

FIRE MANAGEMENT PLAN

HURON WETLAND MANAGEMENT DISTRICT

HURON, SOUTH DAKOTA

1998

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Fire Management Plan

**Huron Wetland Management District
Beadle County, Huron, South Dakota**

February 26, 1998



**US Fish and Wildlife Service (FWS)
Department of Interior
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I. INTRODUCTION

Prior to the 20th century the role of fire in the northern plains had been one of continued restoration of the prairie ecosystem. Fire restored vigor to plant growth, increased seed production, released nutrients, and reduced accumulated litter. This included the area now designated as the Huron Wetland Management District (WMD).

Since the early 20th century, nearly all fires within the boundaries of the WMD have been suppressed and adjacent habitat has been fragmented because of agricultural practices. These activities have significantly reduced the role fire plays as a vital element of the prairie ecosystem in the Huron WMD. In more recent years there has been an accumulation of knowledge, now being translated into management practices, which recognizes fire as an essential process of the mixed grass prairie. The effects of fire on native grasslands are indeed varied, but evidence shows that prairie closed to both grazing and fire soon begins to deteriorate (Anderson et al 1970; Kersch and Kruse 1973; Schacht and Stubbendieck 1985). Also, Kirsch and Kruse (1973) compared nesting on similar plots of unburned and burned prairie for several years following burning. They found that 52% of the duck nests on burned grassland habitat were successful, compared to 33% on unburned areas. During the second season after the fire, duck production was greater on the burned plot than on the unburned. Both prescribe and wildland fires have been vastly studied and shown to be beneficial for a variety of wildlife if properly managed.

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. This plan provides direction for the fire management program at Huron Wetland Management District that will help achieve resource management objectives for the District as defined in the Huron Wetland Management District Goal and Objectives statement (1992)(Appendix A).

This plan meets the requirements established by the National Environmental Protection Act (NEPA). An environmental assessment (EA) of the Management of Upland Habitats on Huron Wetland Management District, including the use of prescribed fire was approved On September 10, 1994 (Appendix B). 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. Copies of this plan will be circulated to cooperators and other interested parties.

Authority and guidance for implementing this plan are found in:

9. Protection Act of September 20, 1922 (42 Stat.857;16 U.S.C. 594).
10. Economy Act of June 30, 1932.
11. Federal Property and Administrative Services Act of 1949 (40 U.S.C. 471 et seg.).
12. Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66, 67; 42 U.S.C. 1856, 1856a and b).
13. National Wildlife Refuge System Administrative Act of 1966 as amended (80 Stat. 927; 16 U.S.C. 668d-668e).
14. Disaster Relief Act of May 22, 1974 (88 Stat. 143; 42 U.S.C.5121).
15. Federal Fire Prevention and Control Act of October 29, 1974 (88 Stat. 1535; 15 U.S.C. 2201).
16. 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).
17. Wildfire Suppression Assistance Act of 1989, (Pub. L. 100-428, as amended by Pub. L. 101-11, April, 1989).
18. 10. Departmental Manual, Part 620 DM-1, Wildfire Suppression and Management (April 10, 1998).
19. United States Fish and Wildlife Service Wildland Fire Management Handbook (December 28, 2000).
20. United States Fish and Wildlife Service Manual, 621 FW 1-3, Fire Management, (February 7, 2000).

II. COMPLIANCE WITH FWS POLICY

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, property, and natural resource values. Service policy and the Wildland Fire Policy and Program Review direct an agency administrator to use the appropriate management response concept when selecting specific actions to implement protection and fire use objectives. The resulting Appropriate Management Response are specific actions taken in response to a wildland fire 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).

A. Purpose

The Huron Wetland Management District consists of 56 Waterfowl Production Areas (WPA's) in eight counties of South Dakota. Huron WMD was established administratively in 1992 and the WPA's were acquired through authorization and funding from Migratory Bird Hunting and Conservation Stamp Act, the Migratory Bird Conservation Act (Small Wetlands Acquisition Program) and the Consolidated Farm and Rural Development Act. WPA's are part of the National Wildlife Refuge System administer by the U.S. Fish and Wildlife Service.

The stated purpose is:

"...as Waterfowl Production Areas" subject to "...all of the provisions of such Act [Migratory Bird Conservation Act]...except the inviolate sanctuary provisions..." 16 U.S.C. 718(c) (Migratory Bird hunting and Conservation Stamp).

B. Objectives

District goals and objectives include the enhancement and maintenance of waterfowl/wildlife resources through species management, habitat management, wetland/habitat preservation and restoration and environmental education. Complete copies of the District Goals and Objectives can be found in Appendix A. The Fire Management Plan is a detailed program of action to achieve the above fire management policies and objectives.

At present the District does not have an approved Master or Comprehensive Plan. Various operational plans for the District, such as the District Safety Plan, include objectives which pertain to fire management.

The District Safety Plan objectives are:

- provide safe working conditions for employees.
- provide a safe environment for the visiting public.

- protect and ensure safety of government equipment

- define safety related responsibilities of station personnel

- promote a safety attitude

The Fire Management Plan will provide direction to accomplish safety objectives during wildfire suppression actions and prescribed fire activities.

The 1994 Environmental Assessment for Upland Management (Appendix B) on Huron Wetland Management District addresses the use of prescribed fire as one of the management tools which is used to "rejuvenate dense nesting cover (DNC) and manipulate plant communities within native and tame grasslands, and to reduce wildfire danger by removing buildup of heavy fuels adjacent to values at risk from wildfire."

III. DESCRIPTION OF AREA AND FIRE EFFECTS

A. General Description

The WMD is located wholly within the Prairie Pothole Region of the upper Great Plains. It is also part of the Prairie Pothole Joint Venture area, a geographic region which relates to the North American Waterfowl Management Plan. The Fish and Wildlife Service (Service) has management and administrative responsibility on essentially four different landholding. This does not include the Private Lands Program which will not be discussed in detail within this document. The four land holdings are described as follows:

1. Waterfowl Production Areas

Waterfowl Production Areas (WPA's) are lands purchased by the Service under the provisions of the Migratory Bird Conservation Act. Funding for these purchases comes from the sale of Migratory Bird Hunting and Conservation Stamps (Federal Duck Stamp). These lands are owned by the Service in fee title and managed to protect high-quality wetlands and provide quality nesting cover primarily for waterfowl and other migratory birds. Many other wildlife species also benefit from these areas.

The Service owns and manages 56 WPA's that total more than 11,500 acres within the WMD. WPA's range in size from 13 acres to over 2,100 acres. Habitat types include approximately 55 percent grassland, 37 percent wetland, 4 percent cropland located on newly acquired WPA's which will be established to grass, and 4 percent other areas

including roads, trees and other habitats.

WPA's are open to public hunting, fishing, trapping and other recreational activities that do not materially interfere with or detract from the purposes for which they were established.

2. Wetland Easements

The wetlands program was authorized by Congress on August 1, 1958, and, like WPA's, is financed by receipts from the sale of Federal Duck Stamps. The Service pays willing landowners one lump sum payment not to drain, burn, level, or fill natural wetlands. The wetlands must be of value to waterfowl before they are considered for easement purchase. The perpetual easement covers only the wetland acres on the land.

The easement does not affect normal farming practices such as cropping, haying, grazing, plowing, or working wetlands when they are dry due to natural conditions. The WMD currently administers nearly 1,200 easement contracts which preserves and protects approximately 65,000 wetland acres with waterfowl management easements. All wetlands under easement contract are inspected yearly by Service personnel for possible violations.

3. Grassland Easements

In 1989, the Service began the grassland easement program to protect important nesting cover and enhance water quality on privately owned grasslands and prevent further water degradation in watersheds. Like wetland easements, grassland easements are perpetual, with the Service purchasing certain rights to the grassland acres on the land. The landowners retain ownership, and grazing is unrestricted. However, the production of agricultural crops is prohibited, and haying is allowed only after July 15 each year to reduce disturbance to ground nesting birds. All grassland easement tracts are also covered by wetland easements. Grassland easements are also inspected yearly for possible violations.

Each potential easement is evaluated for its value to wildlife. Large native grass tracts with good wetland complexes that contain brood water are given the highest priority. High priority is also given to good stands of grass enrolled in the Conservation Reserve Program (CRP) that have good wetland complexes. Occasionally, a tract is purchased with land still in crop production. The landowner enters into an agreement to seed the cropland back to a recommended grass mixture to qualify for the easement.

Tracts must be greater than 160 acres in size and must have perpetually protected brood water within 1 mile of the tract to be considered for an easement. Currently there are over 100 grassland easement contracts protecting approximately 35,000 acres of grassland habitat within the Huron WMD.

Grassland easements provide important wildlife habitat throughout the WMD. However,

the Service acquires no management rights with the lands purchased through the easement document; therefore, grassland easements will not be discussed further in this plan.

4. FmHA Conservation Easements

The Farmers Home Administration (FmHA) of the U.S. Department of Agriculture is required by Executive Order 11990 to preserve and protect all wetlands which are in FmHA ownership. The 1985 and 1990 Food Security Acts (Farm Bill) gave direction as to how and by whom this should be accomplished. The Service cooperates with FmHA by recommending "conservation easements" on FmHA inventory properties. Once these properties are sold back into private ownership, the Service accepts the responsibility of enforcing the terms of the conservation easements. Presently 57 contracts protecting 9,800 acres of former FmHA inventory properties are under some type of conservation easement. All these easements, at a minimum, protect the wetlands from burning, draining, or filling. In some cases, the easements protect adjacent upland habitat as well. Some upland easements protect the land from ever being farmed, while others restrict nearly all uses of the land and will be managed similar to WPA's.

B. Topography and Soils

The soils within the eight counties comprising the WMD have been inventoried, and detailed soil mapping is available. The soil associations vary greatly according to the physiographic regions. The soils are derived from parent materials which include glaciolacustrine sediments, early Wisconsin glacial drift, and late Wisconsin glacial drift (loess).

The James River Lowland is a subdivision of the Central Lowlands physiographic region and consists of nearly level to undulating glacial till plain with loamy soils that are moderately well drained. The drainage systems are poorly defined, and many terminate to form small basins.

The Missouri Coteau consists of relief that is undulating to hilly. The landscape is characterized by many potholes or depressions. The drainage pattern is poorly defined, except near the Missouri River where the level to moderately sloping silty soils predominate. The soils consist of well drained, nearly level to undulating loamy soils formed in glacial till. Stones and boulders scattered on the surface in some areas limit the use of these soils for cultivation. Large tracts of native grasses still remain and are used for hay and pasture.

C. Climate

The climate of the WMD is characterized by cold winters and hot summers, with rapid

fluctuations of temperatures. This cool, dry, subhumid climate has an annual precipitation of 18 to 21 inches, and precipitation is normally heaviest in late spring and early summer. The average seasonal snowfall varies from 27 inches in the western counties to 41 inches in the eastern portion. Temperatures vary from -40° to -45°F in the winter to summertime highs up to 112°. Intensive thunderstorms occur frequently in summer. In winter, snow and high winds bring blizzard conditions to the area. The prevailing wind is from the southeast with an average wind speed of 11 miles per hour. The growing season averages 144 freeze-free days per year. Green up of cool and warm season grasses is dependent on precipitation and soil moisture. Drought years often produce little or no green-up for the entire year. Year to year variations in green up and curing of grasses affect fire danger throughout the growing season.

Table 1 - Climatic Data - Huron, SD; Data shows the mean precipitation, mean temperatures, and vegetative stage of plants at the U.S. Weather Station at Huron, South Dakota, two miles north of District’s headquarter.

