St. Croix National Scenic Riverway

Fire Management Plan

Recommended by: _/s/ David Soleim_____03/04/05__
Fire Management Officer, Border Waters Area Park Group Date

Concurred by: _/s/ James P. Mattingly_____03/28/05__
Acting Fire Management Officer, Midwest Region Date

Approved by: _/s/ Thomas A. Bradley_____04/07/05__
Superintendent, St. Croix NSR Date

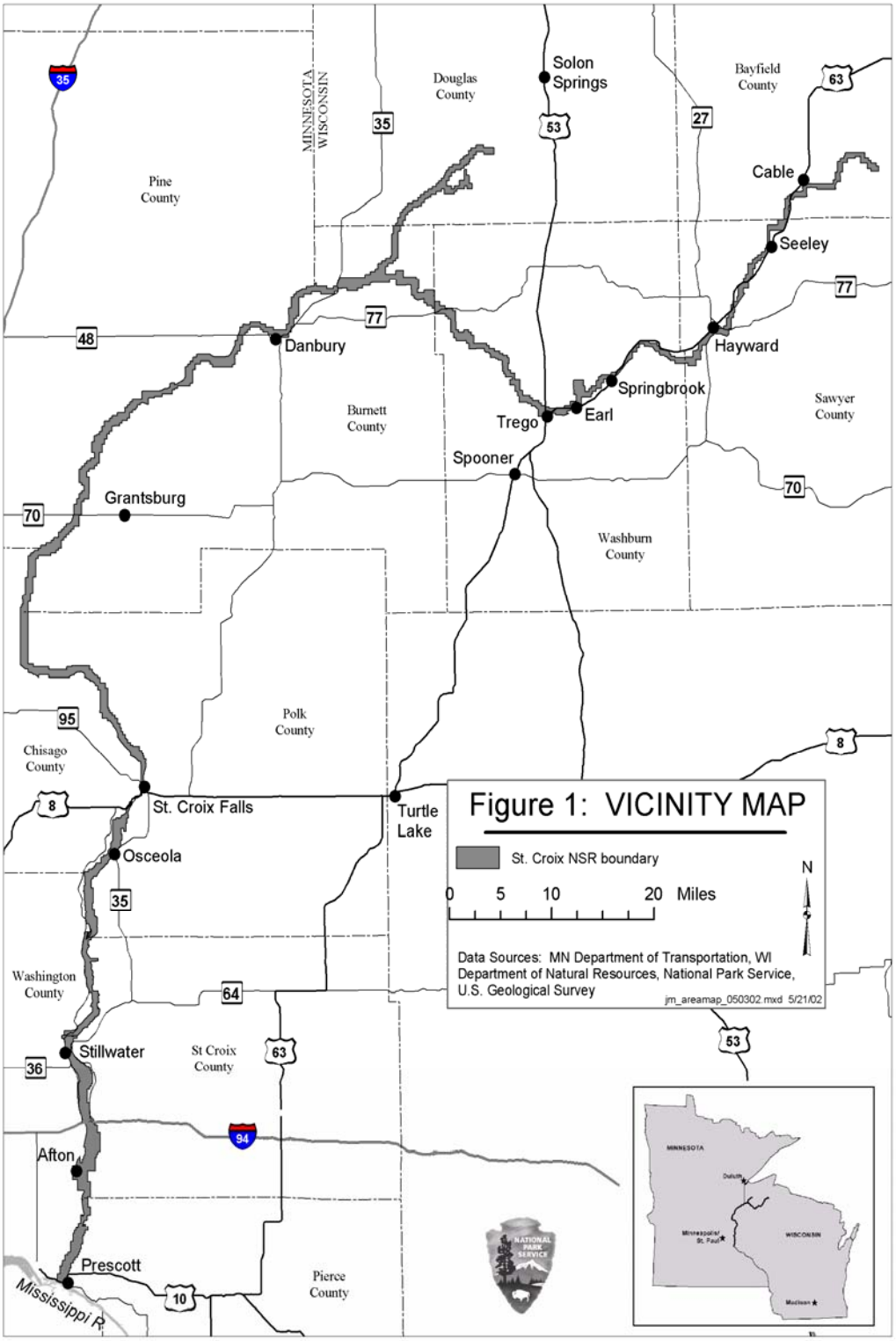
Figure 1: VICINITY MAP
St. Croix NSR boundary
0 5 10 20 Miles
N
Data Sources: MN Department of Transportation, WI Department of Natural Resources, National Park Service, U.S. Geological Survey
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MINNESOTA
WISCONSIN
Pine County
Douglas County
Bayfield County
Burnett County
Sawyer County
Washburn County
Polk County
Chisago County
Washington County
St Croix County
Pierce County
Solon Springs
Cable
Seeley
Hayward
Springbrook
Earl
Trego
Spooner
Danbury
Grantsburg
St. Croix Falls
Osceola
Turtle Lake
Stillwater
Afton
Prescott
Mississippi R.
35
48
77
53
27
63
70
95
8
64
36
94
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I. Introduction

A. Reasons for Developing this Plan

The St. Croix National Scenic Riverway (Riverway) Fire Management Plan is prepared to meet the policy requirements of Director's Order 18 (DO-18), *Wildland Fire Management* (November 17, 1998), which requires that any National Park System unit administered by the National Park Service (NPS) with vegetation capable of supporting a fire develop a Fire Management Plan (FMP). This order recognizes fire as the most aggressive natural resources management tool employed by the NPS. This plan outlines a detailed program of actions to be taken by the St. Croix National Scenic Riverway to meet the fire management goals for the area.

The primary NPS policy consideration from DO-18 is: "Wildland fire may contribute to or hinder the achievement of park objectives. Therefore, park fire management programs will be designed to meet resource management objectives prescribed for various areas of the park and ensure that firefighter and public safety are not compromised." In addition, preparation of this plan meets the requirements set forth in Department of Interior Departmental Manual 620 (620 DM) and the requirements of the Federal Fire Management Policy update (2001). The 2001 Federal Fire Management Policy update addresses 17 distinct items, the foremost being safety; all Fire Management Plans and activities must reflect this commitment.

B. Collaborative Process

This plan was developed to describe how fire will be used as a tool to achieve the goals for land and resource management at the Riverway. This plan was developed as a collaborative effort by Natural Resources Management staff, Resource Protection staff, and Fire Management staff within the NPS and in cooperation with Federal and state officials, local government officials, and private landowners.

C. Policy Implementation

This fire management plan will implement fire management policies and help achieve resource and fire management goals as defined in these documents: (1) *Federal Wildland Fire Management Policy and Program Review (2001)*; (2) *Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA 2001*); and (3) *A Collaborative Approach for Reducing Wildland Fire Risks to Communities Environment: 10-Year Comprehensive Strategy Implementation Plan (2002).*

D. NEPA and NHPA Requirements

An Environmental Assessment (EA) analyzes the actions described in this FMP and complies with National Environmental Policy Act (NEPA) requirements, National Historic Preservation Act (NHPA) and National Park Service (NPS) policy. The completed EA is an appendix to this FMP.

E. Authorities for Implementing this Plan

The legal authority for the operation of the fire management program is found in 16 U.S.C. Chapters 1 and 3. The specific authorities can be found in 620 DM 1.1. The Organic Act of the National Park Service (August 25, 1916, Section 102) provides the authority for implementation of this plan.

