined area will be made by the Project Leader or delegate.

G The decision to restrict a wildfire to a predetermined area using appropriate suppression tactics are based on the following criteria:

$ Normally applies to late spring, summer and early fall (5/15 - 9/30)
$ Burning Index 16-29 (3-day average).
$ Wind speed 0-15 mph.
$ Relative Humidity 20% (3-day average).
$ No Red Flag conditions predicted.

$ No air stagnation alert.

$ Risk of fire spread to adjacent private lands outside designated modified suppression areas is low.

$ adequate suppression forces are available for dispatch if conditions occur that dictates direct attack strategy be utilized.

G The decision to utilize direct attack strategy is based on the following criteria:

$ Normally applied to late summer fires (7/15-8/30)

$ Burning Index 30 or greater (3-day average).

$ Wind speed >15 mph.

$ Relative Humidity <20% (3-day average).

$ Weather Watches and Red Flag Warnings are expected.

$ Risk of fire spread to adjacent private lands outside the Complex is high.

$ Adequate suppression forces are not available for dispatch if the fire grows too large.

F. Effects of Fire Management Program

The majority of the lands surrounding the Complex are privately and state owned. These lands are primarily used for agricultural purposes, mainly small grain production and ranching. Wildland fire in these areas can cause significant economic loss to the affected individuals. An active refuge fire management program is seen as a way to prevent these losses and is strongly supported by the local neighbors and communities.

Over half of the wildland fires that occur on the Complex originate on private property. These fires are usually caused by equipment malfunctions or escapes from agricultural burning. The impacts of these fires are difficult to ascertain although they are usually minimal. Many times the suppression methods used by the local fire departments on these lands causes more long-term damage than the fire.

Because Complex lands are spread over three counties and many occupied farms and ranches occur adjacent to or near these lands, several Memorandums of Understanding (MOU's) were completed to provide mutual aid assistance with local fire departments that are closest to the majority of Service lands. These MOU's allow for quick response of the closest fire department and ensure prompt suppression of all wildland fires.

VI. FIRE MANAGEMENT UNITS

The Complex has been divided into three Fire Management Units (FMUs). The boundaries for these units coincide with refuge program management boundaries and are the same for both suppression and prescribed fire. These units are the Medicine Lake Unit, Homestead Unit, and the WMD Unit. All of these units are suppression units where the appropriate management response concept will be used in response to wildland fires according to the guidelines outlined in section V.

The majority of the Complex is represented by NFFL Fuel Model 1 - fire spread being governed by fine, cured herbaceous fuels. Examples of NFFL Fuel Model 3 exist at wetland edges - fire spread being governed by tall stands of grass averaging 3 feet high.

Under moderate to extreme drought conditions, fire on the Complex will move faster and burn hotter than under normal climatic conditions. Palmer Drought Index values less than -2 and Keetch-Byrum Drought Index values greater than 400 represent moderate to extreme drought conditions and will lead to extreme fire behavior. For that reason the Palmer Drought Index, and the Keetch-Byram Drought Index will be monitored at a minimum on a weekly bases throughout the year. All are available on the Internet at http://ndc.fws.gov. The Refuge fire staff can also contact the Miles City Dispatch Center (406-232-0323) during periods of high fire danger to track indices and anticipate possible fire activity.

A. Medicine Lake Unit

The Medicine Lake Unit (Figure 3) includes that portion of the refuge surrounding Medicine Lake including the sandhills area and the small lakes area east of Medicine Lake, and totals about 28,250 acres. This is the largest and most complex of the three management units. Grasslands occupy a rather narrow band along the north and south sides of the lake with larger blocks of upland habitat west of State Highway 16, in the sandhills, and between Gaffney Lake and Medicine Lake.

Medicine Lake occupies about 8,218 acres of the unit, smaller lakes occupy an additional 2,774 acres, and several other small natural and developed wetlands exist throughout the unit. The 2,320 acre sandhills area and Medicine Lake are included in the Medicine Lake Wilderness Area (Figure 2). Fuel types, fire history, and fire behavior characteristics of the unit are consistent with those of the other units on the Complex and are mentioned in Section III.

Two temporary fire fighters, one seasonal fire fighter, and four red carded regular refuge employees are stationed at the Medicine Lake Unit. All equipment (Appendix E) and the fire cache are located here, and response to fire incidents will occur from this unit.

The appropriate management response concept will be used in this unit to meet refuge wildland fire management goals. In general, wildland fire suppression techniques should be of low impact when possible, utilizing the many natural and man-made features for wildland fire containment. Low impact suppression should be given high priority when fire intensity and spread is minimal. The same natural and man-made features should be used during large, fast moving fires. Fire fighter safety is a primary strategic objective. Most wildland fires in the unit will eventually burn to a fire break, natural barrier, or an area of sparse fuels. The extensive road system in the unit provides good access to most wildland fires.

Unit fire objectives:

1. Provide for fire fighter safety first.
2. Keep damage from suppression efforts to refuge resources to a minimum.
3. Manage the wildland fire in the most cost effective manner consistent with values at risk.
4. On extended attack wildland fires, prevent fire from burning off of the refuge and onto private lands.

Figure 3: Medicine Lake FMU

Suppression Strategies and Techniques:

1. Utilize existing roads, wetlands, and other natural barriers as primary control lines, anchor points, escape routes, and safety zones.
2. When possible, use burnouts from existing roads and natural barriers to halt the spread of wildland fires.
3. Use burnouts to stabilize and strengthen primary control lines.
4. If mechanical treatment is approved by the Project Leader or delegate, construct control lines along existing roads if possible.
5. 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.
6. All constructed fireline will be rehabilitated prior to departure from the wildland fire.

B. Homestead Unit

The Homestead Unit (Figure 3) is a tract of about 3,250 acres located four miles southwest of the main part of the refuge. Big Muddy Creek forms the west boundary of the unit; Homestead Lake and other wetlands occupy 1,400 acres of the unit. There are about 1,850 acres of grassland which occupy a narrow strip along the west side of the unit and larger tracts east and north of the lake. The 39 acre Homestead Research Natural Area is located in the northwest part of the unit.