TABLE 1. CLIMATIC DATA - HURON, SOUTH DAKOTA			
MONTH	MEAN PRECIPITATION	MEAN TEMP. F	VEGETATIVE STAGE
JANUARY	.4	13	C
FEBRUARY	.7	19	C
MARCH	1.6	32	C
APRIL	2.1	46	T
MAY	2.9	58	G
JUNE	3.4	68	G
JULY	2.7	74	G
AUGUST	1.9	72	T
SEPTEMBER	1.7	61	C
OCTOBER	1.5	49	C
NOVEMBER	.7	32	C
DECEMBER	.5	18	C
ANNUAL	20.1	40	

C=cured, T=transition, G=green up

D. Vegetation

The vegetation of the WMD is directly affected by the management of the upland habitats. The entire purpose of upland management on WPA's is to manage the vegetation to obtain a desired habitat condition for waterfowl production and other wildlife. This can be done using a variety of tools which is discussed in the Environmental Assessment for Management of Upland Habitats on Huron WMD (Appendix B).

The WMD is made up of two major ecosystems. The mixed-tall grass transition prairie in the eastern one-third of the WMD and the mixed grass prairie found in the western two-thirds of the WMD. The following is a breakdown by groups of vegetation.

1. Riparian woodlands/shelter belts

Riparian woodlands, planted shelter belts, and single trees are scattered throughout the District. The majority of the tree areas are associated with river valleys. Native woodland vegetation in the WMD is primarily located within the James River flood plain, tributaries along the Missouri River, and the border of a few scattered wetlands in the Missouri Coteau. These woodlands are primarily deciduous trees and shrubs located where moisture conditions allow for their growth. There are also many shelter belts and farmstead groves scattered throughout the WMD which were planted by man. Trees common and or native to the area are bur oak, cottonwood, boxelder, basswood, green ash, American elm, and Russian olive. Russian olive is considered an invader species on grassland sites due to lack of fire. Limited control of Russian olive trees with prescribed fire has been effective if the trees are very young.

Specifically on Service-owned lands within the WMD, woodland vegetation is limited and is listed as other upland habitat along with roads and trails and administrative areas and comprise about 4% of the uplands in the District. The majority of the woodland acres are trees planted by man before the land came into Service ownership. The remaining acres are comprised of native trees and trees established by the Service.

2. Grassland Vegetation

Grassland vegetation makes up approximately 55 percent of the 11,500 acres of WPA's in the WMD. Approximately the eastern one-third of the WMD is referred to as the mixed-tall grass transition prairie. The key native grassland species in the mixed-tall grass transition prairie are wheatgrass and bluestem. The majority of the land in the eastern one-third of the WMD has been farmed, however, some of the farmed land has been established to exotic grass species.

The western two-thirds of the WMD is considered the mixed grass prairie. The key

native grassland species in the mixed grass prairie are wheatgrass and needlegrass. This portion of the WMD is approximately 46 percent native prairie and 54 percent land which is being farmed or has been planted to exotic grass species.

There are two ways to evaluate the condition of grasslands. Both methods are used by the Department of Agriculture, Soil Conservation Service. One is range condition, which is based on the percentage of selected native plant species present at a given time as compared to the percentages that would be present under a climax range condition. The second is forage or vegetative condition, which is more commonly referred to as grassland vigor. This does not evaluate the grassland based on species composition, but rather the health of the grass species present. Many of the WPA's were over grazed prior to their purchase. These WPA's were often rested for long periods of time after purchase which encouraged cool season exotics to further degrade the grasslands. Grassland species of the northern great plains evolved under periodic disturbance and defoliation from buffalo grazing and fire. This periodic disturbance is what kept the grassland species healthy for thousands of years and is still what is needed to keep them healthy today. These stresses can be imitated by the periodic use of haying, grazing, and prescribed burning.

3. Wetland Vegetation

Wetland or aquatic vegetation refers to those plants which grow in water or in soils which are saturated for some of the growing season. Wetland vegetation is broken down into four major categories of plants, based on their growth form and the wetland zone they inhabit. These categories are free-floating, submergent, emergent, and amphibious.

- a. Free-floating plants are those wetland plants which float at or beneath the surface of the water without being attached to the substrate. Common examples are duckweed, bladderwort, and coontail.
- b. Submergent wetland plants are those which are anchored to the substrate, but do not emerge above the surface of the water; however, some may have floating leaves. Examples are pondweed, watermilfoil, waterweed, and widgeongrass.
- c. Emergent wetland plants are also anchored to the substrate like submergent plants; however, the foliage of these plants grow partially or entirely above the surface of the water. Arrowhead, cattail, common reed, and bullrush are all common examples of emergent wetland plants.
- d. Amphibious is the final group of wetland plants. This term refers to wetland plants that can grow as either a submergent or an emergent. Commonly, water levels drop, leaving these plants growing in a temporarily dry site. Some of the common amphibious aquatic plants include yellow water-crowfoot, peppercorn, and water smartweed.

Wetland vegetation covers approximately 37 percent of the acres managed by the Service within the WMD. All four categories of wetland plants exist within the WMD on both private and public lands. Aquatic plants grow in four classes of wetlands: temporary, seasonal, semipermanent, and permanent wetlands. It is not uncommon for a single wetland to have all four categories of aquatic vegetation.

4. Endangered Plants

The plant communities supporting the Western prairie fringed orchid include tall grass calcareous silt loam prairie or sub-irrigated sand prairies. Historically, the orchid has been found occurring in wet meadows in the Big Sioux River Valley located east of the WMD. There are no known occurrences of the orchid in South Dakota and Huron WMD is outside the potential range of the orchid (U.S. Department of Interior, Fish and Wildlife Service 1993).

5. Noxious Plants

There are many noxious plant species that exist within the WMD. The plants of most concern on WPA's are Canada thistle (*Cirsium arvense*), leafy spurge (*Euphorbia esula*), and absinth wormwood (*Artemisia absinthium*). These species often compete with and have a very negative effect on native plant species. The control of noxious plants is important to benefit native plant communities and is required by State law.

E. Reptiles, Fish, Insects and Amphibians

Thirty-three species of reptiles occur in South Dakota. Twenty of these species potentially occur within the WMD. These consist of turtles, skinks, and snakes. There are 17 species of amphibians that occur in South Dakota. They all could potentially occur within the WMD. These species consist of salamanders, toads, and frogs. No federally listed reptiles or amphibians are known to occur on the WMD.

There are 100 species of freshwater fish that inhabit the waters and waterways of South Dakota. Sixty-eight of these species have the potential to occur in lakes and wetlands within the WMD. The fishery associated with the WMD is classified as a warm-water fishery with low numbers of game fish and high numbers of minnows, carp, and suckers. Due to the shallow nature of the lakes and wetlands within the WMD, they have a high probability of fish winterkill. No federally listed threatened or endangered fish species are known to occur on the WMD. The topeka shiner has been proposed for listing under the Endanger Species Act. Topeka shiner have been found in tributaries of the James Rivers, in Beadle County.

Wetlands associated with WPA's normally carry high invertebrate populations. Nesting waterfowl, waterfowl broods, marsh and water birds, and shorebirds are highly dependent on these protein food sources for healthy, vigorous growth. Invertebrates

associated with the wetlands include worms, crustaceans, snails, and insects. The American burying beetle is listed as a Federal endangered invertebrate species and may occur within the Huron WMD.

F. Mammals

There are an estimated 55 mammal species found within the eight-county Huron WMD. They range in size from the tiny pygmy shrew weighing only a fraction of an ounce to the large white-tailed deer weighing over 200 pounds. Abundance varies with species; Species of mice common to prairie ecosystems are very abundant and certain species of bats are very uncommon within the WMD.

The South Dakota Game, Fish and Parks Department has identified four species of mammals which are considered "Threatened" within South Dakota. These are mountain lion, river otter, black bear, and swift fox. The black-footed ferret is listed as State and Federally "Endangered." None of these species have been documented to occur within the WMD in recent times.

Comprehensive inventories of mammal species have not been completed for all units in the District. The District's upland habitats support healthy populations of white-tailed deer along with coyote, fox, raccoon, skunk, muskrat and beaver. Several species of small mammals are also common, including; deer mice, ground squirrels, voles and shrews.

Generally, the direct impacts of fire on wildlife include disturbance or infrequent mortality of individuals or groups of individuals, particularly slow moving and or sedentary species. The District's larger mammals (deer, coyote, fox) will generally move away from fire. However the availability of suitable adjacent habitat is important for local populations. This factor is particularly important in the District where FWS units are small and surrounded by intensively farmed cropland.

Fire in the mixed grass prairie has shown to generally favor deer and other mammals (Coppock and Detling, Herman and Wright, and others). Information concerning the effects of fire on wildlife can be reviewed in The Effects of Fire in the Northern Great Plains, prepared by Higgins, Kruse, and Piehl. Uncontrolled wildfire has a potential for negative impacts on wildlife, conversely prescribed fire under the correct prescriptions can be used as a tool to improve habitat.

G. Threatened, Endangered, and Candidate Species

Huron Wetland Management District contains a number of threatened, endangered, and candidate species. The District will implement its fire management program within the constraints of the Endangered Species Act of 1973, as amended, and will take appropriate action to identify and protect from adverse effects any rare, threatened, or endangered species located within the District. US Fish and Wildlife Service policy

requires that State threatened and endangered species and Federal candidate species will be incorporated into any planning activities. Appendix C contains a list of Endangered, Threatened, and Candidate Species Occurring in the Huron Wetland Management District.

Fire is a natural and essential part of the District's ecosystems. Native wildlife evolved with fire and have developed means of tolerating and/or benefitting from fires. However the sensitive nature of some of the above species require that their habitats be protected from large wildfires especially where adjacent habitat is lacking. Prescribed burning in areas where threatened, endangered, and candidate species exist will be conducted such that small to medium size burns (10-200 acres) can increase local habitat diversity by creating a mosaic of habitats and increased habitat interspersion and edge.

H. Birds

Since South Dakota is in the Northern Great Plains, grassland birds are the predominant bird life in the State. Approximately 240 bird species regularly occur within the WMD. About 113 of these species nest within the WMD.

1. Endangered or Threatened Bird Species

The bald eagle (Haliaeetus leucocephalus) can be seen throughout the WMD, primarily along rivers and large lakes as the eagles migrate through in the spring and fall. One pair of bald eagle have been observed nesting along the James River with the WMD in 1998. Upland habitat management would not affect the bald eagle.

The whooping crane (Grus americana) passes through the WMD during its migration. Most sightings occur in the western counties of the WMD. Whooping cranes primarily use shallow wetlands and adjacent uplands on WPA's.. Upland habitat management to improve uplands would have little affect on whooping cranes and if any effect would occur it would likely be beneficial.

The peregrine falcon (Falco peregrinus) is occasionally observed throughout the WMD. This species is an uncommon migrant in the early spring and fall, with occasional sightings during the winter. Upland habitat management would have little or no affect on peregrine falcons. If any effect would occur it would likely be beneficial because populations of potential prey species would be increased.

The Eskimo curlew (Numenius borealis) is nearly extinct. They pass through the Great Plains on their migrations and can potentially occur in wet meadows within the WMD. The effect of upland habitat management on Eskimo curlews is unknown.

The interior least tern (Sterna antillarum athalassos) nests along the Missouri River in central South Dakota. The river borders the three western counties in the WMD.

However, no suitable nesting habitat is known to exist on WPA's in the WMD.

The piping plover (Charadrius melodus) is a federally threatened species that occurs along the Missouri River bordering the three western counties in the WMD and may be found on alkaline wetlands within the WMD. Habitat use by piping plovers is limited to wetland sites. Upland habitat management using grazing could potentially affect piping plovers due to disturbance by livestock, however, very little suitable piping plover habitat exists on WPA's and the frequency of livestock grazing is low. If piping plovers are observed on a unit, cattle will be excluded from shorelines when being grazed.

2. Shore and Wading Birds

The diversity of wetlands associated with uplands in the WMD attracts a great variety of shorebirds and wading birds. Many shorebirds use the mudflats and shallows along the wetland edges or the shallows as wetland levels recede during their migrations in the spring and fall.

