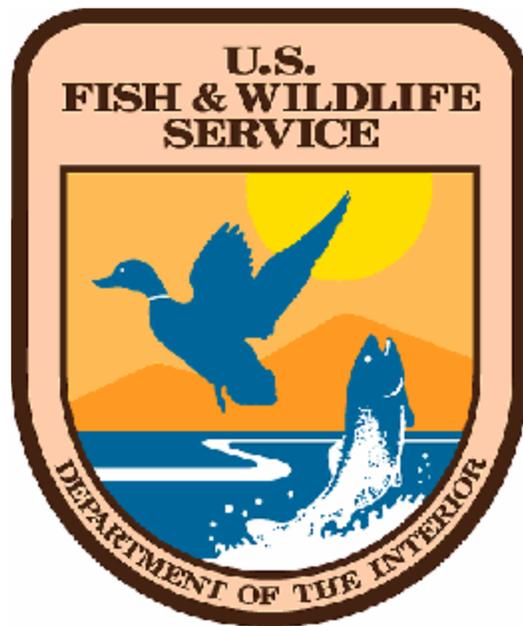


WILDLAND FIRE MANAGEMENT PLAN

WHITTLESEY CREEK NWR



2003

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INTRODUCTION

This plan establishes the Fire Management Program for Whittlesey Creek National Wildlife Refuge (Refuge). The NEPA documentation on which the program is based is the 1999 Environmental Assessment and Interim Conservation Plan for Whittlesey Creek National Wildlife Refuge. This plan has been reviewed by the Green Bay Field Office of the U.S. Fish and Wildlife Service for Endangered Species Act, Section 7 compliance. Review of the plan to meet National Historic Preservation Act (NHPA) requirements has also occurred.

This plan is written as an operational guide for managing the Refuge's wildland fire and prescribed fire programs. It defines levels of protection needed to ensure safety of employees, the visiting public and refuge neighbors, protect facilities and resources, and restore and perpetuate natural processes, given current understanding of the complex relationships in natural ecosystems. It is written to comply with both Departmental (Departmental Manual Part 620 DM, Chapter 1, Wildland Fire Management) and Service-wide requirements (Service Manual, Part 621, Fire Management) that refuges with burnable vegetation develop a Fire Management Plan (FMP).

Wildland fire suppression and the use of prescribed fire is addressed in this plan. Due to the small size of the Refuge (540 total proposed acres) and the timelag involved in acquisition from willing sellers, Wildland Fire Use will not be considered in this plan.

Protection of riparian habitat for unwanted wildland fire is critical to the purpose of the Refuge. Whittlesey Creek is a Class I trout stream and one of the goals of the Refuge is to restore coaster brook trout, a lake-run life form of brook trout. Also, Whittlesey Creek is considered an important stream for anadromous coho salmon production. Use of prescribed fire in areas of marsh and uplands near the creek will improve habitat for other wildlife species.

As this Refuge is in the early stages of acquisition, there is no staff available for extensive fire management operations. For wildland fire suppression, it is expected that the response by local fire departments and the Wisconsin Department of Natural Resources (WIDNR) will continue. Agreements with both state and local cooperators will be become a part of this plan.

COMPLIANCE WITH USFWS POLICY

The selected alternative in the Environmental Assessment for acquisition included fee purchase of lands within the 540 acre Refuge boundary with an additional 1,260 acres of permanent conservation easements in the adjoining watershed. Refuge establishment is based on existing legislation including: Fish and Wildlife Act of 1956, as amended by Public Law 93-271 which states "... take such steps as may be required for the development, advancement, management, conservation, and protection of fish and wildlife resources including but not limited to research, development of existing facilities, and acquisition by purchase or exchange of land and water interests therein."

The purpose of the Refuge is to provide for protection and restoration of fish and wildlife resources and the habitat that sustains them. The Refuge will protect, restore, and manage coastal wetland and spring-fed stream habitat.

The National Wildlife Refuge System Improvement Act of 1997 amends the System Administration Act of 1966 to state the mission of the National Wildlife Refuge System is to "administer a national network of lands and waters for the conservation, management, and restoration of fish, wildlife and plant resources and their habitats". The Act recognizes and supports wildlife-dependant recreation within the system. These activities include hunting, fishing, wildlife observation, photography, and environmental education and interpretation.

Since establishment in 1999, approximately 117 acres of the 540 acres (22%) within the boundary have been acquired. The 1999 Environmental Assessment and Interim Comprehensive Conservation Plan for Whittlesey Creek National Wildlife Refuge is the primary management document which this FMP supports.

Authority and guidance for implementing this plan are found in:

- Protection Act of September 20, 1922 (42 Stat. 857; 16 U.S.C. 594): authorizes the Secretary of Interior to protect from fire, lands under the jurisdiction of the Department directly or in cooperation with other Federal agencies, states, or owners of timber.
- Economy Act of June 30, 1932: authorizes contracts for services with other Federal agencies.
- Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66, 67; 42 U.S.C. 1856, 1856a and b): authorizes reciprocal fire protection agreements with any fire organization for mutual aid with or without reimbursement and allows for emergency assistance in the vicinity of agency lands in suppressing fires when no agreement exists.
- Disaster Relief Act of May 22, 1974 (88 Stat. 143; 42 U.S.C. 5121): authorizes Federal agencies to assist state and local governments during emergency or major disaster by direction of the President.
- National Wildlife Refuge System Administrative Act of 1966 as amended by the National Wildlife Refuge System Improvement Act of 1997 (16 U.S.C. 668dd et seq.): defines the National Wildlife Refuge System as including wildlife refuges, areas for the protection and conservation of fish and wildlife which are threatened with extinction, wildlife ranges, game ranges, wildlife management areas and waterfowl production areas. It also establishes a conservation mission for the Refuge System, defines guiding principles and directs the Secretary of the Interior to ensure that biological integrity and environmental health of the system are maintained and that growth of the system supports the mission.

- Federal Fire Prevention and Control Act of October 29, 1974 (88 Stat. 1535; 15 U.S.C. 2201): provides for reimbursement to state or local fire services for costs of firefighting on federal property.
- Wildfire Suppression Assistance Act of 1989 (P.L. 100-428, as amended by P.L. 101- 11, April 7, 1989).
- Departmental Manual (Interior), Part 620 DM, Chapter 1, Wildland Fire Management: General Policy and Procedures (April 10, 1998): defines Department of Interior fire management policies.
- Service Manual, Part 621, Fire Management (February 7, 2000): defines U.S. Fish and Wildlife Service fire management policies.
- National Environmental Policy Act of 1969: regulations implementing the National Environmental Policy Act (NEPA) encourages the combination of environmental comments with other agency documents to reduce duplication and paperwork (40 C.F.R. 1500.4(o) and 1506.4).
- Clean Air Act (42 U.S.C. 7401 et seq.): requires states to attain and maintain the national ambient air quality standards adopted to protect health and welfare. This encourages states to implement smoke management programs to mitigate the public health and welfare impacts of wildland and prescribed fires managed for resource benefit.
- Endangered Species Act of 1973 as amended.
- U.S. Fish & Wildlife Service Fire Management Handbook.

This plan meets NEPA /NHPA compliance and will be implemented in coordination with an Endangered Species Act of 1973, as amended, Section 7 programmatic review, and will take appropriate action to identify and protect from adverse effects any rare, threatened, or endangered species (see Appendix J). The authority for funding (normal fire year programming) and all emergency fire accounts is found in the following authorities:

Section 102 of the General Provisions of the Department of Interior's annual Appropriations Bill provides the authority under which appropriated monies can be expended or transferred to fund expenditures arising from the emergency prevention and suppression of wildland fire.

P.L. 101-121, Department of Interior and Related Agencies Appropriation Act of 1990, established the funding mechanism for normal year expenditures of funds for fire management purposes.

31 U.S.C. 665(E)(1)(B) provides the authority to exceed appropriations due to wildland fire management activities involving the safety of human life and protection of property.

Authorities for procurement and administrative activities necessary to support wildland fire suppression missions are contained in the Interagency Incident Business Management Handbook.

FIRE MANAGEMENT OBJECTIVES

The overall objectives for fire management are to promote a program to ensure firefighter visitor and adjacent property owner safety, to ensure appropriate suppression response to protect fishery resources, and to initiate use of prescribed fire to manage habitat and reduce hazardous fuels. Specific fire management objectives are:

- Promote a fire management program and control all wildland fires.
- Protect life, property, and resources from wildland fires at costs commensurate with resource values at risk.
- Use prescribed fire to reduce hazard fuel accumulation, restore fire to fire-dependent ecological communities.
- Use appropriate suppression tactics and strategies that minimize long-term impacts of suppression actions, particularly related to fishery resources.

DESCRIPTION OF REFUGE

Whittlesey Creek National Wildlife Refuge (Refuge) was established with the first purchase of land by the U.S. Fish and Wildlife Service (Service) in October, 1999. Located in the Town of Barksdale, Bayfield County, Wisconsin, the purpose of the Refuge is the development, advancement, management, conservation, and protection of fish and wildlife resources. The Service is working with individuals, groups, and other governmental entities to protect and restore coastal wetland and stream habitats that are utilized by migratory trout and salmon from Lake Superior and by migratory birds. Up to 540 acres of coastal wetland will be acquired in fee title, and up to 1260 acres will be protected through conservation easements in the Whittlesey watershed.

Additional areas managed by the Refuge under Conservation Easements remote from the Refuge proper (Appendix E, Table 2) are included by reference in this plan. Wildland fire protection, due to the scattered locations, is expected to be provided by either WIDNR or local fire departments. Maps with approximate locations and easement names are also found in Appendix E.

Figure 1 shows the Refuge and its location relative to surrounding communities. Figure 2 shows the Refuge and its location relative to other governmental ownerships.

Figure 1 - Vicinity Map



At the time this plan is being prepared, 117 acres have been acquired and are in Service ownership.

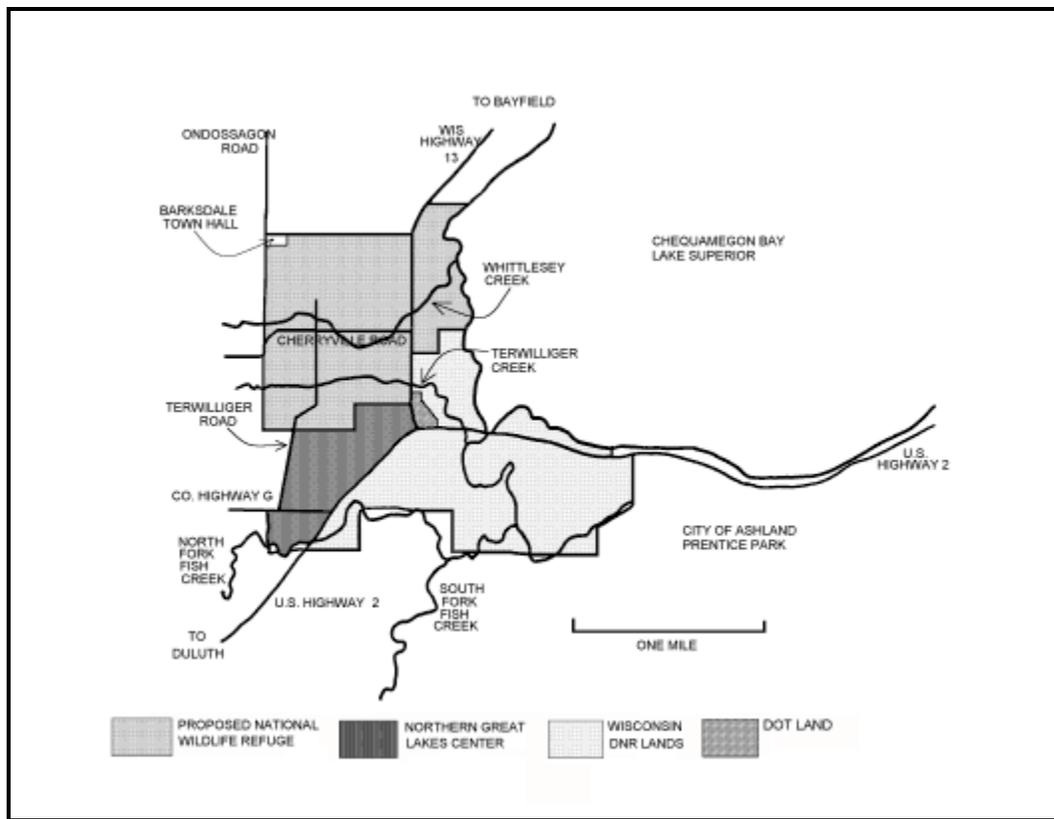
CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966 requires federal agencies to consider the effects of their undertaking on properties meeting the criteria for the National Register of Historic Places. The regulations in 36 CFR Part 800 describe how federal agencies are to identify historic properties, determine effect on significant historic properties, and mitigate adverse effects.

American Indian Religious Freedom Act of 1978 iterates the right of Native Americans to free exercise of traditional religions and use of sacred places. Indian Sacred Sites (1996) Executive Order 13007 requires federal agencies to accommodate access to and ceremonial use of sacred sites, to avoid adverse effects and avoid blocking access, and to enter into early consultation with tribal governments.

Service policy to comply with historic preservation laws requires the Project Leader to inform the Regional Historic Preservation Officer (RHPO) of any potential undertakings or other activities early enough to allow complete consultation with all involved parties.

Figure 2 - Refuge and Other Governmental Ownerships



Through 1997, 18 properties in Bayfield County had been placed on the National Register of Historic Places. None of these properties are located within the boundaries of the Refuge. Within the boundaries are thirteen building or farmstead complexes. One of these buildings may have been the home of Asaph Whittlesey, founder of Ashland, Wisconsin, in 1860, and after whom the creek was named. Also within the boundary could be the site of a cabin built by Pierre Esprit Radisson in 1664. No National Historic Landmarks are located within the boundaries.

FISH AND WILDLIFE

Whittlesey Creek is an important component of the Lake Superior fishery, producing a disproportionate share of coho salmon in the Wisconsin portion of the Lake Superior Watershed according to a 1992 WIDNR memorandum. A species list compiled from information gathered by the Wisconsin DNR and the Service's Sea Lamprey Management Program identified 21 species of fish, including seven salmonid

species in Whittlesey Creek. Whittlesey Creek also supports a recreational fishery, primarily for brook trout (*Salvelinus fontinalis*) and rainbow trout (*Oncorhynchus mykiss*).

