

**Inland Northwest National Wildlife Refuge Complex**

**Kootenai National Wildlife Refuge**

**Wildland Fire Management Plan 2013**

Prepared by Inland Northwest NWR Complex Staff

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# 1 Introduction

## 1.1 Purpose of the Fire Management Plan (FMP)

This Fire Management Plan (FMP) is written to describe the wildland fire management program for Kootenai National Wildlife Refuge (NWR). The goal of wildland fire management is to plan and implement actions to help accomplish the mission of the National Wildlife Refuge System, which 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. (095 FW 3.2). The FMP is written to comply with Departmental and Service requirements that every area with burnable vegetation must have an approved fire management plan (620 DM 1, 621 FW 1).

Fire management at Kootenai NWR includes the use of prescribed fire and suppression of all wildfires using appropriate management strategies.

This plan includes cooperative efforts in wildland fire and prescribed fire with the Idaho Panhandle National Forest, Idaho Department of Lands, and other federal, state, and private wildland fire organizations.

The Fire Management Plan is a step-down plan, tiered to the Kootenai National Wildlife Refuge Comprehensive Conservation Plan, (CCP) (USFWS, 2011). It describes fire management programs, activities and methods that will be undertaken by the U.S. Fish and Wildlife Service (Service) in meeting the wildland fire suppression objectives and fire management strategies which utilize prescribed fire to attain the habitat management goals established for Kootenai NWR.

## 1.2 General Description of the Area in the Fire Management Plan

Kootenai NWR is located on the flood plain of the Kootenai River (See Appendix A - Map 1, Kootenai National Wildlife Refuge and Vicinity). Most of the refuge lies on the valley floor with an

elevation of 1,750 feet. Deep Creek and the Kootenai River form the eastern and most of the northern boundary of the Refuge. The western boundary ascends into the foothills of the Selkirk Mountains.

The Kootenai NWR's boundary encompasses 2,774.29 acres of Kootenai River bottomlands and uplands in Boundary County, Idaho. There are approximately 1226 acres of wetlands, 541 acres of agricultural grasslands, 274 acres of croplands, 321 acres of moist deciduous forest, riparian woodland and shrubs, 268 acres of mixed moist coniferous forest, 59 acres dry coniferous forest, and 82 acres of administrative lands. The Kootenai National Wildlife Refuge is part of the Inland Northwest National Wildlife Refuge Complex, which also includes Turnbull and Little Pend Oreille National Wildlife Refuges, both located in Washington State.

### 1.3 Significant Values to Protect

The Kootenai CCP identifies several significant values including habitat for 3 federally listed threatened and endangered species: bull trout, grizzly bear, and Canada lynx. Suppression of unplanned ignitions should prevent damage to habitat by limiting affected acres. Using light hands on the land tactics during suppression should also limit the spread or establishment of noxious weeds or non-native plant species that also might degrade the habitat at the refuge.

Other significant values include habitat for migratory waterfowl and other wildlife and Refuge infrastructure including the refuge administrative office, environmental education center, maintenance facilities, and quarters, including a 1600-square foot house and trailer. The Idaho Fish and Game Department owns two facilities that serve their fisheries field office within in Kootenai's administrative compound. This includes a State-owned double-wide trailer and boat storage unit. Several water pumping stations on the refuge are used for water management. (Appendix A- Map 2, Kootenai Hydro Network). The Refuge is situated in a rural environment with scattered dwellings and farms; the City of Bonners Ferry, ID is approximately 5.5 miles southeast of headquarters.

### 1.4 Effects of Climate on Biotic Composition

The Service has developed a Strategic Plan for Responding to Accelerating Climate Change in the 21st Century (2009), and a 5 year Action Plan outlining specific actions needed to implement the Strategic Plan. The Action Plan calls for the Service to make its operations carbon-neutral by 2020. The Refuge will work toward this goal by replacing its current vehicles with more fuel efficient vehicles, and by building appropriately sized, energy efficient facilities, as funding becomes available. The Refuge will also reduce the carbon footprint of land management activities by using energy-efficient techniques, where feasible and in line with management goals. The Refuge will also explore ways of offsetting any remaining carbon balance, such as carbon sequestration.

## 2 Policy, Land Management Planning

### 2.1 Fire Policy

#### 2.1.1 Federal Interagency Wildland Fire Policy

This FMP meets the Federal Wildland Fire Management Policy by implementing and following these guiding principles:

- Firefighter and public safety is the first priority in every fire management activity.

- The role of wildland fire as an essential ecological process and natural change agent has been incorporated into the planning process.
- Federal agency land and resource management plans set the objectives for the use and desired future condition of the various public lands.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities. Risks and uncertainties relating to fire management activities must be understood, analyzed, communicated, and managed as they relate to the cost of either doing or not doing an activity.
- Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives,
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, State, tribal, local, interagency, and international coordination and cooperation are essential.
- Standardization of policies and procedures among federal agencies is an ongoing objective.

### **Federal Wildland Fire Cost Effectiveness Policy**

Maximizing cost effectiveness of any fire operation is the responsibility of all involved, including those who authorize, direct, or implement operations. Cost effectiveness is the most economical use of resources necessary to accomplish project/incident objectives. Accomplishing the objectives safely and efficiently will not be sacrificed for the sole purpose of “cost-saving.” Appropriate oversight will ensure that expenditures are commensurate with values to be protected. Other factors besides those in the biophysical environment may influence decisions, including those from the social, political, and economic realms (Interagency Standards for Fire and Fire Aviation Operations, Cptr 1).

#### 2.1.2 National Fire Plan

This FMP emphasizes meets the direction in the National Fire Plan because it emphasizes the following primary goals of the [10 Year Comprehensive Strategy](#) and [Cohesive Strategy for Protecting People and Sustaining Natural Resources](#):

- Improving fire prevention and suppression
- Reducing hazardous fuels
- Restoring fire-adapted ecosystems
- Promoting community assistance

#### 2.1.3 Department of Interior (DOI) Fire Policy

This FMP incorporates and adheres to meets DOI policy stated in [620 DM 1](#) by giving full consideration to the use of wildland fire as a natural process and as a tool in the land management planning process and by providing for the following:

- Wildfires, whether on or adjacent to lands administered by the Department, which threaten life, improvements, or are determined to be a threat to natural and cultural resources or improvements under the Department’s jurisdiction, will be considered emergencies and their suppression given priority over other Department programs.

- Bureaus shall cooperate in the development of interagency preparedness plans to ensure timely recognition of approaching critical wild fire situations, to establish processes for analyzing situations and establishing priorities, and for implementing management responses to these situations.
- Bureaus will enforce rules and regulations concerning the unauthorized ignition of wildfires, and aggressively pursue violations.

#### 2.1.4 U.S. Fish and Wildlife Fire Policy

This FMP addresses a full range of potential wildland fires and considers a full spectrum of tactical options (from monitoring to intensive management actions) for wildfires in order to meet Fire Management Unit (FMU) objectives. It fully applies procedures and guidelines in the [Service Fire Management Handbook](#) and the [Interagency Standards for Fire and Fire Aviation Operations](#) and affirms these key elements of FWS fire policy (621 FW 1):

- Firefighter and public safety is the first priority of the wildland fire management program and all associated activities.
- Only trained and qualified leaders and agency administrators will be responsible for, and conduct, wildland fire management duties and operations.
- Trained and certified employees will participate in the wildland fire management program as the situation requires, and non-certified employees will provide needed support as necessary.
- Fire management planning, preparedness, wildfire and prescribed fire operations, other hazardous fuel operations, monitoring, and research will be conducted on an interagency basis with involvement by all partners to the extent practicable.
- The responsible agency administrator has coordinated, reviewed, and approved this FMP to ensure consistency with approved land management plans, values to be protected, and natural and cultural resource management plans, and that it addresses public health issues related to smoke and air quality.
- Fire, as an ecological process, has been integrated into resource management plans and activities on a landscape scale, across agency boundaries, based upon the best available science.
- Wildland fire is used to meet identified resource management objectives and benefits when appropriate.
- Prescribed fire and other treatment types will be employed whenever they are the appropriate tool to reduce hazardous fuels and the associated risk of wildfire to human life, property, and cultural and natural resources and to manage our lands for habitats as mandated by statute, treaty, and other authorities.
- Management response to wildfire will consider firefighter and public safety, cost effectiveness, values to protect, and natural and cultural resource objectives.
- Staff members will work with local cooperators and the public to prevent unauthorized ignition of wildfires on Service lands.

#### 2.1.5 Regional Fire Management Policy

Fire program management describes the operational procedures necessary to implement fire management at the Kootenai Wildlife Refuge. Program management includes: fire prevention, preparedness, emergency preparedness, fire behavior predictions, step-up staffing plan, fire detection, fire suppression, minimum impact suppression, minimum impact rehabilitation, and documentation.



All fires not classified as prescribed fires are wildland fires and will be appropriately suppressed. Refuge staff and/or the Fire Department will perform initial attack actions on wildland fires. If needed, the Incident Commander may request additional resources from other refuges, the NPS, state, or military directly; the North Idaho Coordinating Group can serve as the requesting group.

## 2.2 Land/Resource Management Planning

### 2.2.1 Land/Resource Planning Documents

This FMP is an operational plan that implements the direction found in the Kootenai NWR Comprehensive Conservation Plan (USFWS, 2011). Overarching resource management strategies and objectives are delineated in the CCP.

The CCP specifies that prescribed fire will be used to achieve habitat objectives on a number of habitat types within the Refuge (Kootenai NWR CCP, Chap. 2.4, USFWS, 2011). The Fire Management Plan will help to meet the objectives detailed in the Comprehensive Conservation Plan. Fire management objectives are:

- Suppress all wildfires.
- Use prescribed fire in managed and native grasslands to manage thatch, invasive plants and rank grasses.
- Use prescribed fire in managing late-seral, dry forest habitat to maintain an open understory and remove ladder fuels.