The wetlands in the WMD provide breeding habitat for a number of species of marsh and water birds including: eared grebes, Western grebes, pied-billed grebes, great blue herons, black-crowned night herons, cattle egrets, American bitterns, white-faced ibis, Virginia rails, soras, American coots, killdeer, upland sandpipers, willets, American avocets, Wilson's phalaropes, Franklin's gulls, Forster's terns, and black terns.

3. Raptors

Red-tailed hawks, Swainson's hawks, ferruginous hawks, Northern harriers, Great Horned Owls, and Short-eared owls are the most common raptors using the WMD. They all nest within the WMD. Other species using the WMD are: sharp-shinned hawks, Cooper's hawks, rough-legged hawks, golden eagle, prairie falcon, Merlin, and American kestrel.

4. Waterfowl

The Huron WMD lies within the Prairie Pothole Region of North America. This area is of prime importance for producing many of the nation's ducks. Duck species that nest in the WMD are: mallard, gadwall, Northern pintail, green-winged teal, blue-winged teal, American wigeon, Northern shoveler, wood duck, redhead, canvasback, lesser scaup, and ruddy duck. Cinnamon teal, ring-necked duck, common goldeneye, bufflehead, hooded merganser, common merganser, and red-breasted mergansers migrate through the WMD. In addition, the WMD receives migrational use by 25 species of waterfowl. Four species of geese visit the WMD during the migration. Canada geese, white-fronted geese, snow geese, and Ross' geese pass through the WMD in the spring and fall. Canada geese and snow geese are the most abundant species. Canada geese are also common nesters in the area.

The tundra swan is the only species of swan to occur within the WMD. Most of the use occurs during the fall migration.

5. Upland Game Species

The ring-necked pheasant, greater prairie chicken, gray partridge, and sharp-tailed grouse are common upland species that nest within the WMD.

6. Passerine and Other Bird Species

Approximately 124 other bird species nest and/or migrate through Huron WMD. Two hundred and forty species of birds have been observed on the District. Of these, approximately 124 species are known to nest throughout the District. Spring and fall migrations find spectacular numbers of waterfowl passing through the area and the District is an important stop for many on the journey north or south. Numbers of upland birds are cyclic but populations are normally present.

Bird species evolving with fire may show fire adapted behavior and responses, whereas other species exposed infrequently to fire in their evolutionary history may be severely inhibited by it (Best 1979). Research conducted in the Arrowwood District from 1969-1971 concluded a greater variety of nesting bird species were found on burned areas, duck and sharptail grouse production was higher on burned areas, hatching success of ducks was higher on burned areas, and there was a marked increase in plant variety after burning (Kirsch and Kruse 1972). Another study conducted on the Arrowwood District concluded duck nesting success was significantly greater in fall burned plots than in spring burned plots for all species (duck) and years combined. Results suggested that vegetation structure and duck nesting response to spring and fall burns became similar after the third post fire growing season (Higgins 1986).

I. Insects

Insect life and range of occurrence of insects are not well documented at the Huron Wetland Management District. All fire management activities will be in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Studies indicate that fire causes an immediate decrease in insect populations (except ants, other underground species, and flying insects), followed by a gradual increase in numbers as the vegetation recovers. The insects eventually reach a population level higher than adjacent areas, then decline to near present levels as vegetation and soil litter stabilize (Higgins, Kruse, and Piehl 1986).

J. Cultural Resources

Fire management activities within the District will be implemented in accordance with the regulations and directions governing the protection of cultural resources as outlined in Departmental Manual Part 519 (519M), Code of Federal Regulations (36 CFR 800), the Archeological Resources Protection Act of 1979, and the Archeology and Historic Preservation Act of 1974.

No historic or prehistoric resources have been identified on WPA's within the WMD. The WMD lies within the Upper James and Missouri Coteau Archeological Regions. Documented occupation of the area spans a 10,000-year period. The probability that significant cultural resources are present on some of the thousands of acres of native prairie is good. The Regional Archeologist will be consulted during the planning phase for known historic/cultural sites and will determine the need for a cultural resource inventory in consultation with the South Dakota Historic Preservation Office.

Heat from grassland fires rarely penetrate more than a centimeter into the soil. Impacts of grassland fires on artifacts and other materials in subsurface settings will be negligible even if they are buried only a centimeter or less below the ground surface (Wright and Bailey, Vogl). Research conducted by Saylor, Seablom, and Ahler at Knife River Indian Villages National Historic Site in North Dakota indicated that fire related impacts to surface exposed artifacts will be significant, depending on fire conditions and artifact type and size. Damage includes scorching, fracturing, charring, and spalling. Secondary impacts are created by erosion and vandalism. The severity of fire related effects can be controlled and diminished to some degree by controlling the fireline intensity at the time of the burn.

Files and records of cultural resources should be consulted by the area's manager when planning prescribed burns and preparedness activities. 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. Protective blackline may be used around sensitive sites.

Fire suppression and prescribed fire actions involve construction of blackline and scratching, use of swatters, and direct attack with engines, all conducted primarily in fine fuels. Ground disturbance is minimal and not likely to adversely effect cultural resources.

K. Improvements

Suppression of wildland fires on remote WPA's and in urban interface areas is challenging. Damage to improvements by wildfire on and off the District is a primary concern. The District has maintenance facilities at Maga-Tahohpi WPA, Beadle County that may be threatened. While developments can generally be protected from fire damage, dispersed improvements, particularly fences are likely to be damaged by wildfires. The District relies heavily on volunteer fire protection districts for suppression and notification of wild fires at remote WPA's.

The scattered WPA's are spread over eight different counties. The dispersed nature of the District's Waterfowl Production Areas create many situations where escaped prescribed fires or wildfires could damage adjacent private structures, equipment, and grazing/hay/cropland. Wildfire damage to non-Service public property can occur to wooden utility poles and utility junction boxes which are located on or adjacent to Service lands. Adjacent land ownership is almost exclusively private. Private landowners generally have a low tolerance for wildfire. However, the use of prescribed fire is generally fairly well accepted as habitat management tool in most areas of the District.

The fuel associations surrounding Service lands can be categorized into four general categories: wildland fuels, agricultural row crops, urban interface, and rural interface.

1. Wildland Fuels

The wildland fuels surrounding Service lands are composed of the following three NFFL fuel models:

- **Fuel Model 1** is characterized by cured continuous short grassland and savanna fuels with an average fuel depth approximately 1 foot.
- **Fuel Model 3** is characterized by cured continuous tall grass prairie, wild grains and marshlands with a average fuel depth of approximately 3 feet.
- **Fuel Model 9** is characterized by surface loose hardwood litter under stands of deciduous trees with an average fuel depth of 2-3 inches. This fuel type is typically is found in scattered pockets and is best represented in the river bottoms and shelterbelts of eastern South Dakota.

2. Private Agricultural Lands

The fuels on private agricultural lands surrounding Service lands are constantly changing because of changing land use practices. These changes may be the result of crop rotation, summer fallowing, various livestock grazing practices, changing agricultural crop prices, and enrollment in Conservation Reserve Programs (CRP). The surrounding agricultural fuels are typically characterized as cultivated crop land or planted crop land. Planted crop land is represented by one on the following NFFL fuel models:

- **Fuel Model 1** is characterized by cured short herbaceous gain crops with an average fuel depth of approximately 1-2 foot (i.e. Alfalfa, oats, millet, mustard, flax, soybeans, etc.).
- **Fuel Model 3** is characterized by tall cured cultivated tall grains that have not been harvested with an average fuel depth of approximately 3 feet. (i.e. wheat, corn, sunflowers, and Sudan grass).

3. Urban and Rural Interfaces

Several WPA's are located adjacent to urban and rural interface areas. The urban and rural interfaces primarily include the fuels associated with wildland and agricultural fuel complexes in combination with public utilities, hazardous materials, commercial and residential facilities, out buildings, fences, and etc. This intermix of wildland fuels and urban and rural community sprawl places the public and public and private property and cultural and natural resources at the greatest risk from wildfire.

L. Air Quality/Smoke Management

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 (80-300 acres) generate low volumes of smoke for short duration (4-5 hours).

Huron Wetland Management District 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.

Smoke from wildfires is a recognized health concern for firefighters. Incident commanders and prescribed burn bosses must plan to minimize exposure to heavy smoke by incorporating the recommendations outlined in the publication Health Hazards of Smoke (Sharkey 1997). The use of respirators is not recommended.

M. Water Resources

The wetlands in Huron Wetland Management District are extremely productive and very attractive to migratory waterfowl and resident wildlife. They serve as breeding and nesting areas for many migratory birds and as wintering habitat for many species of resident wildlife. Approximately 5,020 acres of wetlands exist on WPAs, most of which are potentially burnable at one time or another. Many of the prescribed burns conducted in the District are adjacent to water resources; some, such as cattail reduction burns, take place right over water or ice. Post fire erosion and wind borne ash deposition impacting water resources is not a concern for the type and scale of burns conducted on the District. Burn size is generally small (average 170 acres) and grass fuels do not produce heavy volumes of ash as compared to forest fuels. Supporting documentation regarding fire effects on water resources can be found in Effects of Fire on Water: A State of the Knowledge Review (1979).

N. District Fire Environment and History

1. Fuel Types

Fuel and vegetation types and characteristics of the District (4,400,000 acres) and surrounding area are:

- a. NFFL Fuel Model 1 (western grasslands): Approximately 1,188,000 acres of the total burnable acres (28,711) fit fuel model L. Perennial grasses are the primary fuel, loadings are heavier than model A (annual grasses), and the fuel quantity is more stable from year to year. Decomposition rates of grass fuels are slow which leads to heavier than natural fuel loadings if fire is absent. Invading woody plants are mixed in the grasses throughout 30-50% of the units. This fuel model also fits some of the private lands adjacent to District lands, particularly grazed pastures and hayland.
- b. NFFL Fuel Model 3 (tall grass): Approximately 594,000 acres of the District fit fuel model N. Described as tall grass, perennial grasses, and or marshland grasses approximately 3 feet tall, one third of the aerial portion of the plant is usually dead. Invading woody plants are mixed with these fuels, throughout 10-40% of many of the upland areas. This fuel model fits adjacent private land enrolled in the Conservation Reserve Program (CRP). CRP is a major concern for fire suppression agencies in this area. There are approximately 250,000 acres of CRP in the eight-county District.
- c. NFFL Fuel Model 6 (shrub): Approximately 176,000 acres of the District fit this fuel model F and Q. Riparian woodlands, wooded draws, and planted shelter belts are included in this model.

2. Expected Fire Behavior

- a. NFFL (Fire Behavior) Model 1: Shortgrass. Fire spread governed by the fine, very porous and continuous fuels that have cured or are nearly cured. Fires are surface fires that move rapidly through the cured and nearly cured material. Fuel loading consists of fine dead fuels only, but average 1.5-2 tons per acre.

Fire behavior is directly related to the fine fuel moisture and wind speed. Spread rates with moderate to high wind speeds can reach 255 chains per hour or 280 feet per minute, with flame lengths exceeding seven feet. Spot fires are generally not produced because fuels are consumed too quickly and thoroughly. Fire fronts tend to become irregular as topography, fuel loads, winds, and/or natural barriers speed up or slow movements. Resistance to control is low to moderate, depending on wind speed.
- b. NFFL (Fire Behavior) Model 3: Tallgrass. This model displays high rates of spread under the influence of wind. Wind may drive fire into the upper heights of the grass and across standing water. Fuel loading consists of fine and coarse dead fuels, averaging 3 tons per acre. Spread rates with moderate to high wind speeds can reach 200 chains per hour, with flame lengths exceeding 20 feet. Short range spotting (up to 500 feet) is common. Resistance to control is very high to extreme.