Waterfowl, neotropical migratory birds, raptors, and shorebirds, as well as several amphibian and state listed plant species of concern, will benefit from management of uplands and wetlands (Craven, 1985, Gullion, 1984). The 540 acres within the Refuge boundary will complement the 2,000 acres of coastal wetlands owned and managed by WIDNR and the City of Ashland. These wetlands will provide resting and breeding habitat for waterfowl and neotropical migrant birds. Area biologists have identified 226 species of birds in the area.

Mammals found on the Refuge include beaver (*Castor canadensis*), numerous small mammals, white-tailed deer (*Odocoileus virginianus*), bobcat (*Lynx rufus superiorensis*) and coyote (*Canis latrans*). Fire operations are not expected to adversely affect mammal populations.

Federally listed endangered species to be considered include the following:

Piping Plover (*Charadrius melodus*): The piping plover is listed as endangered in Wisconsin. It nests on bare shoreline adjacent to water. It is known to nest on the Lake Superior shoreline in a few locations, including Long Island in the Chequamegon Bay, as recently as 1999 (Joel Trick, U.S. Fish and Wildlife Service, Green Bay, WI, intra-agency communication). There are no records of nesting pairs on or in the immediate vicinity of the Refuge and the shoreline habitat of the Refuge is not adequate for piping plover. Piping plovers are occasionally spotted in the Bay during spring migration (Verch 1999) and have been seen near the mouth of Whittlesey Creek during migration (Environmental Assessment for the Public Use Management Plan, 2001). A threat to piping plovers that nest on Lake Superior is disturbance by people who use the shoreline for recreation. As wildland fires do not generally occur on the shore and prescribed fire would not occur in this habitat, fire management operations are not expected to have any impact on this species.

Bald Eagle (*Haliaeetus leucocephalus*): The bald eagle is listed as threatened in Wisconsin. A proposal to delist the species from the Endangered Species list is being reviewed (Fed. Reg., Vol. 64, No. 128, pp. 36454-36464). Bald eagles nest along the Lake Superior shoreline, including the Apostle Islands National Lakeshore as well as on inland lakes in northern Wisconsin. The nearest recorded nest site is about two miles from the Refuge boundary (Joel Trick, U.S. Fish and Wildlife Service, Green Bay, WI, intra-agency communication). Eagles are frequent visitors to the Refuge and surrounding area, but there are none that currently nest within or immediately adjacent to Refuge lands. Bald eagles are sensitive to human disturbance during critical times of the nesting season, especially during nest initiation.

Gray Wolf (*Canis lupus*): The gray wolf is listed as endangered in Wisconsin, but a proposal has been presented to the public to delist it to threatened. The nearest wolf packs are 10 to 20 miles from the Refuge (Joel Trick, U.S. Fish and Wildlife Service, Green Bay, WI, intra-agency communication). We are not aware of wolf use within the Refuge boundary, but a wolf might pass through the Refuge periodically as it moves from one wolf pack to another in the region.

Canada Lynx (*Lynx canadensis*): This species was formerly listed as threatened in Wisconsin. Since 1997 it has been designated a protected animal by the State of Wisconsin. It is occasionally found in northern forest areas of the state. Bayfield and Ashland counties are included in the list

of counties with the highest likelihood of occurrence, but lynx are considered to be very rare in Wisconsin, with 5 sightings each in Ashland and Bayfield Counties during the period 1976-1984.

VEGETATION

Vegetation within the refuge boundary is defined by soil moisture. Most of the refuge lies within the floodplain of Whittlesey, Little Whittlesey and Terwilliger Creeks, or the lowlands along the Lake Superior shoreline. Soils are either seasonally flooded or saturated. Forested habitats resemble boreal forests that were cut over in the past 50 to 100 years. Balsam fir (*Abies balsamea*), trembling aspen (*Populus tremuloides*), white spruce (*Picea glauca*) and paper birch (*Betula papyrifera*) are dominant on drier and seasonally flooded sites. Black ash (*Fraxinus nigra*), red maple (*Acer rubrum*), Northern white cedar (*Thuja occidentalis*) and tamarack (*Larix laricina*) dominate on saturated sites.

Most of the Refuge acreage was cleared and farmed historically. Some of the fields continue to be hayed and are dominated by non-native species including timothy grass (*Phleum pratense*), fescue (*Festuca* spp.), reed canary grass (*Phalaris arundinacea*) and birds-foot trefoil (*Lotus corniculatus*). Fields that are saturated most of the year have become dominated by reed canary grass, with willow (*Salix* spp.), speckled alder (*Alnus rugosa*), red-osier dogwood (*Cornus sericea*), northern white cedar and tamarack interspersed.

Existing home sites within the refuge boundary contain planted pines, white spruce, Norway spruce (*Picea abies*) American elm (*Ulmus americana*), apple (*Pyrus* spp.) and ornamental shrubs.

PHYSICAL RESOURCES

Soils and Geology: Loose rock and soil blankets the area to a depth of about 100 to 300 feet. This material ranges from clayey or loamy glacial till, sand and gravel outwash, and clayey and silty slack-water deposits (Ableiter, 1961). Red, clayey glacial till covers most of the lower portion of the Whittlesey watershed, from the lake level at an elevation of 600 feet above mean sea level (msl) to about 1,000 to 1,050 feet msl, approximately 6,300 acres. The upper watershed, above 1,050 feet, consists of predominately sandy outwash deposits covering about 5,300 acres.

The character of the deposits, sand in the upper reaches and clays downstream, has a large influence on the hydrology of this stream. Few surface streams can be seen in the upper portion as the sand is 200 to 300 feet thick, and water percolates down to underlying bedrock or clay, where it travels laterally, "down slope," coming to the surface as innumerable seeps and springs. These properties are responsible for the stable flow and constant temperature characteristic of Whittlesey Creek. The topography of the 540 acres within the Refuge can be characterized as flat to gently rolling.

Hydrology: Streams in this watershed include Whittlesey Creek, the North Fork of Whittlesey Creek and Little Whittlesey Creek. Whittlesey Creek currently has good water quality and is classified as an outstanding resource water. The stream is a class I trout water supporting both salmonid and non-salmonid fish species. It is also a regionally important spawning area for anadromous trout and salmon from Lake Superior.

Whittlesey Creek is a unique stream in that it relies heavily on groundwater as its primary hydrologic source, allowing it to flow year round (Johannes, et al, 1970). The lower elevation red clay areas of the watershed contain quantities of groundwater that is made available to the stream through substrate and adjacent springs. These active groundwater areas are found within the alluvial floodplain, and are biologically and hydrologically connected to the surface water of

the system. They are significant to all stream organisms especially invertebrates. Habitat assessments have identified these zones as being intimately associated with fish spawning and rearing areas and are an important source of energy and nutrient transport. The 5,300 acre area of outwash material in the higher elevations is a valuable source area to recharge these lower zones confined by the clay plain.

Wetlands: There are a number of key wetland areas within the watershed. The coastal area at the mouth of Whittlesey Creek is a part of a large wetland complex which extends from just north of the mouth of Fish Creek to the west edge of the City of Ashland. This wetland is a significant part of the wildlife habitat and aquatic resources of Chequamegon Bay. The area is used by many wildlife species and is an important area for migrating birds. The wetland portion of the mouth constitutes a rare coastal wetland. Measures are being taken to control purple loosestrife (*Lythrum salicaria*) in this area. The sand bedload resulting from stream bank erosion in the watershed is severely impacting the diversity of vegetation and water depths in both the estuary and the bay.

Wetland areas in the upland reaches of the watershed have a valuable hydrologic function in determining both the quality and quantity of water available. The ability of these areas to store and slowly transfer surface water to groundwater sources is what determines both the temperature and the base flow of Whittlesey Creek. Additionally the capacity to carry water periodically and seasonally allows them to function as flood control structures for the watershed.

Air Quality: This part of Wisconsin is considered to be Class II air quality meaning that, in this case, there should be no significant deterioration of air quality resulting from actions to implement this plan. Visibility is a factor to consider. Extensive visitor traffic passes through the Northern Great Lakes Visitor Center and the observation deck offers a significant viewshed.

STRUCTURES AND FACILITIES

On Service owned lands, structures are being declared excess and sold, or in the case of structures with no saleable value, removed and the site restored. Generally, within 1 year of purchase structures are cleared from the property. There is one metal building proposed for retention and use as storage for Service equipment. Private land within the boundaries contains numerous structures, many storage sheds, old barns and similar buildings.

There are currently several occupied residences within the Refuge boundary. It is estimated that an additional 20 privately owned buildings are within, or adjacent to, the Refuge boundary. This does not include buildings that are on the opposite side of a road from the Refuge where the boundary follows the road.

Primary structural fire protection is the responsibility of the local fire department under state law. Currently, the Town of Barksdale has an agreement with the Ashland City Fire Department for structural suppression. Should acquisition occur at a significantly accelerated rate, some action to create semi-permanent firebreaks to isolate remaining structures may be necessary.

The Refuge is bisected south to north by an abandoned railroad grade owned by Bayfield County and designated a snowmobile trail. In addition, there is a power line running south to north, east of Terwilliger Road to a substation near the junction of Terwilliger and Cherryville Roads. A pipeline also crosses the refuge from north to south.

WILDLAND FIRE MANAGEMENT SITUATION

HISTORIC ROLE OF FIRE

Little is known of the fire history in the vicinity of the Refuge. Since completion of early logging operations was followed by conversion of the land to agriculture, it is unlikely that fire, other than agricultural burning, has been a significant force in the habitat since the mid 1800's. In addition, the portion of the Refuge adjacent to Chequamegon Bay was probably too wet to burn.

Pre-settlement Fire History

Because the area is on the edge of the bay, the natural fire interval would likely be quite long, probably more than 50 years. Most fires are assumed to be associated with dry conditions. This would result in fire occurrence being cyclical and driven by climatological conditions. Naturally ignited (lightning) fires are not common in this part of Wisconsin so ignition would be expected to have been anthropogenic.

Based on the vegetative types in the surrounding area, fires were probably infrequent and likely associated with drought conditions. No estimates are available for the areal extent of pre-settlement fires.

Post-settlement Fire History

Fire suppression began after the logging era when European settlers began to farm the area. Since a number of farms in the area have been abandoned, it is reasonable to assume that fire occurrence would show a gradual increase as fuels increase.

The accepted fire season in Bayfield County is from mid-April to late May or early June. There is a second season in the fall generally lasting from the first frost until snowfall. This second season is not normally as active as the spring season.

The only known wildland fire known to have occurred within the Refuge boundary in the recent past was in the spring of 1998, prior to establishment.

Prescribed Fire History

Prescribed fire would generally be applied during the spring in Refuge habitats. Exact dates would, of course, depend on weather conditions, the desired results and fuel conditions.

As this is a new Refuge there is no prescribed fire history although fire has been used in the past, in conjunction with agricultural operations. Fire was occasionally used to reduce weeds and maintain an open cover in some grassland areas.

RESPONSIBILITIES

Whittlesey Creek NWR does not have a dedicated fire management organization. The Project Leader is responsible for planning and implementing the fire management program on the Refuge. A Zone Fire Management Officer (FMO) located at Leopold Wetland Management District in Portage, WI is responsible for fire management program oversight. Preparedness planning and work is accomplished by staff from other refuge units in accordance with national and regional fire management direction under guidance from the Zone FMO. Emergency fire management actions will be handled by cooperators as there is only one Refuge staff person. The Zone FMO will be immediately notified of all emergency actions. Additional information and direction is included in the Fire Dispatch Plan (Appendix E).

Project Leader

- Is responsible for implementation of all fire management activities on the Refuge and will ensure compliance with Department and Service policies.
- Selects the appropriate management responses to wildland fire.
- Approves any Prescribed Burn Plan.
- Ensures that the fire management program has access to other Service resources when needed.
- Ensures that the fire management program is considered during Refuge related planning and project implementation.
- Identifies preparedness projects and biological objectives to Zone FMO, notifies FMO of project constraints, and ensures that Refuge resources are available to accomplish preparedness projects.
- Acts as the primary Refuge Resource Management Specialist during fire management planning and operations.
- Ensures fire-effects monitoring is being implemented; drafts wildland fire Burned Area Emergency Stabilization and Rehabilitation Plans; and is responsible for posting and enforcing fire restriction regulations.

Zone Fire Management Officer

- Is responsible for all fire-related planning and implementation for the Refuge.
- Integrates biological objectives into all fire management planning and implementation.
- Solicits program input from the Project Leader.
- Supervises preparedness project planning.
- Coordinates fire related training.
- Coordinates with cooperators to ensure adequate resources are available for fire operational needs.
- Is responsible for implementation of this Plan.
- Is responsible for preparation of fire reports following the suppression of wildland fires and for preparedness projects requiring such.
- Prepares an annual report detailing fire occurrences and preparedness activities undertaken in each calendar year. This report will serve as a post-year's fire management activities review, as well as provide documentation for development of a comprehensive fire history record for the Refuge.
- Submits budget requests and monitors FIREBASE funds.
- Maintains records for all personnel involved in suppression and preparedness activities, detailing the individual's qualifications and certifications for such activities.
- Updates all fire qualifications for entry into the Fire Management Information System.
- Nominates personnel to receive fire-related training, as appropriate.

Incident Commander

- Incident Commanders (of any level) use strategies and tactics as directed by the Project Leader and Wildland Fire Situation Analysis where applicable to implement selected objectives on a particular incident. A specific Limited Delegation of Authority (Appendix C) will be provided to each Incident Commander prior to assuming responsibility for an incident. Major duties of the Incident Commander are given in the National Wildfire Coordinating Group (NWCG) Fireline Handbook, including:
 - Brief subordinates, direct their actions, and provide work tools.
 - Ensure that safety standards identified in the Fire Orders, the Watch Out Situations, and agency policies are followed at all times.

- Personally scout and communicate with others to be knowledgeable of fire conditions, fire weather, tactical progress, safety concerns and hazards, condition of personnel, and needs for additional resources.
- Order resources to implement the management objectives for the fire.
- Inform appropriate dispatch of current situation and expected needs.
- Coordinate mobilization and demobilization with dispatch and the Collateral FMO.
- Perform administrative duties (i.e., approving work hours, completing fire reports for command period, maintaining property accountability, providing or obtaining medical treatment, and evaluating performance of subordinates).
- Assure aviation safety is maintained to the highest standards.

Initial Attack Modules

As the Refuge has only one staff person, there will be no Initial Attack Modules until staffing levels are adequate.