The appropriate management response concept will be used in this unit to meet refuge wildland fire management goals. In general, wildland fire suppression techniques should be of low impact when possible, utilizing the many natural and man-made features for wildland fire containment. Low impact suppression should be given high priority when fire intensity and spread is minimal. The same natural and man-made features should be used during large, fast moving fires. Fire fighter safety is a primary strategic objective. Most wildland fires in the unit will eventually burn to a wetland, road, creek, natural barrier, or an area of sparse fuels. The extensive road system in the unit provides good access to most wildland fires.

Unit fire objectives:

1. Provide for fire fighter safety first.
2. Keep damage from suppression efforts to refuge resources to a minimum.
3. Manage the wildland fire in the most cost effective manner consistent with values at risk.
4. On extended attack wildland fires, prevent fire from burning off of the refuge and onto private lands.

Suppression Strategies and Techniques:

1. Utilize existing roads and other natural barriers as primary control lines, anchor points, escape routes, and safety zones.

2. When possible, use burnouts from existing roads and natural barriers to halt the spread of wildland fires.
3. Use burnouts to stabilize and strengthen primary control lines.
4. If mechanical treatment is approved by the Project Leader or delegate, construct control lines along existing roads if possible.
5. 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.
6. All constructed fireline will be rehabilitated prior to departure from the wildland fire.

C. WMD Unit

The WMD Unit (Figure 4) includes 44 WPAs in the three county area of Daniels, Roosevelt and Sheridan. The individual WPAs range in size from four to 2,212.5 acres, and vary in distance from Complex headquarters from adjacent lands up to 80 miles. The appropriate management response will be used in this unit to meet WMD wildland fire management goals. The individual WPAs are generally smaller in size than refuge units. These areas usually have response from local fire companies before the Complex fire units can arrive. The WPAs are close to private land, and the possibility of a wildland fire on one spreading outside our boundaries is far greater there than anywhere else in the Complex. In general, wildland fire suppression techniques should be of low impact when possible, utilizing the many natural and man-made features for wildland fire containment. Low impact suppression should be given high priority when fire intensity and spread is minimal. The same natural and man-made features should be used during large, fast moving fires. Fire fighter safety is a primary strategic objective. The extensive public road system in the unit provides good access to most wildland fires.

Unit fire objectives:

1. Provide for fire fighter safety first.
2. Keep damage from suppression efforts to Complex resources to a minimum.
3. Manage the wildland fire in the most cost effective manner consistent with values at risk.
4. On extended attack wildland fires, prevent fire from burning off of the WPA and onto private lands.

Figure 4: Wetland Management District FMU

Suppression Strategies and Techniques:

1. Utilize existing roads, ridgetops, and other natural barriers as primary control lines, anchor points, escape routes, and safety zones.
2. When possible, use burnouts from existing roads and natural barriers to halt the spread of wildland fires.
3. Use burnouts to stabilize and strengthen primary control lines.
4. If mechanical treatment is approved by the Project Leader or delegate, construct control lines along existing roads if possible.
5. 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.
6. All constructed fireline will be rehabilitated prior to departure from the wildland fire.

VII. FIRE MANAGEMENT AND RESPONSIBILITIES

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 Refuge Manager 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 must meet these and other standards established by the Service to participate in fire management activities.

The Complex Project Leader is responsible for planning and implementing an effective fire management program. The Project Leader is also the official ultimately responsible for all fire management decisions concerning both wildland fire and prescribed fire on the Complex.

All wildland fires must receive some measure of active initial response. The initial attack forces will be primarily field station personnel. The most fire qualified individuals available will be in charge of the initial suppression efforts. Currently, the composition of the Complex fire management team consists of the Project Leader, who is ultimately responsible for all fire management decisions made on the Complex; two Refuge Operations Specialists; one seasonal fire fighter; three other permanent staff, and two temporary fire fighters. In total, seven red carded individuals are available for wildland fire suppression and nine staff are available for prescribed burning details.

The Project Leader will be responsible for the daily determination if prescribed burn units are within prescription.

A. Interagency Coordination

The Complex is surrounded by large amounts of private and state lands. Local fire departments have responsibility for wildland fire suppression on these lands. Fort Peck Indian Reservation borders Medicine Lake NWR to the west. The Bureau of Indian Affairs is responsible for wildland fire suppression on the reservation. Coordination is essential prior to and during the fire season to ensure adequate fire protection.

During 1993 and 1996, Memorandums of Understanding (MOUs) were approved with local fire companies from Medicine Lake, Froid, Plentywood, and Westby for mutual aid on wildland fires

(Appendix P). The MOUs will be updated as they expire. These fire companies are closest to a majority of Service lands. Froid is located in Roosevelt County, while the others are all within Sheridan County. Only two WPAs exist in Daniels County and it was not as cost efficient to enter into agreements with local communities near the WPAs. Radio coordination is conducted by the Sheridan Radio Dispatch headquartered in Plentywood. Radio communication is provided for all the fire companies, local law enforcement, and the Complex.

VIII. WILDLAND FIRE PROGRAM

A. Wildland Fire Prevention

Objectives

1. To reduce the threat of human caused wildland fires through visitor and employee education.

2. To integrate the prevention message into interpretive programs conducted or sponsored by the Complex.

General Actions

a. All staff members will be familiar with this plan and be able to explain it to other interested parties.

b. Wildland fire prevention will be discussed at appropriate safety meetings, prior to the fire season, and during periods of high wildland fire danger.

c. Articles concerning wildland fire prevention will be written by the Complex staff for local release.

d. Smoking, open fires, and access to Complex lands may be closed by the Project Leader during periods of high or extreme wildland fire danger. Notices will be posted at appropriate entrances, trails, and through local radio and news releases.

e. The Project Leader will coordinate with other State and Federal Land Management Agencies in periods of extreme wildland fire danger.

Evaluation

The wildland fire prevention activities will be reviewed annually to determine if human caused ignitions are occurring in new areas or increasing.

B. Wildland Fire Season

General

The Project Leader is responsible for coordinating Complex preparedness actions. Specific duties are assigned in the step-up plan (Appendix J). The wildland fire season, as

determined by wildland fire occurrence analysis, begins April 15 and runs through October 15.

C. Fire Behavior

See Section III.