- c. NFFL (Fire Behavior) Model 6: Shrub. Fires carry through the shrub layer where the foliage is more flammable than fuel model 5, but this requires moderate winds, greater than 8 mph at mid-flame height. Generally, fire will drop to ground in openings or when wind speed diminishes. Total fuel loadings (<3") average 6.0 tons/acre with about 1.5 tons/acre dead (0.25"). Fuel dead depth is 2.5 feet. Resistance to control can be high to extreme.

3. Fire Occurrence/History

Wildfire is one of the primary natural forces which created native prairie. Historic records describe huge prairie fires started by lightning or humans. Fires burned millions of acres as there were few natural fuel breaks and no suppression. Wright, and others (1978) believe that fire frequency in the prairie grasslands is on the order of 5-10 years. Other studies indicate that a longer frequency of 10-20 years may be more accurate. Very little local data exists for Huron Wetland Management District.

Historical reviews indicate the fire occurred mainly in two periods, March through May with a peak in April, and July to early November with a peak in October (Higgins 1986).

Fire records of the District exist from 1992 to present, however detailed information is lacking and difficult to obtain. Past records indicate that the area usually has a high number of wildfires annually. We are confident that many more wildfires have occurred on FWS lands that are unreported. Statistics indicate that Huron Wetland Management District has an average of .25 wildfires per year; a total of one wildfire have been recorded from 1992-1996 (Table 2).

Table 2. District's Reported Fire History on Waterfowl Production Areas 1992-1996

Year	Unit	Acres
1996	Hyde WPA	60
Total		60

Research indicates lightning-caused fires are less frequent in the eastern portion of the North/South Dakota (Higgins 1984). The majority of the wildfires are human caused (vehicles, arson and negligence). Equipment, roadside burning and agricultural field burning account for the majority of human-caused starts. The agricultural field burning season occurs during spring and fall, and is widespread throughout the District. Private landowners are not subject to the same burning regulations as government agencies. Farm fields are often ignited and left unattended, sometimes resulting in wildfires. All fires on record were controlled during the first burning period. Many of the wildfires were suppressed with the help of volunteer fire department resources or solely by

volunteer fire departments.

Table 3 exhibits general information on South Dakota Fire History, obtained from the annual South Dakota Office of Fire Marshal Wildland Fire Report. The information below is for all wildfires occurring within the 8 county area in which the Huron Wetland Management District is located. Please note that these are only the fires that have been reported. It is believed that many more fires occurred but were not reported. The cause of the majority of these fires were coded as “Inadequate Control of Open Fires” and mainly consisted of burning roadsides and cropland stubble in the spring and fall seasons.

Table 3. Wildfire Occurrence for 8 County Area - 1993 to 1996

County 1996	1993	1994	1995	
HUGHES	18	23	15	16
SULLY	4	5	3	
HYDE	2	13	2	12
HAND	6	16	13	9
BUFFALO	2	7	1	1
JERAULD	6	7	4	3
BEADLE	5	13	10	9
SANBORN	7	3	1	4
TOTAL	50	87	49	54

The four-year average for the 8 county area is 60 fires per year.

IV. HURON WETLAND MANAGEMENT DISTRICT FIRE MANAGEMENT POLICY AND OBJECTIVES

A. General

The following considerations influenced the development of the District's fire management goals and objectives. The previous sections of this plan have established that:

1. Fire is an essential natural part of the District's native biotic communities.

2. Uncontrolled wildfire has the potential for negative impacts on and off District units.
3. Positive or negative effects of prescribed fire on vegetation, wildlife, and cultural resources depend on burning conditions and plant phenology.
4. Rapid rates of spread, potentially long response times, and the large number of individual land units (WPA's) pose suppression problems and increase the likelihood of escape onto adjacent private lands.
5. Use of the "minimum tool" concept to minimize environmental damage.

B. District Fire Management Goals

1. Protect life, property, and other resources from wildfire.
2. Use prescribed fire as one of the tools to accomplish District habitat management objectives.

C. District Fire Management Objectives

1. Safely suppress all wildfires using strategies and tactics appropriate to safety considerations and values at risk.
2. Minimize the impact and cost of fire suppression.
3. Use prescribed fire for hazardous fuel reduction to the fullest extent possible within or near District development zones, wildfire sensitive resources, and boundary areas to reduce the risk from wildfire damage.
4. Educate the public regarding the role of prescribed fire within the District.
5. Use prescribed fire to restore and perpetuate native wildlife species, by maintaining a diversity of healthy plant communities.
6. Maintain prairie by retarding the invasion of woody species and noxious weeds.

V. FIRE MANAGEMENT STRATEGIES

The following will be employed to meet fire management objectives:

- A. In keeping with the appropriate management response concept, strategies employing a range of suppression options will be considered (Table 4). Minimum impact suppression tactics (MIST) will be used, where appropriate.

Table 4: 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 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.

- B. Conduct all fire management programs in a manner consistent with applicable laws, policies and regulations.
- C. Due to the widespread land holdings of the District (8 counties, 56 units), local fire agencies (volunteer fire departments) will be utilized for initial attack on wildfires in remote areas of the District. District initial attack equipment and personnel will be maintained to minimize the response time to fires on most WPAs during the fire season. A cooperative agreement with Wolsey VFD will be

developed and maintained to provide for cooperative suppression action and ensure reimbursement is appropriately made. Provide assistance to local or federal cooperators under the "closest resources" and "total mobility" principles in accordance with Service policy.

- D. Utilize prescribed fire as a management tool for achieving hazard fuel reduction and resource management objectives. To the greatest extent possible, hazard fuel prescribed fires will be used only when they can compliment resource management objectives. Resource management prescribed fire will be used to accomplish specific objectives established for individual land units.
- E. Initiate cost effective fire monitoring which will tell managers if objectives are being met. Monitoring information will also be used to refine burn prescriptions to better achieve objectives.
- F. Limits to Strategies
 - Smoke management will be carefully considered for all prescribed burns and will be addressed in all prescribed burn plans.
 - 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/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.

VI. FIRE MANAGEMENT UNITS

Suppression strategies, management restrictions, fuels, fire environment, and values at risk are similar throughout the District. Thus all lands within the District will be managed as a single fire management unit. Information regarding the District's fire history, fuel types, values at risk, fire behavior, fire effects, and fire weather is discussed in previous

sections of this plan.

VII. FIRE MANAGEMENT ORGANIZATION AND RESPONSIBILITIES

The Project Leader at Huron WMD is responsible for planning and implementing an effective fire management program at Huron WMD. The Project Leader is ultimately responsible for all fire management decisions concerning both wildland and prescribed fires.

All wildfires will be suppressed using the appropriate management response concept. Initial attack resources are located at Maga-Tahohpi WPA.

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.

Fire Management Team - Wildland/Prescribe fire assignments are made on the basis of individual qualifications and position requirements. Principal members of the District fire management organization are the District's permanent staff consisting of the Project Leader, Assistant Project Leader, Fire Management Officer, Administrative Assistant, Range Outdoor Recreational Planner, Technician (Fire), Biological Technician, and seasonal firefighters.

A. Project Leader

1. Responsible for the overall management of the District including the fire program.
2. Insure that Department, Service, and District policies are maintained and followed.
3. Within budgetary limitations, insure sufficient dual function firefighters meeting Service standards are available for initial attack.
4. Supervise the resource management activities on the District for Beadle and Sanborn counties. This includes the selection of objectives and tools to be used in achieving objectives (including prescribed fires).
5. Approves prescribe burning plans.

B. Assistant Project Leader

1. Supervises the District's biological technician and Fire Management Officer.
2. Supervise the resource management activities on the District for Sully, Hughes, Hyde, Buffalo Jerauld, and Hand counties. This includes the selection of objectives and tools to be used in achieving objectives (including prescribed fires).
3. As available, serve as prescribed burn boss.
4. Reviews all proposed units to be burned to ensure sound biological principles are

being followed, resource management objectives are valid, and sensitive resources are not being negatively impacted.

C. Fire Management Officer

1. Directs and completes prescribed and wildland fire planning throughout the District.
2. Coordinates resources, personnel and training needs in support of prescribed and wildland fire operations within the District.
3. Develops, negotiates and maintains cooperative fire agreements and contracts.
4. Serves as a Service Representative on various agency, interagency committees, teams and working groups dealing with local, regional or national fire management issues.
5. Coordinates the use of district fire funded personnel with refuge staff to assure operational efficiency.
6. Supervises the District's Fire Management Staff.
7. Prepares annual Firebase budget request and tracks use of fire accounts.
8. Insures that Department, Service and District policies are maintained and followed.
9. Organizes and instructs wildland and prescribed fire training for the District.
10. Establishes and maintains a monitoring program to evaluate the Districts fire management goals.
11. Updates the Fire Management Plan, maintains fire records, reviews and prepares fire reports (DI-1202) for accuracy.

D. Range Technician's (Fire)

1. Insures the fire management policies observed.
2. Assists the Fire Management Officer in managing and implementing the prescribed fire program including:
 - a. Serving as a prescribed burn boss.
 - b. proposing fuel hazard reduction projects.
 - c. preparing prescribed burn plans.
3. Coordinates fire monitoring program to determine if resource management prescribed fires accomplish objectives.
4. Prepares Refuge fire prevention plan, and coordinates fire prevention with other employees.
5. Enters FMIS training records and assists in the completion of 1202's.
6. Has lead responsibility for managing the prescribed fire program including:
 - a. as available, serves as prescribed burn boss.
 - b. proposes annual hazard fuel reduction and resource management prescribed fire projects.
 - c. write prescribed fire plans.
7. Conducts basic fire training courses in the 100-200 NWCG series.
8. Serves as a Single Resource Boss for district seasonal's while on prescribed wildland fire details.
9. Insure that Department, Service and District polices are maintained and followed.
10. Maintains the districts equipment to ensure readiness.

E. Biological Technician

1. Provide technical/biological support to managers in selecting appropriate resource objectives and the best tool to use in accomplishing selected objectives, to include prescribed fire.
2. Responsible for their personal protective equipment and physical conditioning.
3. Qualify annually on the fitness test before April 1, or within 2 weeks of EOD date.
4. Maintain assigned fire equipment in ready state and use required safety gear.
5. Insure that Department, Service, and District policies are maintained and followed.

F. Administrative Assistant

1. Provide dispatch support for fire management operations.
2. Responsible for their personal protective equipment and physical conditioning.
3. Qualify annually on the fitness test before April 1, or within 2 weeks of EOD date.
4. Maintain assigned fire equipment in ready state and use required safety gear.

G. Outdoor Recreational Planner

1. Provide outdoor learning opportunities and support to managers in selecting promoting environmental education in the role which prescribed fire and wildfire affect the ecosystem.
2. Responsible for their personal protective equipment and physical conditioning.
3. Qualify annually on the fitness test before April 1, or within 2 weeks of EOD date.
4. Maintain assigned fire equipment in ready state and use required safety gear.
5. Insure that Department, Service, and District policies are maintained and followed.

H. Seasonal and Dual Function Firefighters

1. Responsible for their personal protective equipment and physical conditioning.
2. Qualify annually with the fitness test before April 1, or within 2 weeks of EOD date.
3. Maintain assigned fire equipment in ready state and use required safety gear.
4. Assist Supervisors in maintaining accurate records.

I. Wildfire Incident Commander (as assigned)

1. The incident commander (IC) will be responsible for the safe and efficient suppression of the assigned wildfire.
2. Fulfill the duties described for the IC in the Field Operations Guidelines (PMS-410-1).
3. Ensure that personnel are qualified for the job they are doing.
4. Notify dispatch and/or Zone FMO of all resource needs and situation updates, including the need for an extended attack.
5. Ensure that fire behavior is monitored, data collected and recorded.
6. Brief 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.