Employees participating in any wildland fire activities on Fish and Wildlife Service or cooperators' lands will meet fitness requirements established in PMS 310-1, except where Service-specific fitness requirements apply.

INTERAGENCY COORDINATION

Cooperative agreements with various federal, state and local agencies (Appendix E) generally provide that resources of each agency are available to assist in initial attack efforts. These agreements detail payment among cooperators, list of response areas, communications frequencies, and have been reviewed by a contract specialist and/or solicitor.

As the Refuge has no equipment and only one staff member, the Ashland City Fire Department for structural fires, and WIDNR for wildland fires, will generally provide fire suppression services on the Refuge

Whittlesey Creek will use the Incident Command System (ICS) as a guide for fireline organization. Qualifications for individuals is per DOI Wildland Fire Qualifications and Certification System, part of National Interagency Incident Management System (NIIMS) and the National Wildfire Coordinating Group (NWCG) Wildland and Prescribed Fire Qualification Guide (PMS 310-1). Depending on fire complexity, some positions may be filled by the same person.

There are no wildland fire related cooperative agreements presently in effect on the Refuge. These will be developed as time permits and included in Appendix E. The term of agreements will be five years with annual review and renewal.

Primary fire suppression cooperators, with contact numbers, are listed in the table below.

Table 1 - Cooperators

WIDNR, Washburn	(715) 373-6165
Ashland Fire Department	(715) 682-7052
Washburn Fire Department	(715) 373-6168

PROTECTION OF SENSITIVE RESOURCES

The streams on the Refuge are the most sensitive resource to protect. Ground disturbance (use of tractor plows etc.) should be kept at least 300 feet from stream banks. In addition, foam or retardant should not be used within 200 feet of open water. Fish have been shown to be extremely sensitive to the presence of these agents (Gaikowski et al, 1996). An agreement with cooperators to enumerate restrictions on retardant use within the refuge watershed is needed. Environmental guidelines for foam or retardant use, taken from a paper published by the Forest Service's Missoula Technology and Development Center, are found in Appendix N.

Because the parcels in FWS ownership are small, it is likely that a suppression operation would be complete or nearly so prior to notification. It is unlikely that a resource advisor could reach the incident prior to mop-up.

Preparation for prescribed fires (such as constructing fire lines) are subject to Section 106 of the National Historic Preservation Act. The procedures in the Notice dated December 8, 1999, "Historic Preservation Responsibilities," apply to the planning and preparation for conducting prescribed fires.

Efforts to control wildland fires (including prescribed fires that get out of control) are also subject to Section 106 of the National Historic Preservation Act. We will meet our obligations under this act in the following ways:

When the land covered by a wildfire has been inventoried to identify cultural resources, and the cultural resources have been evaluated for significance according to the criteria for the National Register of Historic Places, the Fire Management Officer will direct ground disturbing fire suppression efforts around (will avoid impacting) historic properties. Nevertheless, evidence of a previously undetected cultural resource may be encountered. The project leader shall immediately notify the Regional Historic Preservation Officer (RHPO). The RHPO will take immediate steps to have the cultural resource evaluated and protected, as appropriate, to the extent required by law and policy. This may require arranging for a qualified professional to visit and evaluate the site's importance and recommend a course of action. An evaluation and decision on the disposition of the cultural resource should be made within 48 hours of the discovery unless the project's schedule allows greater flexibility.

When the land covered by a wildfire has *not* been inventoried for cultural resources and wildfire suppression activities do result in ground disturbing activities, we will take the following action. Soon after fire control, the project leader will contact the RHPO to arrange for an archeologist to investigate the disturbed areas to determine if sites were affected.

Refuge operations and maintenance funds (currently sub-activity 1261) will pay the cost of these activities unless the action is an emergency archeological and historic property survey in unstable areas prone to further degradation (i.e., erosion) following a wildland fire or in association with an emergency fire rehabilitation treatment. Emergency archeological and historic property surveys in unstable areas prone to further degradation (i.e., erosion) following a wildland fire or in association with an emergency fire rehabilitation treatment, and archeological, historic structure, cultural landscape, and traditional cultural property resource stabilization and rehabilitation can be funded with emergency rehabilitation funding.

Impacts by fire to archeological resources vary. The four basic sources of damage are (1) fire intensity, (2) duration of heat, (3) heat penetration into soil, and (4) suppression actions. Of the four, the most

significant threat is from equipment during line construction for prescribed fires or wildfire holding actions.

The following actions will be taken to protect archaeological and cultural resources:

Wildland Fires

- Minimum impact fire suppression tactics will be used to the fullest extent possible.
- Resource Advisors will inform fire suppression personnel of any areas with cultural resources. The Resource Advisor should contact the RHPO and/or his/her staff for more detailed information.
- Foam use will be minimized in areas known to harbor surface artifacts.
- Mechanized equipment should not be used in areas of known cultural significance.
- The location of any sites discovered as the result of fire management activities will be reported to the RHPO.
- Rehabilitation plans will address cultural resources impacts and will be submitted to the RHPO for review.

Prescribed Fires

- The Refuge Fire staff will submit a request to the RHPO and/or his/her staff as soon as the burn area is identified (i.e., as soon as feasible).
- Upon receipt of the request, the RHPO and/or his/her staff will be responsible for consulting with the FMO and evaluating the potential for adverse impacts to cultural resources.
- When necessary, the RHPO and/or his/her staff will coordinate with the State Historic Preservation Officer (SHPO). The SHPO has 30 days to respond. The Refuge will consider all SHPO recommendations.
- Mechanized equipment should not be used in areas of known cultural significance.
- The location of any sites discovered as the result of fire management activities will be reported to the RHPO.

WILDLAND FIRE ACTIVITIES

Fire program management describes the operational procedures necessary to implement fire management at Whittlesey Creek. 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. Normal suppression operations would consist of response by either the local fire department and/or WIDNR. Most operations are expected to be conducted from roads with engines. Some handline may be constructed under extremely dry conditions.

Records from nearby agencies show that fire season is typically split and the early season extends from mid-April to late May or early June. The late season occasionally runs from the first killing frost until snow cover is present depending on how dry conditions are. Depending on the specific weather of any particular year, the seasons may be shorter or longer and, therefore, may start earlier or last longer.

FIRE MANAGEMENT STRATEGIES

Although resource impacts of suppression alternatives must always be considered in selecting a fire management strategy, managing fire for resource benefit will not be a consideration. Appropriate suppression action will be taken to ensure firefighter safety, public safety, and protection of natural and cultural resources on all wildland fires.

Critical protection areas, such as the bed and riparian areas of Whittlesey, Little Whittlesey and Terwilliger Creeks will receive priority consideration in fire control planning efforts. In all cases, the primary concerns of fire suppression personnel shall be safety, and if needed, all individuals not involved in the suppression effort may be evacuated.

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 the natural and cultural resources. Minimum impact suppression tactics (MIST) 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. Sites impacted by fire suppression activities or by the fire will be rehabilitated as necessary, based on an approved course of action for each incident.

Specific fire management strategies for Whittlesey Creek are:

- All wildland fires will be controlled using the appropriate suppression strategy which considers safety, property, natural resources, and economics.
- Mechanical treatment will be used to reduce hazardous fuels around structures and improvements.
- Prescribed fire will be utilized to meet the ecological needs of the Refuge.
- Known cultural resource areas will be excluded from all fire management activities including fire line location and retardant drops.
- The water resources on the Refuge (Whittlesey, Little Whittlesey and Terwilliger Creeks) will be protected from application of foam or retardant agents within 200 feet of the water.

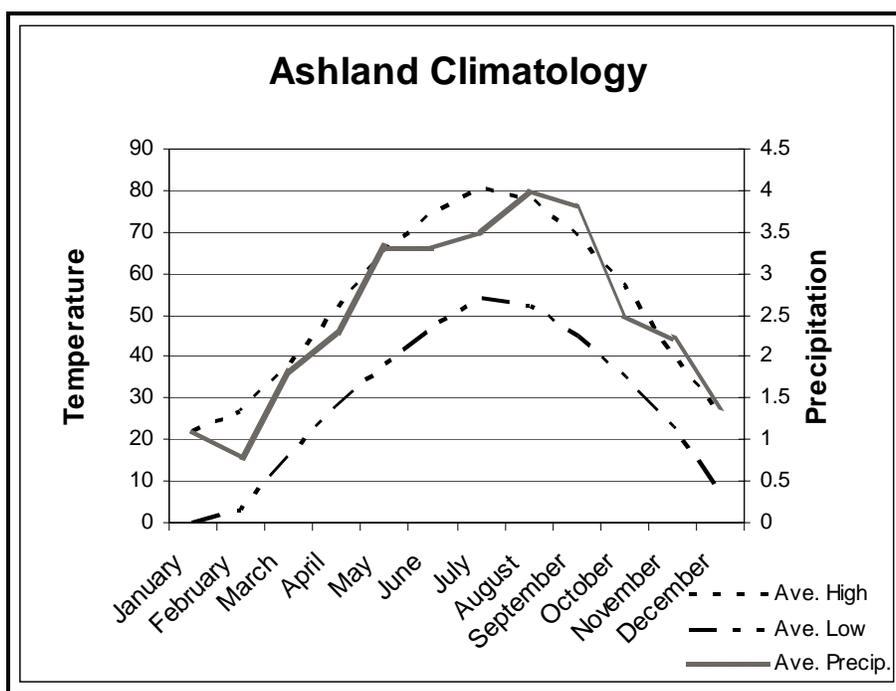
PREPAREDNESS

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 generally accomplished in time frames outside normal fire season dates.

Historical Weather Analysis

There is no historic fire weather data for this Refuge. Figure 3, below shows the climatic range and distribution of temperatures and precipitation annually at Ashland, WI, six miles east of the Refuge.

Figure 3 - Ashland, WI Climatology



Because suppression is going to be furnished by either the local fire department or WIDNR, the WIDNR season will be considered the normal fire season. Ignitions are likely to result from human visitation.

Fire Prevention

An active fire prevention program will be conducted, as needed, in conjunction with other agencies to protect human life and property, and prevent damage to cultural resources or physical facilities.

A program of internal and external education regarding potential fire danger may be implemented. Visitor contacts, bulletin board materials, handouts and interpretive programs can be utilized to increase visitor and neighbor awareness of fire hazards.

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

Because the Refuge office is co-located with the Northern Great Lakes Visitor Center, a multi-agency facility, prevention messages, closure notices and other public information would be consistent among participating agencies.

Hazard Reduction for Structure Protection

Hazard reduction is conducted to prevent wildland fires from spreading to structures owned by the Service. For Whittlesey Creek, there is only one structure to be maintained by the Service for Refuge operations. This structure is in an area that will be mowed several times a year thus reducing hazard fuels in the vicinity. In addition, the building is all metal construction and not subject to a significant threat from wildland fires.

Staffing Priority Levels

Due to the staff size (one individual), no historic fire weather, size of the unit and other considerations, staffing classes will be obtained from the WIDNR.

In conjunction with Local, Regional and National Preparedness Levels, fire prevention actions will mirror those of the U.S. Forest Service on nearby lands. A Step-up Plan for prevention actions is found in Appendix H.

Training

Departmental policy requires that all personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). Whittlesey Creek will conform strictly to the requirements of the wildland fire management qualification and certification system, and Service guidelines.

Basic wildland fire training refreshers are offered annually for red-carded firefighters and records kept in a centralized database. Additional training is available from surrounding agencies in pump and engine operation, power saws, firefighter safety, fire weather and fire behavior, helicopter safety and prescribed fire objectives and activities. On-the-job training is encouraged and will be conducted at the field level. Whenever appropriate, the use of fire qualification task books will be used to document fire experience of trainees. The Zone FMO will coordinate fire training needs with those of other nearby refuges, cooperating agencies, and the Regional Office.

Fire suppression is an arduous duty. Poor physical condition of crew members can endanger safety and lives during critical situations. Personnel performing fire management duties will maintain a high level of physical fitness. This requires successful completion of a fitness pack test. Appendix K contains a brief explanation of the physical testing requirements

Supplies and Equipment

Due to the small size of the unit, limited staff size and no fire history in the recent past, there are no plans to establish a Refuge cache or purchase fire equipment. Prescribed fire needs, when necessary, will be provided by the Zone FMO and will come with the personnel assigned to prescribed fire duties.

When sufficient staff is available and fire management operations are the norm rather than the exception, Normal Unit Strength and equipment needs will be examined. At that time, cache facilities will be considered and requests for funding entered into FIREBASE.

Additional equipment and supplies are available through cooperators and the interagency cache system. Requests for additional personnel and equipment are made through the Forest Service Dispatch office in Washburn. The Dispatch Plan in Appendix E provides additional detail.

DETECTION

Wildland fires in this portion of Wisconsin have traditionally been reported by the public with occasional WIDNR or U.S. Forest Service detection flights when fire danger conditions are very high to extreme. Because this unit is small, the public is expected to provide initial fire reporting.

The Fire Management Plan does not discriminate between human-caused and lightning-caused fire. All wildland fires will be suppressed. However, detection shall include a determination of fire cause. Moreover, human-caused fires will require an investigation and report by law enforcement personnel. For serious human-caused fires, including those involving loss of life, a qualified arson investigator will be requested.

COMMUNICATIONS

There is no radio system on the station and none is likely in the near future. Because only one person is on staff, most communication will be done between cooperating agencies, including the local fire department and WIDNR.

PRE-ATTACK PLAN

Upon discovery of a fire, all subsequent actions will be based on the following:

- The Incident Commander (IC) will locate, size-up, and coordinate suppression actions.
- The Incident Commander will provide for public safety.
- Considering the current and predicted fire conditions, the Incident Commander will assess the need for additional suppression resources and estimate the final size of the fire. The potential for spread outside of the Refuge should be predicted, as well as the total suppression force required to initiate effective containment action at the beginning of each burning period.
- The Incident Commander will assess the need for law enforcement personnel for traffic control, investigations, evacuations, etc. and make the request to local authorities.
- The Incident Commander will document decisions and provide sufficient information to the Refuge staff to complete the fire report (DI-1202).
- Should a wildland fire move into an extended attack, a Delegation of Authority will be invoked. Once a Delegation of Authority has been authorized, the Incident Commander will make the final decisions pertaining to the fire. A sample copy of a Limited Delegation of Authority is in Appendix C.