### 2.2.2 Environmental Compliance

This Fire Management Plan complies with the National Environmental Policy Act because an Environmental Assessment of Alternatives for the CCP was completed and a Finding of No Significant Impact was signed by the Regional Director on September 28, 2011. Specific projects undertaken within this plan will require an intra-Service review under Section 7 of the Endangered Species Act.

#### **NEPA Compliance**

NEPA compliance was accomplished by completion of an Environmental Assessment (EA) for the fire management program in September 2011. After a public comment period, on September 28, 2011 the Refuge Project Leader signed a Finding of No Significant Impact (FONSI), which is in official files at Refuge Headquarters. The project leader has determined that the activities outlined in this FMP update are similar in scope and effect as those covered by the EA and therefore a new EA is not necessary.

All FMP actions/decisions comply with Section 106 of NHPA per the terms of the working agreement between the refuge and the State Historic Preservation Offices.

## 2.3 Fire Management Partnerships

### 2.3.1 Internal Partnerships

The Kootenai NWR Fire Management program is administered by the Zone FMO for the Inland Northwest NWR Complex. Fire-funded employees within the Complex are available to plan and implement fire projects. In some cases, Region 1 FWS Fire Management personnel may be available to assist with the implementation of projects.

This Fire Management Plan is developed by Complex fire staff such as the Zone FMO, Zone AFMO and Prescribed Fire Specialists as well as the Refuge Manager.

### 2.3.2 External Partnerships

Interagency cooperation is vital to Kootenai NWR's Fire Management Program.

The Idaho Cooperative Fire Protection and Stafford Act Response Agreement (No. 10132-7-J002, updated 2010; Appendix C) provides the basis for cooperation between the State of Idaho and the agencies of the Departments of Interior and Agriculture on all aspects of wildland fire management and facilitates the cooperative use of fire related resources during national or regional non-fire emergencies. It is most cost effective and in the public interest to provide specifically coordinated action between Federal agencies by sharing their firefighting resources. The agreement specifically states in section I "The purpose of this Agreement is to document the commitment of the Agencies to improve wildland fire protection by facilitating the increased availability of resources including but not limited to: The exchange of personnel, equipment, supplies, services, and funds among the Agencies...."

The Refuge is a signator to the local Annual Operating Plan (Appendix G), executed under the above referenced agreement. Other parties to the local operating plan are the Idaho Panhandle National Forest, the Coeur D'Alene District of the Bureau of Land Management, the Idaho Department of Lands and the Bureau of Indian Affairs and Coeur D'Alene Tribe. The Forest Service is the primary public land agency in northern Idaho. The Forest Service and Idaho Department of Lands are responsible for fire suppression on wildlands. The annual operating plan defines cooperative roles of each agency to suppress wildland fires on or near the Refuge. It also defines mutual assistance for prescribed burning, when possible. The parties of this plan are not obligated to make expenditures of funds or reimbursements of expenditures under terms of the plan unless such funds are appropriated for the purpose, by the Congress of the United States or are otherwise legitimately available.

Unplanned ignitions are managed with assistance from the USDA Forest Service as prescribed in the Annual Operating Plan for North Idaho (Appendix G). In addition, the Refuge has a Memorandum of Understanding with the South Boundary Fire Protection District (Appendix G). Under this MOU, the Refuge may provide initial response assistance on wildland fires within the Fire District while the District provides in-kind response assistance on the Refuge. The MOU provides for this assistance for a specified period of time without charge.

Agreements with cooperators such as the USFS and Idaho Department of Lands that provide for assistance on prescribed fire projects may be developed where necessary to foster project implementation.






## **3 Fire Management Units Characteristics**

### 3.1 Area-Wide Considerations

The overall objectives for fire management are to promote a program to ensure firefighter and public safety, aimed at reducing human-caused fires, to ensure appropriate suppression response capability to meet expected wildland fire complexity, and to continue to use prescribed fire as appropriate.

### 3.1.1 Management Goals, Objectives and Constraints from Comprehensive Conservation Plans (CCP)

#### 3.1.1.1 Kootenai NWR CCP Goals

-  Provide and manage a mixture of secure, diverse, productive grassland habitats for foraging and nesting migratory waterfowl and grassland-dependent wildlife.
-  Annually provide agricultural crops as forage for migratory waterfowl.
-  Provide, manage, and enhance a diverse assemblage of wetland habitats characteristic of the Kootenai River Valley.
-  Provide, manage, and enhance a diverse assemblage of forest habitats characteristic of lower elevation sites in the Selkirk Mountains.
-  Provide, manage, and enhance a diverse assemblage of riparian habitats characteristic of the Kootenai River Valley.
-  Protect, maintain, and where feasible, restore habitats on the Refuge to benefit native fishes and the species that depend on them.
-  Conduct inventory, monitoring, and research in support of adaptive management, habitat restoration, and fisheries restoration efforts.

#### 3.1.1.2 Specific Resource Management Objectives Related to Fire Management

The use of prescribed fire and/or mechanical treatment as a strategy or management tool to reduce hazardous fuels to accomplish habitat management goals is explicitly listed in the comprehensive conservation plan for Kootenai National Wildlife Refuge.

### **GOAL 1: Provide and manage a mixture of secure, diverse, productive grassland habitats for foraging and nesting migratory waterfowl and grassland-dependent wildlife.**

#### **Objective 1.1 Managed grassland/shrublands**

Annually maintain 435-460 acres of managed grasslands with the following attributes to provide habitat for migratory landbirds (e.g., western meadowlark, savannah sparrow), small (e.g., vole spp.)

and large mammals (e.g., white-tailed deer, elk), native amphibians, reptiles and invertebrates:

- A diverse mix of desirable sedges, bunch- and sod-forming grasses, and forbs (native species are preferred but desirable non-natives may be necessary).
- Mosaic of vegetation heights ranging from 6-36 inches.
- <5% cover of invasive plants (e.g., Canada thistle, yellow toadflax, spotted knapweed, common mullein, houndstongue)
- No hawkweed, teasel, poison hemlock

#### *Strategies Applied to Achieve Objective 1.1*

**Management strategies:**

- Use prescribed fire or mowing as needed to manage thatch, invasive plants, and rank grasses. Treat less than 30% of individual fields annually to provide areas of tall grass/forbs for grassland bird nesting.

**Objective 1.2 Restore native upland grassland and wet meadow**

Within the lifetime of the CCP, and where appropriate and feasible, restore 125-175 acres of native upland grasslands and wet meadow to provide habitat for migratory landbirds (e.g., western meadowlark, savannah sparrow), small (e.g., vole spp.) and large mammals (e.g., white-tailed deer, elk), native amphibians, reptiles and invertebrates:

- A diverse mix of native bunch- and sod-forming grasses, sedges, and forbs (e.g., redtop in moist areas)
- Mosaic of vegetation heights ranging from 6-36 inches.
- <5% cover of invasive plants (e.g., Canada thistle, yellow toadflax, spotted knapweed, common mullein, houndstongue)
- No hawkweed, teasel, poison hemlock

*Strategies Applied to Achieve Objective 1.2***Management strategies:**

- Use prescribed fire, mowing, or haying as needed to manage thatch, invasive plants, and rank grasses. Treat less than 30% of acres annually to provide areas of tall grass/forbs for grassland bird nesting.

**GOAL 4: Provide, manage, and enhance a diverse assemblage of forest habitats characteristic of the lower elevation sites in the Selkirk Mountains.****Objective 4.1: Moist mixed coniferous forest**

Annually, maintain and protect 267 acres of late seral, structurally diverse, moist mixed coniferous forest (mature trees >20" dbh) to benefit migratory landbirds and other wildlife, with the following attributes:

- High tree canopy cover (>60%)
- Multiple tree layers with mixed species composition including >25% deciduous cover
- 9.0 snags/acre with ≥10" dbh, where approximately 40% are >20" dbh
- Recruitment snags >27" dbh and >80' tall
- 40-70% cover of native shrub species, depending upon the appropriate moist forest plant associations
- 10-30% cover of native herbaceous species, depending upon the appropriate moist forest plant associations

*Strategies Applied to Achieve Objective 4.1***Management strategies:**

- Immediately suppress all wildfire ignitions.
- If hazardous fuels reduction becomes necessary to reduce fire hazards, standard techniques including but not limited to pre-commercial thinning and reduction of ladder fuels may be used.

**Objective 4.2 Late Seral Dry forest**

Annually, maintain and protect 50 acres of late seral, open understory dry forest

(mature trees >21" dbh) benefitting migratory birds (e.g., Hammond's flycatcher, hairy woodpecker, brown creeper, white-breasted nuthatch, and pygmy nuthatch) with the following attributes:

- >10 trees/acre >21", where >2 trees >31" dbh, providing a range of diameters to allow for replacement
- 10-40% canopy cover of ponderosa pine
- >1.4 snags/acre with >8" dbh, including >50% >25" dbh
- Shrub canopy cover of native species, dependent upon the appropriate plant association for the Dry Forest Ponderosa Pine and Douglas-fir Series
- Herbaceous canopy cover of native species dependent upon the appropriate plant association for the Dry Forest Ponderosa Pine and Douglas-fir Series

#### *Strategies Applied to Achieve Objective 1.2*

##### **Management strategies:**

- Immediately suppress all wildfire ignitions.
- Maintain open understory conditions by hand thinning seedlings and saplings as necessary to remove ladder fuels, and/or use prescribed fire if site conditions allow.

#### *Rationale*

Hand thinning will reduce hazardous fuels and reduce the chance of a stand-replacing fire.

#### **Objective 4.3 Mixed moist deciduous forest**

Annually, maintain, enhance, and protect 10 acres of mixed moist deciduous forest (cottonwood/aspen/birch at bottom of moist draws, above the Kootenai River floodplain, at the outlets of high-gradient streams) to benefit breeding landbirds and other wildlife, with the following attributes:

- Canopy closure 30-70% of overstory species including cottonwood, aspen, and birch
- Shrub cover >40%, including common snowberry and red-osier dogwood
- >10% of shrub layer young (recruiting) cottonwoods or aspens
- >4 trees/acre that are 40' tall and 10" dbh
- >1.5 snags/acre with >40' tall and >10" dbh

#### *Strategies Applied to Achieve Objective 1.2*

##### **Management strategies:**

- Immediately suppress all wildfire ignitions.