7. Identify and protect sensitive areas.

8. Utilize minimum impact strategies whenever possible.

9. Ensure that the fire site is fully rehabilitated or that the management of rehabilitation has been assigned.

9. Submit information needed to complete DI-1202 (fire report) to the Fire Management Officer within 3 days of the fire being out. Crew time sheets and a listing of any other fire related expenditures or losses to the FMO within 3 days of fire being declared out.

J. Prescribed Burn Boss (as assigned)

1. Implement approved prescribed burn plans within prescriptions.

2. Assist with the administration, monitoring, and evaluation of prescribed burns.

3. Document weather and fire behavior (including rates of spread and flame length) and submit to Range Technician.

3. Document necessary information to complete DI-1202 (fire report) and submit to FMO within three days of the fire being declared out.

K. Fire Cooperators

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.

Cooperators will assist:

1. In the suppression of wildfires as defined in cooperative agreements and memorandums of understanding.

2. In the investigation of suspicious fires.

VIII. WILDFIRE PROGRAM

A. Fire Prevention

Most wildland fires occurring in the District since 1992 were human caused and thus could have been prevented (see previous section on fire history). Human caused fires

have the potential to be the most damaging because they can occur at a time of the year when fewer initial attack resources are available and fuels are cured. The agricultural field and roadside burning season occurs in spring and fall, and has been the cause of many of these fires.

In general the public and visitors to the District are very aware of fire prevention. As a reminder the District may do the following for fire prevention:

- signing
- closures when necessary
- public contacts through press releases and verbal contacts
- enforcement of regulations and prosecution of violators
- employee training and awareness
- implementation of State regulations and restrictions
- contacts with District cooperators and neighbors

B. Fire Behavior Potential

See previous sections for a discussion regarding expected normal fire behavior.

As indicated previously, periods of drought can greatly impact fire behavior and resistance to suppression. For that reason the Rangeland Fire Danger Index, Palmer Drought Index, and/or 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 Custer Interagency Dispatch Center (605-673-4434) or North Dakota Dispatch Center (701-768-2552) during periods of high fire danger to track indices and anticipate possible fire activity. Preparedness actions have been identified in the Step-Up Plan to respond to unusual conditions associated with drought and other factors (See Appendix E).

The Rangeland Fire Index is calculated daily during the fire season by the National Weather Service (NWS) in Sioux Falls, South Dakota. Greenness factors of fuels are calculated by an Advanced Very High Resolution Radiometer (AVHRR) onboard NOAA weather satellites. Satellite calculated greenness factors are combined with forecasted windspeed and relative humidity. The data is accurate enough to calculate greenness factors and fire danger ratings on a county by county basis. The Range Land Fire Index is available on the Internet at:

<Http://www.crh.noaa.gov/fsd/forprod.rdfsd>

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 Rocky Mountain Area. During National and Regional Planning Levels IV and V, it is necessary to receive approval from the Regional Fire Management Coordinator and the concurrence of the Rocky Mountain Area Coordination Group to conduct prescribed burns during PL IV and the National Coordination Group during PL V.

C. Fire Preparedness Planning

1. General

The permanent staff, primarily the Project Leader, Assistant Project Leader, Fire Management Officer, Outdoor Recreational Planner, and Range Technician are responsible for coordinating preparedness planning. A Fire Season Readiness Evaluation (Appendix D) will be completed each spring to ensure program readiness. The fire season (wildfire and prescribed fire) will start MARCH 1 and run through OCTOBER 30. The wildfire season as calculated by FMIS analysis is 140 days, 3/2-5/20 and 8/9-10/7.

2. Personnel

Only qualified employees meeting the fitness and training requirements (red carded) of assigned positions will be used for wildfires. Other personnel not meeting requirements may assist in support capacities, but will not be permitted on the fire line. The FWS Fire Management Handbook and Wildland Qualification Subsystem Guides (310-1) should be referred to for specific policy guidance and qualifications. Employees may qualify for one or more positions and work in more than one capacity during a fire. All attempts will be made to maintain the following minimum fire qualification levels for the Huron Wetland Management District:

Table 5: Minimum Fire Qualification Levels for the Huron Wetland Management District

POSITION	NUMBER NEEDED
Incident Commander Type 3 (ICT3)	1
Incident Commander Type 4 (ICT4)	1
Burn Boss Type 3 (RXB3)	2
Burn Boss Type 2 (RXB2)	1
Ignition Specialist	4
Engine Boss (ENGB)	2

Firefighter (FFT2)	8
Engine Operator (ENOP)	2

In addition to dual function fire personnel, the District needs to maintain two seasonal engine crews during the fire season. Fire crew members will be qualified at the Firefighter Type 2 (FTT2) level for fire suppression. Fire crew members will be targeted for prescribed burn boss qualification (RXB3) in order to assist in the District's hazard fuel and resource management prescribed fire program.

Additional firefighters may be temporarily positioned at the District, or existing fire crew seasons may be extended using severity or emergency preparedness funding when very high or extreme fire conditions warrant.

3. Training and Physical Fitness

a. 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 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.

All personnel involved in Fire Management activities are required to annually complete fire management refresher training 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 and other courses are available that 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.

b. Physical Fitness

All personnel involved in fire management activities will meet the fitness standards established by the Service and Region. At this point in time, firefighters participating in wildfire suppression must achieve and maintain an Arduous rating. Firefighters participating in Prescribed Burns must achieve and maintain a Moderate rating. Information found in Appendix H 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 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 G). 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.

c. 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.

4. Equipment

Engines are the primary initial attack resource on the District because of the predominance of fine fuels and access roads. Earth moving equipment is available but not recommended for use due to resource damage concerns. With the Project Leader or burn boss approval, earth moving equipment can be used in areas that have been disturbed in the past (i.e. abandoned croplands, reseeded grasslands, etc.) provided that cultural artifacts will not be effected.

A current list of the District's fire equipment is found in the Appendix H.

The District requires a three-stall heated garage for pumper and equipment storage and maintenance. Due to the early start of our fire season, before the daily low temperatures are above freezing and extends past the freeze-up in the fall, our pumpers must sit without water to prevent damage from freezing, lengthening our response time to wildfires considerably. Due to inadequate storage space our fire equipment is stored in several locations making organization difficult.

D. Emergency Pre-suppression

The District has requested to purchase a remote automated weather station with computer software to produce National Fire Danger Rating (NFDRS) calculations. Two

years of onsite data will be used to calculate District specific burning index breakpoints. The new breakpoints will be compared to the above breakpoints from Sioux Falls, SD and modifications will be made. Until this site specific NFDRS data can be used, the District will follow a Step Up Plan (Appendix E) based on the South Dakota Rangeland Fire Danger Index.

The low to moderate complexity of the grass fuels and low wildfire frequency at Huron Wetland Management District may not warrant the daily use of the National Fire Danger Rating System (NFDRS) and the Weather Information Management System (WIMS). The Rangeland Fire Index is calculated daily during fire season by the National Weather Service in Sioux Falls, South Dakota. Greenness factors of fuels are calculated by an Advanced Very High Resolution Radiometer (AVHRR) onboard NOAA weather satellites. Satellite calculated greenness factors are combined with forecasted wind speed and relative humidities. The data is accurate enough to calculate greenness factors and fire danger ratings on a county by county basis.

The Assistant Project Leader will monitor current and predicted fire weather reports and take appropriate actions as listed in the Fire Step Up Plan (Appendix E). Once an emergency pre-suppression account is established/ available the Project Leader or Assistant Project Leader may authorize overtime for Very High or Extreme step up actions that can not be met with regularly scheduled employees. Dual function firefighters may be assigned emergency pre-suppression duties if needed. Backfill behind employees may be authorized.

E. Severity and Emergency Presuppression Funding

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

Emergency Presuppression 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 reading of -4.0 or less or a Keetch-Byram Drought Index of 600 or greater and a long-range forecast calling for below average precipitation and/or above average temperatures. Drought Indices can be located at: <http://www.boi.noaa.gov/fwxweb/fwoutlook.htm>.

F. Detection

The District relies on neighbors, visitors, and cooperators to detect and report fires. In

addition, the step up plan provides for increased patrols by refuge personnel during periods of very high to extreme fire danger.

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

Pre-attack planning continues to be compiled by Range Technician and seasonal fire staff. Once finished, pre-attack plans will be included in Appendix and copies placed in each engine. Final pre-attack plans will include:

1. County/Response maps
 - Roads, gates, and fences on WPAs
 - Fire stations/caches
 - Airports
 - Helispots
 - Water Sources (type and flow)
 - Mutual aid zones/fire cooperator districts
 - Land ownership maps
2. Hazard/Risk Map
 - High potential fire occurrence zones
 - Potential values at risk zones (high, medium, low)
 - Hazard potential zones (high, medium, low)
3. Natural and cultural resources map
4. Structure Assessments
5. Closure/Evacuation Procedures

H. Fire Suppression

1. General

Huron Wetland Management District is a full suppression area. Service policy requires the District to utilize the ICS system and firefighters meeting NWCG qualifications for fires occurring on District property. All suppression efforts will be directed towards safeguarding life and property while protecting the District's resources from harm. Mutual aid resources responding from fire departments to Service fires will not be required to meet Service fire qualification standards, but must meet the standards set by their own department. Mutual aid resources will report to the IC (in person or by radio) and receive their assignment and will be

the first priority for release. Occasionally, individuals that are not members of a fire department will arrive at a fire scene. These individuals are not to be used as firefighters. If additional firefighters are needed, appropriate procedures will be used to acquire qualified/trained firefighters.

2. Initial Reporting and Dispatching

All fires occurring within or adjacent to the District will be reported to the District headquarters. The person receiving the report will be responsible for implementing the Fire Dispatch Plan (Appendix F).

Requests for assistance by cooperators on fires not threatening Service lands must be made to Project Leader or designee. Only qualified and properly equipped resources will be dispatched off of the District.

For local fires, the Fire Dispatcher will stay on duty until: (1) all District resources return; (2) relieved by another dispatcher; or (3) advised by IC that he/she can leave. The Fire Dispatcher will not be required to stay on duty if the fire occurs outside Service radio coverage. However, the dispatcher must notify the county VFD when he/she leaves and leave a telephone number. The Fire Dispatcher will be responsible for coordinating the filling and delivery of any resource orders made by the IC including engines, aircraft, tools, supplies, and meals. The IC will place all resource orders through the Dispatcher, and specify what is needed, when it is needed, and where it is needed. The Dispatcher will promptly determine if the resource orders can be filled or procured locally and notify the IC. If a resource order can not be filled locally, the Dispatcher will place the order with the with the Custer Interagency Dispatch Center. In the absence of the District FMO, the Zone FMO at J. Clark Salyer NWR or FMO at Des Lacs NWR will generally be able to assist with ordering resources from outside the area.

3. Initial Attack

All fires on the District staffed by Service employees will be supervised by a qualified Incident Commander (IC). The IC will be responsible for all aspects of the management of the fire. If a qualified IC is not available, the highest qualified person could serve until relieved or ordered through the Custer Interagency Dispatch Center. All resources will report to the IC (either in person or by radio) prior to deploying to the fire and upon arrival to the fire. The IC will be responsible for:

- Providing a size-up of the fire to dispatch as soon as possible.
- Using guidance found in the fire Management Plan or in the Delegation of Authority, determine the strategy and tactics to be used.
- Determine the resources needed for the fire.
- Brief 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.
- Advising dispatch of resource needs on the fire.
- Managing all aspects of the incident until relieved or the fire is suppressed.

The IC will receive general suppression strategy from the Fire Management Plan, but appropriate tactics used to suppress the will be up to the IC to implement.

Minimum impact tactics will be used whenever possible. Dozers, plows, discs, or graders will not be used inside the District boundaries for fire suppression without permission from the Project Leader or his/her designee..