FIRE MANAGEMENT UNITS

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

The entire Refuge is considered one FMU. As acquisition progresses, individual prescribed fire units may be delineated using roads, trails and streams as boundaries. For those areas managed under Conservation Easements, each easement will be considered a separate FMU.

Due to staff limitations, relatively small land parcels, and values at risk on neighboring lands, this plan does not recommend wildland fire managed for resource benefit as an option for the Refuge or for

Conservation Easements. Wildland fires will be suppressed using the appropriate suppression response. Prescribed fires may be used to reduce hazardous fuels and to meet resource management objectives.

Fire Effects

Fire effects are expected to be limited due to the generally moist conditions found on the Refuge. Effects on forest vegetation are not expected to be severe unless significant drought conditions are present. Areas that are grass covered would recover within a growing season or less depending on the time of fire occurrence.

Effects of fire on wildlife may be divided into two categories. Large mammals are not likely to be affected as they are highly mobile and most fires in the area would be expected to be relatively slow moving. Smaller mammals and reptiles may be more subject to fire because of limited mobility. Most reptiles would be in wetter areas or burrows where temperatures are cooler. Effects on small mammals would be more pronounced in the grass fuels, and in the ecotone between grass and forest or brush fuels, where escape is difficult. Some small mammals, such as field mice and voles, may be caught by the flame front but mortality is not expected to be heavy (Kelleyhouse, 1979). Regeneration of vegetation provides an excellent habitat for these small species and natural reproduction will quickly repopulate the area (Schramm, et al, 1983).

Fuel Types

Northern Hardwoods - this type is best represented by Northern Forest Fire Laboratory (NFFL) fuel models 9 and 10. This fuel covers some of the acquired parcels and consists of litter and understory growth with a 65 to 90 % crown closure. Species found in this fuel complex include aspen, red maple, black ash and others requiring mesic sites.

Mixed Conifer - this type is best represented by NFFL fuel model 8. This type is found on the west edge of the Refuge near Terwilliger Creek and in the northeast corner of the Refuge on both sides of Highway 13. White spruce, balsam fir, and red and white pine predominate.

Grass - represented by fuel model 3, the grass on the Refuge is a remnant of the farms that covered the area after logging. Species represented include timothy, alfalfa (*Medicago satavia*) and fescue.

Lowland brush - represented best by fuel model 5, the site is wet and contains primarily alder and willows.

Fire Behavior

Normal fire behavior in the forest fuels on the Refuge would be slow moving with minimal (1-2') flame lengths. Areas with a high percentage of conifers would be expected to burn somewhat faster, with longer flame lengths and more heat output under drier conditions. The grass areas would see flame lengths of 1-3' with a rapid spread component depending on the stage of curing. Under normal conditions, the brush areas would see some creeping fire on higher areas, otherwise, the type is too wet to support fire.

Extreme fire behavior in the hardwood areas would see flame lengths of 2-4' with potentially rapid spread depending on the season and condition of the litter layer. During the fall with cured fuels, flame lengths could run to 6+' with rates of spread high enough to require indirect attack. The areas with a high percentage of conifers could see flame lengths of 4-6' with the potential of crown fire development especially under dry conditions.

SUPPRESSION TACTICS

Suppression involves a wide range of possible tactics from the initial attack to final control. To this end, all wildland fires will be suppressed in a safe, aggressive, and cost-effective manner to produce efficient action with minimal resource damage and limited smoke impacts to local communities.

Typical initial attacks will be dependent on which cooperator arrives first. Local fire department response is likely to include two engines, WIDNR would likely respond with one engine. All fires will be assessed by the first on-scene incident commander and attacked using minimum impact suppression tactics for the Refuge. Roads and natural barriers will be used as much as possible to reduce fireline construction. Fireline and mop-up through riparian areas should consider potential long-term damage to vegetation. Unnecessary cutting and bucking should be replaced with alternative actions whenever possible. Back-fires and burnout operations should consider head fire intensities and attempt to avoid damaging soil or running fire into riparian areas. Where wildland fires cross roads, the burned area adjacent to the road should be mopped up and dangerous snags felled.

There will be only one Incident Commander responsible to the Project Leader. The Incident Commander will designate all overhead positions on fires requiring extended attack. Reference should be made to a Delegation of Authority (Appendix C).

Suppression Conditions

A full suppression alternative was selected for the Refuge requiring containment and control of all wildland fires. Certain guidelines have been developed to assist with this strategy to protect the Refuge from unnecessary damage. Heavy equipment and aircraft/retardant use is restricted due to cultural, wildlife, and safety concerns. Unless life or property is at imminent risk, consultation with the resource advisor prior to their use is necessary. This requirement is based on the fact that water quality in Whittlesey Creek and, to a lesser extent, Little Whittlesey and Terwilliger Creeks are critical to the Refuge's mission to provide habitat to restore anadromous fish populations. The suburban location of the Refuge should negate the need for camps, staging areas and other suppression related facilities.

Suppression operation restrictions should be discussed with cooperators annually. The primary restriction for suppression operations on this Refuge is keeping foams or retardants at least 200 feet from open waters.

Wildland Fire Situation Analysis

For fires that cannot be contained in one burning period, a Wildland Fire Situation Analysis (WFSA) must be prepared. In the case of a wildland fire, the Project Leader, in conjunction with the FMO, will prepare the WFSA. Approval of the WFSA resides with the Project Leader.

As the parcels of refuge land are quite small, a WFSA is not likely to be needed. Analysis of fire behavior conditions indicates that most fires would have covered and left refuge property within 3-4 hours of ignition.

Aircraft Operations

Aircraft may be used in all phases of fire management operations. All aircraft must be Office of Aircraft Services (OAS) or Forest Service approved. An OAS Aviation Policy Manual is available from OAS.

Helicopters may be used for reconnaissance, bucket drops and transportation of personnel and equipment. Natural helispots and parking lots are readily available within and adjacent to the Refuge boundary. Clearing for new helispots will be avoided.

As in all fire management activities, safety is a primary consideration. Qualified aviation personnel will be assigned to all flight operations.

REHABILITATION AND RESTORATION

There are 3 types of fire rehabilitation: suppression, burned area, and emergency stabilization. Suppression rehabilitation is to restore and repair property and resources from direct suppression activity damage, i.e. cut fences, dozer lines, and campsites. Burned area rehabilitation and stabilization is to restore resources and property damaged or impacted from the fire, i.e. burned waterlines, denuded hill sides, etc.

Suppression Rehabilitation

In the event of a wildland fire, rehabilitation of fire suppression damage should be accomplished immediately. An appropriate time is within 7 days after the fire is controlled unless the regional fire coordinator grants an extension. Funding for suppression rehabilitation is from the specific fire cost account as established by the FMO. The Incident Commander as agreed to by the Project Leader will initiate suppression rehabilitation. Rehabilitation will be directed toward minimizing or eliminating adverse effects of the suppression effort and reducing potential hazards caused by the fire. These actions may include:

- Backfill control lines, scarify, and seed*.
- Install water bars and construct drain dips on control lines to prevent erosion.
- Restore natural ground contours, which were altered.
- Remove all flagging, equipment and litter.
- Re-vegetate to restore sensitive impacted areas due to suppression actions*.

*If re-vegetation or seeding is necessary, locally procured seeds of native plant species will be preferred.

A written suppression rehabilitation plan may be appropriate on larger incidents. Contractors or equipment may be hired to accomplish specialized work.

Emergency Stabilization Versus Rehabilitation

Emergency stabilization uses appropriate techniques to protect public safety, stabilize to prevent further degradation of cultural and natural resources in the burned area, and protect downstream impact areas from erosion and invasion of undesirable species. Rehabilitation is the use of appropriate techniques to improve natural resources as stipulated in approved Refuge management plans and the repair or replacement of minor facilities damaged by the fire.

Total "rehabilitation" of a burned area is not within the scope of the Emergency Rehabilitation funding. Emergency Rehabilitation funding can be used to begin the rehabilitation process if other funding is committed to continue the rehabilitation throughout the life of the project (beyond the initial 3 years of Emergency Rehabilitation funding). Major facilities are repaired or replaced through supplemental appropriations or other funding.

Burned Area Emergency Stabilization and Rehabilitation (ESR) Plan

The goal of the ESR Plan is to protect public safety and stabilize and prevent further degradation of natural and cultural resources, and to rehabilitate the stability, productivity, diversity, and ecological integrity of Refuge lands after a wildland fire, as described in approved Refuge management plans. The ESR Plan is tiered to the Refuge Comprehensive Conservation Plan (CCP), Habitat Management Plan (HMP), Fire Management Plan (FMP), and operational or other step-down plans. Development of ESR Plan objectives is guided by resource management objectives, general management practices, and constraints identified in approved CCP, HMP, and/or supporting step-down plans.

If Burned Area Emergency Stabilization and Rehabilitation is required to reduce the effects of a wildland fire, then the Refuge should request appropriate funding through the Burned Area Emergency Stabilization and Rehabilitation (ESR) fund. The Service representative at the National Interagency Fire Center administers the ESR fund. A rehabilitation and restoration survey, plan, and request must be prepared and submitted according to agency guidelines. Smaller incidents may only need simple plans prepared by Refuge staff. Larger incidents with extensive rehabilitation efforts should employ a ESR Team. A ESR Team is composed of personnel who specialize in key disciplines of resource management and are experts in ESR Plan preparation. A formal request for a ESR Team should be made in consultation with the Incident Management Team as soon as it appears damage may be significant. Instructions for ESR Team mobilization can be found in the National Wildfire Coordinating Group mobilization guide. Delays in making a request may hinder funding approval and magnify the damage. Once a ESR Team is employed, the Project Leader or their representative should provide guidance to the ESR team leader. The Project Leader and FMO will review all ESR Plans. The final plan will be submitted to the Region for review prior to submission to the Service's Washington Office. Direction and ESR guidelines can be found in the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook.

REQUIRED REPORTING

The Incident Commander will be responsible for documenting decisions and supplying sufficient information to complete the fire report (e.g., ICS-214, DI-1202). The FMO will be responsible for completing any required reports.

FIRE INVESTIGATION

Fire management personnel will attempt to locate and protect the probable point of origin and record pertinent information required to determine fire cause. They will be alert for possible evidence, protect the scene and report 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 are currently law enforcement commission qualified.

Personnel and services of other agencies may be utilized to investigate wildland fire arson or fire incidents involving structures. All fire investigations should follow the guidelines outlined in Section 4.1-2 of the Fire Management Handbook (2000).

PRESCRIBED FIRE ACTIVITIES

PRESCRIBED BURN PROGRAM OBJECTIVES

Prescribed fire can be a useful tool for restoring and maintaining natural conditions and processes at Whittlesey Creek. As this is a new Refuge, there has been no prescribed fire application. This section of the FMP defines a prescribed fire program. Until habitat management objectives have been established through the Comprehensive Conservation Plan, prescribed fire will not be applied. Investigation of fire effects on water quality and vegetative composition (Mladenhoff, et al, 1993) in riparian zones is needed prior to broad prescribed fire implementation.

This section also applies to the Conservation Easements both within the Whittlesey Creek watershed and those areas listed in Table 2, Appendix E that are remote from the Refuge proper.

The broad goals of prescribed fire are:

- Hazard fuel reduction to protect the watershed of Whittlesey, Little Whittlesey and Terwilliger Creeks.
- Hazard fuel reduction to protect adjacent private property and reduce risk of wildland fire escape from the Refuge.
- Manage fire-adapted habitats for trust species.

Specific management needs for the Refuge as a whole and for specific areas will be determined annually after land management objectives are established. Specific burn objectives, fire frequency rotation, firing methodology, and prescriptions will vary from year to year. Burn plans will be updated to reflect any variations. The Project Leader must approve prescribed fire plans. As opportunities arise, Conservation Easements will be examined to determine if prescribed fire application is an appropriate management tool on those areas.

Prescribed fires involve the use of fire as a tool to achieve management objectives. Research burning may also be conducted when determined to be necessary for accomplishment of research project objectives. Actions included in the prescribed burn program include: the selection and prioritization of prescribed burns to be carried out during the year, prescribed burn plans, burn prescriptions, burn operations, documentation and reporting, and burn critiques. Measures to ensure the successful implementation of the prescribed fire program include:

- Conduct a vigorous prescribed fire program with the highest professional and technological standards.
- Identify the prescribed burn type most appropriate to specific 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 prescriptions treatments and monitoring methods, and by integrating applicable technical and scientific advancements.
- Conduct prescribed burns with an adequate number of qualified personnel to conduct the burn, meet contingency needs, as well as to mop-up.

The Refuge reserves the option to utilize an interagency team approach for complex burns carried out on the boundaries and close to developed areas or burns of large acreage. The most highly qualified and experienced personnel in the regional interagency community would be requested to serve on this team.

The following sections explain the requirements to be met by the Service when and if a prescribed fire program is initiated for the Refuge.

FIRE MANAGEMENT STRATEGIES

Prescribed fire may be used to reduce hazard fuel accumulation and improve wildlife habitat, and to maintain cultural/ historic scenes where appropriate. All prescribed fire activity will comply with applicable Federal, state, and local air quality laws and regulations.

All prescribed fire projects will have a burn plan approved by the Project Leader. Each burn plan will be prepared using a systematic decision-making process, and contain measurable objectives, predetermined prescriptions, and using an approved environmental compliance document. Appropriate NEPA documentation (Appendix D) exists for this Fire Management Plan. Therefore, additional NEPA documentation will be necessary only for prescribed fire projects not meeting the criteria outlined in this Plan.

Prescribed Fire Burn Plans must include components such as a GO/NO-GO Checklist, contingency actions to be taken in the event the prescription is exceeded, and the need for alerting neighbors and appropriate public officials to the timing and the planning of the burn. A burn plan format meeting all required needs is found in Appendix L.

Fire monitoring will be used to evaluate the degree to which burn objectives are accomplished. Monitoring can assist managers in documenting success in achieving overall programmatic objectives and limiting occurrence of undesired effects.

PRESCRIBED FIRE PLANNING

Annual Activities

The FMO will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary, personnel utilized, and fire effects.

Prescribed fire activities will be reviewed annually. Necessary updates or changes to the Fire Management Plan will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Project Leader to determine if such alterations warrant a re-approval of the plan.

Planning for each burn season begin the year prior to that season. Prescribed fire projects will be planned by the biologist with assistance from the Zone FMO based on the goals and objectives in this plan. Budget requests will be prepared and submitted, by assigned deadlines, into FIREBASE.