### 3.1.2 Management Goals, Objectives and Constraints from other Sources

Due to the small geographical area of Kootenai NWR, heavy fuel loading, proximity to private and other government agency property, potential for resource damage, and air quality considerations within local communities, all unplanned fire ignitions on the refuge will have immediate fire suppression response utilizing the closest available resources. Tactical fire suppression operations will include both direct and indirect attack based upon considerations of firefighter safety, minimum impact to refuge resource values and cost effectiveness. Meeting this objective will require a refuge fire management program with an initial attack capability of equipment and personnel and cooperative or reimbursable agreements with local federal and state land management agencies with firefighting capabilities. Fire suppression capabilities will be augmented by fire prevention programs and hazard fuel reduction projects. Hazard fuel reduction

will involve both manual removal of fuels in critical areas and the systematic application of prescribed fire to gradually reduce accumulations of dead fuels utilizing low intensity prescribed burns under carefully controlled conditions.

The Wildland Fire Decision Support System is the primary tool to be used for analysis of integrated risks and cost management on incidents that persist beyond the initial attack phase.

### 3.1.3 Common Characteristics of the Fire Management Units

Fire Management Units (FMUs) are areas on a refuge which have common wildland fire management objectives and strategies, are manageable units from a wildland fire standpoint, and can be based on natural or manmade fuel breaks.

Kootenai NWR is located on the floodplain of the Kootenai River. Most of the Refuge lies on the valley floor which has an elevation of 1,750 feet. The Kootenai River forms the northeastern and eastern boundaries of the Refuge while Deep Creek lies along the Refuge's southeastern boundary. The western boundary ascends into the foothills of the Selkirk Mountains.

Fire Management Units (FMUs) are those areas on a refuge which have common wildland fire management objectives and strategies. Kootenai NWR will be divided into two FMUs (FMU 1 and FMU 2). All containment perimeters are located in areas that have good ingress/egress for fire suppression equipment and provide potential escape routes and safety zones.

## 3.2 Fire management Unit – Specific Descriptions

The Refuge will be divided into two FMUs (Table 1, And Appendix A, Map 3- FMUs). FMU 1 will encompass wetlands, grasslands, cropland, riparian areas, and administrative lands that mainly occur on or closely adjacent to the Kootenai River floodplain. The total acreage of this unit is approximately 2447 acres. FMU 2 will consist of approximately 418 acres of coniferous forest located on the western side of the Refuge (Appendix A, Map 4 – FMUs with Fuel Models).

**Table: 1 Fire Management Units on Kootenai National Wildlife Refuge.**

<b>FMU1</b>	<b>Acres</b>	<b>Fire Behavior Fuel Model(s)</b>
<b>Wetlands</b>	<b>1,226</b>	<b>5</b>
<b>Grasslands</b>	<b>541</b>	<b>1,3</b>
<b>Croplands</b>	<b>274</b>	<b>1,3</b>
<b>Riparian/deciduous habitat</b>	<b>321</b>	<b>6</b>
<b>Administrative lands</b>	<b>82</b>	<b>NA</b>
<b>FMU2</b>	<b>Acres</b>	<b>Fire Behavior Fuel Model(s)</b>
<b>Coniferous Forest</b>	<b>328</b>	<b>9</b>
<b>Total</b>	<b>2774</b>	

## 3.2.1 FMU Descriptions

### 3.2.1.1 Fire Management Unit One (FMU1)

#### **Wetlands**

Most Refuge wetlands are human-made impoundments and classified as permanent, semi-permanent or seasonal depending on the capability to flood, maintain water depths and the ability to drawdown.

The natural low areas on the Refuge are typically flooded in the spring due to a combination of snowmelt and early spring rains. These seasonal wetlands dry up later in the spring, which allows moist soil plants to grow or crops to be planted thus providing food in the fall for migrating birds, primarily waterfowl.

Wetlands are the most productive wildlife habitat type found on the Refuge. The impoundments and seasonal wetlands are important to waterfowl, shorebirds, and waterbirds, and many other water dependent species such as painted turtles, river otters, frogs, and moose. They contain several species of fish that provide food for birds such as herons, bald eagles and osprey. Wetlands perform functions important to the health and well-being of humans including water purification, groundwater recharge, floodwater retention, and sediment entrapment. They also provide tremendous aesthetic, recreational, and educational opportunities.

Surface water resources on or adjacent to the Kootenai NWR include the Kootenai River, Deep Creek, Myrtle Creek, and Cascade Creek. The Kootenai River forms the northeastern and eastern boundaries of the Refuge for approximately 3.7 miles. The Refuge does retain water rights in order to divert water from the aforementioned water resources for wetland management.

The emergent vegetation in the human-made, permanent and semi-permanent impoundments consist primarily of cattail (*Typha latifolia*), hardstem bulrush (*Scirpus microcarpus*), rushes (*Juncus* spp.) and sedges (*Carex* spp.). Cattail is the dominate species in and surrounding the impoundments. Sub-merged aquatic macrophytes also provide important food for waterfowl and the invertebrate species that some species of waterfowl and shorebirds utilize.

Some of the impoundments are also used to maintain natural moist soil plants such as nodding smartweed (*Polygonum* sp.) and wild millet (*Echinochloa* sp.). When flooded in the fall, these moist soil units provide outstanding feeding areas for waterfowl. Occasionally these units need to be mechanically manipulated to reduce the encroachment of cattails to allow for aquatic plant diversity.

The seasonal wetlands usually dry up in the spring and are planted with grain or alternate crops to provide food for waterfowl during the fall and spring migration.

Wetlands are very dynamic ecosystems that change with water levels, seasons, and time. Sediments from erosion in uplands continually fill in wetland impoundments making them shallower. Eventually, vegetation encroaches upon areas of open water, growing thicker and decomposing each year. The deposition of sediment may ultimately lead to the conversion of the wetland to upland vegetation.

Ecosystems of the Kootenai NWR were historically maintained and renewed by the force of annual flooding from the Kootenai River. After construction of the river dike (1920's and 1930's) and completion of Libby Dam (1972), flooding of the area occurs more than once every ten years but much less frequently than historic flooding.

### **Deciduous Woodland and Shrub Communities**

Cottonwood and shrub communities (riparian areas) comprise only a small portion of the habitat types at Kootenai NWR, but are important for a wide variety of wildlife. This habitat type grows primarily on the transition zone between open water (Deep Creek, Myrtle Creek, Cascade Creek, and the Kootenai River) and the uplands.

The riparian communities generally occur in a variety of successional stages throughout their range, depending on their location and local environmental factors (fire, flooding, grazing). On the Refuge, cottonwoods occur in associations with grasses, forbs, shrubs, and other tree species. The riparian area along Myrtle Creek is made up of a mixture of cottonwood, alder, and birch with a few fir, pine, and cedar trees. The understory consists of willows, red-osier dogwood, snowberry, wild rose, and several species of grasses (reed canary is dominant). The transitional zone between the Refuge dike and the Kootenai River and Deep Creek is a strip dominated by cottonwood, with willow, red-osier dogwood, chokecherry, wild rose, and other shrub species and reed canary grass in the understory. These riparian areas provide important nesting and feeding habitat for many species of migratory birds including passerines and raptors. These areas are also important to moose, deer, and other species of wildlife.

There is a small amount of riparian habitat along the Kootenai River and scattered throughout the Refuge that consists of chokecherry, red-osier dogwood, wild rose, snowberry and other shrubs and grasses.

### **Grasslands**

Approximately 533 acres of refuge vegetation is classified as grassland. Grassland associations range from upland areas dominated by wheat grasses, quackgrass, reed canary grass interspersed with willows, red-osier dogwood, wild rose and other shrub species with cottonwood and other tree species mixed in.

Construction of the dike along the Kootenai River from Bonners Ferry to the Canadian border during the 1920s coupled with construction of the Libby Dam in Montana during the early 1970s led to the conversion of more than 22,000 acres of wetlands in the Valley in order to facilitate farming. Now the fertile floodplain of the Kootenai River is dotted with farms which produce primarily grain and hay. Once quackgrass and reed canary grass were introduced, these two species have dominated the grasslands and wet meadows. Historically, most of the valley's habitat consisted of seasonally flooded wetlands with vegetation consisting mainly of cottonwood with an understory of shrub species, cattails, bulrush, sedges, Equisetum, and rushes.

### **Croplands**

Approximately 200 acres of grain crops (primarily winter wheat and barley) are planted on the Refuge each year on a rotational basis. All farming is completed by Refuge staff and grain is left for migrating waterfowl. Approximately 200 acres are planted in alternative or rotational crops and green manure, such as clover, alfalfa, peas and annual grasses. This reduces fertilizer use and interrupts weed species life cycles, thus reducing herbicides use. The crops are primarily consumed by migrating waterfowl during the fall migration and any remaining grain is consumed during the spring migration. The winter wheat sprouts also provide an important browse for Canada geese.



### 3.2.1.2 Fire Management Unit Two (FMU2)

About 327 acres of coniferous forest habitat lies along the western edge of the Refuge in two discrete parcels. The narrow, linear north parcel is about 2 miles long, extending from the edge of the county road up the steep slope westward for an average of about 500 feet.

The southern tract is an irregular rectangle bounded on the east by Lions Den Road and extending westward to U.S. Forest Service property about 2000 feet west, gaining approximately 400 feet of elevation. This parcel includes an intermittent creek and several northeast running toe slopes.

The majority of the conifer forest is of the mesic (moderate moisture) ecological type dominated by Douglas-fir. The remaining 14 percent of the forest was classified as dry forest, characterized by the presence of ponderosa pine along with Douglas-fir and a mix of other conifers. This is a relatively small, but ecologically important component of the Refuge's forested habitat.