4. Escaped Fires/Extended Attack

The IC will notify the District FMO whenever it appears a fire will escape initial attack efforts, escape Service lands, or when fire complexity will exceed the existing capabilities or operations. The District FMO will assist the Project Leader coordinate extended attack actions including:

- Completion of WFSA (Wildland Fire Situation Analysis) for the Project Leader.
- Assignment or ordering of appropriate resources.
- Completion of Delegation of Authority by the Project Leader.

5. Mop up Standards and Emergency Stabilization and Rehabilitation

The IC will be responsible for mop-up and mitigation of suppression actions taken on Refuge fires. The mop-up standards established in the Fireline Handbook will be followed. Refuge 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 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, 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.

I. Records and Reports

The IC will complete a DI-1202 Fire Report as well as Crew Time Reports for all personnel assigned to the fire, and return those documents to the Fire Management Officer within 3 days of the fire being declared out. The IC should include a list of all expenses and/or items lost on the fire and a list of personnel assignments on the DI-1202. With the approval of the Assistant Project Leader, the Fire Management Officer will inform the timekeeper of all fire time and premium pay to be charged to the fire, and that expended supplies are replaced.

IX. PRESCRIBED FIRE MANAGEMENT

The District initiated prescribed fire as a management tool in 1994. In 1997, 489 acres were prescribed burned during 7 burns. Average burn size was 70 acres. The District uses prescribed fire as a tool in two management areas: resource management and hazard fuels reduction.

A. Resource Management Prescribed Fire

Resource management prescribed fire is used to restore, create, and/or maintain a healthy diversity of plant communities in order to restore and perpetuate native wildlife species. The Huron WMD Management Plan for Upland Habitat (EA) discussed needs for habitat management.

Goals of resource management burns include:

1. Restoration of native prairie grass species.
2. Reduction/control of non native grasses, especially Kentucky bluegrass and smooth brome.
3. Control of woody species invasion of grasslands and wetlands.
4. Aid in control of noxious weeds particularly leafy spurge, Canada and musk thistle.
5. Control of dense cattail growth in shallow wetlands.
6. Maintain/rejuvenate quality nesting cover for waterfowl and other native birds.

Achieving many of the above goals requires repeated prescribed burns cycles for an indefinite length of time. Burn frequency will vary dependent on management objectives, historic fire frequency, and funding. A 3-5 year burn cycle is consider ideal. Huron WMD will have a goal to treat approximately 1,000 to 2,000 acres per year on 5 to 15 land management units.

Tri- Station Program Objectives: Treat approximately 2,000 to 4,000 acres per year (this includes Madison WMD, Huron WMD and Lake Andes NWR) in order to accomplish resource management goals on 15-40 land management units (assuming current level of funding), this includes monitoring.

B. Hazard Fuels Reduction Prescribed Fire

The District hazard fuel reduction program uses prescribed fire within or near District development zones, wildfire sensitive resources, and specific WPA and refuge boundary areas to reduce the risk from wildfire damage. WPA and boundary zone burn units are selected based on values at risk on adjacent land, probability for escape from FWS land, and fuels. Fuels in hazard fuel sites have 6-10 inches of accumulated litter and/or high densities of shrubs. The large volume of litter and shrub component causes complex control problems during suppression actions. High litter loadings allow wildfires to carry even during full green-up conditions. To the greatest extent possible, hazard fuel burns will only be used when they can compliment resource management objectives.

Goals of Hazard Fuel Reduction Prescribed Burns include:

1. Reduce dead fuel loadings (litter) of 2-3 tons per acre by approximately 75% or better
2. Reduce woody shrub component by 50%

Objective of Hazard Fuel Reduction program include:

1. Treat approximately 100 to 1000 acres per year
2. Burn units once every 5-8 years depending on fuel accumulations and resource management considerations

C. Personnel

Only Redcarded employees meeting the fitness and training requirements for their assigned position will participate in firing and holding operations. Other personnel may assist in support capacities, but will not be permitted on the fire line. The FWS Fire Management Handbook and Wildland Qualification Subsystem Guides (310-1) should be referred to for specific policy guidance and qualifications. Employees may be qualified and hold one or more positions.

D. Planning

The Project Leader and Assistant Project Leader are responsible for supervising the development of resource management objectives for individual units in their areas of responsibility. District staff will provide assistance in selection of the appropriate management tool needed to meet the objectives. Prescribed fire is just one of a combination of tools available. If needed, the Zone FMO or regional prescribed fire specialist will be consulted for assistance in accomplishing the desired objectives. The burn plan will document objectives and the plan of action for achieving them.

Contingency planning: Planning for contingencies can range from establishing procedures to handle a simple medical emergency, to indicating how to deal with the complete loss of control of the situation due to unanticipated weather events and fire behavior problems. Because of the potential risk involved with prescribed burning, contingency planning shall be an essential part of the District's prescribed fire management program.

The contingency section will be included in all prescribed burn plans and shall address the following essential elements:

- Trigger points that are clearly defined;
- Instructions for reporting an escaped fire or slop-over;
- Who has the authority to activate the contingency plan;
- The initial actions to be taken to suppress the wildland fire (Included in this section will be the organizational structure, strategies, tactics, additional resources, health and safety concerns.);
- Who is to be notified when the contingency actions are implemented;
- The location of values or resources requiring protection and established priority for providing protection;
- Containment opportunities outside of the burn unit (i.e. fuel breaks, roads, and other areas).

Determining when to implement the contingency plan or declare a prescribed fire a wildfire will vary with every situation. There is no "one size fits all" standards for determining when a prescribed fire should be declared a wildfire. Because of this, the following guidelines have been identified to determine "trigger points" that clearly indicate when the contingency plan will be implemented and under what circumstances the prescribed fire will be declared a wildfire:

- When five or more slope-overs occur or when an escape exceeds the ability of the holding forces to suppress it within a timely manner.
- When private property, cultural resources, structures and other resource values are threatened given the current and expected fire behavior.
- When the fire behavior predictions exceed the prescription parameters.

A burn plan will be written that will document objectives and the plan of action for

achieving them. The burn plan will follow the format in the Service's Fire Management Handbook. The plan must also meet all training, personnel, equipment, and other requirements as specified in the Fire Management Handbook. All burn plans will be reviewed by Assistant Project Leader, Project Leader, and Zone FMO prior to implementation. Burn plans will be submitted to the Zone FMO at least 60 days prior to the planned burn day for review and approval. Burn plans can be submitted by any qualified burn boss.

Potential burn units will be selected and a draft list will be reviewed for sound biological practices by the Project Leader. A review of the previous years prescribed fire accomplishments, failures, and any monitoring results will also take place at this time.

The maintenance staff, Range Technician and other fire staff will be responsible for preparing all fire equipment used for prescribed burning prior to March 1. Prescribed burn units may require preparation including; mowlines, disclines, blackline, and public relations. Preparation for burns will be handled on an individual basis and will be identified in the prescribed burn plan for that unit. The Project Leader will prioritize the units to be burned on a District-wide basis and the Assistant Project Leader will be responsible for the daily schedule of prescribed burns.

The normal prescribed burn season begins approximately March 2 depending on snowmelt. The season continues until late fall, approximately October 30. Most units are not burned between May 20 and August 9 in order to avoid burning nests, etc. When a particular unit is burned depends on burn objectives. Some burning will occur during the winter depending on snow conditions. Winter burns are generally for cattail control in wetlands and for burning blacklines to be used as control lines for future burn units.

Several requests have been made to the Service to assist local landowners with prescribe burning. Burning on Service's land will be our first priority, but these are opportunities to extend grassland management to private lands adjacent to WPA's. A Wildlife Extension Agreement with a written provision for the use of prescribed fire must be approved prior to implementing burns on private lands. Also, an approved burn plan is required. Such assistance is subject to guidance provided within the Fire Management Handbook, private lands program policies, and funding and staffing restraints. This plan will have a goal of one prescribe burn on private lands annually.

E. Training

The District will at minimum meet policy requirements of the Service prescribed fire qualification system. The Assistant Project Leader will be responsible for ensuring District personnel maintain qualifications necessary to implement the fire program. The District will maintain a minimum of two staff members qualified at the prescribed burn boss, (RXB3) level. Additional training will be obtained for District resource managers in the area of fire effects and monitoring in prairie ecosystems in order to implement

emerging Service ecosystem management strategies.

F. Complexity

All burns in the District fall within the low complexity category as determined using the Region 6 Complexity Analysis Guidelines. The complexity of a prescribed fire is dependent upon fuels/vegetation, objectives, smoke management, values at risk, burn boundaries, size, and number of personnel involved. The average number of personnel required to conduct a burn on the District is 4-6. Most burns are structured with a burn boss, 4-5 prescribed fire crew members (FFT2), two light engines and an ATV sprayer. All prescribed fires currently are of low complexity. Moderate and high complexity burns will only be undertaken if a Burn Boss II (RXB2) or Burn Boss I (RXB1) and adequate resources are available.

G. Monitoring and Evaluation

Current monitoring and evaluation of prescribed burns is very limited due to funding and staffing limitations. Burn prescriptions and timing are based on past research (Higgins, Smith, Kruse, Kirsch, and others). Pre burn evaluation is limited to photo points or general photos, qualitative evaluation of fuel conditions and green up conditions. Burn day evaluations document temperature, relative humidity, windspeed, fine fuel moisture, rate of spread, flamelength, smoke dispersal, % litter reduction, and % scorch of woody species. Post burn evaluation is limited to photo points or general burn photos, and qualitative estimates of shrubs, and noxious weed abundance and cover, and native species response.

Fire monitoring protocols for the Region or Service will be adopted by the District when they are finalized. If the resource management prescribed fire program proposed by this Fire Management Plan is fully funded, a more quantitative monitoring program will be implemented. Fire staff will complete vegetative transects in one each of the habitat/fuel types being prescribed burned as outline in approved burn plans. Species composition and percent cover will be the primary information used to determine if burn objectives are being met and to monitor long term vegetation responses.

H. Prescribed Fire Impacts

1. Environmental impacts of the prescribed fire program are discussed in previous sections of this Fire Management Plan.

2. Social and economic impacts are as follows: The District covers an eight county area that contains two of the state's larger metropolitan area's, Huron and Pierre. In addition, there are numerous small towns and communities within the Huron Wetland Management District. The main industry in the area is agriculture or agriculture related.

The overall social and economic environment can be affected by how the uplands on the District are managed. Often the affect is local, but when all District land units are combined, the affect is more widespread. Habitat management is often accomplished by authorizing local farmers to hay or graze on District units. This is viewed as positive both socially and economically. Local farmers and ranchers prefer to hay or graze lands on the District rather than seeing them "go up in smoke".

The majority of neighbors accept the fact that the Federal government owns land for waterfowl production, and most have a general appreciation for the value of wildlife. However these neighbors expect the land to be managed for wildlife and not ignored. If a District land unit is ignored, allowing the habitat condition to decline in quality and noxious weeds to increase, opinions quickly become negative. However, if the land is managed for the best interest of wildlife and habitat conditions are maintained, these opinions become positive and wildlife benefits both on and off District managed lands. Prescribed fire is one of the tools necessary to manage District lands.

The majority of recreational uses on the District are centered around hunting, trapping and fishing. Many of the District's WPA's offer this region's best waterfowl/pheasant hunting and birding. Occasionally hunters and birders may comment negatively when they see black, burned areas in throughout the District. Negative impact to the local economy could result if habitat becomes less productive and wildlife populations decrease. The number of hunters and birders traveling to the area could decrease, depriving the local economy of recreation dollars.

Escaped prescribed fires pose a threat to adjacent life and property, but proper planning and prescriptions, qualified personnel, and contingency planning will mitigate this threat. Temporary air quality impacts from smoke may occur, but are mitigated by the fuel type (light flashy fuels), small burn unit size.