Prescribed Burn Plan

The Prescribed Burn Boss will conduct a field reconnaissance of the proposed burn location with the FMO, and appropriate Refuge staff to discuss objectives, special concerns, and gather all necessary information to write the burn plan. After completing the reconnaissance, a Prescribed Burn Boss qualified at the expected level of complexity will write the prescribed burn plan.

All prescribed fires will have prescribed burn plans. The prescribed burn plan is 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 prescription parameters of the plan are met. Fires not within those parameters will be suppressed. As part of the plan, minimum contingency resources will be listed. Prescribed Burn Plans will follow the format contained in the Service's Fire Management Handbook. Each burn plan will be reviewed by the Biologist, Zone FMO, and Burn Boss. The Project Leader has the authority to approve the burn plan. The term Aburn unit@ refers to a specific tract of land to which a prescribed burn plan applies.

Strategies and Personnel

Prescribed fire operations will only be conducted by qualified personnel. The Prescribed Burn Boss will utilize qualified personnel to fill all positions required to conduct the burn. All personnel listed in the burn plan must be available for the duration of the burn or the burn will not be initiated.

Weather and fuel moisture conditions must be monitored closely in planned burn units to determine when the prescription criteria are met. When all prescription criteria are within the acceptable range, the Prescribed Burn Boss will select an ignition time based on current and predicted weather forecasts. A thorough briefing will be given by the Prescribed Burn Boss and specific assignments and placement of personnel will be discussed. An updated spot weather forecast will be obtained on the day of ignition and all prescription elements will be rechecked to determine if they are still within the approved ranges. If all prescription elements are met, a test fire will be ignited to determine on-site fire behavior conditions as affected by current weather. If conditions are not satisfactory, the test fire will be suppressed and the burn will be rescheduled. If conditions are satisfactory the burn may continue as planned.

If the prescribed fire escapes the predetermined burn area, all further ignition will be halted except as needed for suppression efforts. Suppression efforts will be initiated, as discussed in the pre-burn briefing. The FMO will be notified immediately of any control actions on a prescribed fire. If the fire exceeds initial suppression efforts, the fire will be declared a wildland fire and suppressed using guidelines established in this plan. A WFSA will be completed and additional personnel and resources ordered as determined by the Incident Commander. If the fire continues to burn out of control, additional resources will be called from the local cooperating agencies via the servicing dispatch center. A management overhead team may be requested to assume command of the fire.

Monitoring and Evaluation

Monitoring of prescribed fires is intended to provide information for quantifying and predicting fire behavior and the resulting ecological effects on Refuge resources while building a historical record. Monitoring measures the parameters common to all fires: fuels, topography, weather and fire behavior. In addition, ecological changes such as species composition and fuel structure changes will be monitored after a fire. This information will be very useful in fine-tuning the prescribed fire program.

During prescribed burning, monitoring should include mapping, weather, site and fuel measurements and direct observation of fire characteristics such as flame length, rate of spread and fire intensity. Operational monitoring provides a check to insure that the fire remains in prescription. It also serves as a basis for evaluating and comparing management actions in response to measured, changing fire conditions.

While a monitoring plan is not in place currently, the process described in the following paragraphs will establish a basis from which to proceed. As experience is gained in the application of prescribed fire, this process can be adjusted to better meet Refuge needs.

Fires are monitored/evaluated using the format shown in Appendix F. Following each burn, a critique of the burn will be conducted. Within five days after a burn, burn severity data will be collected (Appendix G). Grassland monitoring will be conducted 3-5 months after the burn. A follow-up evaluation will be conducted during the growing season following the year of burn.

As stated previously, each burn unit will be monitored for fire effects by the use of transect sampling and/or photo stations. Monitoring will be conducted on a periodic basis. Systematic line transects, using quadrats or line intercept methods (Elzinga, et al, 1998), are used to determine frequency and dominance of species and/or plant associations (e.g. noxious plants, woody vegetation etc.). Photo stations are established on units smaller than a few acres in size. Through this monitoring /evaluation process management can determine if fire objectives are being met and will assist in planning for future burns. Eventually this process will identify whether or not the use of fire is accomplishing stated Refuge goals.

This process may also identify the need for more detailed monitoring or research needs to help evaluate the effectiveness of the prescribed fire program.

Funding for the evaluation of fuels management and project effectiveness is now available as per the Fire Management Handbook (2.2.4). The Refuge may apply for funding to help in the establishment of a proper prescribed burn monitoring program designed to document project effectiveness.

Required Reports

All prescribed burn forms will be completed as outlined by the Prescribed Burn Boss. A monitor will be assigned to collect predetermined information and complete necessary forms prior to, during, and after the burn. All records will be archived in the Refuge's fire records for future use and reference.

The Prescribed Burn Boss will prepare a final report on the prescribed burn. Information will include a narrative of the burn operation, a determination of whether objectives were met, weather and fire behavior data, map of the burn area, photographs of the burn, number of work hours, and final cost of the burn.

Prescribed Burn Critique

A report detailing the actual burn will accompany any recommendations or changes deemed necessary in the program. This report will be submitted to the Refuge Project Leader. A post-season critique of the fire management program, including the prescribed fire program, will be held each year at the conclusion of the fall fire season.

AIR QUALITY / SMOKE MANAGEMENT GUIDELINES

The effects of smoke on air quality is of moderate concern on this Refuge. Because the Refuge lies within ½ mile of a county highway (County G), a major U.S. highway (US 2) and is traversed by three town roads and a major state highway (WI 13), potential effects of smoke on travel may be significant. Although within the Refuge boundary there are only 7 residences, many more are adjacent to, and within ½ mile of, the boundary. In a broader circle of 10 mile radius, both the cities of Washburn and Ashland are potentially affected with a combined population of over 10,000.

Smoke management is part of the planning process when developing prescribed fire plans. As burn units are quite small, most potential units are less than 20 acres, smoke is not expected to be a significant problem. Unexpected wind shifts due to the proximity of the Chequamegon Bay are the main concern.

The Refuge will comply with all applicable Federal, state and local air pollution control requirements as specified under Section 118 of the Clean Air Act, as amended (42 U.S.C. 7418).

All prescribed fires will follow these guidelines:

- Obtain any required State open burning permit.
- The operation will be conducted according to the terms and conditions of permits and the prescription in the plan.
- Prescriptions will be written to achieve mixing heights that will disperse smoke at sufficient altitude to minimize smoke impacts at ground level.
- No burning will occur if the state air quality agency or other government agency has issued an air pollution health advisory, alert, warning or emergency. This is expected to be an extremely rare occurrence.

During wildland fires, smoke conditions will be monitored and if necessary, local law enforcement agencies will be asked to monitor or control traffic, and assist with evacuations if needed.

FIRE RESEARCH

There are no fire related research projects in place currently. One potential research need involves a study to determine fire effects in the riparian zones of Whittlesey, Little Whittlesey and Terwilliger Creeks.

As prescribed fire operations take place, research needs, if any, will be developed and funding requested through normal Service channels. If the need has potential to affect many agencies and a significant acreage is involved, a proposal to the Joint Fire Science Project may be feasible.

At any time, if local sources are willing to fund research on the Refuge, the Refuge will assist to the extent possible subject to budget and personnel availability.

PUBLIC SAFETY

Whittlesey Creek is dedicated to ensuring the safety of each visitor and to all residents and property within and adjacent to the Refuge boundary. As most access to the Refuge is by means of town roads, a state highway and county owned snowmobile trail, closure is difficult. Closures during wildland fires would be managed by local law enforcement.

As the Refuge acquires additional land and Refuge regulations are put in place, closures would follow those regulations.

Areas of fire activity may be clearly signed at visitor centers and Refuge kiosks. Residents within and adjacent to the Refuge will be notified in advance of any prescribed fire and if any fire poses a threat to burn outside the Refuge boundaries.

During prescribed burns at least one burn team member will have first aid training. A first aid kit will be on-site for prescribed burns as well as wildland fires. Local law enforcement, fire, and emergency medical services will be notified prior to the ignition of any prescribed fire. They will also be notified of the location of any wildland fires.

PUBLIC INFORMATION AND EDUCATION

Educating the public on the value of fire as a natural process is important to increasing public understanding and support for the fire management program. The Refuge will use the most appropriate and effective means to explain the overall fire and smoke management program. This may include supplemental handouts, signing, personal contacts, auto tour routes, or media releases. When deemed necessary, interpretive presentations will address the fire management program and explain the role of fire in the environment. With the number of visitors passing through the Northern Great Lakes Visitor Center, an excellent opportunity exists to develop an educational fire program.

The public information program may be developed as follows:

- Concepts of the prescribed burn program will be incorporated, as appropriate, in publications, brochures, and handouts.
- During periods when prescribed burns are ignited, handouts will be prepared and distributed to all visitors entering areas of fire activity.
- The fire management program may be incorporated into visitor contacts. Particular attention will be given when fires are conspicuous from roads or visitor use areas.
- News releases will be distributed to the media as appropriate.
- The public information outlets of neighboring and cooperating agencies and the regional office will be provided with all fire management information.
- The fire management program will be discussed in informal talks with all employees, volunteers, residents, and neighbors.

Prior to the ignition of any prescribed fire, information will be made available to visitors, local residents, and/or the press about what is scheduled to happen and why. On-site information will be provided to alleviate visitor concern about the apparent destruction of resources by fire or the impairment of views due to temporary smoke. This information will include prescribed burn objectives and control techniques, current fire location and behavior, effects caused by the fire, impacts on private and public facilities and services, and restrictions and closures.

As outlined in the prevention section, emergency closures or restrictions may become necessary during periods of extreme or extended fire danger.

FIRE CRITIQUES AND ANNUAL PLAN REVIEW

FIRE CRITIQUES

Fire reviews will be documented and filed with the final fire report. The Zone FMO will retain a copy for the Refuge files.

ANNUAL FIRE SUMMARY REPORT

The Zone FMO will be responsible for completing an annual fire summary report. The report will contain the number of fires by type, acres burned by fuel type, cost summary (prescribed burns and wildland fires), personnel utilized, and fire effects.

ANNUAL FIRE MANAGEMENT PLAN REVIEW

The Fire Management Plan will be reviewed annually. Necessary updates or changes will be accomplished prior to the next fire season. Any additions, deletions, or changes will be reviewed by the Refuge Manager to determine if such alterations warrant a re-approval of the plan.

CONSULTATION AND COORDINATION

The following agencies, organizations and/or individuals were consulted in preparing this plan.

Dryer, Pam, Project Leader, Whittlesey Creek NWR, Ashland, WI.

Gale, Cal, Fire Management Analyst, R.S. Staffing Services, Atlanta, GA.

APPENDICES

APPENDIX A: REFERENCES CITED

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APPENDIX B: DEFINITIONS

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

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

Appropriate Management Strategy. A plan or direction selected by the Project Leader which guide wildland fire management actions intended to meet protection and fire use objectives.

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

Class of Fire (as to size of wildland fires):

- Class A - 3 acre or less.
- Class B - more than 3 but less than 10 acres.
- Class C - 10 acres to 100 acres.
- Class D - 100 to 300 acres.
- Class E - 300 to 1,000 acres.
- Class F - 1,000 to 5,000 acres.
- Class G - 5,000 acres or more.

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

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

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

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

Fire intensity. The amount of heat produced by a fire. Usually compared by reference to the length of the flames.

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

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

Fire prescription. A written direction for the use of fire to treat a specific piece of land, including limits and conditions of temperature, humidity, wind direction and speed, fuel moisture, soil moisture, etc., under which a fire will be allowed to burn, generally expressed as acceptable range of the various fire-related indices, and the limit of the area to be burned.

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

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

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

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

Natural fire. A fire of natural origin, caused by lightning or volcanic activity.

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

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

Prescription. Measurable criteria which guide selection of appropriate management response and actions. Prescription criteria may include safety, public health, environmental, geographic, administrative, social, or legal considerations.

Prescribed Fire. A fire ignited by agency personnel in accord with an approved plan and under prescribed conditions, designed to achieve measurable resource management objectives. Such a fire is designed to produce the intensities and rates of spread needed to achieve one or more planned benefits to natural resources as defined in objectives. Its purpose is to employ fire scientifically to realize maximize net benefits at minimum impact and acceptable cost. A written, approved prescribed fire plan must exist and NEPA requirements must be met prior to ignition. NEPA requirements can be met at the land use or fire management planning level.

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

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

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

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

Wildfire. An unwanted wildland fire.

Wildland Fire. Any non-structure fire, other than prescribed fire, that occurs in the wildland.

Wildland Fire Situation Analysis (WFSA). A decision-making process that evaluates alternative management strategies against selected safety, environmental, social, economical, political, and resource management objectives as selection criteria.

Wildland/urban interface fire A wildland fire that threatens or involves structures.

APPENDIX C: SAMPLE DELEGATION OF AUTHORITY

WHITTLESEY CREEK NATIONAL WILDLIFE REFUGE ASHLAND, WI

LIMITED DELEGATION OF AUTHORITY

As of 1800, May 20, 2001, I have delegated authority to manage the Cherryville North fire, number 0102, Whittlesey Creek National Wildlife Refuge, to Incident Commander, John Doe and his Incident Management Team.

The fire which originated as an arson fire on May 18, 2001, is burning in habitat adjacent to the Refuge boundary. My considerations for management of this fire are:

1. Provide for firefighter safety.
2. I would like the fire managed in such a manner that suppression actions will cause little environmental damage as possible.
3. Key features requiring priority protection are: adjacent private lands.
4. Key resource considerations are: protecting water quality on Whittlesey Creek.
5. Restrictions for suppression actions are no tracked vehicles in the area of the creeks; no foam or retardant use within 200 feet of the creeks.
6. Minimum tools for use are Type II/III helicopters, and chainsaws.
7. My agency advisor will be Zone FMO Tom Zellmer.
8. Managing the fire cost-effectively for the values at risk is a significant concern.

Pam Dryer
Project Leader Whittlesey Creek National Wildlife Refuge
May 20, 2001

APPENDIX D: NEPA DOCUMENTATION

Categorical Exclusion language to go here

APPENDIX E: ANNUAL UPDATE DOCUMENTS

Cache Equipment Inventory

No fire cache or fire equipment is assigned to the station.