A reconnaissance with limited sampling indicated a forested area fairly typical of North Idaho mixed mesic type in a cove situation. It is a very well developed stand of second growth timber as evidenced by the stumps and partially brushed in roads. It displays distinct mature, old growth forest characteristics such as a high closed canopy with a mostly clear understory, many large decadent stems, and a wide variety of species dominated by Douglas-fir and ponderosa pine. The "corduroy" terrain found on the southern parcel creates a series of aspects that vary from relatively dry, open areas with ponderosa pine to coves of colder, wetter sites dominated by western red cedar (S. Fowler, personal communication, 2008).

Douglas-fir is the most common species found in both the dry and moist sites. The Douglas-fir tends to be in wetter sites, and is liberally associated with birch, western red cedar, and grand fir. Some firs have reached impressive size with one cored sample being 76 years old, 28" dbh, and 97' tall. Western larch, western hemlock, and grand fir are common in these stands. Ponderosa Pine dominates the drier ridges and aspects with flat or southerly exposures. It was the second most common species enumerated on the reconnaissance; encountered about 50 percent less often than Douglas-fir did in sample plots. Sizes varied, with a large specimen sampled being 101 years old, 26" dbh and 116' tall.

Due to the diversity in vegetation and site specific conditions, fires in this FMU would be expected to burn at varying intensities and rates, depending on fuel and weather conditions. First priority for suppression should employ minimum impact tactics (MIST) appropriate for the terrain and fire behavior.

### 3.2.2 FMU Values to Protect

Critical protection areas (Map 5 and Legend – Values to Protect, Appendix A), such as Refuge structures and improvements (FMU1), eagle nesting areas (FMU1) and adjacent private property and structures, north and west of the Refuge boundary, will receive priority consideration in fire control planning efforts. The 20 acre parcel of private property located north of the Refuge boundary will require special consideration for fire exclusion. The houses and out building have a high dollar value. Fire escaping to this property is unlikely as there is a large pond (Cottonwood Pond) on the Refuge and adjacent to the private land.

Refuge personnel will accomplish annual hazard fuel reduction in critical areas of the refuge using hand tools, weed whips, and mowing equipment. Work elements include the cutting, raking, clean-up and removal of dead vegetation from areas adjacent to refuge facilities, residences and

other improvements. Trails and parking areas, and interior access roads are mowed at least twice during the fire season to reduce the chances of ignition from vehicles and to retard the spread of wildland fire. This work is undertaken after grasses have cured to prevent re-growth and accomplished before the high fire danger season begins. Areas that will be given priority attention for manual hazard fuel reduction work will include:

- Refuge buildings, shops, and equipment and materials storage areas
- Refuge residences (including State's Fisheries Research Station/housing)
- Refuge roads, parking areas and auto-tour road
- Fuel facilities

When necessary, fire line construction will be conducted in such a way as to minimize long-term impacts to resources. Care should be taken when using retardant near Myrtle Creek, Deep Creek, Cascade Creek, the Kootenai River and water-carrying ditches.

### 3.2.3 FMU Fire Management Guidance

Both FMUs (1 & 2) will have the following objectives:

- Protect the lives of Refuge visitors, employees, and firefighters during fire activities.
- Protect Refuge resources and improvements from wildland fire.
- Suppress all wildland fires, utilizing suppression strategies and tactics that will provide the lowest level of impact to natural and cultural resources.
- Provide for a hazard fuel reduction program utilizing Refuge staff and equipment for the reduction and removal of hazardous accumulations of dead vegetation. This will reduce opportunities for fires to start in areas around visitor use and Refuge operations facilities.

Suppression strategies should be applied in the FMUs so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon the natural and cultural resources. Minimum impact suppression strategies will be employed to protect all resources.

Vehicle access to normally closed areas of the Refuge will be made using existing roads when possible. Heavy equipment such as crawlers, tractors, dozers, or graders will not be used within the Refuge boundaries unless their use is necessary to protect life and/or property. The use of heavy equipment and off-road travel require approval from the Refuge Manager or delegate. The Incident Commander may authorize any actions deemed necessary if threats to life and/or property exist. Sites impacted by fire suppression activities or by the fire will be rehabilitated as appropriate, based on an approved course of action for each incident.

### 3.2.4 FMU Safety Considerations

In all cases, the primary concerns of fire suppression personnel shall be safety, and individuals not involved in the suppression effort may be evacuated from effected FMUs.

During periods of extreme or prolonged fire danger, emergency restrictions regarding Refuge operations or area closures may become necessary. Such restrictions, when imposed, will usually be consistent with those implemented by cooperators. Closures will be authorized by the Refuge Manager.

## 4 Wildland Fire Operational Guidance

### 4.1 Management of Wildfires

The policy and procedures in the corresponding chapters of the current [Interagency Standards for Fire and Fire Aviation Operations, \(Red Book\)](#) are part of this FMP, and must be followed.

All fires not classified as prescribed fires are wildland fires and will be appropriately suppressed. Fire suppression strategies for Kootenai NWR will place primary emphasis on the development of a fire suppression program that is capable of suppressing wildland fires quickly, before significant resource damage can occur. Meeting this objective will require a refuge fire management program which includes an initial attack capability of equipment and personnel and cooperative or reimbursable agreements with local federal and state land management agencies with firefighting capabilities. Fire suppression capabilities will be augmented by fire prevention programs and hazard fuel reduction projects.

Kootenai NWR is a signator to the Annual Operating Plan for wildland fire suppression in northern Idaho with the USDA Forest Service, Idaho Panhandle National Forest; USDI BLM, Coeur D'Alene District; the Coeur D'Alene Tribe, and the Idaho Department of Lands- North Idaho Operations Area (Appendix G). This agreement, as referenced, outlines the procedures and responsibilities for fire suppression on the refuge.

#### 4.1.1 Preparedness

Preparedness is the work accomplished prior to fire occurrence to ensure that the appropriate response, as directed by the Fire Management Plan, can be carried out. Preparedness activities include: budget planning, equipment acquisition, equipment maintenance, dispatch (initial attack, extended, and expanded), equipment inventory, personnel qualifications, and training.

Preparedness efforts are to be accomplished by the Zone FMO and collateral duty staff in the time frames outside the normal fire season dates. For other duties please refer to Interagency Standards for Fire and Aviation Operations, Chapter 10.

[http://www.nifc.gov/policies/pol\\_ref\\_redbook\\_2013.html](http://www.nifc.gov/policies/pol_ref_redbook_2013.html)

##### 4.1.1.1 Training and Qualifications

Kootenai NWR's small staff currently has just one employee, an Engineering Equipment Operator, who is red carded as an ICT5. The Zone staff consists of the Zone Fire Management Officer and Assistant Zone Fire Management Officer who are both ICT3's. All inter-agency partners that can respond to unplanned ignitions on the refuge are red carded. The Zone FMO will coordinate fire training needs with those of other nearby refuges, cooperating agencies, and the Regional Office. All fire training records will be kept by the ZFMO in IQCS. Hard copies will be kept in the complex HQ in Cheney by the AZFMO. The refuge supports the development of individual Incident Command System (ICS) personnel from among qualified and experienced refuge staff for assignment to overhead teams at the local, regional, and national level.

##### 4.1.1.2 Delegation of Authority to (Zone) Fire Management Officer

The current delegation of authority for the Zone FMO can be found in Appendix B, Staff Responsibilities.

#### 4.1.1.3 Readiness

Fire suppression resources are not normally staffed at the Refuge. If prolonged drought or severity conditions persist, requests for severity resources will be made in conjunction with the USDA-Forest Service (Idaho Panhandle NF). The Zone FMO will monitor these conditions and brief the Refuge Manager periodically. Table 2 outlines annual fire readiness activities.

**Table 2. Annual Refuge Fire Readiness Activities**

Activities – Complete before end of month	J	F	M	A	M	J	J	A	S	O	N	D
Update Interagency Fire Agreements/AOP's				x								
Winterize Fire Management Equipment										x		
Inventory Fire Engine and Cache		x										
Complete Training Analysis												
Annual Refresher Training						x						
Annual Fitness Testing						x						
Pre-Season Engine Preparation			x									
Prescribed Fire Plan Preparation	x	x	x									x
Review and Update Fire Management Plan				x								

#### 4.1.1.4 Aviation Management

All fire-related aviation operations will follow the guidelines of the DOI National Business Center's Aviation Management Directorate which can be found on website: <http://amd.nbc.gov>

#### 4.1.1.5 Fire Detection

Since the refuge is small, we will rely on the public/staff to call 911 to report any incidents. No other detection activities will be a part of this plan.

#### 4.1.1.6 Initial Report for Fire and Initial Attack (Response) Dispatch

All reported incidents will be coordinated through Coeur D'Alene Interagency Dispatch center per the Annual Operation Plan. Dispatch will send the closest forces and notify the Manager or ZFMO of any actions. The Refuge dispatch plan may be updated annually and can be found in Appendix D.

#### 4.1.1.7 Incident Commander Responsibilities (for all incident types)

All fires occurring on the Refuge and staffed with Service employees will be supervised by a qualified incident commander (IC). If a qualified IC is not available, one will be ordered through the local Dispatch Center.

The IC is a single individual responsible to the Refuge Manager/Line Officer for all incident activities, including the development of incident management strategies and tactics, and the ordering, deployment, and release of resources. The IC is responsible to:





- Provide a size-up to dispatch as soon as possible upon arrival on scene. A size-up checklist is in the Incident Response Pocket Guide (IRPG).
- Assess potential management by suppression and/ or by wildfire for resource benefits as incident objective(s) and contact the unit manager with recommendations.
- Use guidance in this FMP and/or a Delegation of Authority, implement selected response and manage an organization to implement effective strategies and tactics. Minimize suppression impacts where possible without reducing the effectiveness of the actions being undertaken.
- Determine resource needs and order as needed through local dispatch.
- Ensure all resources assigned and those incoming receive a briefing and document these briefings. Refer to the Briefing Checklist in the IRPG.
- Continually re-assess incident complexity using the checklist in the IRPG. When a more qualified IC is needed, inform dispatch and delegated unit administrator and place the order for a higher level IC.
- Depending on incident complexity, additional responsibilities may apply. The NWCG Fireline Handbook provides a more detailed description of IC responsibilities.
- All resources, including mutual aid resources, will report to the IC (in person or by radio) and receive an assignment prior to tactical deployment.
- All fires must be investigated to determine fire cause and if negligence or criminal intent were factors. If the IC suspects a fire cause is suspicious, a qualified wildland fire investigator will be ordered. The point of origin must be protected.