The authority for FIREPRO (Normal Fire Year Programming) funding and all emergency fire accounts is found in the following authorities:

Section 102 of the General Provisions of the Department of the 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.

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

31 USC 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.

II. Relationship to Land Management Planning

A. NPS Management Policies

This FMP is prepared to meet the policy requirements of Director's Order 18, *Wildland Fire Management* (November 17, 1998). The primary NPS policy consideration from DO 18 is: "Wildland fire may contribute to or hinder the achievement of park objectives. Therefore, park fire management programs will be designed to meet resource management objectives prescribed for various areas of the park and ensure that firefighter and public safety are not compromised." In addition, preparation of this plan meets the requirements set forth in Department of Interior Departmental Manual 620 (620 DM) and the requirements of the Federal Fire Policy update of 2001.

B. Enabling Legislation

The Riverway is located in northwestern Wisconsin and eastern Minnesota and flows through Pine, Chisago and Washington counties in Minnesota and Bayfield, Sawyer, Washburn,

Douglas, Burnett, Polk, St. Croix, and Pierce Counties in Wisconsin (Figure 1). It is a long narrow corridor that includes the St. Croix River, its principal tributary the Namekagon, and approximately 1/4 mile of land on either side of the rivers. The exact amount of land varies from place to place along the Riverway. Several other types of publicly owned lands are also found along the corridor including state parks, state forests, county forests and city parks.

The Riverway was established by Congress under the Wild and Scenic Rivers Act (Public Law 90-542, as amended) and is administered by the NPS. Congress established the Riverway to:

preserve the St. Croix and Namekagon Rivers in a natural condition and as relatively free-flowing rivers
protect and enhance the exceptional natural, scenic, and cultural resources of the Riverway for current and future generations
provide high-quality recreational opportunities that do not detract from the exceptional natural, scenic, cultural, and aesthetic resources and values of the Riverway.

The upper 225 miles of the Riverway, (above the "Boomsite" near Stillwater, Minnesota) are managed by the NPS. The lower 25 miles are managed by the Lower St. Croix Management Commission, which includes the Wisconsin Department of Natural Resources, Minnesota Department of Natural Resources and the NPS.

The following legal authorities are policy to guide the development of the FMP:

Establishment – The Riverway was one of the first rivers designated under the Wild and Scenic Rivers Act of 1968 (16 USC 1271-1287). The purpose of the Act is to preserve certain selected rivers and their immediate environments for the benefit of present and future generations. The St. Croix River, from Taylors Falls north to Gordon Dam, and the Namekagon Riverway were added to the National Wild and Scenic Rivers System in 1968. The Lower St. Croix, from Taylors Falls south to the confluence with the Mississippi, was added in 1972.

Administration – The St Croix National Scenic Riverway is administered under the Organic Act of August 25, 1916, which established the National Park Service. This act states the purpose of the National Park Service is, "…to conserve the scenery and natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Threatened or Endangered Species – The St Croix National Scenic Riverway contains threatened or endangered species as listed under the Endangered Species Act of 1973. The Riverway serves as a refuge for a number of species that are threatened, endangered or of special concern. Federally listed endangered species that occur in the Riverway include the Higgins' eye pearly mussel and the winged mapleleaf mussel. Federally listed threatened species that occur along the Riverway include the gray wolf and bald eagle. Other Federally

listed species that could occur along the Riverway because their habitat is present include the Canada lynx, Kirtland's warbler, and Karner blue butterfly.

Species of Concern – The US Fish and Wildlife Service also maintains a list of species of concern. Further information is needed on these species to determine if it is appropriate to consider them for addition to the Federal list. There are 6 plant and 15 animal species of concern that are known to occur along the Riverway. These species are indicated in the table in Appendix C. Prairie fame flower and kitten tail are two species of concern that could be affected by fire. The Minnesota and Wisconsin Departments of Natural Resources also maintain lists of species that are threatened, endangered or of special concern in their states. These State-listed rare species are also shown in Appendix C.

C. General Management Plan

The General Management Plan for the Riverway (NPS, 1998) indicates that the Riverway is significant because:

> It is a protected north-south corridor that serves as a refuge for large populations of diverse flora and fauna, including federally and state-listed threatened and endangered species; and that
>
> As they travel the river, visitors can observe the convergence of three terrestrial biological communities (prairie, hardwood, forest, and coniferous forest) and cold- and warm-water communities.

In addition, the General Management Plan lists the following as a primary management goal:

> Natural and cultural resources and associated values are protected, restored, and maintained in good condition and are managed within their broader ecosystem and cultural contexts.

Fire represents an ecological factor of significant importance in the development and structure of nearly every terrestrial ecosystem in North America and has been present in natural ecosystems since the origin of climate on earth. The natural ecology of many plant communities adjacent to the St. Croix and Namekagon rivers included fire. A planning process was completed to determine if fire should be used as a tool to help meet the area's resource management objectives. The planning process included the preparation of an EA that compares the environmental impacts of four different alternatives for fire management. Based on public input and the comparison of environmental impacts, the alternative was selected that would best meet resource management goals while also protecting life and property. This FMP describes the selected alternative, which includes an integrated program of prescribed fires and mechanical treatments to meet resource management goals.

D. Resource Management Plan

The Riverway Resource Management Plan (2000) describes several goals that are directly related to the fire management program. Those goals are:

> Maintain or restore the park's natural resources in their natural condition, while adhering to the principles of conservation biology.
>
> Protect native species, particularly endangered species and their habitats.
>
> Minimize encroachment of exotic species, particularly those impacting endangered species and their habitats.

E. Fire Management Plan

Fire can be used to maintain a natural plant community setting for the Riverway. With proper planning and execution, prescribed fire can be used to manipulate vegetation, to create forests less prone to stand-replacing fires and to maintain healthy prairies and savannahs as a background for the river. At the same time fuel management, both mechanical methods and prescribed fire, can reduce the risk to Riverway values such as historic structures, adjacent private properties, and NPS infrastructure.

III. Wildland Fire Management Strategies

A. General Management Considerations

All wildland fires within NPS fee-lands will be suppressed using appropriate management response (AMR). Prescribed fire is a management option that will be used to help restore fire-adapted ecosystems and reduce hazard fuels.

B. Wildland Fire Management Goals

The goals of the Riverway's fire management program are:

> Firefighter and public safety are the highest priorities of every fire management activity.

Prescribed fire is used whenever feasible and appropriate to benefit resource values and meet management objectives, especially during management of fire-adapted vegetation communities.

> Prescribed fires are carried out using the full range of management options to protect, enhance and restore resources and developments within and adjacent to the Riverway boundary.

Natural and cultural resources including Native American cultural values will be protected from wildland fires through the suppression using Minimum Impact Suppression Tactics (MIST).

Fire management activities are facilitated through development and maintenance of cooperative agreements and working relationships with federal, state, local, and private entities.
Fire management activities are planned and implemented based upon the best available science.

Fuel hazards around developed areas, along interface boundaries, and near cultural and historic sites are managed to reduce the risk from unwanted wildland fire.

C. Wildland Fire Management Options

All fire management program elements – wildland fire suppression, prescribed fire, and hazardous fuel mitigation – will be employed to achieve resource and fire management goals. The Superintendent has overall responsibility for the fire management program.