D. Preparedness and Suppression

1. Personnel

The Complex will employ a minimum of one seasonal and two temporary fire fighters during the primary wildland fire season to perform emergency preparedness and suppression functions. These fire fighters will be stationed at the Complex headquarters. The Project Leader will coordinate the Complex's emergency preparedness and suppression activities during the wildland fire season.

Only red carded employees will be dispatched to fires. Non-red card employees may assist in support capacities, but will not be permitted on the fireline. See appendices H and I for staffing levels. Additional fire fighters (emergency hire/casual fire fighters) may be temporarily hired to supplement engine crews using severity or emergency preparedness funding when very high or extreme wildland fire conditions warrant.

2. Annual Work Needed

Wildland fire engines and water tenders will be winterized and serviced after each fire season and brought back to readiness prior to the next season. Roads and trails throughout the Complex will be graded and maintained as permanent fire breaks. Fire breaks around the headquarters area will be disked as needed, and the fire cache will be restocked.

3. Training, Qualifications, and Fitness

Annual Refresher Training

All personnel involved in Fire Management activities are required to participate 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.

Physical Fitness

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.

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 H). 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.

Physical Examinations

All individuals involved in arduous fire management activities over the age 40 or newly hired are required to complete an annual physical fitness examination. Standard forms and procedures required by the Service will be used and followed. The cost of examination will be born by the Service and the results sent to the Region Personnel Department.

4. Equipment

Engines are the primary initial attack resource on the Complex; accessibility is usually sufficient at most locations for engines. However, hand tools and backpack pumpers are required in some areas. All engines will be equipped with necessary hand tools.

All fire fighters will be issued the required personal protective equipment. All primary engines will be equipped with tools, firing devices, and water handling accessories.

In addition to a seasonal fire fighter, four other permanent staff, and two temporary fire fighters, an eight person tool cache (shovels, pulaskis, axes, sleeping bags, fire clothing, fire shelters, backpack pumpers, fusees, drip torches, canteens, MREs, etc) is available for

use on Complex wildland fires. For other available resources, see Appendix E for a Normal Unit Strength equipment list.

E. Emergency Preparedness

The Project Leader will monitor current and predicted fire weather reports and take appropriate actions as listed in the Step-Up plan (Appendix J).

F. Detection

The Complex relies on neighbors, visitors, staff, and permittees along with law enforcement, fire companies, and other government agencies to help detect and report wildland fires. The Complex is in radio contact with the Sheridan County Dispatcher, and receives notification promptly concerning all reported wildland fires.

There may be occasions when unqualified personnel 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.

G. Pre-attack Plan

See Wildland Fire Suppression

H. Wildland Fire Suppression

Wildland fires have been a natural component of the Complex and surrounding ecosystems for thousands of years. Any temporary loss of wildlife or wildlife habitats has been more than offset by wildland fire's beneficial effects. The largest and perhaps only economic impact of past wildland fires has been temporary loss of livestock forage. Fortunately, these past fires have not significantly jeopardized life or personal property. However, the potential for damaging or disastrous wildland fires always exists. From a wildlife standpoint, none of these fires could be considered disastrous.

The most obvious ecological and beneficial impact of wildland fire is the maintenance of the prairie ecosystem. Wildland fire positively affects the nutrient cycle by releasing nutrients from old vegetation growth back to the soil.

Wildland fire suppression activities over the years have to some extent ignored the fact that wildland fire is a natural component of the environment. Consequently, these activities have

had negative effects. Generally, species of vegetation that derive some benefit during their life cycle from fire have suffered while those species that are not fire tolerant have benefitted. Another effect of past wildland fire suppression activities has been the accumulation of fuels. These accumulated fuels, when burned, tend to produce very hot fires which can damage vegetative species that normally would not be affected. They also make the possibility of larger, potentially disastrous wildland fires much more likely.

An interesting impact of past wildland fire suppression activities is in areas where heavy equipment was used to create fire breaks. In many of these areas the fire breaks are clearly visible while all evidence of the wildland fire has long since disappeared.

All management decisions will take into account that wildland fire is part of the natural setting and should be allowed, as much as possible, to assume its natural role in the mixed grass prairie ecosystem. In some areas of the Complex where private and state lands are highly intermingled, wildland fire will have to be aggressively suppressed.

1. General

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 on Service lands must meet Service fitness and training standards.

Mutual aid resources will report to the Incident Commander (IC) and receive their duty assignment, and will be the first priority for release. Frequently, individuals arrive at a wildland fire to assist but are not members of a fire department or qualified for any type of wildland fire suppression. These individuals will not to be used as fire fighters. If additional fire fighters are needed, appropriate procedures should be followed to acquire them.

2. Initial Reporting and Dispatch

All wildland fires, occurring on or adjacent to the Complex, will be immediately reported to the headquarters or the Project Leader. Dispatching duties will be directed by the Project Leader.

Requests for assistance from cooperators on wildland fires not threatening the Complex must be made to, and approved by, the Project Leader or delegate. Only qualified and properly equipped resources will be dispatched off of Service lands.

3. Initial Attack

The Project Leader will serve as or appoint a qualified IC for each wildland fire. The IC will be responsible for all aspects of the management of the fire. If a qualified IC is not available, the first Complex employee to reach a wildland fire will act as the IC, following procedures (Appendix B), until a qualified one arrives. All resources will report to the IC (in person or by radio) prior to deploying on the wildland fire. The IC will provide a size-up of the fire to the dispatcher as soon as possible, and will determine the resource needs for the fire. The IC will be responsible for placing or canceling resource orders for the wildland fire.

The IC will receive general suppression strategies from the Project Leader per the Complex Fire Management Plan, but tactics necessary to suppress the wildland fire will vary according to each on-the-ground situation encountered. It will be up to the IC to implement the appropriate tactics to effectively suppress the wildland fire.

Should a local fire company arrive prior to Service personnel, they will take charge and follow their department's procedures for wildland fire control. Once a Service employee arrives, the local fire company will step down and become support for, and follow direction from Service personnel.