#### 4.1.1.8 Mutual Aid and/or Cross-Boundary Operations

See the Interagency Annual Operating Plan (Appendix G) for details, and mutual aid MOU with South Boundary County Fire Protection District (Appendix G).

### 4.1.2 Incident Management

Incident Objectives:

-  Protect the lives of refuge visitors, employees, and firefighters during fire activities.
-  Protect refuge resources and improvements from wildland fire.
-  Suppress all wildland fires, utilizing suppression strategies and tactics that will provide the lowest level of impact to natural and cultural resources.
-  Whenever possible, provide assistance to other local, state, and federal firefighting agencies during local, regional and national fire emergencies.

-  Enact a fire prevention program on the refuge by reducing the opportunities for fires to start in areas around visitor use facilities and refuge operation facilities utilizing the manual/mechanical removal of dead vegetation, tree limbs, and grass.
-  Provide for a hazard fuel reduction program using refuge staff and equipment for the reduction and removal of hazardous accumulations of dead vegetation.

#### 4.1.2.1 Dispatching beyond IA

The IC will notify the Dispatcher and the Refuge Manager whenever it appears a fire will escape initial response efforts, leave Service lands, or when fire complexity will exceed the capabilities of command or operational forces. When additional resources are needed, they will be ordered through the Coeur D'Alene Dispatch Center, which will mobilize any additional resources, including higher level ICs and Incident Management Teams.

The Dispatcher or Refuge Manager will notify the Zone FMO, who will provide assistance, as available, with extended attack operations including:

- Assisting the Refuge Manager to complete a WFDSS analysis.
- Assisting the Refuge Manager to complete a Delegation of Authority, if needed.

#### 4.1.2.2 Delegation of Authority to Incident Commander (IC)

A Delegation of Authority will be provided to any Type 3 or higher level IC. A template for a delegation can be found in Appendix E. Delegations will, at least, provide direction similar to that outlined in Appendix G of the Interagency Standards for Fire and Aviation Management. [http://www.nifc.gov/policies/pol\\_ref\\_redbook\\_2013.html](http://www.nifc.gov/policies/pol_ref_redbook_2013.html)

#### 4.1.2.3 Resource Allocation and Prioritization

Priorities are set through the local Annual Operating Plan for North Idaho and cooperator meeting. Emerging initial response fires will receive the highest priority. Priorities may involve a local Multi-agency Coordination Group (MAC) when there is significant fire activity on these local lands.

#### 4.1.2.4 Regulatory Compliance for Managing Wildfires (unplanned ignitions)

NEPA analysis is not required for wildfires because they are unplanned events. Suppression activities are Categorical Excluded from NEPA (516 DM 8.5(5)).

Wildfire may impact endangered species and destroy critical habitat and this is considered a disaster or an act of God in the sense of 50 CFR 402.05. Emergency ESA consultation may be conducted on the response to a wildfire.

Routine operations within the Refuge wilderness will be conducted using non-motorized means. Motorized equipment may be used in emergency situations that involve risk of human life and safety or other significant values to protect - natural, cultural, or physical. Minimizing potential smoke incursions into non-attainment areas will require aggressive suppression actions during periods of air quality alerts.

The Kootenai FMP is in compliance with current fire management policy as described below. "Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of fire. The circumstances under which a fire occurs, and the likely consequences on firefighter and public safety and welfare, natural and

cultural resources, and values to be protected dictate the appropriate management response to fire.” (1995/2001 Federal Wildland Fire Management Policy) The refuge has completed relevant NEPA documentation for the Comprehensive Conservation Plan and the FONSI on September 2011.

#### 4.1.2.5 Use of Decision Support Tools

The FWS has provided guidance and adopted the Wildland Fire Decision and Support System as the analysis tool to guide our agency administrators through the decision process when dealing with a large complex incident on FWS lands. The most important part of the tool is that it provides excellent documentation for the agency administrator as part of the public record and thus meets all legal requirements. [http://wfdss.usgs.gov/wfdss/WFDSS\\_Home.shtml](http://wfdss.usgs.gov/wfdss/WFDSS_Home.shtml)

#### 4.1.2.6 Wildfire Reporting Requirements

The Zone Fire Management Officer or designee will file a report in the Fire Management Information System (FMIS) for the following types of fires within 10 days of a fire being declared out:

1. All wildfires on FWS and FWS-protected lands.
2. All wildfires threatening refuge lands.
3. All prescribed fires that remain within prescription on refuge lands.
4. All escaped prescribed fires. When a prescribed fire is declared a wildfire, a separate new report must be filed to report the acres burned by the wildfire from the time of declaration to the time of being declared out.

Fire reports are required regardless of who takes action, e.g., FWS engine, cooperator, or contractor. When an initial attack is off refuge lands, the agency with jurisdiction where the fire occurs will file a report and Kootenai NWR will file a limited report to document response and to support potential billing to non-federal entities for trespass fires. The ZFMO is responsible for sending a Situation Report daily (ICS-209) or when significant activity occurs, to the Coeur D’Alene Dispatch Center indicating the local planning level, wildfire occurrence by cause, and number of acres. The ZFMO will also notify the communication center of pre-planned prescribed fire and post burn accomplishments (#units, # acres). The Burn Boss is expected to provide this information to the ZFMO.

#### 4.1.2.7 Suppression Damage Repair

When suppression action is taken, rehabilitation is appropriate. The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression techniques.

Refuge staff will evaluate operations on all fires and recommend any repairs to the Incident Commander through the Refuge Manager. Repairs will be included in the responsibilities of the Incident Commander in any delegation issued by the Refuge Manager.

Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential hazards caused by the fire. These actions may include:

- Backfill of control lines, scarification, and seeding.

- Installation of water bars and drainage dips on control lines to prevent erosion.
- Installation of check dams to reduce erosion potential in drainages.
- Restoration of natural ground contours.
- Removal of all flagging, equipment, and litter.
- Restoration of camping areas and improved helicopter landing zones.
- More extensive rehabilitation or re-vegetation to restore sensitive impacted areas.

If re-vegetation or seeding is necessary, only native plant species will be used if practical.

### 4.1.3 Emergency Stabilization (ES)

Natural recovery is the preferred choice for recovery following wildfires. However, when natural recovery is not likely, ES treatments may be needed to prevent further degradation of cultural and natural resources in the burned area and downstream impact areas from erosion and invasion of undesirable species. ES uses emergency appropriations and activities must be completed within one year of fire containment. An IC may initiate ES actions before the fire is demobilized, as delegated by the agency administrator.

All emergency stabilization plans and activities shall follow the *Emergency Stabilization and Burned Area Rehabilitation Policy and Guidance (November 2003)* found at [www.fws.gov/fire/fcc/Esr/P&G.htm](http://www.fws.gov/fire/fcc/Esr/P&G.htm) and follow the Departmental Manual 620 DM 3.6.B.

#### 4.1.3.1 ES Planning and Post-Fire Assessments

Because of the emergency nature of the fire event, the Emergency Stabilization Plan (ES) must be developed expeditiously and is frequently developed by a local unit or designated burned area Emergency Stabilization Rehabilitation (ESR) team.

The Refuge Manager/Line Officer is responsible to order or assign teams to develop ES plans. The Refuges/unit may not have sufficient expertise to conduct burned area assessments; resource specialists from cooperating units or from the Region may be needed to assist in developing a plan.

The ES Plan specifies treatments approved to implement post-wildfire emergency stabilization on a single incident. The plan specifies only emergency activities and treatments to implement within one year of wildfire containment. The plan must be completed within 7 calendar days of wildfire containment and approved within 6 business days of receipt by the approving office. This plan is prepared by an interdisciplinary team during or immediately after wildfire containment. Information and a plan template are at <http://fire.r9.fws.gov/ifcc/esr/home.htm>.

A DOI Memo (September 5, 2007) states that “all Emergency Stabilization planning must adhere to Department of the Interior policy (620 DM 3.6.B) requiring that standard treatments are to be used that have been validated by monitoring data from previous projects, or when there is documented research establishing the effectiveness of such actions... All plans must justify proposed treatment(s) with existing research or monitoring documentation that demonstrates that the proposed treatment(s) are significantly more effective in achieving the emergency stabilization objective than natural recovery...”

If emergency rehabilitation measures are needed or if rehabilitation is needed to reduce the effects of a wildland fire then the Refuge Manager can request appropriate funding through Emergency Stabilization (ES) and Burned Area Rehabilitation (BAR) funds. The ES and BAR fund is administered through a FWS representative at the National Interagency Fire Center.



Rehabilitation plans for each fire will be reviewed by the fire management staff. A final plan will be submitted to the Regional Office for establishing an account. Rehabilitation should be initiated prior to complete demobilization or early the following season.

#### 4.1.3.2 ES Post-Wildfire Issue and Values to Protect

Wildfire damage to improvements is a concern. Developments are typically protected from fire damage, but dispersed improvements such as fences, public use facilities, and gates are likely to be damaged by severe or large fires. A partial list of Values to Protect is in section 3.2.2.

ES actions likely to be needed deal with erosion, invasive plant infestation, or loss of sensitive and protected species habitat or native vegetation post-fire, as identified in 620 DM 3, include:

- 3.7 M (2) placing structures to slow soil and water movement,
- 3.7 M (7) seeding or planting to prevent permanent impairment of designated Critical Habitat for Federal and State listed, proposed or candidate threatened and endangered species,
- 3.7 M (10) direct treatment of invasive plants,
- 3.7 M (12) monitoring of treatments and activities for up to three years.