Wildland Fire Suppression

All wildland fires will be suppressed using the appropriate management response. Fires will be managed with consideration for public safety, management and resources objectives, relative risk (immediate and external influences), complexity, and defensibility of management boundaries. Suppression responsibility is delegated to the Chief Resource Protection (Chief Ranger). The Resource Protection District Rangers in each of the two districts are responsible for implementation of the policies, strategies and activities outlined in this FMP. The Chief Ranger and District Rangers will ensure that the operational procedures associated with strategies and activities in this FMP are conducted in a safe manner, and will facilitate coordination at the district level with other park personnel and with state and county organizations.

Wildland Fire Use

Wildland fire use is the management of naturally-ignited wildland fires to accomplish specific, pre-stated, resource management objectives in pre-defined geographic areas outlined in Fire Management Plans. Wildland fire use is not a fire management option at the Riverway due to the narrowness of the Riverway boundary, and amount of wildland urban interface.

Prescribed Fire

Prescribed fires are fires in the wildland that are intentionally ignited by resource managers according to predetermined environmental parameters to accomplish specific resource management objectives. All prescription parameters, actions, and measurable objectives are stated in a prescribed fire (burn) plan, approved by the Superintendent prior to ignition. Prescribed fire planning and implementation, along with all fire related research and inventorying and monitoring, is delegated to the Chief of Resource Management

The natural processes of plant succession, mechanical fuel manipulation, and, in some cases, the exclusion of fire have created hazardous wildland fuel conditions in some places. These conditions can result in intense fires with rapid rates of spread, increasing the threat to public and firefighter safety, property, cultural values, and natural resources. Historically, fire was the agent that periodically reduced surface fuel loading and broke up the vertical continuity of fuels, resulting in lower intensity fires and a mosaic pattern of diverse plant communities. Prescribed fire for hazardous fuel mitigation is intended to reduce hazardous wildland fuels and maintain fuels in a condition that facilitates protection of life, property, cultural values, and natural resources. Hazard fuel reduction will enable fire suppression forces to be more effective in implementing the appropriate management response when necessary.

Although prescribed fire can be an effective tool for the management of both natural and artificial fuel accumulations, in some situations, due to the existing fuel conditions, a combination of mechanical treatment followed by prescribed fire may be necessary to achieve the desired fuel conditions.

Prescribed fire for ecosystem management is intended to reintroduce fire into fire-adapted systems to help maintain historic fuel conditions and plant communities and to perpetuate the ecosystem commensurate with natural fire regimes and vegetation diversity. The natural processes of plant succession, mechanical fuel manipulation, and, in some cases, the exclusion of fire have decreased the quality or quantity of wildlife habitat for some species. Management benefits that can be achieved include seedbed preparation for natural regeneration of certain trees, rejuvenation of decadent shrubs, stimulation of desired native grasses, and increased forage and habitat for wildlife. Other benefits of prescribed fire include restoration and maintenance of natural vegetation mosaics to enhance primitive recreation, reduction of suppression costs, and public awareness of fire as a natural and essential component of the ecosystem.

Prior to implementation of prescribed fire projects an interdisciplinary resource team will assess the proposed area, considering historical fire regime, management objectives, and values at risk. A project will then be developed which will alter an existing undesirable condition or predicted succession pathway to a more desirable condition; provide for essential fire protection in concert with ecological processes; allow natural ecological processes to function; and be technically feasible to accomplish.

Non-Fire Applications.

Non-fire applications will consist of mechanical treatment and herbicide treatment. These will be used for management of fuels, control of exotics and restoration of fire adapted plant communities. The major goal of fuels management at the Riverway is to achieve and maintain a fuel condition that ensures protection of life, property, and natural and cultural resources. Fuel management issues at the Riverway include natural fuels, activity fuels, and wildland urban interface (WUI) fuels.

D. Wildland Fire Management Strategies

A Fire Management Unit (FMU) is "a unique land management area defined by land objectives, topographic features, values to be protected, political boundaries, fuel types, or major fire regimes." The Riverway will be treated as a single FMU because similar plant communities exist along both rivers (St. Croix and Namekagon) that make up the Riverway.

1. Physical and Biotic Characteristics

Vegetation

Terrestrial vegetation communities along the St. Croix and Namekagon transitions from northern mixed hardwood forests in the northern reaches, through red, white, and jack pine forests in the north-central regions, and emerge as a northern mixed hardwood and river floodplain forest complex in the middle and southern reaches of the river (Curtis, 1959). The south and southwest facing slopes in the lower reaches also contain grasslands which have been described as sand prairie, basalt bald prairie, and hill prairie (Glenn-Lewin, 1987). Mesic-wet prairie vegetation is common on islands and adjacent uplands subjected to periodic flooding. These intergrade with the wetlands that include peatland, bog, wet meadow, and fen habitats. These habitats support a thriving community of aquatic and wetland vegetation throughout the Riverway.

Vegetation communities tend to run in varying width bands parallel to the river. Immediately adjacent to the riverbanks along the entire river there is usually a band of either sedge meadow, marsh or lowland hardwoods. This riparian zone may extend up to a mile from the river but it is typically much less. The width of this band is determined by topography and is subject to flooding in its entirety, sometimes annually. The second band along the river is usually the oak forest type. Jack pines and scrub (Hill's, black, bur and/or northern red) oak dominate in the northwest sands of Wisconsin between Nevers Dam (north of St. Croix Falls, Wisconsin) and Hayward, Wisconsin. In pre-settlement times, much of this would have been oak or jack pine barrens or savanna. Beyond this second tier, there exist second growth stands of jack pine, hardwood and mixed hardwood forests and pine plantations.

Extensive, dense stands of natural jack pine are the most fire prone areas of northwestern Wisconsin. While there are few large areas of this type within the Riverway boundary, there are numerous areas adjacent to the boundary. Stand density on these xeric soils is generally

low and land uses are primarily forestry and recreation. There are no comparable jack pine stands on the Minnesota side of the river, since the soils tend to be wetter and heavier, favoring hardwood species.

From Nevers Dam southward to Stillwater, Minnesota, oak and hardwood (maple-basswood-elm) are the dominant forest types. Hill prairies are found on the west and southwest facing bluffs of the Wisconsin side of the river below Osceola, Wisconsin. These prairies often extend well back from the bluff line and were more common in pre-settlement days. There are also cultivated fields and pastures. Agriculture and residential homes are the dominant land use here, with occasional subdivisions interspersed along the bluff line. The most intensive development along this stretch of the river occurs on the Minnesota side.

Soil

Most of the soils along the St. Croix and Namekagon Rivers were formed in material laid down by glaciers. Some soils also formed from organic material, while others formed from alluvium and wind-blown deposits. In general, the soils of the St. Croix basin are silts and sandy loam. Most are well drained or excessively well drained, although there are areas of somewhat poorly drained loamy soils. There are also large areas of peat deposits along the Riverway.

The largest area of outwash plains, an extensive area of sandy soils, is known as “the barrens” or the northwest sands of Wisconsin. For the most part, the barrens are located east of the St. Croix River, stretching 120 miles northeastward from northwestern Polk County, Wisconsin, into the Bayfield Peninsula. Pine and oak scrub are the common vegetation communities in the barrens.

Aquatic Resources

The St. Croix and Namekagon Rivers have hundreds of tributaries, of which about 15 are considered major. There are thousands of acres of wetlands within the River Basin, many of which lie adjacent to the Riverway boundary. Yearly runoff into the St. Croix River ranges from a low of 5 inches in the southwest portion of the basin to as much as 15 inches in the northeast. The overall average for the basin is approximately 9.4 inches per year (USGS 1994).