4. Escaped Fires/Extended Attack

The IC will notify the Project Leader whenever it appears a wildland fire will escape initial attack efforts, escape Service lands, or that fire complexity will exceed the capabilities of command or operations. The Project Leader will contact the Zone FMO who will be responsible for coordinating all extended attack actions including:

a. Assignment or ordering of appropriate suppression resources.

b. Completion of Delegation of Authority (Appendix C) for Refuge Manager signature if needed.

5. Mop up Standards and Emergency Stabilization and Rehabilitation

The IC will be responsible for mop-up and mitigation of suppression actions taken on Complex fires. The mop-up standards established in the Fireline Handbook will be followed. Complex fires will be patrolled or monitored until declared out.

Prior to releasing all firefighters from a wildland fire the following actions will be taken:

- All trash will be removed.
- Firelines will be refilled and waterbars added if needed.

- Hazardous trees and snags cut and the stumps cut flush.
- Disked firelines should be compacted as soon as possible to preserve the living root stock of natives grasses.
- Overturned sod resulting from plowing must be rolled back with a grader or by hand and compacted to preserve native grass root stock.

Other emergency stabilization and emergency rehabilitation measures may be taken in accordance with Chapter 5 of the Fire Management Handbook. Briefly:

- **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 Commander may initiate Emergency Stabilization actions before the fire is demobilized, as delegated by the Agency Administrator, but completing 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 used 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, the emergency stabilization section of the Emergency Stabilization and Rehabilitation Plan (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 preparing 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.

6. Minimum Impact Guidelines

The only Threatened or Endangered Species known to nest on the Complex is the piping plover (Charadrius melodus). As the plover nests on beaches, its habitat will probably not be harmed, but may be enhanced by wildland fire. A site cleared of vegetation is more attractive to plovers, which search out bare shorelines for nesting areas.

In the Wilderness Area, fire lines will not be employed unless the wildland fire threatens private property. Every effort will be made to use natural fire breaks during suppression. If fire lines need to be built, heavy equipment will be a last resort.

The only cultural resources on the Complex that could be harmed by wildland fire are historical buildings and artifacts that are located at headquarters. Wildland fires that threaten headquarters will be aggressively suppressed.

7. Records and Reports

A DI-1202 Fire Report will be completed by the IC within 3 days, approved by the Project Leader, and forwarded to the Zone FMO. The IC will also complete Crew Time Reports for all personnel assigned to the wildland fire, and forward those documents to the Zone FMO. The IC should include a list of all expenses and/or items lost on the wildland fire in the fire report. The Zone FMO will enter all data into the FMIS within 10 days from when the fire is declared out. The Zone FMO will inform the timekeeper of all time and premium pay to be charged to the wildland fire, and ensure expended supplies are replaced.

I. Regional and National Preparedness Levels

National fire preparedness levels are established by the Directorate at the National Interagency Fire Center throughout the year. Preparedness levels are dictated by burning conditions, fire activity, and resource availability. Resource availability is the area of most concern. Medicine Lake NWR Complex provides dedicated fire fighters and equipment to the regional and national efforts when the wildland fire danger level does not warrant keeping all resources on station.

IX. PRESCRIBED FIRE PROGRAM

Prescribed burning as a management tool has been outlined in the Complex Grassland Management Plan (Appendix O), and discussed in the 1993 EA. This tool is a integral part of the overall grassland management of the Complex, and will be used extensively.

Prescribed fire has not been looked on favorably in the West. As the Complex utilizes prescribed fire, additional efforts will be undertaken to dispel beliefs that all residual fuel burned in prescribed fires could have been better utilized by cattle. As public sentiment slowly changes and ecosystem management becomes a reality, the Complex plans to increase its utilization of prescribed fire.

An increased emphasis will be placed on expanding the use of prescribed fire as a habitat management tool. News releases, public contacts, and day to day conversations with individuals using Service lands will stress the need for and benefits of prescribed fire.

Most of the Complex upland habitat is grassland. Prescribed fire as a management option will be increasingly important in this habitat type. Fire behavior in this habitat type (represented by NFFL Fuel Model 1) is characterized by fast moving relatively low intensity fires. The Prescribed Burn Unit boundaries coincide with the FMU boundaries described in section VI.

The use of wildland fire to achieve resource management objectives will not be a factor to be considered when developing an appropriate management response because of the relatively small size of the FMUs and the values at risk that border Complex lands. All wildland fires will be suppressed.

A. Prescribed Burning Objectives

Prescribed fire can be a useful habitat management tool if used correctly and for a specific purpose. Generally speaking, the objectives for prescribed fire are to: reduce hazardous fuel accumulations, retard invasion of exotic plant species into the prairie, and stimulate production of vegetative cover for nesting avian species. Recently, prescribed burns have been used along the edge of wetlands to augment piping plover nesting sites.

B. Planning

The Project Leader is responsible for submitting prescribed fire proposals to the Zone FMO for review. Appropriate prescribed fire training will be completed each year prior to the burning season.

Prescribed burns may be performed at all times of the year depending on the purpose of the burn. The spring season runs from April through June, the summer season from July through September, the fall season from October through December, and the winter season from January through March.

All prescribed burns must be supervised by a qualified prescribed fire burn boss. Additionally, all positions on prescribed burns will meet all Service requirements as described in the Fire Management Preparedness and Planning Handbook. The prescribed fire burn boss will be qualified to conduct prescribed burns by specific fuel groups.

The number of individuals required to complete a prescribed burn varies greatly, from as little as one ignition specialist, 2-3 holding specialists and a burn boss on a relatively simple burn to a multitude of individuals filling numerous prescribed fire positions on a more complex burn. Generally, most of the fires planned on the Complex will be simple to moderate as the emphasis switches from small, simple burns to larger, more complex burns. Numbers and types of positions needed for each prescribed burn will be addressed in each individual prescribed burn plan. The size of the Complex and relatively small staff precludes the possibility of numerous prescribed fires being conducted at one time. Except during unique situations, most prescribed burns will be ignited and completed prior to the ignition of additional burns.