APPENDIX E: CONTINUED

Conservation Easements

Table 2 – FmHA Conservation Easements

Easement Name	County	Township	Range	Section	Subdivision	Acres
BA-1a	Bayfield	T46N	R5W	25	E ½, NW ¼, NW ¼	20.00
BA-1b	Bayfield	T46N	R5W	25	SW ¼, NW ¼, NE ¼ and W ½, SW ¼, NE ¼, NE ¼	15.00
BA-2a	Bayfield	T48N	R9W	27	SW ¼, SE ¼, NE ¼	9.7
BA-2b	Bayfield	T48N	R9W	34	S ½, NW ¼, NE ¼ and SW ¼, NE ¼	60.00
BA-2c	Bayfield	T48N	R9W	27	NW ¼, NW ¼, NE ¼	9.82
BA-2d	Bayfield	T48N	R9W	27	N ½, SW ¼, NE ¼	19.53
BA-3	Bayfield	T48N	R9W	17	SW ¼, SW ¼, NW ¼ and NW ¼, SW ¼	49.76
BA-4a & 4d	Bayfield	T48N	R8W	31	Part of NW ¼	78.90
BA-4b	Bayfield	T48N	R9W	36	Part of W1/2, NE ¼	16.83
BA-4c	Bayfield	T48N	R9W	36	Part of E ½, NE ¼	20.26
IR-1a	Iron	T46N	R1W	1	SE ¼, NW ¼, SW ¼, NE ¼, Part of SE ¼, NE ¼	112.86
IR-1b	Iron	T46N	R1E	6	NE ¼, NE ¼	36.02
IR-1c	Iron	T46N	R1E	6	N ½, SE ¼, NW ¼, and SW ¼, NW ¼	56.79

APPENDIX E: CONTINUED

Conservation Easement Maps

The following figures provide general locations of remote Conservation Easements. Survey maps of the easement boundaries are available in Refuge files.

Figure 4 - Iron River - Oulu Area FmHA Conservation Easements

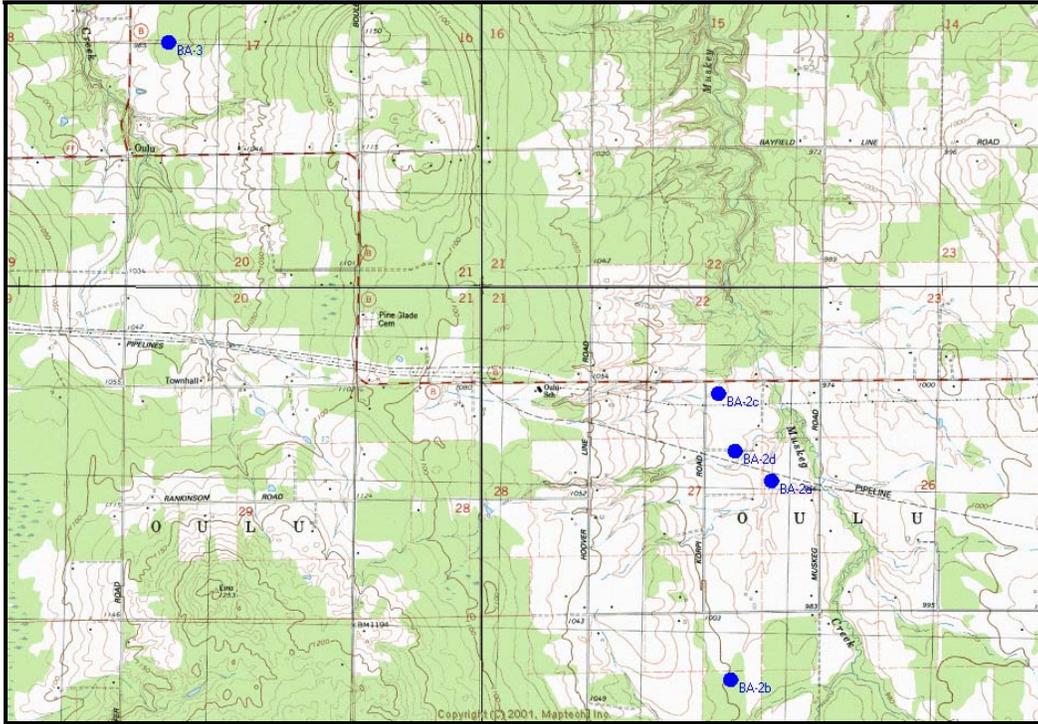


Figure 5 - Tripp Area FmHA Conservation Easements

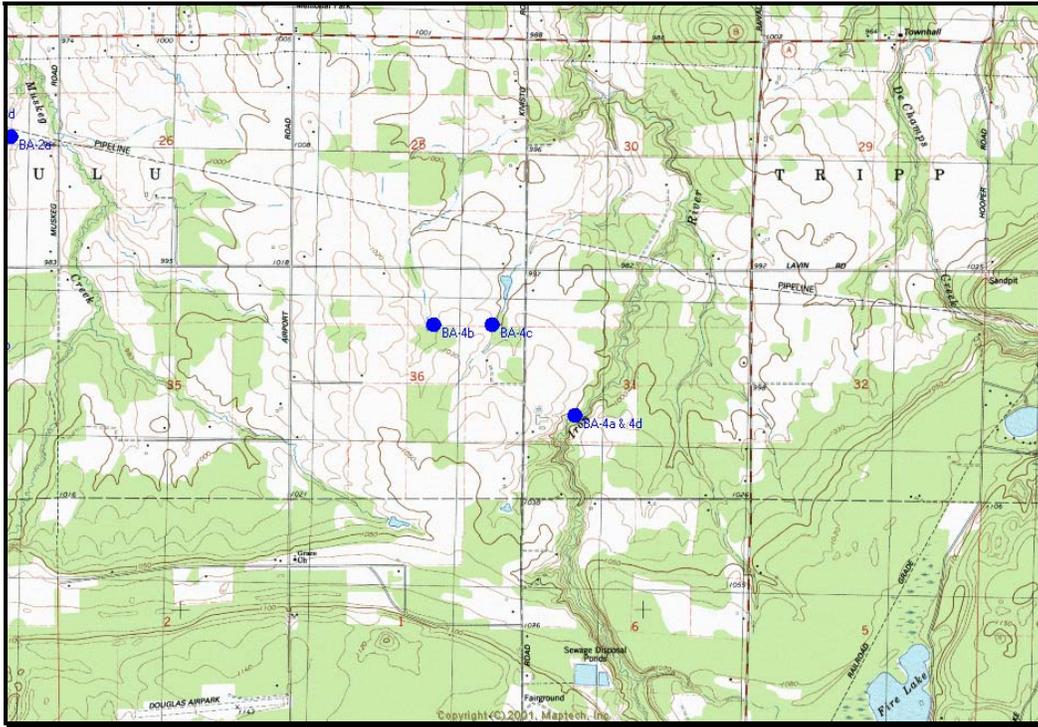


Figure 6 - Sanborn Area FmHA Conservation Easements

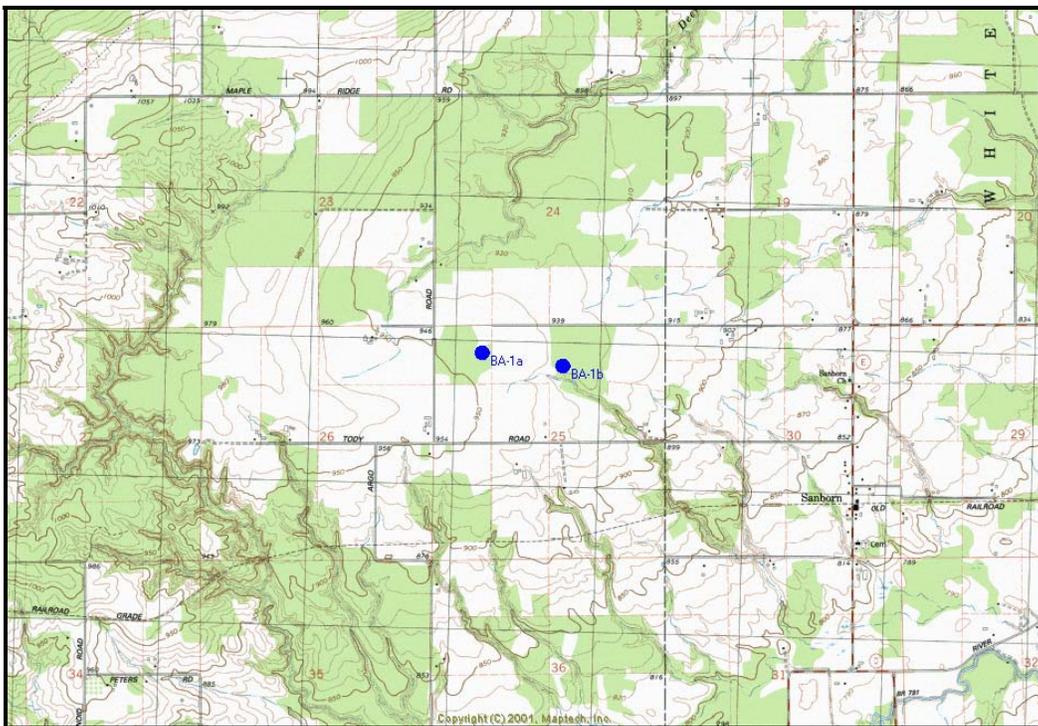
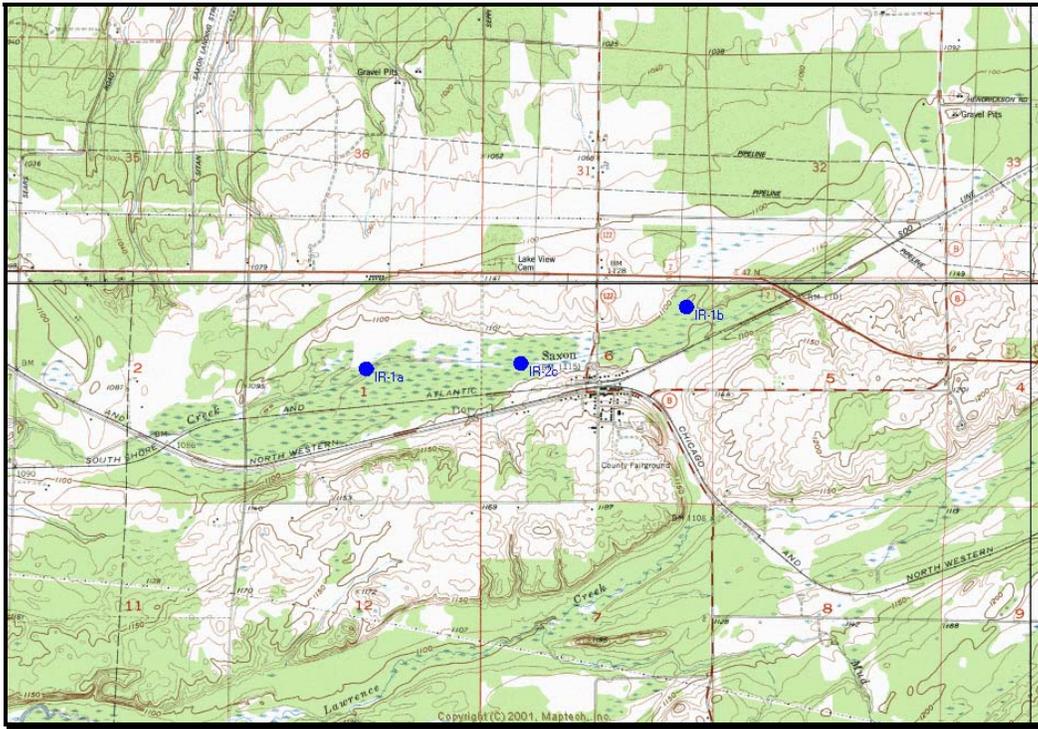


Figure 7 - Saxon Area FmHA Conservation Easements



APPENDIX E: CONTINUED

Cooperator Contacts

Table 3 - Cooperator Contact List

Name	Phone Number
Chequamegon National Forest – Washburn Ranger Station	(715) 373-2667
Wisconsin Department of Natural Resources – Washburn	(715) 373-6165
Bayfield County Emergency Government	(715) 373-6113
Washburn Volunteer Fire Department	(715) 373-6168
Ashland City Fire Department	(715) 682-7052

APPENDIX E: CONTINUED

Landowner Contact Lists

Table 4 - Internal Landowner Contact List

Owner	Address	Phone #
Jerry Jack	Rt. 3, Box 220 Ashland, WI 54806	(715) 682-4459
David Wickstrom	727 Foxtree Lane North Hudson, WI 54016	(715) 386-8450
Hank and Sue Martinsen	Rt. 1, Box 347f Ashland, WI 54806	(715) 682-8811
Jack Dusenbury	1005 Prentice Ave. Ashland, WI 54806	(715) 682-6831
James Pagac	905 2 nd Ave. E Ashland, WI 54806	Unlisted
Frank Phillips	70385 State Hwy 13 Ashland, WI 54806	(715) 682-6447
Scott & Michelle Olson	544 Gately Terr. Madison, WI 53711	(608) 232-0272
Jim Stephenson	Unknown	Unknown
Nick/Chris Rouskey	Rt. 3, Box 26 Ashland, WI 54806	(715) 682-2183
John Michalets	HC 3, Box 172 Florence, WI 54121	(715) 528-3223
Greg Stephenson	Rt. 3, Box 421 Ashland, WI 54806	(715) 685-5898
Marcia Bouchard	Rt. 3, Box 236 Ashland, WI 54806	Unlisted
Cory Nyara	Unknown	Unknown
Halley Hogden	Rt. 3, Box 428 Ashland, WI 54806	Unlisted
Kenneth & Donna Compton, Jr.	29745 E. Ondossagon Rd. Ashland, WI 54806	(715) 682-6539
Denise & Bob Evans	Club 13 35 State Hwy 13 Ashland, WI 54806	(715) 682-5429

Table 5 - Adjacent Landowner Contact List

Owner	Address	Phone #
John Wroblewski	Rt. 3, Box 84 Ashland, WI 54806	(715) 682-5827
Frank Kuester	Rt. 3 Ashland, WI 54806	(715) 682-2129
Joe & Robin Belsky	69765 Terwilliger Rd. Ashland, WI 54806	(715) 682-9436
Mike Mlynarek, Marcia Sorenson	71210 Hwy. 13 Ashland, WI 54806	(715) 682-4471
Callae Hyde	Rt. 3, Box 100 Ashland, WI 54806	Unlisted
Tom & Patricia Hudak	70680 Clevette Rd. Ashland, WI 54806	(715) 682-9008
Denis & Anna Schramke	28905 Cherryville Rd. Ashland, WI 54806	(715) 682-4492
Brian and Katy Evenson	Rt. 3 Ashland, WI 54806	(715) 682-5383
Daniel Pocernich III	29380 E. Ondossogon Rd. Ashland, WI 54806	(715) 682-5837
David & Bonnie Pocernich	29310 Ondossagon Rd. Ashland, WI 54806	(715) 682-5708
Dennis & Catherine Pocernich	71115 Ondossagon Rd. Ashland, WI 54806	(715) 682-3323
Donald Pocernich	Rt. 3 Ashland, WI 54806	(715) 682-3574
Bill Chingo	1221 Beaser Ave. Ashland, WI 54806	(715) 682-4776
Clarence Wassgren	70985 Ondossagon Rd. Ashland, WI 54806	(715) 682-3314
Jeffrey Powell	Unknown	Unknown

APPENDIX E: CONTINUED

Cooperative Agreements

No fire-related cooperative agreements are currently in force on the Refuge.