Water quality is generally good throughout the Riverway. To help protect that quality, all of the upper Riverway has been designated by Wisconsin as "outstanding resource water” and by Minnesota as “outstanding resource value waters – restricted.” This severely limits new or increased discharges from municipal or industrial sources.

The water in the St-Croix and Namekagon Rivers is a calcium bicarbonate type, reflecting the glacial drift through which the groundwater flows (Graczyk 1986). Dissolved oxygen levels are generally high and support good populations of freshwater fish and invertebrates. The water also has a moderate brown color caused principally by organic acids and fine

organic detritus drained from the thousands of acres of marshes and peat bogs in the river basin. Additional discoloration and loss of clarity is due to high quantities of sediments carried into the river from tributaries or scoured from the river channel during heavy runoff events. Most of the degradation of the river's water quality is believed to be due to non-point sources outside of the Riverway, primarily runoff from land altered by agriculture, forestry, roads, or development.

With the exception of flowages, dams, and recreational development, most of the Riverway's floodplains are relatively natural and have high ecosystem quality value. Few large river floodplains in the Midwest are as well preserved for long stretches as those along the Upper St. Croix and Namekagon Rivers. About thirty percent of the floodplain in the upper Riverway is classed as wetlands.

Air

The northern reaches of the Riverway are considered an area of relatively clean air. Under the provisions of the Clean Air Act (42 U.S.C. 7401), the entire Riverway is designated a Class II clean air area. This allows limited development as long as particulate matter, sulfur dioxide, and nitrogen dioxide do not exceed the Class II increments (maximum allowable increases). The upper Riverway is in an area that meets all primary and secondary national ambient air quality standards. Air quality and visibility are usually excellent, with little evidence of pollution. The distance of the upper Riverway from major population centers, the low level of industry in the region, and the relatively low visitation rates all help minimize air pollution. Smoke from wood-burning stoves is occasionally noticeable in local communities, particularly under stable weather conditions such as inversions. There is one major stationary source, one of the nation's largest pressboard manufacturing plants, in Hayward, Wisconsin. In 1994, the plant agreed to upgrade its gaseous emission controls under a stipulation from the Wisconsin DNR. The plant is also under a compliance schedule to install state-of-the-art particulate emission controls.

In general, air quality and visibility are usually good in the lower reaches of the Riverway. There is some evidence of pollution from the Twin Cities metropolitan area. The Allan S. King Power Plant, a coal-fired facility, is located adjacent to the Riverway near Stillwater, Minnesota. It and the Twin Cities area appear to be the major sources of pollution along the lower Riverway. Regional haze conditions are noticeable on many days throughout the year. Under certain meteorological conditions, layered haze forms from nitrogen oxide emissions from the King Plant.

Wildlife

The variety of upland, lowland, and aquatic habitats found along the Riverway supports a highly diverse and abundant wildlife population. More than 640 species of animals have been recorded, including insects, mussels, fish, amphibians, reptiles, birds, and mammals.

Cultural Resources

The National Scenic Riverway's cultural resources are grouped into five major categories: prehistoric archeological resources, historic archeological resources, historic structures, ethnographic resources, and cultural landscapes. The park is still in the early stages of identifying its cultural resources.

Prehistoric Resources – Archeological resources reflect use and occupation of the St. Croix Valley for thousands of years. The Riverway was used as a transportation corridor and food source, with occupation sites along its shores since the retreat of the last glaciers. Resources were also extracted from the area to support the Native peoples' (primarily Dakota and Objibwe) lifestyle, including the raw materials for tools and pottery. Burial mounds and graves have been identified on the bluffs and shorelines. While hundreds of sites have been identified within the Riverway, few have been investigated in detail.

Historic Archeological Resources – Historic archeological sites include garbage sites and portions or evidence of structures or features built on the landscape. These may have wood components or other materials intolerant of heat, and are typically closer to the soil surface than prehistoric sites. There are also historic graves within the Riverway.

Historic Structures - Three federally-owned cabins and supporting structures have been determined to be eligible for listing on the National Register of Historic Places. These properties are commonly referred to as the Gibson, Lessner and Platter/Schaeffer cabins. As the Riverway acquires possession of properties that were part of the land acquisition program, the properties will be reviewed for National Register eligibility before their final disposition is determined. Continuing evaluation and the ongoing Historic Resource Study may identify properties that are eligible for the National Register; these would be given a priority for protection from the effects of fire and suppression activities. There are privately owned properties within the park's legislated boundary that are on the National Register, but these structures would not be impacted by this FMP.

Ethnographic Resources – Ethnographic resources may include any of the numerous cultural or natural resources of the Riverway. Among the more common ethnographic resources are sacred and traditional use sites, traditional properties, ceremonial sites and areas, and sites and features from prehistoric and historic periods. Other cultural resources, including buildings, structures, and archeological sites, may also constitute ethnographic resources. Natural resources such as vegetation, wetlands, wildlife, waterways, and landscapes may also qualify as ethnographic resources.

The determination of status as an ethnographic resource is made through research and consultation with affected groups. The Riverway is currently involved with six tribal groups to determine the significance of Riverway resources. Early discussions recognized the importance of a healthy ecosystem for support of spiritual and traditional lifestyles.

Cultural Landscapes – The Riverway and the surrounding area exhibit the effects of human habitation, including associated landscapes. Landscapes include a mix of vegetation and open

space. The location and species of plants may be significant. All cultural landscapes require management to be maintained, and depending on the landscape, treatment methods may vary widely.

Some settings within the Riverway may be determined to be important illustrations of the cultural activities in the area. The NPS is required to identify and protect significant historic or cultural landscapes under its jurisdiction. The three landscapes associated with the three cabins mentioned above are included in their determination of eligibility to the National register of Historic Places. Additional landscapes may be important for their interpretive and educational values and the Riverway may chose to maintain them for this purpose.

Threatened and Endangered Species

The Riverway serves as a refuge for a number of species that are threatened, endangered, or of special concern. Federally listed endangered species that occur in the Riverway include the Higgins' eye pearly mussel and the winged mapleleaf mussel. Federally listed threatened species include the gray wolf and bald eagle. Other Federally listed species that may occur along the Riverway, because their habitat is present, are the Canada lynx, Kirtland's warbler, and Karner blue butterfly.

Real Property

The Riverway is located in Pine, Chisago, and Washington counties in Minnesota and Bayfield, Sawyer, Washburn, Douglas, Burnett, Polk, and St. Croix Counties in Wisconsin. It is a long narrow corridor of land averaging one quarter mile wide on either side of the St. Croix and Namekagon Rivers for over 200 miles. The exact amount of land per mile varies from place to place along the Riverway. Given the long linear nature of the Riverway, there are multiple land ownership and jurisdictions bordering NPS lands. Any fire originating on NPS fee lands that becomes large is likely to burn on to another agencies' jurisdiction.

There are 21 government owned buildings spread out throughout the Riverway, predominately in 4 administrative complexes. Included among these buildings are one Headquarters/Visitor Center, two Visitor Centers/Ranger Stations, and three maintenance compounds. In addition the Riverway maintains 4 remote historic cabins, one adaptive use historic schoolhouse, and two seasonal residences. There are approximately 40 active Use and Occupancies (although this number is rapidly falling with each year) and over 900 private parcels protected by conservation easements. This interspersed ownership results in wildland urban interface issues for the park. Detailed land ownership maps are found in the park's GIS database as well as hard copy maps found in the parks land management program office.