Prescribed fire impacts

Using prescribed fire as a management tool on Complex lands causes different reactions from its many users and neighbors. It can create anxiety in residents living in the vicinity of a prescribed burn who know that even under controlled conditions prescribed fires can still escape and threaten their property. Farming and ranching cooperators, who are also used as management tools, see prescribed fire as a 'waste of grass' that could otherwise have been used for hay production or grazing. Recreational users (hunters, wildlife watchers, etc.) view blackened areas as unuseable for the pursuit of their interests. Local communities see potential reductions in wildlife numbers which may in turn reduce the visitation rates of hunters and their positive impact on local economies. As most of these impacts are short term and increase the long term potential they are easily mitigated using a variety of methods. The refuge staff regularly prepare news stories outlining the positive impacts of prescribed fire and submits to the local newspapers for printing prior to the prescribed burning season. The refuge also has moveable interpretive panels that can be located adjacent to burn sites explaining the ecology and benefits of prescribed fire to the visiting public..

Prescribed burning also negatively impacts air quality which not only affects those using Complex lands but also those living or traveling adjacent to its borders. Smoke can reduce visibility making travel hazardous and can have serious health effects. These impacts are to be avoided at all costs. The prescribed fire planning process will address smoke management and define those measures taken to reduce the potential for negative impacts. These measures will include identification of sensitive areas, burning only when weather conditions are conducive to smoke dispersal, and burning when fuels are at their driest to minimize the total amount of smoke produced.

Contingency Planning

If a prescribed fire escapes specified perimeter limits and cannot be quickly controlled by on-site resources it will be declared a wildfire by the burn boss. All prescribed fire operations will cease and available holding forces will perform initial attack. The burn boss or highest wildfire qualified individual on site will assume the duties of Incident Commander. If the Incident Commander determines that the on-site resources cannot contain the fire the refuge fire dispatch plan will be put into operation. The Incident Commander will also contact the Miles City Interagency Dispatch Center to identify additional resources available in the zone.

National fire preparedness levels are established by the Directorate at the National Interagency Fire Center throughout the year. Preparedness levels are dictated by burning conditions, fire activity, and resource availability. Resource availability is the area of most concern.

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 engine during periods of extreme drought or high fire danger.

The Refuge is in the Northern Rockies 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 Area Coordination Group to conduct prescribed burns during PL IV and the National Coordination Group during PL V.

Montana requires an open burning permit be obtained for all prescribed fires conducted by refuges. The burning permit is applied for each fall for the forthcoming burning season and will remain on file at Complex headquarters. The County Commissioners for each of the three counties (Sheridan, Roosevelt, and Daniels) in which Complex lands are located are responsible for deciding when weather conditions dictate that a temporary open burning ban should be instituted for their respective county. Medicine Lake NWR Complex will honor these bans.

Smoke management is a major concern in Montana. The Zone FMO is a member of the Montana Airshed Group and accumulates all pertinent information for Montana refuges for submittal to the State Air Quality Bureau. The Service is assessed a fee for the amount of particulates emitted in the atmosphere during prescribed burning operations. The Zone FMO will acquire the necessary information from the Complex for submittal to the State Airshed Bureau. Also, smoke restrictions on the Medicine Lake Wilderness Area, a Class I Wilderness, require that smoke emissions affecting the Wilderness Area be limited to minimal levels. Prescribed burning operations will be conducted in such a way as to limit their effect on the Wilderness Area and stay within federal guidelines.

Site and equipment preparation will be conducted by field personnel prior to each prescribed burn. Local authorities (county commissioners, sheriff departments), permittees, and news media will be notified of pending prescribed burns prior to and on the day of burning by Service staff.

C. Pre-fire Monitoring and Post-fire Evaluation

The methods of pre-burn monitoring and post-burn evaluation have been outlined in the approved Grassland Management Plan for the Complex (Appendix O), and will not be addressed here.

D. Fire Complexity

Prescribed fires on the Complex may vary from low to moderate complexity as determined by the FireBase Complexity Rating Guide. Complexity is dependent upon fuels/vegetation, objectives, burn boundaries, and size.

E. Documentation

As mentioned previously, prescribed fire plans will be written for each burn and submitted to the Zone FMO for review. Burn plans will remain on file at Complex headquarters. Upon completing each burn, the Project Leader will submit a form DI-1202 to the Regional Fire Management Coordinator (RFMC). A critique of each burn, both operations and objectives achieved, will be included with the burn plan and remain at Complex headquarters.

X. AIR QUALITY / SMOKE MANAGEMENT GUIDELINES

Visibility and clean air are primary natural resource values. The protection of these resources must be given full consideration in fire management planning and operations. In addition, smoke management can have serious health and safety effects which must be considered during the planning and approval process. The management of smoke will be incorporated into the planning of prescribed fires, and, to the extent possible, in the suppression of wildland fires. Sensitive areas will be identified and precautions will be taken to safeguard visitors and neighbors. Federal and state smoke management regulations and guidelines will be adhered to when planning and conducting prescribed fires on the Complex.

XI. FIRE RESEARCH AND MONITORING

Fire behavior and effects data will be collected on all prescribed fires occurring on the Complex. Monitoring will comply with accepted scientific methods. This data, along with information gathered through research studies, will be used to improve the effectiveness of the fire management program.

XII. PUBLIC SAFETY

Fire fighter and public safety will always take precedence over property and resource protection during any fire management activity. Fire fighter safety is covered in Section V. This section will deal with public safety.

The greatest threat to public safety from Complex wildland fires is entrapment by extremely fast moving fire fronts or fingers. Of particular concern are sportsmen/visitors who may be present in the area of the wildland fire, and neighbors who initiate their own suppression actions without proper training, equipment, or communication. Complex staff will attempt to keep the fire scene clear of people except for Service and cooperator fire fighters.

Vehicle accidents are a major concern when people are attempting to respond to wildland fires. Service personnel will continue to inform visitors and permittees of these dangers through the prevention program.

Another concern is smoke from a wildland fire. Smoke could drift into a roadway causing reduced visibility. The fire dispatcher will notify appropriate sheriff departments whenever the IC believes smoke may be causing a safety hazard. The Sheriff’s Office can assess the situation and take action as needed.

The final concern is for wildland fires which might escape from the Complex and spread to private property which may be populated. The following steps will minimize this threat:

A. The development of a professional and skilled fire management organization capable of safely suppressing wildland fires and conducting prescribed fires.