Public opinion to prescribed burning on the District is generally positive. Private landowners annually burn grass and cropland; and thus, burning on the District is not viewed negatively.

I. Reporting and Documentation

Individual prescribed burn plans will be the primary document used to record prescribed fire information. Burn plans document state air quality requirements, personnel, costs, fire behavior, weather, and burn critique information. Prescribed burns will also be documented on DI-1202 forms and entered into FMIS within 10 days.

X. WILDLAND FIRE USE FOR RESOURCE BENEFIT

The District has elected not to take into consideration the benefits of wildland fire when determining the appropriate management response for the following reasons:

- rapid rates of spread in predominant grass fuels would create high probability of escape to private land.

- conflicting land uses within the District; haying and grazing
- small size of Service land units creates high probability of escape to private lands.
- small numbers of wildfires being started by natural means (none noted from 1992 to 1997).

XI. AIR QUALITY

See previous section III L.

XII. FIRE RESEARCH AND MONITORING

The effects of fire on the District's plants and animals needs to be better understood. Through applied research and careful application of fire, data collected can provide managers with better understanding of the natural ecological effects of fire, and the information needed to refine prescriptions to meet resource objectives.

Fire behavior data will be collected on all fires occurring on the District. 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. The District will continue to encourage fire related research on Service lands where research operations will not conflict with resource management objectives.

Fire research that is needed at Huron WMD includes:

- Assessment of fire effect monitoring needs and preparation of fire effect monitoring plan.
- Assessment of long and short term fire effects in the short/mix grass prairie with recommendations for using prescribed fire in conjunction with other management tools to resource objectives.
- Assessment of hazard fuel management options, and their effects upon District resource objectives.

XIII. PUBLIC SAFETY

Firefighter and public safety will always take precedence over property and resource protection during any fire management activity. Firefighter safety is covered in section VIII. F. This section will deal with public safety.

Fire fronts in grass fuels are fast moving and dangerous. However due to the small size of most District units, entrapment is not a big threat to sportsmen/visitors who may be in the area. Neighbors who initiate their own suppression actions lack proper training, equipment, and communications and may be at risk. The District staff will attempt to keep the fire scene (wildfire and prescribed fire) clear of people except for Service

firefighters and cooperating volunteer fire departments. Burn areas are usually closed to the public during prescribed fires.

Smoke from a wildfire or prescribed burn could impair visibility on roads and become a hazard. During wildfires the IC is responsible for notifying the appropriate law enforcement jurisdiction that traffic may be impacted. Smoke from prescribed fires is part of the burn prescription and is the responsibility of the burn boss. Actions to manage smoke 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 as traffic control.

Wildfires which might escape from Service lands and spread to inhabited private property are also a concern. The IC is responsible for contacting the appropriate law enforcement jurisdiction to warn and evacuate the public from potentially dangerous wildfires. Additionally the District will continue where practical to use prescribed fire to manage hazard fuels in high risk areas.

XIV. PUBLIC INFORMATION AND EDUCATION

Informing the public is an important part of fire suppression, fire prevention, prescribed fire, and the FWS mission. Information and education are critical to gaining public support for the District's fire management programs.

A. Wildfire Suppression

During wildfires the IC is responsible for providing fire information to the press and the public. The IC may delegate this task as needed.

B. Prescribed Fire

Informing the public is a vital element of the prescribed fire program. The following actions will be used to promote the prescribed fire program to the public:

- press releases
- attendance at local volunteer fire department meetings
- including the prescribed fire message in District interpretive publications and materials
- personal contact with bystanders during prescribed burns
- implementing prescribed burn plans and preventing escapes
- developing a quantitative fire effects monitoring program and sharing results with the public

XV. ARCHAEOLOGICAL/CULTURAL/HISTORIC RESOURCES

Archeological, cultural, and historic resources have been identified on pre-attack plans.

In general, fires should have little impact on those resources known to exist within the District because few exist above ground. One possible threat to these resources is the use of earth moving equipment. The use of earth moving equipment for suppression activities within the District must be approved by the Project Leader on a fire by fire basis, and these resources will be considered in the approval process. For further information on cultural, archeological, and historic resources, see section III. J.

XVI. FIRE CRITIQUES AND PLAN REVIEW

The Fire Management Plan will be reviewed annually (no later than November 30) to ensure the fire program advances and evolves with the Service and the District's mission.

A. Wildfire

Wildfires will be critiqued by the IC. The Zone FMO will conduct formal fire critiques in the event of:

- significant injury/accident
- significant property or resource damage
- significant safety concerns are raised
- an extended attack is necessary

B. Prescribed Fire

Prescribed fires will be critiqued by the burn boss and documented in the burn plan. The Zone FMO will conduct a formal critique if:

- significant injury/accident
- an escape prescribed fire occurs
- significant safety concerns are voiced
- smoke management problems occur

XVII. CONSULTATION AND COORDINATION

All fire management program activities will be implemented in cooperation and coordination with agencies of the State of South Dakota, and rural fire protection districts. Other agencies and organizations will be consulted as needed.

General program consultation and coordination will be sought from the SD/ND Refuges FMO, the Regional Fire Management Coordinator, Regional Prescribed Fire Specialist, and the National Interagency Fire Center (NIFC).

Copies of this Fire Management Plan will be sent to the following parties for comment:

US Fish and Wildlife Service
Regional Office - 6
Regional Fire Management Coordinator

Prescribed Fire Specialist

The following were consulted in the development of the plan.

Phil Street, Region 6 Fire Management Coordinator

Carl Douhan, Prescribe Fire Specialist

Brian McManus, Zone FMO North/South Dakota

Fire Management Plan- Devils Lake Wetland Management District

Fire Management Plan- Arrowwood National Wildlife Refuge

Fire Management Plan - Charles M. Russell National Wildlife Refuge

Fire Management Plan - Flint Hills National Wildlife Refuge

APPENDIX

Huron Wetland Management District FIRE STEP UP PLAN

Preparedness Actions

Rangeland Fire Index

L	M	H	VH	EX
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REFUGE STAFF FIREFIGHTERS

Carry PPE while on duty	X	X	X	X
May be assigned to engine or patrol			X	X
Tour of duty/schedule may be extended			X	X

FIRE EQUIPMENT

Type 6 engines ready	1	2	2	2
ATV pumpers ready		1	1	1

FIRE PREVENTION ACTIVITIES

May restrict vehicles to paved/gravel roads			X	X
May post fire danger signs at high public use areas			X	X

MISC EMERGENCY PREPAREDNESS ACTIONS

Pre-position FWS staff and interagency resources			X	X
Notify RFMC and open emergency suppression account			X	X
Notify J.Clark Saylor NWR Dispatch of staffing class and status			X	X

Step up plan does not apply when refuge resources are assigned to other fires.

Notes: * Ready status is unmanned, but filled with water (except in winter) and ready to respond.

Resources assigned to fires may prevent some staffing actions, FMO and or Fire Team Managers should use common sense in determining whether to fill behind dispatched resources.

L=low, M=medium, H=high, VH=very high, EX=extreme

**Amendment to the
FIRE MANAGEMENT PLAN
FOR
HURON WETLAND MANAGEMENT DISTRICT**

Huron, South Dakota

Recommended by: _____ Date _____
Project Leader,
Huron Wetland Management District

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

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

Concurred by: _____ Date _____
Refuge Supervisor,
North Dakota/South Dakota

Approved by: _____ Date _____
Regional Director,
Mountain-Prairie Region

AMENDMENT TO FIRE MANAGEMENT PLAN

Huron Wetland Management District

July 20, 2001

The following changes have been made to bring this fire management plan into compliance with guidance and content provided in Chapter 1, Section 4 of the *Fire Management Handbook* (2000 release). Compliance with the National Environmental Policy Act is required for the preparation and implementation of Fire Management Plans. This action is categorically excluded because the changes to this fire management plan approved are considered to be minor in nature (516 DM6 Appendix 1 ss 1.4 A[10]).

Page	Section	Change
6	I	<p>Replace original the third and fourth paragraphs with the following three paragraphs:</p> <p><i>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.</i></p> <p><i>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. This plan provides direction for the fire management program at Huron Wetland Management District that will help achieve resource management objectives...(Appendix A).</i></p> <p><i>This plan meets the requirements established by the National Environmental Protection Act (NEPA). An environmental assessment (EA) of the Management of Upland Habitats on Huron Wetland Management District, including the use of prescribed fire was approved On September 10, 1994 (Appendix B). Regulations published in the <u>Federal Register</u> (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. Copies of this plan will be circulated to cooperators and other interested parties.</i></p>
7	I	<p>Revise the following numbered bullets:</p> <p>10. Departmental Manual, <i>Part 620 DM-1</i>, Wildfire Suppression and Management (<i>April 10, 1998</i>).</p>

		<p>11. United States Fish and Wildlife Service Wildland Fire Management Handbook (December 28, 2000).</p> <p>12. United States Fish and Wildlife Service Manual, 621 FW 1-3, Fire Management, (February 7, 2000).</p>
7	II	<p>Insert the following paragraphs as an introduction to this section:</p> <p>II. COMPLIANCE WITH FWS POLICY</p> <p><i>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.</i></p> <p><i>The primary goal is to provide for firefighter and public safety, property, and natural resource values. Service policy and the Wildland Fire Policy and Program Review direct an agency administrator to use the appropriate management response concept when selecting specific actions to implement protection and fire use objectives. The resulting Appropriate Management Response are specific actions taken in response to a wildland fire 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).</i></p>
8	II - B	Strike 3 rd and 4 th sentences in first paragraph.
20	III - K	<p>This section was edited and revised to read:</p> <p>See attachment number 2.</p>
27	V - A	<p>Reword first sentence and insert attached table following:</p> <p><i>A. In keeping with the appropriate management response concept, strategies employing a range of suppression options will be considered (Table 4). Minimum impact suppression tactics (MIST) will be used, where appropriate.</i></p> <p><i>Table 4: Appropriate Management Response (Attached)</i></p>
28	V - F	<p>Replace current lettered bullet with the following:</p> <p>F. Limits to Strategies</p> <p><input type="checkbox"/> <i>Smoke management will be carefully considered for all prescribed burns and will be addressed in all prescribed burn plans.</i></p>

		<input type="checkbox"/> <i>All fires occurring on the Refuge will be staffed or monitored until declared out.</i> <input type="checkbox"/> <i>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.</i> <input type="checkbox"/> <i>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/her designee.</i> <input type="checkbox"/> <i>The use of prescribed fire to achieve management objectives must be conducted in a cost effective manner.</i> <input type="checkbox"/> <i>Aerial Retardants and foams will not be used within 300 feet of any waterway as described in the <u>Guidelines for Aerial Delivery of Retardant or Foam near Waterways</u>.</i>
28	VI	Strike the opening sentence.
29	VII	<p>Revise the first sentence and strike the last sentence of the second paragraph so that it reads:</p> <p><i>All wildfires will be suppressed using the appropriate management response concept. Initial attack resources are located at Maga-Tahohpi WPA.</i></p>

29	VII	<p>Insert the following paragraph between the second and third paragraphs</p> <p><i>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.</i></p>
31	VII - I	<p>Insert the following numbered bullet and renumber the remaining bullets:</p> <p><i>6. Brief 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.</i></p>
32	<p>VII - K</p> <p>Formerly VII - I</p>	<p>Insert the following paragraph into this section as the first paragraph:</p> <p><i>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.</i></p> <p><i>Cooperators will assist:</i></p> <p><i>1. In the suppression...</i></p>
33	VIII - B	<p>Revise this section to read:</p> <p><i>See Previous Section for a discussion regarding expected normal fire behavior.</i></p> <p><i>As indicated previously, periods of drought can greatly impact fire behavior and resistance to suppression. For that reason the Rangeland Fire Danger Index, 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 Custer IDC (605-673-4434) or North Dakota Dispatch Center (701-768-2552) during periods of high fire danger to track indices and anticipate possible fire activity. Preparedness actions have been identified in the Step-Up Plan to respond to</i></p>