2. Strategic and Measurable Fire Management Objectives

Strategic Objectives:

Provide intensive protection from wildland fire for human life and property within and outside Riverway boundaries.

A prescribed fire program is used to accomplish resource management objectives, such as preventing encroachment by woody species or reducing the spread of invasive exotics or reduce hazardous fuel loading. To the maximum extent possible this program simulates the effects of the natural fire regime on plant and animal communities by attempting to replicate the intensity, severity, and frequency of natural fires at times and places when safety and control can be assured.

Non-fire fuel treatments are used for mitigation of hazardous fuels situations in areas where safe and effective prescribed fire treatment is not feasible due to social, economic, political, or practical reasons.

Measurable objectives:

Ensure all wildland and prescribed fire operations, and non-fire applications, incur no injuries to members of the public or to firefighters.

Initial AMR strategy for unwanted wildland fires is successful 97% of the time.

Fire will not destroy any administrative, public, or private structure, nor incur avoidable damage to any cultural or historic site, artifact, or structure.

Agreements with cooperating and adjacent agencies are reviewed and modified as necessary, annually.

Over the next five years, an average of three prescribed fires will be conducted successfully each year. All prescribed fires are conducted in compliance with an approved prescribed fire plan.

Prescribed fire will be used to maintain selected prairies through increasing/maintaining biodiversity, reducing woody invasion, and reducing cover/frequency/density of exotics species.

Prescribed fire will be used to convert oak woodlands to savanna by reducing overstory or canopy and increasing of native grasses and forbs.

Prescribed fire will be used in combination with mechanical treatments, herbicides and seeding, in non-native grasslands to reduce woody encroachment and suppress cool season exotic grasses while promoting native warm season grasses and forbs.

Prescribed fire will be used in pine barrens to reduce woody invasive plants while retaining some red and/or jack pine over-story (15% to 85% canopy cover).

Over the next five years, the average number of human-caused fires remains at 1.5 per year or less, or a Prevention Workload Analysis is completed and a formal Prevention Plan is developed.

3. Management Considerations

Management considerations will be incorporated when planning and implementing fire management activities. Mitigation actions to be incorporated during project implementation will be described in project plans.

All fire management activities will consider the safety of personnel and the public as the highest priority.

Air quality requirements (NAAQS) will not be violated. Smoke management problems may necessitate suppression actions.

Minimum Impact Suppression Tactics (MIST) will be employed at all times to protect both natural and cultural resources.

Protection and mitigation measures for known historic and cultural resource sites in or near the project area will be ensured before the project is initiated.

Park neighbors, park visitors, and local residents will be notified as efficiently as possible of planned and unplanned fire management activities that have the potential to impact them. In particular, residents living within ½ mile of a prescribed fire project will be notified of the prescribed fire in advance and, if possible, on the day of the fire.

The availability of backup control forces must be ensured before prescribed fires are implemented.

While the presence of numerous nearby lakes, moist marsh areas, streams, and the two major rivers provides excellent natural barriers to check the spread of low intensity surface fires, it is recognized that such features must not be counted on to confine high intensity fires, which often exhibit erratic behavior in the form of torching, spotting and crowning.

Only properly trained and qualified personnel will participate in fire management operations.

Protection and mitigation measures for known threatened, endangered, or special concern species or their habitat in or near the project area will be assured before the project is initiated.

Socio-political and economic impacts of fire management activities will be considered.

All personnel involved in fire management operations will receive a safety briefing describing known hazards and mitigating actions, current fire season conditions, and current and predicted fire weather and behavior.

4. Historic Role of Fire

There is little specific information on the fire history of the Riverway. However, some general information about the surrounding area is applicable.

According to Hendersen and Statz (1995), fire has long played a role in modifying and maintaining plant communities in North America, including much of what are now the states of Minnesota and Wisconsin. In fact, for the past 5 to 6 thousand years, or up until European settlers disrupted the prevailing fire regimes, half of the State of Wisconsin was covered by fire-adapted communities including prairies, southern sedge meadows, oak and pine savannas, and oak and pine woodlands. Fire was ignited both by lightning and by Native Americans.

Although no fire history research has been conducted in the immediate area, the fire regimes of the presettlement vegetation can be generalized by vegetation.

Prairie communities – The fire regime prior to European settlement was frequent surface fires in the early spring before green-up and in the autumn after the herbaceous vegetation had cured.

Pine barrens – The fire regime prior to European settlement may have been a combination of frequent (less than 25 yr interval) low-severity surface fires and high-severity surface fires at longer (25-100 yr) intervals.

Oak woodlands and savannas – The fire regime prior to European settlement was frequent, low-severity surface fires, and was probably maintained by Native American burning.

Pine forests – The fire regime prior to European settlement was a combination of frequent (less than 25 yr interval) low-severity surface fires and infrequent (100 to 300 yr interval) stand-replacing crown fires.

Hardwood forests riparian forests and wetlands – The fire regime for these areas would have been infrequent (more than 200 years) stand-replacing fires, occurring during droughts.

Some location specific information related to fire history in Wisconsin has been provided by the Wisconsin Department of Natural Resources (DNR). The Wisconsin DNR queried their fire history map and database of major fires (greater than 250 acres) for all fires that came within one mile of the Riverway. From 1930 to 1999 there were 21 major fires in or near the

Riverway. The majority of these major fires occurred in the 1930s, prior to widespread cultivation and corresponding fire detection and suppression efforts in the area.

5. Wildland Fire Management Situation

a) Historical Weather Analysis

The climate consists of hot humid summers and cold snowy winters. Annual precipitation is 30 inches of water equivalency. Extensive dry periods can occur throughout the year, especially in spring and autumn. Winter snows average 50 inches total but can vary considerably, up to 98 inches.

b) Fire Season

Detailed computerized fire records have been maintained for St. Croix National Scenic Riverway since 1977. Since then, there has been an average of just over two fires reported every three years. Forty-seven fires have been recorded, burning 103.5 acres within the Riverway boundary. The vast majority of fires (45 fires) were human-caused, with the most common cause being escaped campfires (17 fires); other causes included smoking, debris burning, fireworks, and equipment use. Fires have occurred at all times of the year except winter (December, January, and February), with the most fires occurring in April (20 fires) and May (9 fires). The largest area burned occurred in October (36.0 acres, 35.0 acres in one fire), April (26.1 acres), and May (11.1 acres). Only two fires were ignited by lightning: one in May and the other in June, together burning only 20.1 acres.

The fire season is defined by FIREPRO as the cumulative 10-day periods during the year when a park experiences at least 10 unplanned ignitions based on ten years of record (RM 18, Chapter 17). Although the Riverway does not meet these criteria at any time of the year, the fire history data clearly show that approximately 95 percent of all fires have occurred in April and May, and 90 percent of all area burned has been burned in April, May, and October. For the purposes of this FMP, the Riverway's fire season will consist of a spring fire season and an autumn fire season. The spring fire season will extend from snow-melt until green-up, including April and May, and the autumn fire season will extend from leaf-off until autumn rains or snow, including October.