Suppression strategies should be applied so that the equipment and tools used to meet the desired objectives are those that inflict the least impacts upon natural and cultural resources. Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. When necessary, fire line construction will be conducted in such a way as to minimize the long-term impacts to resources. Care should be taken when using retardant near Myrtle Creek, Deep Creek, Cascade Creek, and the Kootenai River. Vehicle access to normally closed areas of the refuge will be made utilizing existing roads when possible. Heavy equipment such as crawlers, tractors, dozers, or graders will not be used within the refuge boundaries unless their use is necessary to protect life and/or property. The use of heavy equipment and off-road travel require approval from the Refuge Manager or delegate. The Incident Commander may authorize any actions deemed necessary if threats to life and/or property exist.

#### 4.1.3.3 ES Treatment Maintenance and Monitoring

Maintenance and monitoring will be covered in any plans generated by any post fire activities at Kootenai NWR. The Refuge Manager will review these portions and will provide recommendations back to the planning group.

#### 4.1.3.4 ES Reporting Requirements

A Burned Area Emergency Response (emergency stabilization) accomplishment report is required. The report should include a written narrative which contains the project summary and actual accomplishments in addition to entering the treatment activity into the National Fire Operations and Reporting System (NFORS) Additional guidance can be found in the Service's [Emergency Stabilization and Burned Area Rehabilitation web site](#).

## 4.2 Burned Area Rehabilitation (BAR)

All Burned Area Rehabilitation planning and activities shall follow the ES & BAR policy and guidance documents at [www.fws.gov/fire/fcc/Esr/P&G.htm](http://www.fws.gov/fire/fcc/Esr/P&G.htm).

#### 4.2.1 BAR Planning

A BAR plan is a document that specifies treatments required to implement post-fire rehabilitation policies. This plan may be programmatic (prepared in advance) and applicable to clearly defined types of incidents and situations, or prepared by an interdisciplinary team of specialists during or immediately following the containment of a wildfire. Information and a BAR plan template are at the DOI ESR website at <http://fire.r9.fws.gov/ifcc/esr/home.htm>

Fire rehabilitation will be as prompt as possible to prevent erosion and the spread of non-native plants. This will be developed by refuge staff and submitted to the Regional Fire Management Coordinator for review within 90 days of the unplanned ignition being declared out.

#### 4.2.2 BAR Issues and Values to Protect

Minimum impact suppression strategies will be employed to protect all resources. Natural and artificial barriers will be used as much as possible for containment. When necessary, fire line construction will be conducted in such a way as to minimize long-term impacts to resources. Care should be taken when using retardant near Myrtle Creek, Deep Creek, Cascade Creek, and the Kootenai River.

Vehicle access to normally closed areas of the refuge will be made using existing roads when possible. Heavy equipment such as crawlers, tractors, dozers, or graders will not be used within the refuge boundaries unless their use is necessary to protect life and/or property. The use of heavy equipment and off-road travel require approval from the Refuge Manager or delegate. The Incident Commander may authorize any actions deemed necessary if threats to life and/or property exist.

#### 4.2.3 BAR Regulatory Compliance

When utilizing the FWS CE, the Refuge/unit staff will complete and submit the most recent version of the NEPA Environmental Action Statement (EAS) with the BAR plan. Before using the DOI CE, consult with the Regional Office regarding its use. If use of the DOI CE is permitted, an EAS must also be submitted.

BAR projects must comply with NHPA. Plans will be submitted to Regional archeologist for review and cultural / archeological clearance. To the greatest extent possible, project implementation will follow recommendations of the Regional archeologist and/or SHPO.

BAR projects that may affect Threatened & Endangered species/their habitats must comply with Section 7 of the ESA. Any such projects will be submitted for Section 7 consultation.

Routine BAR operations in the wilderness will be conducted using non-motorized means to the extent practical. Motorized equipment may be used in emergencies.

#### 4.2.4 BAR Monitoring Protocols

All plans will be completed in consultation with the Refuge Manager or designee and will contain the appropriate monitoring protocols. For assistance, please refer to A Framework for Monitoring Hazardous Fuels on U.S. Fish and Wildlife Lands in the Pacific Region. V-9 (2009) (located on the Region 1 SharePoint).

#### 4.2.5 BAR Contact Information

All BAR inquiries and the dissemination of public information will be managed by the Refuge Manager (287 Westside Road, Bonners Ferry, ID 83805, 208-267-3888) or the Zone Fire Management Officer (INNWRC Headquarters at 26010 S. Smith Road, Cheney, WA 99004, 509-235-4723).

#### 4.2.6 BAR Public Information and Public Concern

A meeting to inform the public of planned activities, obtain input from local communities and neighbors, and identify issues needing further discussion and resolution should be held early in the BAR plan development process.







#### 4.2.7 BAR Reporting Requirements

An Annual Accomplishment Report is required for funding in years two and three. Detailed Annual Accomplishment Reports will be completed by fiscal year end to document actual accomplishments, costs and monitoring results. Reports will be kept in field unit project files, with a copy of the Annual Accomplishment Report sent to the Regional office. Annual accomplishments are also summarized and reported in the NFPORS treatment/activity form.

Planned data entries into the NFPORS Rehabilitation and Restoration Module are the responsibility of the National Burned Area Coordinator. NFPORS Accomplishment updates are the responsibility of the field unit; they are to be completed by the 23rd of every month and at the end of the fiscal year until the project is shown as completed.

### 4.3 Management of Planned Fuels Treatments

The goals of prescribed fire within the U.S. Fish & Wildlife Service are to:

-  Conduct a prescribed fire program with the highest professional and technological standards using all means available to prevent escaped fires.
-  Identify the type of prescribed fire that is most appropriate to most situations and areas.
-  Efficiently accomplish resource management objectives through the application of prescribed fire.
-  Continually evaluate the prescribed fire program to better meet program goals by refining prescription treatments and monitoring methods, and by integrating applicable technical and scientific treatments.
-  Use prescribed fire in a manner which meets the requirements of the Clean Air Act (PL 88- 206, 42 USC 7401 revised 1990).
-  Effectively manage prescribed fire emissions using the most current technology and techniques available.

Refuge management staff and zone fire managers will develop annual prescribed fire objectives and target specific burn units.

#### 4.3.1 Identify and Prioritize Hazardous Fuels Treatments

All treatments will be identified and approved according to the Annual Work Plan and will be combined with the other Complex treatments, prioritized, and submitted for funding through the National Fire Plan and Reporting System (NFPORS).

The CCP should be referenced to determine whether or not additional planning and NEPA work will be required. Hazardous fuels reduction project planning should also reference the Boundary County Wildfire Protection Plan in order to collaborate with neighboring partners.

#### 4.3.2 Prescribed Fire Project Implementation

Prescribed fire implementation will follow the standards set forth in the Service Fire Management Handbook, the Redbook, and the Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide 2008 (Prescribed Fire Guide), which is available on the NWCG Website.

All projects that are to be implemented will be approved through the Annual Work Plan process and will be the responsibility of the ZFMO as delegated to the proper zone staff.

Zone staff may be used to implement treatments as needed.

##### 4.3.2.1 Prescribed Fire Planning

The prescribed fire planner will conduct a field reconnaissance of the proposed burn area with members of the Refuge staff to discuss objectives, special concerns, and gather all necessary information to write the burn plan. After completing the reconnaissance, the prescribed fire planner will write the prescribed burn plan in accordance with FWS policy.

All prescribed fires will have a prescribed burn plan as a site-specific action plan describing the purpose, objectives, prescription, and operational procedures needed to prepare and safely conduct the burn. The treatment area, objectives, constraints, and alternatives will be clearly outlined. No burn will be ignited unless all prescriptions elements of the plan are met. Prescribed burn plans will follow the format contained in the Interagency Prescribed Fire Planning and Implementation Procedures Guide ([www.nwcg.gov/pms/RxFire/rxfireguide.pdf](http://www.nwcg.gov/pms/RxFire/rxfireguide.pdf)) and will comply with policy set forth in Chapter 18 of the Interagency Standards for Fire and Aviation as well as the FWS Fire Management Handbook.

The term “burn unit” refers to a specific tract of land to which a prescribed burn plan applies. Important historical sites, biological sites, and physical improvements within the burn unit will be identified and protected prior to, or during the burn.

##### 4.3.2.2 Prescribed Fire Operations

Prescribed fire is an important management tool used to reduce hazard fuel accumulation, restore fire-dependent ecological communities, improve wildlife habitat, and maintain cultural/historic areas where appropriate. All prescribed fire activity will comply with applicable Federal, state, and local air quality laws and regulations.

Prescribed fires may be ignited during Regional or National Preparedness Levels 4 or 5 if requirements specified in the Regional Interagency Mobilization Guide and the National Interagency Mobilization Guide are met.

Cooperators, contractors, and casual hires (also called Administratively Determined (AD)) may be used to implement prescribed fires. ADs must meet Service standards. Cooperators, such as members of Volunteer Fire Departments, must have appropriate qualifications certified by their agency. Those who supervise Service employees during prescribed fires must meet Service standards.

## Operational Checklist

- At least thirty days prior to planned Burn Day, the Burn Boss will ensure all local, state, and smoke management permits are in place and current.
- At least two weeks prior to planned Burn Day, the Burn Boss will notify staff assigned to the project to ensure adequate planning of work and leave schedules.
- At least a week before Burn Day, all engines, tools, supplies, etc., will be checked.
- Burn Bosses will report to the Refuge Manager by the day before the Burn Day.
- Public and media contacts will be completed as designated in the burn plan.
- Warning signs and/or road guards will be used to advise motorists of a prescribed fire in progress, especially if smoke could reduce visibility.
- Refuge roads adjacent to burn units will be closed temporarily as needed.
- Test fires will be used to assess holding capability and smoke dispersal. Weather forecasts for the Burn Day and the next two forecast periods will be obtained.
- Prescribed fires will not be ignited until all contingency forces are confirmed as being in the required status specified in the burn plan.