APPENDIX E: CONTINUED

Wildland Fire Dispatch Plan

*Whittlesey Creek National Wildlife Refuge
Dispatch Plan*

When report of smoke or fire is received get as much information as possible from the caller. The following list should be filled in.

Location of smoke or fire:

Location of caller:

Name and telephone number of caller:

Color of smoke:

Size of fire:

Type of Fuel:

Character of fire (running, creeping, etc.):

Anyone on the fire:

See anyone in the area or vehicles leaving the area:

- 1. Check map location and ownership/protection status*
- 2. If fire is on or threatening refuge call WIDNR in Ashland (715)*
- 3. Notify Project Leader*
- 4. Maintain log of all telephone communications.*
- 5. Remain on duty and notify:*

Adjacent landowners:

<i>Chequamegon National Forest</i>		
<i>Washburn Ranger District</i>	<i>Washburn, WI</i>	<i>(715) 373-2667</i>
<i>(Northern Great Lakes Visitor Center)</i>		
<i>Refuge Personnel</i>	<i>Position</i>	
<i>Pam Dryer</i>	<i>Project Leader</i>	<i>(715) 685-2678</i>

DIRECTORY

Regional Office

Brian McManus *Fire Mgt. Coordinator* *Office (612) 713-5366*
Home (507) 263-8878

Nita Fuller *Chief, Division of Refuges* *Office (612) 713-5401*

National Interagency Fire Center (NIFC)

Phil Street *FWS Coordinator* *Office (208) 387-2595*
Home (208)

WIDNR, Washburn

Area Ranger *Office (715) 373-6165*

Chequamegon National Forest

Fire Staff *Office (715) 373-2667*

Bayfield County Emergency Government

Manager *Office (715) 373-6113*

Other Services

Hospital

Memorial Medical Center *(715) 682-4563*
1615 Maple Ln, Ashland, WI 54806-3689

Ashland Ambulance Service *(715) 682-7052*

Sheriff *911*

State Police *911*

APPENDIX F: MONITORING PLAN

Monitoring Plan

CRITIQUE OF BURN

Were burn objectives within acceptable range of results?

What would be done differently to obtain results or get better results?

Was there any deviation from approved plan? If yes, why?

Problems and general comments:

POST-BURN MONITORING

Date: _____ Refuge FIREBASE Project Number: _____

Length of time since burn: _____

Vegetative Transect:

Comments on Habitat conditions, etc.:

Photo Documentation:

Other:

FOLLOW-UP EVALUATION

Date: _____ Refuge FIREBASE Project Number: _____

Length of time since burn: _____

Vegetative Transect:

Comments on Habitat conditions, etc.:

Photo Documentation:

Other:

APPENDIX G: BURN SEVERITY DATA MATRIX

	Unburned (5)	Scorched (4)	Lightly Burned (3)	Moderately Burned (2)	Heavily Burned (1)	Not Applicable (0)
Substrate (litter/duff) (S)	Not burned	Litter partially blackened; duff nearly unchanged; wood/leaf structures unchanged	Litter charred to partially consumed: upper duff layer burned; wood/leaf structures charred but recognizable.	Litter mostly to entirely consumed leaving light colored ash; duff deeply burned; wood/leaf structures unrecognizable	Litter and duff consumed leaving fine white ash; mineral soil visibly altered, often reddish.	Inorganic This may be used in grasslands where there is only sand as a substrate and no organic material or where litter/duff layer is lost due to disturbance (as in a gopher mound, badger/fox den, ant hill, etc.)
Vegetation (understory /brush/herbs) (V)	Not burned	Foliage scorched and attached to supporting twigs. Bases of stems of brush lightly browned with blisters visible, but stems still standing. In grasslands, most cured grasses/forbs still left standing after the burn. Green plants are essentially unaffected.	Foliage and smaller twigs partially consumed. Stems of brush burned at bases with heavy blistering. Many stems burned through and fallen over, but not consumed. Most cured forbs, grasses and sedges are burned but may not all be consumed. In grasslands, cured grasses burned off and fallen over. Most are consumed, but some may lay on the ash unburned. There may still be a small percentage of stems left standing. Green plants are discolored.	Foliage, twigs and small stems consumed. Stems of brush burned off and consumed. There will still be charred "stubs" sticking out of the ground where the brush was growing from. All cured forbs, grasses, sedges are consumed. In grasslands, cured grasses are all consumed. Any plants are brown and shriveled.	All plant parts consumed leaving some or no major stems/trunks. Stems of brush burned off and consumed. "Stubs" where shrubs once grew are burned off the ground line. Cured and green grasses, fobs & sedges are completely consumed.	None present

APPENDIX H: STEP-UP PLAN

As there is only one staff person on the Refuge, the step-up plan only addresses public and visitor information needs. Adjective class will be obtained from WIDNR to insure consistency of information provided to the public.

Adjective Class	Step up Actions
Low	No special public information efforts
Moderate	No special public information efforts
High	No special public information efforts
Very High	Personal contacts with visitors, bulletin board materials, and handouts will be utilized to increase visitor and neighbor awareness of fire hazards.
Extreme	During periods of extreme or prolonged fire danger, emergency restrictions regarding Refuge operations, or area closures may become necessary. Such restrictions, when imposed, will be consistent with those implemented by cooperators.

APPENDIX I: COMMUNICATION PLAN

As the Refuge has no radio system, a communication plan is not necessary. Cooperators will use their own systems with the appropriate frequency sharing agreements in place.

APPENDIX J: RESOURCES OF CONCERN

Species of Concern

Not all species listed in the tables below have been documented on the Refuge, they may be transients; like the Gray Wolf, or within the identified range like Fassett's Locoweed. The Wisconsin plant website has links to individual species information which lists known counties of occurrence. Table 7 contains all state listed T&E species and has not been purged by county.

Table 6 - Federal Threatened or Endangered Species in WI

Common Name	Accepted Scientific Name	Status
BIRDS		
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T
Kirtland's Warbler	<i>Dendroica kirtlandii</i>	E
Piping Plover	<i>Charadrius melodus</i>	E
MAMMALS		
Canada Lynx	<i>Lynx canadensis</i>	T
Gray Wolf	<i>Canis lupus</i>	E
INSECTS: BUTTERFLIES & DRAGONFLIES		
Hine's Emerald Dragonfly	<i>Somatochlora hineana</i>	E
Karner Blue Butterfly	<i>Lycæides melissa samuelis</i>	E
PLANTS		
Dwarf Lake Iris	<i>Iris lacustris</i>	T
Eastern Prairie Fringed Orchid	<i>Platanthera leucophaea</i>	T
Fassett's Locoweed	<i>Oxytropis campestris var. chartacea</i>	T
Northern Wild Monkshood	<i>Aconitum noveboracense</i>	T
Pitcher's Thistle	<i>Cirsium pitcheri</i>	T
Prairie Bush-clover	<i>Lespedeza leptostachya</i>	T

Table 7 - Wisconsin Threatened or Endangered Species

Common Name	Scientific Name	Status
BIRDS		
Acadian Flycatcher	<i>Empidonax virescens</i>	T
Barn Owl	<i>Tyto alba</i>	E
Bell's Vireo	<i>Vireo bellii</i>	T
Bewick's Wren	<i>Thryomanes bewickii</i>	E
Caspian Tern	<i>Sterna caspia</i>	E
Cerulean Warbler	<i>Dendroica cerulea</i>	T
Common Tern	<i>Sterna hirundo</i>	E
Forster's Tern	<i>Sterna forsteri</i>	E
Great Egret	<i>Casmerodius albus</i>	T
Greater Prairie Chicken	<i>Tympanuchus cupido</i>	T
Henslow's Sparrow	<i>Ammodramus henslowii</i>	T
Hooded Warbler	<i>Wilsonia citrina</i>	T
Kentucky Warbler	<i>Oporornis formosus</i>	T
Loggerhead Shrike	<i>Lanius ludovicianus</i>	E
Osprey	<i>Pandion haliaetus</i>	T
Peregrine Falcon	<i>Falco peregrinus</i>	E
Piping Plover	<i>Charadrius melodus</i>	E
Red-shouldered Hawk	<i>Buteo lineatus</i>	T
Red-necked Grebe	<i>Podiceps grisegena</i>	E

Common Name	Scientific Name	Status
Snowy Egret	<i>Egretta thula</i>	E
Spruce Grouse	<i>Falcapennis canadensis</i>	T
Trumpeter	<i>Swan Cygnus buccinator</i>	E
Worm-eating Warbler	<i>Helmitheros vermivorus</i>	E
Yellow-throated Warbler	<i>Dendroica dominica</i>	E
Yellow Rail	<i>Coturnicops noveboracensis</i>	T
Yellow-Crowned Night Heron	<i>Nyctanassa violacea</i>	T
MAMMALS		
Pine Marten	<i>Martes americana</i>	E
REPTILES & AMPHIBIANS		
Blanchard's Cricket Frog	<i>Acris crepitans blanchardi</i>	E
Blanding's Turtle	<i>Emydoidea blandingii</i>	T
Butler's Gartersnake	<i>Thamnophis butleri</i>	T
Massasauga	<i>Sistrurus catenatus</i>	E
Northern Ribbon Snake	<i>Thamnophis sauritus</i>	E
Ornate Box Turtle	<i>Terrapene ornata</i>	E
Queen Snake	<i>Regina septemvittata</i>	E
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	E
Western Ribbon Snake	<i>Thamnophis proximus</i>	E
Wood Turtle	<i>Clemmys insculpta</i>	T
PLANTS		
Algal-leaved Pondweed*	<i>Potamogeton confervoides</i>	T
Alpine Milkvech*	<i>Astragalus alpinus</i>	E
Auricled Twayblade*	<i>Listera auriculata</i>	E
Bald Rush	<i>Rhynchospora scirysoides</i>	T
Beautiful Sedge*	<i>Carex concinna</i>	T
Bog Bluegrass	<i>Poa paludigena</i>	T
Braun's Holly Fern*	<i>Polystichum braunii</i>	T
Broad-leaved Twayblade*	<i>Listera convallarioides</i>	T
Calypso Orchid*	<i>Calypso bulbosa</i>	T
Cliff Cudweed	<i>Gnaphalium saxicola</i>	T
Clustered Bur Reed	<i>Sparganium glomeratum</i>	T
Coast Sedge*	<i>Carex exilis</i>	T
Common Butterwort*	<i>Pinguicula vulgaris</i>	E
Dotted Blazing Star	<i>Liatris punctata var nebraskana</i>	E
Drooping Sedge*	<i>Carex prasina</i>	T
Dwarf Huckleberry*	<i>Vaccinium cespitosum</i>	E
Dwarf Milkweed	<i>Asclepias ovalifolia</i>	T
English Sundew *	<i>Drosera anglica</i>	T
Fassett's Locoweed*	<i>Oxytropis campestris var chartacea</i>	E
Fire Pink	<i>Silene virginica</i>	E
Flat-leaved Willow	<i>Salix planifolia</i>	T
Floating Marsh Marigold	<i>Caltha natans</i>	E
Fly Honeysuckle	<i>Lonicera involucrata</i>	E
Giant Pinedrops	<i>Pterospora andromedea</i>	E
Ground-Plum	<i>Astragalus crassicaarpus</i>	E
Hall's Bulrush	<i>Scirpus hallii</i>	E
Hawthorn-leaved Gooseberry	<i>Ribes oxycanthoides</i>	T
Lake Cress*	<i>Armoracia lacustris</i>	E
Lapland Buttercup	<i>Ranunculus lapponicus</i>	E
Large Water Starwort	<i>Callitriche heterophylla</i>	T
Large-leaved Sandwort*	<i>Moehringia macrophylla</i>	E
Lenticular (Shore) Sedge*	<i>Carex lenticularis</i>	T

Common Name	Scientific Name	Status
Lessor Wintergreen*	<i>Pyrola minor</i>	E
Linear-leaved Sundew *	<i>Drosera linearis</i>	T
Little Goblin Fern*	<i>Botrychium mormo</i>	E
Louisiana Broomrape	<i>Orobanche ludoviciana</i>	E
Marsh Grass-of-Parnassus*	<i>Parnassia palustris</i>	T
Michaux's Sedge*	<i>Carex michauxiana</i>	T
Moonwort Grape-fern*	<i>Botrychium lunaria</i>	E
Moor Rush*	<i>Juncus stygius</i>	E
Mountain Cranberry*	<i>Vaccinium vitis-idaea spp minus</i>	E
Plains Ragwort	<i>Senecio indecorus</i>	T
Prairie Dunewort	<i>Botrychium campestre</i>	E
Purple False Oats	<i>Trisetum melicoides</i>	E
Ram's-head Ladys-slipper*	<i>Cypripedium arietinum</i>	T
Sand Violet	<i>Viola fimbriatula</i>	E
Satiny Willow	<i>Salix pellita</i>	E
Schweinitz's Sedge	<i>Carex schweinitzii</i>	E
Seaside Crowfoot	<i>Ranunculus cymbalaria</i>	T
Slender Spike-rush	<i>Eleocharis nitida</i>	E
Small Round-leaved Orchis*	<i>Amerorchis rotundifolia</i>	T
Small Yellow Water Crowfoot*	<i>Ranunculus gmelinii var hookeri</i>	E
Small Skullcap	<i>Scutellaria parvula var parvula</i>	E
Smith Melic Grass*	<i>Melica smithii</i>	E
Smooth-Sheathed Sedge	<i>Carex laevivaginata</i>	E
Snowy Champion	<i>Silene nivea</i>	T
Soft-leaf Muhly	<i>Muhlenbergia richardsonis</i>	E
Spike Trisetum*	<i>Trisetum spicatum</i>	T
Spotted Pondweed	<i>Potamogeton pulcher</i>	E
Squashberry	<i>Viburnum edule</i>	E
Sweet Coltsfoot*	<i>Petasites sagittatus</i>	T
Tuberclad Orchid*	<i>Platanthera flava var. herbiola</i>	T
Western Jacob's Ladder	<i>Polemonium occidentale ssp. lacustre</i>	E
Wolf Spikerush	<i>Eleocharis wolfii</i>	E

Site for vertebrates is located at:

<http://www.dnr.state.wi.us/org/land/er/factsheets/etlist1.htm#MAMMALS>

Site for plants is located at: <http://www.dnr.state.wi.us/org/land/er/factsheets/00etlist2.htm>. Plants marked with an * are reported in either Ashland and/or Bayfield Counties.