Table 1. SUMMARY OF FIRES BY GENERAL CAUSE FOR 1974 Thru 2003

FIRE	HUMAN CAUSED		LIGHTNING CAUSED	
YEAR	FIRES	AGENCY ACRES	FIRES	ACRES AGENCY
1974	0	.0	0	.0
1975	0	.0	0	.0
1976	6	2.0	0	.0
1977	5	5.1	0	.0
1978	3	.1	0	.0

1979	6	.3	0	.0
1980	6	7.1	0	.0
1981	0	.0	0	.0
1982	6	2.3	0	.0
1983	0	.0	0	.0
1984	0	.0	0	.0
1985	0	.0	1	20.0
1986	2	.0	0	.0
1987	9	1.8	0	.0
1988	5	3.1	0	.0
1989	1	.1	1	.1
1990	4	6.8	0	.0
1991	0	.0	0	.0
1992	3	.3	0	.0
1993	0	.0	0	.0
1994	4	1.5	0	.0
1995	1	.1	0	.0
1996	0	.0	0	.0
1997	0	.0	0	.0
1998	1	.1	0	.0
1999	1	.1	0	.0
2000	5	47.6	0	.0
2001	0	.0	0	.0
2002	0	.0	0	.0
2003	0	.0	0	.0
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TOTALS	68	78.4	2	20.1
ANNUAL AVERAGE	2	2.6	0	.6

c) Fuel Characteristics

The dominant fuel models within the Riverway boundary are the National Fire Danger Rating System (NFDRS) fuel model R, hardwood and mixed conifer stands where more than half the over-story is deciduous, and fuel model E, hardwoods and mixed conifers after leaf fall. Scattered throughout the Riverway are areas of natural and planted pine stands that correspond to NFDRS fuel model C, open pine stands, and several areas that are marsh, open fields, pastures and grasslands, corresponding to NFDRS fuel models A, herbaceous annuals, and L, herbaceous perennials. For estimating fire behavior, at the Riverway NFDRS fuel model R generally corresponds with Anderson's (1982) fuel model 8, closed timber litter; NFDRS fuel model E to Anderson's fuel model 9, hardwood litter; NFDRS C to Anderson's 2, timber with an herbaceous under-story; and NFDRS A and L to Anderson's 1, short grass, or 3, tall grass.

d) Fire Regime Alteration

Prairie communities – In the past century, recent times fire has been excluded from these communities as much as possible so the fire regime includes much less frequent fire, although severity and intensity are probably still similar. Recent fires are likely smaller than historical fires due to development and fragmentation of the landscape. Exclusion of fire has allowed the invasion of invasive native and exotic plants such as spotted knapweed, Amur maple, eastern red cedar and sumac.

Pine barrens – Fire suppression has reduced fire at both intervals so that fire-dependent pine barrens are now rare in Wisconsin, and when fires do occur they are likely to be of higher intensity than pre-European fires. Other pine barrens are physiographic in origin, and the exclusion of fire has allowed the invasion of invasive exotics such as spotted knapweed, common buckthorn, tartarian honeysuckle, and black locust.

Oak woodlands and savannas – Fire exclusion has allowed savanna openings to fill with small trees and shrubs, and both savannas and woodlands are succeeding to dense forest where fire may not carry even if there is an ignition source. Exclusion of fire has also allowed the invasion of invasive native and exotic plants such as eastern red cedar, sumac and lilacs.

Pine forests – Contemporary fire suppression has prevented the frequent maintenance fires that historically reduced the fuels in pine stands, so that when the natural stand-replacing fires occur they are likely to be more severe than they were in the past.

Hardwood forests, riparian forests and wetlands – The fire regime is largely unchanged, because these communities burned infrequently.

e) Control Problems

Control problems are usually associated with the St. Croix and Namekagon Rivers themselves. Although the waterways may constitute barriers to the spread of low-intensity surface fires, they are not significant barriers to moderate- to high-intensity fires but are barriers to movement of fire suppression forces. Other control problems are associated with unusual fuel accumulations, especially in jack pine stands, as a result of fire exclusion.

f) Values to be Protected

There are many values to be protected from fire due to the Riverway's long, narrow configuration and wildland-urban interface setting. Throughout the Riverway and adjacent to its boundary are communities and isolated residences located within wildland fuel situations that could put them at risk from a wildland fire. This meeting of human development and wildland fuels is called the wildland urban interface, or WUI. A fire which started in WUI fuels under moderate to extreme fire weather conditions could quickly threaten people and property on and adjacent to the Riverway. Other values include administrative buildings,

campgrounds, and other park improvements; cultural resources; and threatened, endangered, or special concern species and their habitat.

IV. Wildland Fire Management Program Components

A. General Implementation Procedures

A Wildland Fire Implementation Plan (WFIP) will be initiated for all wildland fires. This plan will provide the framework for determining the appropriate management response. The WFIP Stage I: Initial Fire Assessment will be the responsibility of the Incident Commander, the Area FMO or the Chief Ranger. As the Riverway's Fire Management Unit only allows for suppression of unplanned ignitions, the requirement for a decision checklist as a part of the Stage I analysis can be considered met. Subsequently, Stage I analysis may be satisfied at the programmatic level in the FMP through determinations made by combinations of values to be protected and/or fire behavior thresholds.

B. Wildland Fire Suppression

1. Range of Potential Fire Behavior

Although wildland fire is not a common occurrence within the Riverway boundary, a general awareness of the range of potential fire behavior is essential to ensure a safe and effective program.

Large fire activity in the Lakes States is generally associated with a "Hudson Bay High" weather pattern. Historically, the Hudson Bay High moves into the area and remains for several days, bringing above-average temperatures and below-average humidity. As the high moves out, high velocity winds contribute to extreme fire behavior. Many of these fires are long and linear in nature, as wind is the predominant driving factor. This pattern is responsible for many of the larger fires in Wisconsin and the Lakes States.

Another unique characteristic of Lakes States weather is the occurrence of fires while the ground is still frozen, typically early in the spring fire season after a cold winter with little snow cover. This frozen ground condition can extend well into the traditional spring fire season.

Prairie communities – Fires in herbaceous fuels are usually fast-spreading, wind-driven fires that pass quickly, and may exhibit long flame lengths and high intensity for short periods of time. Even 1 ft grasses can generate 4 ft flame lengths, and taller vegetation will exhibit longer flame lengths and greater intensity. However, spotting is rarely a problem with herbaceous fires.

Pine barrens and pine forests – Most fires will be fast-moving, wind-driven fires similar to those in prairie communities because the primary carrier of the fire is the herbaceous under-

story. Unlike fires in herbaceous communities, fires in pine barrens may spot from burning snags, and after the main flame front passes fire may smolder in large dead fuels. In severe fire weather conditions, fires are likely to be of high-intensity, fast-moving crown fires with high spotting potential, and after the fire passes it may re-kindle from smoldering stumps or large logs.

Oak woodlands and savannas – Most fires will be fast-moving, wind-driven fires similar to those in prairie communities because the primary carrier of the fire is the herbaceous under-story. Unlike fires in herbaceous communities, fires in woodlands and savannas may smolder in large dead fuels after the main flame front passes. Short-range spotting from flaming leaf litter is possible but less of a problem than in pine barrens. In severe fire weather conditions, fires may be high-intensity, fast-moving fires involving multiple canopy layers. The canopy may be involved, but this is less likely in savannas and woodlands then in pine barren , crown fire runs are likely to be shorter in duration, and spotting potential will be moderate. After the fire passes it may re-kindle from smoldering stumps or large logs.