Prescribed burning seasons are generally the spring and fall months (February 15-May 1 and September 1-November 1) depending on weather conditions. Spring burning and late fall burning may be hampered by wet conditions. Therefore, fall burning provides more beneficial results but spring burns conducted during years of low precipitation can also provide good benefits especially for seed bed preparation. During years of critical fire hazards, the U.S. Forest Service and the Idaho Department of Lands may ban burning into October. During the fire season of May through October, a burning permit is required from Idaho Department of Lands.

Prescribed fire activities will be reviewed annually by the Refuge Manager and Zone FMO.

### 4.3.2.3 Prescribed Fire Public Notification

Local police, fire, and emergency medical services as well as the Kootenai Tribe will be notified prior to the ignition of any prescribed burn. The public will be informed of the prescribed fire program through news releases, interpretive messages, and educational programs. Public notification of planned prescribed fire ignitions should be made when local/zone and regional offices are notified. The Coeur D'Alene Dispatch Center will be notified of the location and timing of any prescribed fires.

Special notification should be made for neighbors with known physical ailments that could be adversely affected by smoke.

### 4.3.2.4 Multiple Prescribed Fire Projects

Kootenai NWR will avoid multiple ignitions or concurrent ignitions due to limited staff and the high risks which exist in the wildland urban interface.

### 4.3.2.5 Prescribed Fire on Private Lands

The Refuge may assist private landowners with prescribed burning to improve the value of their land as wildlife habitat. A Wildlife Extension Agreement with a written provision for the use of prescribed fire must be approved prior to implementing burns on private lands.

### 4.3.2.6 Prescribed Fire Conversions and Reviews

If a prescribed fire is declared a wildfire, the procedures described in the prescribed fire plan will be followed. The ZFMO will notify the RFMC and Agency Administrator to initiate an Escaped

Prescribed Fire Review (Interagency Standards for Fire and Fire Aviation Operations Chapter 18). Refer to the Interagency Prescribed Fire Planning and Implementation Procedures Guide for further guidance regarding Declared Wildfire Reviews in the Fire Management Handbook. If a significant event occurs other than a Declared Wildfire (deployment, entrapment, fatality, near miss, etc.) refer to 240 FW 7 for reporting and investigative requirements.

#### 4.3.2.7 Planning, Preparing & Implementing Non-Fire Hazardous Fuels Treatments

Many activities associated with normal habitat maintenance are similar to pre-suppression fire activities. Mowing is a regular tool utilized to treat invasive species of grasses and shrubs and to mimic a fire disturbance. These activities may not be funded through the fire program but have direct benefit to the fire program as well as the habitat. Mowing is utilized in pre-treatment of prescribed fire units to lower flame lengths near the control lines. These areas may not be classified as hazardous fuels but the treatment would aid in suppression if a fire was to occur on the Refuge.

#### 4.3.3 Hazardous fuels Treatment Regulatory Compliance

All prescribed fires must comply with NEPA requirements. Also, regardless of the NEPA type, all project NEPA copies need to be placed within the project documentation file. An EA must be prepared for each Prescribed Fire Plan unless:

- (a) the field office's approved FMP or planning documents and the accompanying environmental document adequately discuss the action; or
- (b) a categorical exclusion (CE) covers the activity. (621 FW 2)

By reference, this section incorporates the text of the Red Book related to Smoke Management and Air Quality and will follow recommendations of the latest edition of the NWCG Smoke Management Guide for Prescribed and Wildland Fire.

Individual prescribed burn plans will specify conditions required for burning that will minimize impacts to air quality from prescribed fire, including compliance with the requirements of State and local air quality regulatory agencies.

#### 4.3.4 Fuels Treatment Monitoring

The Burn Boss will review current and forecast weather prior to Burn Day. On Burn Day morning, a spot weather forecast from the local National Weather Service will be requested that will include time periods to complete ignition and holding and immediate mop-up needs.

Burn Day monitoring will document that the fire is within prescription. Weather variables typically monitored are dry bulb temperature, relative humidity, mid-flame wind speed and direction, and cloud cover. Measurements are taken immediately prior to test fire ignition and at intervals specified in the burn plan.

Minimum monitoring standards include project boundary mapping, photography points and observations of fire weather and behavior. Additional monitoring may be recommended and subject to available funding. For assistance, please refer to A Framework for Monitoring Hazardous Fuels on U.S. Fish and Wildlife Lands in the Pacific Region. V-9 (2009) (located on the Region 1 SharePoint).

#### 4.3.5 Fuels Treatment Reporting Requirements

The burn plan is a primary report for an individual prescribed fire. In it, a Burn Boss will document fire and weather observations, actions and decisions, and assess attainment of project treatment objectives.

Fuels treatments including both fire and non-fire methods are to be reported in the Service' Fire Management Information System (FMIS). In addition, projects funded through the NFP are to be reported in the NFPORS.

Prescribed fire treatments must be reported to the Idaho/Montana Airshed Group in order to comply with smoke management regulations in Idaho. This reporting involves both pre- and post-burn reports.

#### 4.3.6 Fuels Committees and other Collaborative Groups

Kootenai NWR and the Inland Northwest NWRC's staff participate in several groups on behalf of the refuge. They are participating members of the Annual Operating Plan for the North Idaho Operations Area, and the Montana/North Idaho State Air-shed Group.

#### 4.3.7 Fuels Treatment Funding Processes

Kootenai NWR will adhere to the national guidance as developed in the Ecological Management Decision System/Hazardous Fuels Prioritization and Allocation System process to obtain funding for any Wildland Urban Interface project funding. All proposed projects will be submitted through NFPORS to the Regional Office and then to the National Office for approval. All Kootenai NWR projects will be evaluated with proposals from the other refuges in the Complex (Turnbull and Little Pend Oreille).

#### 4.3.8 Debris Burning

Debris burns may be implemented as per the Regional policy referenced in section 2.1.5. Such projects do not need to meet all the requirements for prescribed fires. Any debris burning will require a burn plan.

### 4.4 Prevention, Mitigation, Education and Public Information Programs

The refuge will use the most appropriate and effective means to describe the overall fire and smoke management program. This may include supplemental handouts, signs, personal contacts, and/or media releases. When it is deemed necessary, interpretive presentations will address the fire management program and explain the role of fire in the environment.

#### 4.4.1 Wildfire Investigation and Trespass Policies

The inadvertent or intentional ignition of wildland fuels by humans is illegal. Agency policy requires any wildfire to be investigated to determine cause, origin, and responsibility. Wild fire trespass refers to the occurrence of wildfires on Service lands where the source of ignition is tied to some type of human activity. Fire trespass requires a legal/law enforcement investigation and the appropriate local law enforcement authorities should be contacted and standard criminal and/or civil investigative procedures and reports used. The Red Book and the Fire Management Handbook provides detailed information regarding investigation and trespass procedures.

The Refuge will investigate all human-caused wildfires at the earliest possible time it can be safely done. Investigations may range from a documented determination of cause by an initial response crew to a criminal investigation by a qualified arson investigator. The Refuge Manager will determine the level of inquiry initially needed, in conjunction with law enforcement officers.

Initial Attack Fire management personnel will attempt to locate and protect the probable point of origin and record pertinent information in order to determine the fire's cause. The personnel will look for possible evidence, protect the scene, and report any findings to the fireline supervisor.

Prompt and efficient investigation of all suspicious fires will be carried out. However, fire management personnel should not question suspects or pursue the fire investigation unless they possess current law enforcement authority.

Personnel and services of other agencies may be utilized to investigate wildland fire arson or fire incidents involving structures. In the event an investigator is needed and the Complex's Law Enforcement Officer is not available or is not qualified then a fire investigator from the Forest Service or Idaho Department of Lands can be requested through Dispatch.

#### 4.4.2 Prevention/Mitigation Program

Due to limited funds and historically low human caused fire occurrences, no prevention plan is being developed at this time. If a trend appears through annual analysis, the Refuge manager might require a Prevention Plan to be developed.







##### 4.4.2.1 Wildfire Occurrence

Between 1960 and 2013 five (5) wildland fires burned on the refuge (Kootenai NWR CCP, Chapter 3.7, 2011 and Appendix F to this Fire Management Plan) and 24 prescribed burns were ignited (Appendix A- Map 6: Kootenai NWR Prescribed Fire History 2002-2013, North and South). The prescribed fire ignitions during this period have been broadcast burns with the objective of reducing hazardous fuels (primarily reed canary grass thatch accumulations) as well as improving the vigor of grass fields used for nesting and forage.




##### 4.4.2.2 Prevention Activities

The objective of fire prevention activities is to prevent human-caused fires and encourage homeowners to implement mitigation measures around private property.







This objective will be accomplished by:

-  Making employees aware of precautions to prevent an unwanted ignition.
-  Informing visitors of fire danger through personal contact and posted signs.
-  Carrying suppression tools and the appropriate PPE in vehicles during the fire season.
-  Implementing trail and/or area closures during periods of extreme fire danger.
-  Coordinating with partner agencies during periods of extreme fire danger,
-  Seeking opportunities for fuels mitigation projects to reduce the risk of fire moving onto and off of units and potentially posing a threat to surrounding communities or unit structures.





Prevention Program Goals are to:

-  Reduce the likelihood of both human-caused and unwanted naturally-ignited wildfires which could result in unacceptable loss.\
-  Decrease the frequency of human-caused fires.
-  Reduce emergency suppression costs.










-  Reduce fire size and intensity by developing programs such as fuels reduction/modification.
-  Establish cost-effective prevention programs at the national, regional and refuge levels.
-  Integrate and coordinate prevention program with State foresters, nearby land management agencies, and wildfire protection organizations.
-  Promote the creation of incentives for building and maintaining fire-safe structures and fire-safe communities to reduce the unwanted consequences of fire.
-  Minimize damage from unwanted wildfires.
-  Incorporate prevention programs into the fire management outreach programs.