Habitats of Concern

Table 8 - Habitats of Concern

Type of Habitat	Associated Name
Riparian	Whittlesey Creek
Riparian	Little Whittlesey Creek
Riparian	Terwilliger Creek
Streambed	Whittlesey Creek
Streambed	Little Whittlesey Creek
Streambed	Terwilliger Creek

APPENDIX K: PACK TEST INFORMATION

What is the "pack test?"

Work capacity tests are used to qualify individuals for the three levels of wildland firefighting duty:

- ARDUOUS
- MODERATE
- LIGHT

The work capacity tests measure:

- Aerobic capacity
- Muscular strength
- Muscular endurance

All wildland firefighters must meet minimum levels of fitness requirements for the type of duties they are assigned:

Arduous: involves field work calling for above-average endurance and superior conditioning. All firefighters are required to perform arduous duty.

Moderate: involves field work requiring complete control of physical faculties and may include considerable walking, standing, and lifting 25-50 lbs. Safety officers and fire behavior analysts are examples of moderate duty positions.

Light: involves mainly office-type work with occasional field activity. Examples include staging area and helibase managers.

Testing wildland firefighters for work capacity is important for several reasons:

- Personal safety and health
- Co-worker safety
- Improved operations

About Arduous Work

Wildland firefighting demands a high level of fitness to safely perform physically demanding work in difficult environments.

Firefighters, strike team leaders, line scouts, and others assigned arduous duty must be prepared to work in steep terrain and in extreme temperatures, altitude, and smoke, while maintaining reserve work capacity to meet unforeseen emergencies.

Prior to reporting for work, applicants are strongly encouraged to train for arduous-level work capacity.

WORK CAPACITY TEST TRAINING

Training for the test is important. Start training at least four to six weeks before you are scheduled to take the test. To be in shape for work duty, you may want to train in the footwear or boots you will wear during the test. Footwear should be ankle-high and protect the ankles.

Begin training before you report for work. Start by walking. Train for the test level you will need to pass for the duties you will be required to perform.

Start training without a pack. Gradually increase distance and - for arduous and moderate duty - begin carrying appropriate weight. Increase the weight until you can meet the requirement for arduous or moderate duty.

The chart below provides test criteria for arduous, moderate, and light duty performance:

Fitness Requirement Test Description

ARDUOUS	Pack Test 3-mile hike with 45-lb. pack in 45 min.
MODERATE	Field Test 2-mile hike with 25-lb. pack in 30 min.
LIGHT	Walk Test 1-mile hike with no pack in 16 min.

MORE ON TRAINING:

Before you begin to train for testing or substantially increase your level of activity, consult your physician. This is especially important if you are over 40 and have been inactive, have a history of a heart condition or chest pain or loss of balance, or have a joint or bone problem that could be made worse by a change in physical activity.

Once you are cleared to begin training, here's what you'll need:

- Adequate footwear that will cover and protect feet and ankles while testing
- Comfortable clothing
- A pack. The type of pack is a personal choice, but it must weigh either 45 or 25 lbs., depending on whether you are testing for arduous or moderate duty
- An accurately measured, safe, and level course

TAKING THE TEST:

Testing will be monitored and any problems should be brought to the attention of the test monitors.

- No jogging or running is permitted
- The test is Pass/Fail only
- Bring your own pack, or a standard firefighter backpack pump will be provided
- Packs will be weighed before and after testing

FOR MORE INFORMATION:

Personal health, physical fitness, and work capacity all work toward making conditions safer for firefighters and the people they protect. Ask your local fire management office for more information.

APPENDIX L: PRESCRIBED FIRE PLAN

PRESCRIBED FIRE PLAN FORMAT

COVER PAGE

Refuge or Station:	
Unit:	
Prepared By: Prescribed Fire Planner	Date:
Reviewed By: Refuge Manager	Date:
Reviewed By: Prescribed Burn Boss	Date:
Reviewed By: Regional Fire Management Coordinator	Date:
Reviewed By: (Others)	Date:

The approved Prescribed Fire Plan constitutes the authority to burn, pending approval of Section 7 Consultations, Environmental Assessments or other required documents. No one has the authority to burn without an approved plan or in a manner not in compliance with the approved plan. Prescribed burning conditions established in the plan are firm limits. Actions taken in compliance with the approved Prescribed Fire Plan will be fully supported, but personnel will be held accountable for actions taken which are not in compliance with the approved plan.

Approved By:	Date:
--------------	-------

PRESCRIBED FIRE PLAN

Refuge:			Refuge Burn Number:		
Sub Station:			Fire Number:		
Name of Area:			Unit Number:		
Acres to be Burned:			Perimeter of Burn:		
Legal Description:	Lat.:	Long.:	T	R	S
County:					

Is a Section 7 Consultation being forwarded to Fish and Wildlife Enhancement for review ?
 Yes No (circle).

(Page 2 of this PFP should be a refuge base map showing the location of the burn on Fish and Wildlife Service land)

The Prescribed Fire Burn Boss/Specialist must participate in the development of this plan.

I. GENERAL DESCRIPTION OF BURN UNIT

Physical Features and Vegetation Cover Types (Species, height, density, etc.):

Primary Resource Objectives of Unit (Be specific. These are management goals):

- 1.
- 2.
- 3.

Objectives of Fire (Be specific. These are different than management goals):

- 1.
- 2.
- 3.

Acceptable Range of Results (Area burned vs. unburned, scorch height, percent kill of a species, range of litter removed, etc.):

- 1.
- 2.
- 3.

II. PRE-BURN MONITORING

Vegetation Type	Acres	%	FBPS Fuel Model

Habitat Conditions (Identify with transect numbers if more than one in burn unit.):

Type of Transects:

Photo Documentation (Add enough spaces here to put a preburn photo showing the habitat condition or problem you are using fire to change/correct. A photo along your transect may reflect your transect data.):

Other:

III. PLANNING AND ACTIONS

Complexity Analysis Results:

Site preparation (What, when, who & how. Should be done with Burn Boss):

Weather information required (who, what, when, where, how, and how much):

Safety considerations and protection of sensitive features (Adjacent lands, visitors, facilities, terrain, etc., and needed actions. Include buffer and safety zones. Be specific, indicate on a burn unit map. Map should be a USGS quadrangle if possible, so ridges, washes, water, trails, etc. can be identified.)

Special Safety Precautions Needing Attention (Aerial ignition, aircraft, ignition from boat, etc.):

Media Contacts (Radio stations, newspaper, etc., list with telephone numbers):

Special Constraints and Considerations (Should be discussed with Burn Boss):

Communication and Coordination on the Burn (Who will have radios, frequencies to be used, who will coordinate various activities.):

IV. IGNITION, BURNING AND CONTROL

Scheduling	Planned or Proposed	Actual
Approx. Date(s)		
Time of Day		

Acceptable Range of Prescription Elements - Complete for Each Applicable Fuel Model

BEHAVE Fuel Model:	Low	High	Actual
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BEHAVE Fuel Model:	Low	High	Actual
Temperature			
Relative Humidity			
Wind Speed (20' forecast)			
Wind Speed (mid-flame)			
Cloud Cover %			
Wind Direction	Between:		
ENVIRONMENTAL CONDITONS			
Soil Moisture			
1 hr. Fuel Moisture			
10 hr. Fuel Moisture			
100 hr. Fuel Moisture			
Woody Live Fuel Moisture			
Herb. Live Fuel Moisture			
Litter/Duff Moisture			
FIRE BEHAVIOR			
Type of Fire (H, B, F)			
Rate of Spread			
Fireline Intensity			
Flame Length			
Energy Release Component			
NFDRS Fuel Model Used:			

Cumulative effects of weather and drought on fire behavior:

Ignition Technique (Explain and include on map of burn unit. Use of aerial ignition must be identified in this plan. Last minute changes to use aircraft will not be allowed and will be considered a major change to the plan. This will require a resubmission.):

Prescribed Fire Organization (See Section VII, Crew and Equipment Assignments. All personnel and their assignments must be listed. All personnel must be qualified for the positions they will fill.):

Other (If portions of the burn unit must be burnt under conditions slightly different than stated above, i.e., a different wind direction to keep smoke off of a highway or off of the neighbors wash, detail here.):

Prescription monitoring (Discuss monitoring procedure and frequency to determine if conditions for the burn are within prescription.):

V. SMOKE MANAGEMENT

- Make any Smoke Management Plan an attachment.
- Permits required (who, when):
- Distance and Direction from Smoke Sensitive Area(s):
- Necessary Transport Wind Direction, Speed and Mixing:
- Height (Explain how this information will be obtained and used):
- Visibility Hazard(s) (Roads, airports, etc.):
- Actions to Reduce Visibility Hazard(s):
- Residual Smoke Problems (Measures to reduce problem, i.e., rapid and complete mop-up, mop-up of certain fuels, specific fuel moistures, time of day, etc.):
- Particulate emissions in Tons/Acre and how calculated
 - Estimated before the burn:
 - Actual after the burn:

VI. FUNDING AND PERSONNEL

Activity Code:

Costs

	Equipment & Supplies	Labor	Overtime	Staff Days
Administration (planning, permits, etc.)				
Site Preparation Ignition & Control				
Travel.Per Diem				
Total	0	0	0	0

VII. BURN-DAY ACTIVITIES

Public/Media Contacts on Burn Day (List with telephone numbers):

Crew & Equipment Assignments (List all personnel, equipment needed, and assignments. The following is not an all inclusive list for what you may need.)

- Burn Boss/Manager -
- Ignition Specialist -
- Ignition Crew -
- Holding Specialist -
- Holding Crew -
- Aircraft Manager -
- FWBS -
- Dispatcher-
- Other -

Crew Briefing Points (Communications, hazards, equipment, water sources, escape fire actions, etc. To be done by Burn Boss. Refer to Safety Considerations in Planning Actions and points listed below.):

Ignition Technique (Methods, how, where, who, and sequence. Go over what was submitted in Section IV and any changes needed for the present conditions.) Attach ignition sequencing map if necessary:

Personnel Escape Plan:

Special Safety Requirements:
Go-No-Go Checklist:

Holding and Control:

- Critical Control Problems:
- Water Refill Points:
- Other:

Contingency Plan:

- Holding Plan Failure (Are there dedicated crews standing by to initial attack or will people doing other jobs be called upon to do initial attack, who must be called in case of an escape, what radio frequencies will be used, etc.):
 - Initial Escape:
 - Escape Exceeding 1 Burning Period:
- Smoke Management Plan Failure:
- Fire Behavior Outside Prescription:
- Other:

Mop Up and Patrol:

- Resources needed:
- Duration:

Rehabilitation Needs:

DI 1202 Submission Date:

Special Problems:

VIII. CRITIQUE OF BURN

Were burn objectives within acceptable range of results? (Refer to Section I):

What would be done differently to obtain results or get better results?

Was there any deviation from plan? If so, why?

Problems and general comments:

IX. POST-BURN MONITORING

Date: Refuge Burn Number:

Length of Time after Burn:

Vegetative Transects:

Comments on Habitat Conditions, etc.:

Photo Documentation:

Other:

X. FOLLOW-UP EVALUATION

Date: Refuge Burn Number:

Length of Time after Burn:

Vegetative Transects:

Comments on Habitat Conditions, etc.:

Photo Documentation:

Other:

APPENDIX M: GO/NO-GO CHECKLIST

**NWCG
PRESCRIBED
FIRE**

**GO/NO-GO
CHECKLIST**

Yes	No	Questions
		Are ALL fire prescription Elements Met?
		Are ALL smoke management specifications met
		Has ALL required current and projected fire weather forecast been obtained and are they favorable?
		Are ALL planned operations personnel on-site, available and operational?
		Has the availability of ALL contingency resources been checked, and are they available?
		Have ALL personnel been briefed on the project objectives, their assignments, safety hazards, escape routes, and safety zones?
		Have ALL pre-burn considerations identified in the prescribed fire plan been completed or addressed?
		Have ALL the required notifications been made?
		Are ALL permits and clearances obtained?
		In your opinion, can the burn be carried out according to the prescribed fire plan and will it meet the planned objective?

If all questions were answered “YES” proceed with a test fire. Document the current conditions, location, and results.

Prescribed Fire Burn Boss

Date

Refuge Manager

Date

APPENDIX N: ENVIRONMENTAL GUIDELINES FOR FOAM/RETARDANT USE

The following guidelines should be followed to minimize the likelihood of retardant chemicals entering a stream or other body of water.

- During training or briefings, inform field personnel of the potential danger of fire chemicals, especially foam concentrates, in streams or lakes.
- Locate mixing and loading points where contamination of natural water, especially with the foam concentrate, is minimal.
- Maintain all equipment and use check valves where appropriate to prevent release of foam concentrate into any body of water.
- Exercise particular caution when using any fire chemical in watersheds where fish hatcheries are located.
- Locate dip operations to avoid run-off of contaminated water back into the stream.
- Dip from a tank rather than directly from a body of water, to avoid releasing any foam into these especially sensitive areas.
- Use a pump system equipped with check valves to prevent flow of any contaminated water back into the main body of water.
- Avoid direct drops of retardant or foam into rivers, streams, lakes, or along shores. Use alternative methods of fire line building in sensitive areas.
- Notify proper authorities promptly if any fire chemical is used in an area where there is likelihood of negative impacts.
- While it is preferable that drops into or along any body of water not occur, it is possible that the fire location and surrounding terrain make it probable that some retardant may enter the water. The person requesting the retardant (such as the incident commander) must balance the impacts on the environment, i.e., potential fish kill, with the resources and values to be protected from the fire.