B. The development of wildland fire prevention programs.

C. The development of a hazardous fuel management program.

D. Improving interagency coordination and cooperation including keeping local officials briefed on the potential for escape.

XIII. PUBLIC INFORMATION AND EDUCATION

Informing and educating the public is an important part of wildland fire fighting, wildland fire prevention, and the Fish and Wildlife Service mission. Information and education is critical to gaining public support of Service fire management programs. There are several different aspects of this task.

A. Wildland Fire Suppression

The Project Leader will be in charge of the dispersal of fire information to the press and/or public on wildland fires.

B. Prescribed Fire

Areas that have been burned will present an opportunity 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 with the help of an interpretive sign that has been placed in an area that was prescribe burned. These efforts will strengthen the public’s perception of the Service's capability to safely conduct prescribed fire operations, and increase acceptance of the program.

C. Wildland Fire Prevention

Wildland fire prevention efforts are discussed in Section VIII.

XIV. ARCHEOLOGICAL / CULTURAL / HISTORIC RESOURCES

The Complex has historic era sites and a National Natural Landmark. Many cultural sites appear to be significant in the history or prehistory of the Complex. Sites that have been identified include campsites, tipi rings, homesteads, and historic graves.

Fires should have little impact on the archeological sites known to exist within the Complex but could be detrimental to it's historical resources. The Service has historical buildings and artifacts at the headquarters area. This area could be completely destroyed by wildland fire. Efforts will continue to protect it from wildland fire.

Another possible threat to these resources would be from wildland fire suppression efforts. The use of heavy equipment will be extremely limited and must be approved by the Project Leader or delegate on a fire by fire basis.

All fire management activities will be in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended.

XV. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

It is recognized that fire management is an ever changing mission within the Service. It is the Service's intention to use advances in fire management to afford staff and resources the best available protection. Accomplishment of this goal will require periodic review of the Complex's fire management operations.

A. Fire Critiques

The Project Leader and Zone FMO will conduct critiques for all wildland fires on the Complex. Most of these critiques will be short and informal. Personnel designated by the Washington or Regional Office will conduct formal wildland fire critiques if:

1. There was a significant fire related injury/accident.
2. There was significant property or resource damage.
3. Fire shelters were deployed (entrapment investigation also initiated).
4. There were significant safety concerns voiced.

B. Prescribed Fire Critique

The Project Leader will conduct critiques for all prescribed fires.

Personnel designated by the Washington or Regional Office will conduct formal wildland fire critiques if:

1. There was a significant fire related injury/accident.
2. There was significant property or resource damage.
3. The prescribed fire was declared a wildland fire for any reason.
4. There were significant safety concerns voiced.

C. Fire Season and Annual Plan Review

All permanent staff will meet in November to review prevention, preparedness, suppression, and prescribed fire operations during the prior fire season, and to develop future strategies for improving these operations.

XVI. CONSULTATION AND COORDINATION

The Complex’s wildland fire program and it's use of prescribed fire have received review and public participation. This fire management plan will be sent to cooperators upon review by the Regional Office Fire Management Staff.

XVII. APPENDICES

APPENDIX A.

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APPENDIX B.

INCIDENT COMMANDER PROCEDURES

Medicine Lake National Wildlife Refuge Complex

1. Receive report of wildland fire information from dispatcher.

2. Make initial resource order based on current and expected resistance to suppression.

   a. Use two person crews except if extreme wildland fire conditions.
   b. Use primary engines first, then secondary engines.
   c. Utilize engines in tandem, if practical.
   d. If refilling tanks seems probable, request support person to handle the task.

3. Travel to wildland fire. Utilize radio to brief and deploy responding resources. Brief resources thoroughly on safety concerns.

   a. Caution crews to drive safely and take it easy on the equipment.
   b. Approach fire from the rear or rear flanks. Do not approach wildland fire from head. Beware of wind shifts, and determine and notify crews of escape routes whenever traveling in unburned fuel.

4. Upon arrival, size up the wildland fire and deploy resources as needed.

   a. Take over control of wildland fire if fire company was first responder.
   b. Fight wildland fire from the black whenever possible. If you must fight from the green, identify safety zones and escape routes.
   c. Deploy resources in tandem whenever practical.
   d. Relieve any ranchers/volunteers who are on the wildland fire.
   e. Maintain radio contact with all resources on the wildland fire and request periodic progress checks.
   f. Keep notes on deployments and events.

5. Relay size-up and initial weather observations to dispatcher.

   a. Terrain and fuel type
   b. Fire behavior and rate of spread

c. Current fire acreage

d. Projected fire acreage and time of control

e. Values at risk

f. Current weather observations (belt weather kit)

* temperature
* dew point
* wind speed and direction
* cloud cover and comments

6. Insure planning, finance, and logistical support are provided for all resources assigned to the wildland fire, including drinking water, beverages, meals, and sleeping arrangements as necessary.

7. Order additional resources, or release responding resources, as appropriate.

a. Order whatever is needed to suppress the wildland fire - let the dispatcher worry about filling the order, but do not count on resources arriving on time.

b. Order food and/or drinks several hours prior to when they will be needed - take care of your fire fighters.

c. Release cooperating fire fighting forces as soon as possible.

d. Keep seasonal fire fighters on wildland fire until mop-up is complete.

8. Order overhead resources (team or individuals) if any of the following conditions look probable (consult RFMC or Zone FMO for advice on what to order):

a. Containment is not expected until the next day or later.

b. There is serious risk to life and/or structures.

c. Multiple wildland fires are occurring and the IC(s) can not gain control of the situation and/or feel uncomfortable in performing their duties.

9. Complete an Escaped Fire Situation Analysis if the wildland fire is not expected to be contained until after 10 AM the following day.

10. Effectively mop-up the wildland fire and provide for patrols until the fire is declared out.

11. Have crews informally critique the wildland fire, and see if preparations or operations could be improved.

12. Insure all equipment is ready for the next wildland fire before releasing crews. Report any repairs needed or missing equipment to the Project Leader.

13. Insure all paperwork including fire reports, time reports, and resource orders are properly completed and routed to the Project Leader.