Hardwood and riparian forests – Fires are unlikely in these mesic areas, and in fact such wet forests may provide barriers to surface fire spread and may assist control efforts on high-intensity fires by reducing fire behavior from crown fire to surface fire. In severe fire weather conditions, mesic forests may burn but will likely have only surface fire. However, fires following extended drought may burn deep into the duff layer, smoldering for long periods of time, making control efforts difficult, generating large amounts of smoke, and causing severe fire effects such as death of many plant species.

2. Preparedness Actions

a) Fire Prevention Activities

The Riverway fire management program will use a cost-effective mix of wildland fire prevention strategies within the broad categories of education, engineering, enforcement, and administration.

The major goal of the Riverway fire prevention program is to reduce the occurrence of human-caused fires. This is accomplished by emphasizing activities of education, engineering, and administration as initial priorities, employing enforcement only if necessary.

The objective for the Prevention Element of the Fire Management Program is to maintain the number of human-caused ignitions in the Riverway at or below the current ten-year average of 1.5 fires per year. A Prevention Workload Analysis may be conducted if the Riverway does not meet this objective to determine ways to meet the objective in the future.

Education – Activities aimed at changing people’s behavior by awareness and knowledge.

Educational activities will focus on educating park visitors and adjacent landowners about fire prevention regulations, appropriate prevention activities, and current fire danger ratings using media, signs, and verbal contact. Additional efforts will focus on educating park employees about fire prevention activities they can integrate into their jobs.

The Riverway will implement, as appropriate, the following wildland fire prevention activities:

Provide homeowners with instruction and information regarding actions to make their home and property more resistant to fire damage.
Publish fire prevention and homeowner's fire-proofing information in the park's site bulletins and/or newspaper and on the park's internet home page.
Develop a photo display of fire-safe conditions in and around homes and property.
Display and distribute fire use information and wildland fire prevention items at annual community and County events jointly with the local Interagency Fire Prevention Committee.
Expand the annual wildland fire prevention program at schools to include prescribed fire use information and current information about recent prescribed fires.

Engineering – Activities designed to shield an ignition source (e.g., installing a spark arrestor) or remove the fuel (e.g., clearance around a home).

Ensure equipment incorporates fire prevention devices (e.g., spark arrestors) on all field equipment.
Evaluate park structures for flammable construction materials and the need for defensible space.

Enforcement – Activities used to gain compliance with fire regulations and ordinances.

Information pertaining to a wildland fire trespass or arson situation on the Riverway will be forwarded to the District Ranger for the district in which the incident occurred for processing and coordination.
Continue to conduct routine patrols as means to inform and enforce regulations regarding campfires, smoking, etc., as appropriate

Administration – Activities such as planning, budgeting and training.

Park employees will incorporate fire prevention awareness as opportunities arise during formal and informal education programs with visitors and during conversations with property owners and cooperators.
Ensure fire prevention awareness is included in all utilities vegetation management plans with the several utility companies that have major crossings across park lands.

b) Annual Training Activities

The Riverway fire management program will follow the National Wildfire Coordinating Group (NWCG) Standards (*NWCG Publication 310-1*) for qualifications for wildland and prescribed fire positions. Each year firefighters will pass standard fire physical fitness requirements (pack test) and attend annual Firefighter Refresher training. The Chief Ranger in coordination with the Border Waters Area FMO will maintain a list identifying individuals currently qualified for wildland fire positions, including incident support or overhead positions. In coordination with the Area FMO, the Chief Ranger will assess and prioritize personnel training needs.

c) Fire Readiness

Annual Preparedness Reviews will be conducted by the Chief Ranger. The following list specifies fire readiness activities, the position responsible, and the target date for completion each year:

Complete annual review and update of fire training, experience and qualifications and submit to Area FMO at Voyageurs National Park (Chief Ranger and RP Program Assistant, April 1).

Conduct physical fitness testing of all fire personnel (Trego Sub-district Ranger, April 1 for permanent employees, June 15 for seasonal employees).

Conduct pre-season preparedness inspections of fire caches (Trego Sub-district Ranger, April 1).

Conduct Annual Firefighter Refresher Training (Border Waters Area FMO and Trego Sub-district Ranger, by April 15 for permanent employees, by June 15 for seasonal employees).

Ensure all personnel available for wildland fire dispatch have current Red Cards and appropriate personnel protective gear (Trego Sub-district Ranger, April 15 for permanent employees, by June 15 for seasonal employees)

Coordinate any revisions to the MNICS Mobilization Plan (Chief Ranger, April 15)

Attend interagency cooperative agreement meetings (Border Waters Area FMO and Chief Ranger, date(s) vary)

The Chief Ranger and District Rangers are responsible to conduct periodic informal “fire readiness” reviews throughout the fire season.

d) Fire Weather and Fire Danger

Fire weather predictions are made based on observations taken at appropriate fire weather stations throughout the Northern and Central Wisconsin-Minnesota Region. The DNR for both states along with the Chequamegon National Forest operate remote automated weather stations (RAWS) within their respective agencies. Observations from these stations are transmitted through the Weather Information Management System (WIMS) and posted on the Eastern Area Coordination Center's website at http://www.fs.fed.us/eacc/predictive_services/NFDRSindex.shtml daily for National Fire Danger Rating assessment. Fire weather indices as well as adjective classes are for each station are posted.

Because of the long linear nature of the Riverway, multiple fire weather stations could be used as representative stations for fire danger index for sections of the Riverway. These stations include:

Namekagon District	St. Croix District
Moose Lake, MN (Station # 211803)	Carlos, MN (Station # 214201)
Minong, WI (Station # 470703)	Sherburne, MN (Station # 214001)
Barnes, WI (Station #470202)	Trade River, WI (Station # 470602)
Hayward, WI (Station #470804)	Moose Lake, MN (Station # 211803)

Given its somewhat central location near the Riverway, the WIDNR-operated Trade River, Wisconsin, RAWS (Station # 470602) will be used for determining fire danger rating levels and staffing classes for the Riverway. This station is located in Burnett County, approximately 20 miles north of St. Croix Falls, WI. The Burning Index (BI) will be used for Staffing Class determination as described in the Riverway's "Step-Up" Plan. The WI DNR is currently using fuel model Q, Alaskan black spruce, as its primary fuel model for this station and indices for fuel model Q are posted to the website listed above. While NPS lands would be better represented by hardwood litter models of fuel model R or E, the relative fire danger rating should be the same. 90th and 97th percentile indices have been calculated using the six years of data available (1998-2003) for this station. They are as follows for Fuel Model Q, April 1-October 31.

	90th Percentile	97th Percentile
Burning Index (BI)	69	83
Energy Release Component (ERC)	38	44
1,000 Hour Fuel Moisture	18	17

Fire weather forecasts are issued daily from the National Weather Service (NWS) Office in Duluth and Chanhassen, Minnesota. The Riverway spans the two forecasting offices with Pine, Bayfield, Washburn, Douglas, Burnett, and Sawyer Counties' fire weather forecasts coming from Duluth; Chisago, Washington, Polk, and St. Croix Counties forecasted through Chanhassen. Fire weather forecasts can be obtained from the respective NWS websites, or on the MNICS website.

e) Step-up Staffing Plan

Table 2: The Step-up Plan outlines the minimum necessary staffing with changes in the Burning Index (BI) using NFDRS Fuel Model Q.