Prevention priorities of the refuge complex are to:

-  Prevent catastrophic fires and human-caused wildfires (highest priority);
-  Minimize losses from wildfire while considering resource management objectives;
-  Collaborate through an interagency approach among all Federal, State, county, and municipal agencies/entities;
-  Investigate human-caused wildfires when the Agency Administrator deems appropriate.

#### 4.4.2.3 Mitigation Activities

The Refuge will accomplish the goals and priorities identified above through the following efforts:

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

#### 4.4.2.4 Prevention Analysis

#### 4.4.3 Education/Outreach Activities

The outreach goal is to enhance knowledge and understanding of wildland fire management policies and fire effects through internal and external communication and education. Information about fire ecology and the differences between prescribed fire and wildfire will be incorporated into outreach programs and informal contacts. Information and education are critical to increasing support for prescribed fires.

Education and outreach programs will include components of the nationally sanctioned FIREWISE program. Information about this program is available at [www.firewise.org](http://www.firewise.org).

#### 4.4.3.1 Community Assistance Activities

Rural Fire Assistance Grants have been awarded to some of the surrounding Rural Fire Districts over the years. Otherwise, no other activities are ongoing or planned at this time.

#### 4.4.3.2 Cooperative Meetings

The ZFMO attends the Airshed Group meeting on an annual basis as well as local operating plan meetings.






#### 4.4.3.3 Community Grant Programs and Assistance

Rural Fire Assistance Grants have been awarded to some of the surrounding Rural Fire Districts over the years. Otherwise, no other activities are ongoing or planned at this time.

#### 4.4.4 Public Information

Informing the public is an important part of fire suppression, fire prevention, and the Service mission. During wildfires occurring on Service lands, the refuge manager is responsible for providing fire information to the press and the public. The refuge manager may delegate this task as needed.

The following actions may be used to inform the public as part of the Refuge fire prevention and suppression program:

-  Press releases
-  Interviews with local media
-  Signs and interpretive materials
-  Attendance at local volunteer fire department meeting
-  Personal contact with bystanders

Areas of fire activity will be clearly signed at the refuge office and visitor kiosks/bulletin boards. Residents adjacent to the refuge will be notified in advance of any prescribed burn. Local police, fire, and emergency medical services will be notified prior to the ignition of any prescribed burn. They will also be notified of the location of any wildland fires. All public contact will be initiated by the Refuge Manager or designee for the purposes of this Plan.

## 5 Monitoring and Evaluation

### 5.1 Fire Management Plan Monitoring

#### 5.1.1 Annual FMP Review

FMPs will be reviewed annually and updated as outlined in the national FMP review process. The Refuge Manager (line officer) and the unit Fire Management representative are responsible for determining FMP updates needed annually.

Revisions of FMPs will be required during the completion of a new (or significantly revised) CCP and thus will follow the revision schedule of the CCP from that point forward.

#### 5.1.2 FMP Terminology

Terms in the FMP are defined in the National Wildfire Coordinating Group, located at <http://www.nwccg.gov/pms/pubs/glossary>.

## 5.2 Treatment Effectiveness Monitoring

Protocols for monitoring prescribed fire effectiveness will include, at a minimum, the mapping of burn unit boundaries, observations of weather and fire behavior parameters and the establishment of photography points to allow for pre-burning and post-burning re-measurement. Observations and data will be uploaded to the Fire Ecology Assessment Tool/Firemon Integrated (FFI) system maintained by Regional Fire Staff. Additional habitat and treatment monitoring goals and protocols may be found in the Kootenai NWR Comprehensive Conservation Plan (2011).

### 5.2.1 Fire Effects Monitoring

Any prescribed fire treatment will be monitored according to the Pacific Region Hazardous Fuels Monitoring Framework (2010). The Framework, adapted from a standard developed by the US Forest Service (USFS) and Bureau of Land Management (BLM) in the Pacific Northwest in 2009, is a structure that provides clear expectations of the required monitoring on hazardous fuels treatments for the Pacific Region. This framework describes three intensity levels of monitoring to fit all monitoring needs, and also identifies a common database format known as FFI (FEAT/FIREMON Integrated). FFI provides flexibility for a variety of monitoring needs and can serve as a forum for integrating resource management needs. Currently, only intensity level I is required and at a minimum, includes:

1. A perimeter will be collected of the treatment area and archived in the Regional GIS database;
2. Burn day fire behavior, fire weather and smoke dispersal conditions for prescribed fire treatments will be recorded and archived into the FFI (FEAT/FIREMON Integrated) database system, a fire monitoring database housed on the regional server. For roll up into FFI, weather and fire behavior information will be included for all burn days and at a minimum will include one daily observation for fire behavior with associated weather conditions. All observations taken may be recorded in the database if desired.

### 5.2.2 Non-fire Effects Monitoring

Any non-fire hazardous fuels treatment will be monitored according to the Pacific Region Hazardous Fuels Monitoring Framework (2010). The Framework, adapted from a standard developed by the US Forest Service (USFS) and Bureau of Land Management (BLM) in the Pacific Northwest in 2009, is a structure that provides clear expectations of the required monitoring on hazardous fuels treatments for the Pacific Region. This framework describes three intensity levels of monitoring to fit all monitoring needs, and also identifies a common database format known as FFI (FEAT/FIREMON Integrated). FFI provides flexibility for a variety of monitoring needs and can serve as a forum for integrating resource management needs. Currently, only intensity level I is required and at a minimum, includes:

1. A perimeter will be collected of the treatment area and archived in the Regional GIS database.

### 5.2.3 Collaborative Monitoring with other Disciplines

For invasive plant issues and monitoring and control actions, refer to the James Campbell, Pearl Harbor, and O'ahu Forest's CCPs, and their associated Integrated Pest Management Plans.




The Refuge System Inventory and Monitoring (I&M) Initiative works with others to assess the status of refuge lands, waters, and biota, and supports achievement of conservation objectives at multiple spatial scales. The I&M initiative is designed to address the Refuge System's mission-critical information needs, and to help plan and evaluate the effectiveness of conservation strategies implemented by the U.S. Fish and Wildlife Service (Service) and conservation partners

in the face of accelerating climate change and growing threats from other environmental stressors. The Inventory and Monitoring 7-Year Plan: 2013-2020 (7-Year Plan) outlines how the National Wildlife Refuge System (Refuge System) is implementing a nationally coordinated effort to support rigorous inventories and monitoring at the refuge, landscape, regional, and national scales. Within the 7-Year Plan, 19 operational goals, or focus areas are identified, including fire monitoring on Refuges. Goals and Objectives are identified in the next section.

### 5.2.3.1 Inventory and Monitoring (I&M) Initiative 7-Year Plan Goals and Objectives for Fire Monitoring

**Goal: Ensure that monitoring data can be used to define historic and future fire risks on refuges and is coordinated across the landscape with other Service programs and our partners. The data will also be used to gauge the success of management and recovery efforts.**

**FM 1.0 By the end of FY18, the I&M Team will collaborate with fire program staff to generate fire history atlases for at least 10 high priority refuges.**

-  FM 1.1 By the end of FY13, will evaluate the current process used to generate fire history atlases.
-  FM 1.2 By the end of FY13, in collaboration with the Fire Team, identify and prioritize refuges that would benefit from having a fire history atlas.
-  FM1.3 By the end of FY18, generate fire history atlases for at least 10 high priority refuges.

**FM 2.0 Work with the Fire Team to develop a consistent approach to assess fuel treatment information and ensure that protocols are scientifically defensible and link to management objectives by the end of FY19.**

FM 2.1 By the end of FY16, in collaboration with the Fire Team, identify and prioritize refuges with the largest need to conduct fire effects and other fuel treatment monitoring.

FM 2.2 In collaboration with the Fire Team, ensure that protocols used to address fuel treatments are linked to management objectives meet the minimum standards as defined by the I&M Survey Protocol Handbook by the end of FY17.

FM 2.3 By the end of FY18, estimate the funding (includes staff time) necessary to implement a consistent monitoring approach on priority refuges.

FM 2.4 By the end of FY19, in collaboration with the Fire Team, and other partners as appropriate, develop a consistent process for interpretation and roll-up of the Fire effects information.

FM 2.5 By the end of FY19, assist the Fire Team with assessing data information storage needs and in defining the minimum set of core data fields needed to provide consistent fuel treatment information across the Refuge System.

#### 5.2.4 Fuels Treatment Performance/Targets

Due to a lack of funding coupled with a limited staff, no activities are planned.

## 6 References Cited

Department of the Interior, Department of Agriculture. 2013. Interagency Standards for Fire and Fire Aviation Operations.

<http://www.nifc.gov/PUBLICATIONS/redbook/2013/2013RedBook.pdf>

U.S. Fish and Wildlife Service. 2013. Fire Management Handbook.

<http://www.fws.gov/fire/handbook/>

U.S. Fish and Wildlife Service. September 2011. Kootenai National Wildlife Refuge Comprehensive Conservation Plan.

U.S. Fish and Wildlife Service. September 2009. Draft report. Rising to the Challenge: Strategic Plan for Responding to Accelerating Climate Change.

## 7 Appendices

### 7.1 Appendix A: Maps

7.1.1 Map 1: Kootenai NWR and Vicinity

7.1.2 Map 2: Kootenai NWR Hydrology

7.1.3 Map 3: Kootenai NWR Fire Management Units

7.1.4 Map 4: Kootenai NWR FMUs with Fuel Models

7.1.5 Map 5: Kootenai NWR Values to Protect

7.1.6 Map 6a: Kootenai NWR Prescribed Fire History 2002-2013  
North

7.1.7 Map 6b: Kootenai NWR Prescribed Fire History 2002-2013  
South

- 7.2 *Appendix B: Staff Responsibilities*
- 7.3 *Appendix C: Cooperative Agreements*
- 7.4 *Appendix D: Refuge Dispatch Plan*
- 7.5 *Appendix E: Delegation of Authority to Incident Commander*
- 7.6 *Appendix F: Fire History-Treatment*
- 7.7 *Appendix G: Annual Operating Plan*