APPENDIX C. DELEGATION OF AUTHORITY

Medicine Lake NWR Complex

As of (time) , (Date) , I have delegated authority to manage the (Fire Incident Name) (Fire Number) , Medicine Lake NWR Complex, to Incident Commander (Name) and his/her 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 wildland fire is your primary task, you are expected to do so in a manner that provides 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 my delegate 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 wildland fire are:

1. Ensure the safety of fire fighters, visitors, and neighbors.

2. Protect private and Service 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; and limiting degradation of the Complex's aesthetic values.

5. Restrictions for suppression actions are: no earthmoving equipment (dozers, discs, plows, graders) except in extreme emergencies and with approval by the Project Leader or delegate.

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

7. Provide training opportunities for Service personnel when requested to strengthen our organizational capabilities.

Project Leader Date

APPENDIX D.

FIRE DISPATCH PLAN

Medicine Lake National Wildlife Refuge Complex

Service personnel are responsible for suppressing wildland fires on all Fish and Wildlife Service lands (Refuge and Waterfowl Production Areas). The Service will also assist in controlling wildland fires located off Service lands at the request of the local fire departments.

1. When a report of smoke or fire is received, get as much information from the caller as possible.

   A. Location of smoke or fire (exact as possible).
   B. Location of caller.
   C. Name and telephone number of caller.
   D. Color of smoke.
   E. Size of fire.
   F. What is burning (grass, trees, etc.)
   G. What fire is doing (smoldering, leaping flames, just smoke, etc.)
   H. Is anyone fighting the fire? (who and what with)
   I. Did caller see anyone in vicinity or vehicles leaving the area?
   J. Weather at wildland fire location.

2. If the wildland fire is known to be located off Service property, the employee receiving the report shall immediately notify the appropriate rural fire department(s).

3. If the wildland fire location is on or suspected to be on Service property, the employee receiving the report shall notify the following personnel or organizations in the following order.

   A. Project Leader
   B. Rural Fire Department
   C. Primary Assistant Manager
   D. Secondary Assistant Manager
   E. Range Technician
   F. Biological Technician

G. Maintenance Worker

H. Office Assistant

4. The first two available qualified employees will respond to the fire location with the 250-gallon pumper on the 1994 Chevrolet 4X4 1-ton fire truck (this unit will be "fire ready" at all times). The next available employees will proceed to Complex headquarters and use the 200-gallon pumper on the 1983 Chevrolet 4X4 fire truck. These personnel will also be responsible for transporting the HQ fire tool cache. A 500-gallon water tender is filled and located at the headquarters for use if needed. The remaining qualified employees will respond to the scene. The office assistant will report to Complex headquarters to maintain radio and telephone communications.

5. The first qualified employee arriving at the scene will assume supervision of the wildland fire until the Incident Commander or the Project Leader arrives.

6. The office assistant will maintain a log of all radio and telephone communications.

7. The office assistant will contact any adjacent landowners whose property is threatened.

WILDLAND FIRE SUPPRESSION DIRECTORY

MEDICINE LAKE NATIONAL WILDLIFE REFUGE COMPLEX

A. Medicine Lake NWR Complex Headquarters - 789-2305

B. Refuge Wildland Fire Suppression Team

REFUGE FIRE SUPPRESSION TEAM			
Name	**Position**	**Qualification**	**Phone Number**
Tedd Gutzke	Project Leader	ICT4	789-2339
Mike Rabenberg	Assistant Refuge Manager	ENGB	789-2332
Ron Sanchez	Assistant Refuge Manager	FFT2	789-2342
Frank Rice	Range Technician	FFT2	789-2399
Layne Krumwiede	Biological Science Technician	FFT2	286-5261
Jack Snellman	Maintenance Mechanic	FFT2	286-5631
Dennis Nelson	Maintenance Worker	FFT2	963-2347
Joan McGarvey	Office Assistant	Dispatcher	286-5441

C. Rural Fire Districts

Sheridan County Dispatch - 765-1200 - Radio Code - 654

Rural fire departments in Dagmar, Medicine Lake, Volmer, Reserve, Plentywood, Westby, Outlook, and Redstone should all be contacted through the Sheridan County Dispatch.

Roosevelt County	Daniels County
Culbertson, MT - 787-6626	Flaxville, MT - 474-2231
Froid, MT - 766-2233	Scobey, MT - 487-2700

D. Zone FMO - Mike Granger - 406/538-8706 Extension 224

D. Regional Office Fire Management Coordinator - Phil Street - 303/236-8145 Extension 676

Refuge Supervisor - Ron Shupe - 303/236-8145 Extension 647

E. Other Assistance

Roosevelt Memorial Hospital, Culbertson, MT---------787-6281

Sheridan Memorial Hospital, Plentywood, MT---------765-1420

Daniels Memorial Hospital, Scobey, MT----------487-2296

Ambulance - Culbertson, MT----------787-6281

Plentywood, MT----------765-1234

Scobey, MT----------487-2700

Law Enforcement - Sheridan County Sheriff----------765-1200

Roosevelt County Sheriff----------800/242-6654

Daniels County Sheriff----------487-2691

Highway Patrol-Plentywood---------765-2042

APPENDIX E.

NORMAL UNIT STRENGTH - EQUIPMENT

Medicine Lake National Wildlife Refuge Complex

Item	Year Purchased	Percent of Fire Funding	Have	Need for fire
Heavy engine - 750 gal.	1997	transfer	1	1
Medium engine - 250 gal.	1994	100	1	1
Medium engine - 200 gal.	1983	100	1	1
Water tender - 500 gal.	1991	100	1	1
High pressure sprayer - 300 gal.	1996	100	1	1
Portable pump - standard	1998	100	1	2
Portable pump - float-a-pump	1990	100	1	1
Trail mower	1997	100	1	1
Tractors	---	0	4	1

Disks	1996	0	2	1
Hand-held radios	---	50	10	10
Radio chargers	---	50	9	9

Other Equipment Available for Fire Operations Not Fire Funded	
1 - IHC loader, $2^{1}/_{2}$ yards	8 - 4x4 pickups
1 - Cat Challenger with dozer blade	1 - six passenger Cherokee
1 - IHC D-6 dozer	1 - nine passenger Suburban
2 - graders	1 - two-wheel drive pickup
1 - stake truck, dump	1 - Mule utility vehicle
1 - equipment truck	3 - four wheel ATVs