		<p><i>unusual conditions associated with drought and other factors (See Appendix E).</i></p> <p><i>The Rangeland Fire Index is calculated daily during the fire season by the National Weather Service (NWS) in Sioux Falls, South Dakota. Greenness factors of fuels are calculated by an Advanced Very High Resolution Radiometer (AVHRR) onboard NOAA weather satellites. Satellite calculated greenness factors are combined with forecasted windspeed and relative humidities. The data is accurate enough to calculate greenness factors and fire danger ratings on a county by county basis. The Range Land Fire Index is available on the Internet at:</i></p> <p style="text-align: center;"><i>Http://www.crh.noaa.gov/fsd/forprod.rdfsd</i></p> <p><i>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.</i></p> <p><i>The Refuge is in the Rocky Mountain Area. During National and Regional Planning Levels IV and V, it is necessary to receive approval from the Regional Fire Management Coordinator and the concurrence of the Rocky Mountain Area Coordination Group to conduct prescribed burns during PL IV and the National Coordination Group during PL V.</i></p>
35	VIII - C.3	<p>Revise to read:</p> <p>3. Training and Physical Fitness</p> <p><u>Annual Refresher Training</u></p> <p><i>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.</i></p> <p><i>All personnel involved in Fire Management activities are required to annually complete fire management refresher training 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 and other courses are available that 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.</i></p>

		<p><u>Physical Fitness</u></p> <p>All personnel involved in fire management activities will meet the fitness standards established by the Service and Region. At this point in time, firefighters participating in wildfire suppression must achieve and maintain an Arduous rating. Firefighters participating in Prescribed Burns must achieve and maintain a Moderate rating. Information found in Appendix H 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 appropriate first aid procedures must be on site during the test.</p> <p>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 ???). 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.</p>
36	VIII - C.3 (Continued)	<p><u>Physical Examinations</u></p> <p>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.</p>
37	VIII - E	<p><u>E. Severity and Emergency Presuppression Funding</u></p> <p>Severity funding is different from Emergency Presuppression funding. Emergency Presuppression funds are used to fund activities during short-term weather events and increased human activity that increases the fire danger beyond what is normal. Severity funding is requested to prepare for <u>abnormally extreme fire potential</u> caused by unusual climate or weather events such as extended drought. Severity funds and emergency presuppression funds may be used to rent or preposition additional initial attack equipment, augment existing fire suppression personnel, and meet other requirements of the Step-up Plan.</p> <p>Emergency Presuppression 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 reading of -4.0 or less or a Keetch-Byram Drought Index of 600 or greater and a long-range forecast calling</p>

		<i>for below average precipitation and/or above average temperatures. Drought Indices can be located at: http://www.boi.noaa.gov/fwxxweb/fwoutlook.htm</i>
37	VIII - F	<p>Add a second paragraph:</p> <p><i>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.</i></p>
39	VIII - H.3 Formerly VIII - F.3	<p>Revise the duties of the IC to read:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Providing a size-up of the fire to dispatch as soon as possible. <input type="checkbox"/> <i>Using guidance found in the fire Management Plan or in the Delegation of Authority, determine the strategy and tactics to be used.</i> <input type="checkbox"/> Determine the resources needed for the fire. <input type="checkbox"/> <i>Brief 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.</i> <input type="checkbox"/> Advising dispatch of resource needs on the fire. <input type="checkbox"/> <i>Managing all aspects of the incident until relieved or the fire is suppressed</i>
40	VIII - H.4 Formerly VIII - F.4	Change EFSA (Escaped Fire Situation Analysis) to Wildland Fire Situation Analysis (WFSA)
40	VIII - H.5 Formerly VIII - F.5 And VIII - I	<p>Delete VIII-I and revise this section to read:</p> <p>5. Mop up <i>Standards and Emergency Stabilization and Rehabilitation</i></p> <p><i>The IC will be responsible for mop-up and mitigation of suppression actions taken on Refuge fires. The mop-up standards established in the Fireline Handbook will be followed. Refuge fires will be patrolled or monitored until declared out.</i></p> <p><i>Prior to releasing all firefighters from a wildland fire the following actions will be taken:</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>All trash will be removed.</i> <input type="checkbox"/> <i>Firelines will be refilled and waterbars added if needed.</i> <input type="checkbox"/> <i>Hazardous trees and snags cut and the stumps cut flush.</i> <input type="checkbox"/> <i>Disked firelines should be compacted as soon as possible to preserve the living root stock of natives grasses.</i> <input type="checkbox"/> <i>Overtured sod resulting from plowing must be rolled back with a</i>

		<p>grader or by hand and compacted to preserve native grass root stock.</p> <p>Other emergency stabilization and emergency rehabilitation measures may be taken in accordance with Chapter 5 of the Fire Management Handbook. Briefly:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 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. <input type="checkbox"/> 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. <input type="checkbox"/> 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.
43	IX - D	<p>Insert contingency planning guidelines</p> <p>Contingency planning: Planning for contingencies can range from establishing procedures to handle a simple medical emergency, to indicating how to deal with the complete loss of control of the situation due to unanticipated weather events and fire behavior problems. Because of the potential risk involved with prescribed burning, contingency planning shall be an essential part of the District's prescribed fire management program.</p> <p>The contingency section will be included in all prescribed burn plans and shall address the following essential elements:</p> <ul style="list-style-type: none"> · Trigger points that are clearly defined; · Instructions for reporting an escaped fire or slop-over; · Who has the authority to activate the contingency plan; · The initial actions to be taken to suppress the wildland fire (Included in this section will be the organizational structure, strategies, tactics, additional resources, health and safety concerns.); · Who is to be notified when the contingency actions are implemented;

		<ul style="list-style-type: none"> · <i>The location of values or resources requiring protection and established priority for providing protection;</i> · <i>Containment opportunities outside of the burn unit (i.e. fuel breaks, roads, and other areas).</i> <p><i>Determining when to implement the contingency plan or declare a prescribed fire a wildfire will vary with every situation. There is no “one size fits all” standards for determining when a prescribed fire should be declared a wildfire. Because of this, the following guidelines have been identified to determine “trigger points” that clearly indicate when the contingency plan will be implemented and under what circumstances the prescribed fire will be declared a wildfire:</i></p> <ul style="list-style-type: none"> · <i>When five or more slope-overs occur or when an escape exceeds the ability of the holding forces to suppress it within a timely manner.</i> · <i>When private property, cultural resources, structures and other resource values are threatened given the current and expected fire behavior.</i> · <i>When the fire behavior predictions exceed the prescription parameters.</i>
45	IX - F	<p>Revise the first sentence to read:</p> <p>All burns ...as determined using the Region 6 Complexity Analysis guidelines.</p>
46	X	<p>Redescribe this unit as:</p> <p>X. WILDLAND FIRE USE FOR RESOURCE BENEFIT</p> <p>The District has elected <i>not to take into consideration the benefits of wildland fire when determining the appropriate management response</i> for the following reasons:</p>

Table 4: Appropriate Management Response

SITUATION	STRATEGY	TACTIC
<ol style="list-style-type: none"> 1. Wildland fire on Refuge lands which does not threaten life, natural or cultural resources or property values. 	<p>Restrict the fire within defined boundaries established either prior to the fire or during the fire.</p>	<ol style="list-style-type: none"> 1. Holding at natural and man-made barriers. 2. Burning out. 3. Observe and patrol.
<ol style="list-style-type: none"> 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. 	<p>Take suppression action, as needed, which can reasonably be expected to check the spread of the fire under prevailing conditions.</p>	<ol style="list-style-type: none"> 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.
<ol style="list-style-type: none"> 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. 	<p>Aggressively suppress the fire using direct or indirect attack methods, holding the fire to the fewest acres burned as possible.</p>	<ol style="list-style-type: none"> 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.

Attachment 2:

K. Improvements

Suppression of wildland fires on remote WPA's and in urban interface areas is challenging. Damage to improvements by wildfire on and off the District is a primary concern. The District has maintenance facilities at Maga-Tahohpi WPA, Beadle County that may be threatened. While developments can generally be protected from fire damage, dispersed improvements, particularly fences are likely to be damaged by wildfires. The District relies heavily on volunteer fire protection districts for suppression and notification of wild fires at remote WPA's.

The scattered WPA's are spread over eight different counties. The dispersed nature of the District's Waterfowl Production Areas create many situations where escaped prescribed fires or wildfires could damage adjacent private structures, equipment, and grazing/hay/cropland. Wildfire damage to non-Service public property can occur to wooden utility poles and utility junction boxes which are located on or adjacent to Service lands. Adjacent land ownership is almost exclusively private. Private landowners generally have a low tolerance for wildfire. However, the use of prescribed fire is generally fairly well accepted as habitat management tool in most areas of the District.

The fuel associations surrounding Service lands can be categorized into four general categories: wildland fuels, agricultural row crops, urban interface, and rural interface.

3. Wildland Fuels

The wildland fuels surrounding Service lands are composed of the following three NFFL fuel models:

- **Fuel Model 1** is characterized by cured continuous short grassland and savanna fuels with an average fuel depth approximately 1 foot.
- **Fuel Model 3** is characterized by cured continuous tall grass prairie, wild grains and marshlands with a average fuel depth of approximately 3 feet.
- **Fuel Model 9** is characterized by surface loose hardwood litter under stands of deciduous trees with an average fuel depth of 2-3 inches. This fuel type is typically found in scattered pockets and is best represented in the river bottoms and shelterbelts of eastern South Dakota.

4. Private Agricultural Lands

The fuels on private agricultural lands surrounding Service lands are constantly changing because of changing land use practices. These changes may be the result of crop rotation, summer fallowing, various livestock grazing practices, changing agricultural crop prices, and enrollment in Conservation Reserve Programs (CRP). The surrounding agricultural fuels are typically characterized as cultivated crop land or planted crop land. Planted crop land is represented by one of the following NFFL fuel models:

- **Fuel Model 1** is characterized by cured short herbaceous grain crops with an average fuel depth of approximately 1-2 foot (i.e. Alfalfa, oats, millet, mustard, flax, soybeans, etc.).
- **Fuel Model 3** is characterized by tall cured cultivated tall grains that have not been harvested with an average fuel depth of approximately 3 feet. (i.e. wheat, corn, sunflowers, and Sudan grass).

3. Urban and Rural Interfaces

Several WPA's are located adjacent to urban and rural interface areas. The urban and rural interfaces primarily include the fuels associated with wildland and agricultural fuel complexes in combination with public utilities, hazardous materials, commercial and residential facilities, out buildings, fences, and etc. This intermix of wildland fuels and urban and rural community sprawl places the public and public and

private property and cultural and natural resources at the greatest risk from wildfire.

MAIL STOP 60130

Memorandum

To: Project Leader, Huron Wetland Management District

From: Regional Fire Management Specialist, Mountain-Prairie Region

Subject: Revised Fire Management Plan

Attached is the approved copy of the Amendment to the Fire Management Plan for Huron Wetland Management District and a floppy disk containing an electronic file of the revised Fire Management Plan and the Amendment. The fire management plan for Huron Wetland Management District has been revised by this office to include all the changes indicated in the Amendment.

Over time conditions will change at the Refuge. The plan should be reviewed annually to insure it is current. If large scale changes need to be made, the plan should be rewritten and submitted for review and approval in accordance with existing policy. We encountered several problems working with the file containing your 1998 Fire Management Plan. We recommend that you save the revised plan as a separate file and use the updated plan when your staff revises your plan.

If you have any questions or comments, please contact me at 303-236-8145, extension 618 or Phil Street at 303-236-8145, extension 676.

Attachment

bcc:RO, Rwrif, RW file, Phil Street,
RW:CDouhan