APPENDIX F. AVERAGE YEARLY FIRE FREQUENCY

Medicine Lake National Wildlife Refuge Complex
(Computed from 21 year history)

Size Class	Wildland Fires/Yr.	Total Wildland Fires	Prescribed Fires/Yr.	Total Prescribed Fires	Total Fires/Yr.	Total Fires
A	0.24	5	0.10	2	0.33	7
B	0.24	5	0.19	4	0.43	9
C	0.10	2	1.10	23	1.19	25
D	0.05	1	0.48	10	0.52	11
E	0.00	0	0.10	2	0.10	2
F	0.00	0	0.00	0	0.00	0
G	0.00	0	0.00	0	0.00	0
Total	**0.63**	**13**	**1.97**	**41**	**2.57**	**54**

* No prescribed fires occurred on the Complex before 1983. The five year prescribed fire average for 1994 - 1998 is 4.40/yr.

APPENDIX H. WILDLAND FIRE SUPPRESSION STAFFING LEVELS

Medicine Lake National Wildlife Refuge Complex

Position	Optimum Level of Qualification	Present Level of Qualification	Seasonal/Collateral Duty
Incident Commander (ICT4)	5	1	Collateral
Strike Team Leader (STLD)	1	0	Collateral
Engine Boss (ENGB)	5	2	Either
Engine Operator (ENOP)	8	2	Either
Squad Boss (FFT1)	8	2	Either
Firefighter (FFT2)	3	2	Seasonal

APPENDIX I. PRESCRIBED FIRE STAFFING LEVEL

Medicine Lake National Wildlife Refuge Complex

Position	Optimum Level of Qualification	Present Level of Qualification	Seasonal/Collateral Duty
Prescribed Fire Burn Boss (RXB2)	2	0	Collateral
Prescribed Fire Burn Boss (RXB3)	5	2	Collateral
Ignitions Specialist 2 (RXI2)	5	1	Collateral
Engine Operator (ENOP)	10	4	Either
Firefighter (FFT2)	5	4	Seasonal

APPENDIX J. STEP UP PLAN

Medicine Lake National Wildlife Refuge Complex

Staffing Class **Burning Index** **Step-Up Action**

SC-1 0-11 Normal tours of duty and normal numbers of initial attack/monitor personnel will be available. Engines staged (unstaffed) at Medicine Lake NWR Complex headquarters.

SC-2 12-22 Same as SC-1.

SC-3 23-55 All fire equipment used for project work will be brought in at the end of each day and maintained in a fire ready condition. In addition to SC-1, if predicted or observed lightning activity level (LAL) is 4, 5, or 6, automatically move up to SC-4. If live and/or dead fuel moistures are sufficiently low (e.g. live fuel moisture in sagebrush of 90% or lower) to allow rapid fire spread or high fire intensity in the presence of wind, step-up may be moved to SC-4.

SC-4	56-71	All fire equipment will be kept in a fire ready condition. Workweeks and/or daily tours of duty for regular initial attack/monitoring personnel may be expanded, particularly when the observed LAL is between 3 and 6, the predicted LAL is from 4 to 6, and/or the human caused risk is exceptionally high. In these situations, the initial continued attack/monitoring crew will consist of a minimum of two people, one of whom should be qualified as either a fire monitor or a Type IV incident commander, and may be held on duty through the burning period. The standby team in any SC-4 incident should be stationed in the area where risk is considered highest. Other initial attack/monitoring teams may be held on standby in other areas if conditions warrant.
SC-5	72+	All SC-4 actions with these further constraints. Workweeks and/or daily tours of duty for regular initial attack/monitoring personnel and key permanent personnel may be expanded, particularly when predicted or observed LAL is between 3 and 6 and/or human caused risk is exceptionally high. In these situations, the initial attack/monitoring team will, if possible, consist of a minimum of three qualified people, and will be held on duty through the burning period. The main standby initial attack/monitoring team in any SC-5 incident should be in the area where risk is considered highest. Initial attack/monitoring teams may be held on standby in other areas if conditions warrant. Temporary closures may be imposed on areas in the Complex in conjunction with similar impositions by adjacent land managing agencies.

VALUES AT RISK

Medicine Lake National Wildlife Refuge Complex

Item	Replacement Value	Item	Replacement Value
Office	$ 692,000	Entrance Sign	$ 7,800
Service Building (Maintenance Shop)	$ 432,000	Erickson WPA Sign	$ 7,800
Storage Building (Five Stall Equipmt. Shed)	$ 242,000	Goose Lake WPA Sign	$ 7,800
Residence (Quarters-1)	$ 150,000	Hansen WPA Sign	$ 7,800
Residence (Quarters-2)	$ 150,000	Long Lake WPA Sign	$ 7,800
Residence (Bunkhouse)	$ 150,000	Parry WPA Sign	$ 7,800
Storage Building (Duck Hospital)	$ 66,000	Wigeon Slough WPA Sign	$ 7,800
Storage Building (North Barn)	$ 49,300	Kiosk (East Entrance)	$ 6,500
Building (Quarters-1 Garage)	$ 42,200	Storage Building (Quarters-1 Tool Shed)	$ 5,300
Building (Quarters-2 Garage)	$ 42,200	Lake 12 Sign	$ 3,000
Storage Building (Boathouse)	$ 42,200	North Highway 16 Sign	$ 3,000
Storage Building (Nelson Building)	$ 42,000	North Homestead Sign	$ 3,000
Storage Building (Garden Equipment Shed)	$ 18,500	South Dagmar Sign	$ 3,000
Storage Building (Well House)	$ 17,800	South Highway 16 Sign	$ 3,000
Building (Pump House)	$ 15,000	Flaxville WPA Sign	$ 2,100
Storage Building (Seed House)	$ 12,300	Johnson Lake WPA Sign	$ 1,600
Storage Building (Trap House)	$ 10,600	Sayer Bay Sign	$ 1,400
Radio Building	$ 10,000	South Homestead Sign	$ 1,400
Kiosk (Headquarters)	$ 8,300		

APPENDIX T: MONTANA/IDAHO AIRSHED GROUP OPERATING GUIDE