Staffing Class SC	Fuel Model	Burning Index	Step up Actions
SC-1	Q	0-25	Riverway will continue with normal operations. Normal preparedness actions.
SC-2	Q	26-50	Riverway will continue with normal operations. Normal preparedness actions.
SC-3	Q	51-75	All actions under SC-2 plus the following: Staff notified of fire weather conditions. Fire awareness incorporated in public contacts. Record of available staff and locations maintained. Under unusual conditions, the Chief Ranger or Riverway Superintendent may upgrade with appropriate justification to SC-4 if a high visitation period such as a holiday or special event is determined to pose exceptional human-caused risk of wildland fire.
SC-4	Q	76-83	All actions under SC-3 plus: In consultation with the Area FMO, the Riverway may open emergency preparedness account. Overtime may be authorized to enhance fire preparedness by firefighters working their days off or after normal working hours in the evening to increase patrols. Off-duty roster kept of trained personnel. Red carded personnel will have PPE available to respond to fires. May supplement Riverway personnel with outside overhead, crews and equipment as wildland fire occurrence increases.
SC-5	Q	84+	All actions under SC-4 plus: Additional fire qualified personnel may be on paid standby duty and readily available for suppression.

3. Initial Attack

For any wildland fire detected on or near Riverway lands, the District Ranger and closest DNR office will be notified by radio or telephone. The Chief Ranger is to be notified at Park Headquarters. If the fire is small, such as from a campfire, the nearest qualified park employee will take direct suppression action until the fire is suppressed. All suppression actions will be governed by consideration of human safety; availability of effective

resources; and management of objectives and constraints. Objectives of this FMP include aggressive initial attack and/or appropriate management response by NPS personnel of fires occurring within the Riverway. In general, the goals can be met most effectively and cost-efficiently by:

1. Quickly evaluating each fire occurrence within the Riverway for geographic location, spread potential, and amount and type of resources needed for effective suppression.
2. Providing rapid, initial attack for those fires to be suppressed.
3. Using appropriate management response and tactics designed to efficiently and effectively suppress fire while accomplishing resource management objectives.

Whenever fire is reported within Riverway boundaries, the following steps will be taken:

1. Report of the fire to the appropriate District Ranger and RP Program Assistant and subsequently to the Chief Ranger.
2. VRP Program Assistant and/or District Ranger determination of location, legal description, and land ownership at the occurrence site.
3. At least two Riverway personnel will be dispatched to the location of the fire. Personnel dispatched will be qualified and equipped to undertake initial attack action including an Initial Attack Incident Commander (ICT4 or ICT5).
4. Immediately upon arrival at the fire location, an initial fire size-up (report of the fire size, behavior, environmental conditions, fuels, terrain features, existence of special hazards or threats to persons or improvements, and any other factors observed which could affect fire behavior and suppression efforts etc.) will be completed. This information will be reported to dispatch.

All wildland fires will receive an initial attack response. An Incident Commander will be assigned to the fire and determine the appropriate suppression strategy to be utilized. The goal in initial attack actions is to limit damage to threatened values, while minimizing the area burned and preventing escape of the fire.

a) Initial Attack Priorities

Occasions in which two or more fires are ignited are rare in the Riverway and would likely be associated with days when high to extreme fire danger exists. Suppression actions taken on multiple start days would quickly deplete Riverway suppression resources. In these cases, assistance would be requested through adjoining agencies through local agreement. Contact numbers for adjacent agencies are found in Appendix E.

Priority of initial attack on days of multiple fire starts will be consistent with the goals and objectives set forth in the FMP. The priorities are:

1. Fires threatening life or property within Riverway boundaries;

2. Fires starting on NPS lands which are within close proximity to the Riverway boundary and have likely potential to burn across the boundary and on to non-NPS lands;
3. Fires starting outside the Riverway which are within proximity to Riverway boundaries and which have a potential to threaten NPS lands.

b) Appropriate Initial Attack Response

The appropriate management response (AMR) for an unwanted wildland fire within the NPS fee-lands of the Riverway will be a suppression action. However, suppression actions will follow the direction provided by the Wildland Fire Management Policy (1998), which states: "fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives."

The appropriate suppression response will vary from fire to fire and even along the perimeter of a single fire. The level of suppression response may range from immediate initial attack to a combination of tactics to achieve containment. The tactics may range from monitoring to aggressive actions on all perimeters of a fire.

c) Confinement

A confinement strategy may be selected for initial attack as long as it is not being used solely to meet resource management objectives. Resource benefits may be a side benefit but the strategy must be based upon normal criteria for selecting a suppression strategy. Confinement can also be a strategic selection through the Wildland Fire Situation Analysis (WFSA) process when the fire is expected to exceed initial attack capability.

d) Response Times

Due to the fact that there are not dedicated FIREPRO funded positions at St. Croix NSR, some fires are reported to and suppressed by local DNR or VFD resources, and the long linear boundary of the park, response times in the park vary greatly. Included in Appendix E is a list of duty stations for collateral duty Riverway fire fighters, Wisconsin and Minnesota DNR Offices, and VFD Fire Stations.

e) Restrictions and Special Concerns

All fire management activities will consider safety of personnel and the public as the highest priority.

Smoke management mitigation procedures for burning will be followed for all prescribed fire operations.

Minimum Impact Suppression Tactics (MIST) will be employed as discussed in section IV.B.5 of this plan.

Protection and mitigation measures for known historic and cultural resource sites in or near the project area must be assured before a prescribed fire project is identified and mitigated during suppression actions.

Park neighbors, park visitors and local residents will be notified of all planned and unplanned fire management activities that have the potential to impact them.

All personnel involved in fire management operations will receive a safety briefing describing known hazards and mitigating actions, current fire season conditions and current and predicted fire weather and behavior.

Only properly trained and qualified personnel will carry out fire management operations.

Due to extensive water resources in the park, the following special restrictions will apply with regard to aerially applied retardant and foam use:

Retardant – No retardant drops within 400 feet of open water.

Foam (aerial delivery) – Aerial delivery of foam requires Park Superintendent approval on a case-by-case basis. When approved, the following guidelines apply:

Foam concentrate will only be injected into the holding tank after the water pick-up operation has been completed.
Drops from Beaver, T2 & T3 helicopters – no drops within 200 feet of open water.
Drops from Scoopers, heavy air tanker or heavy helicopter – no drops within 400 feet of open water.

Foam (ground delivery with motorized pumps):

No application within 25 feet of open water when using small pumps (Mk 26, Shindawa, etc.)
No application within 50 feet of open water when using Mk III or equivalent pumps or fire ground engines.
All foam concentrate used for injection will be located in impermeable containment basins, i.e. visqueen (plastic sheet) spread over rocks or logs to form a catch basin.

Foam (ground delivery with backpack pumps):

No application within 10 feet of open water.
All backpack pumps will be filled a minimum of 10 feet from open water. A separate, uncontaminated container must be used to

transport water from source to backpack pump. This container must be kept uncontaminated by concentrate.

f) Issues

From time to time, local or regional social-political concerns, such as tribal or local government issues, hiring of employees, recycling, or issues related to firefighter "R-and-R" days, may arise that could affect initial attack or overall administrative management of suppression response.

4. Extended Attack and Large Fire Suppression

a) Extended Attack Needs

Wildland fires that cannot be contained within the first burning period or when the initial attack response has used all available resources and additional forces are requested in order to contain the fire, the incident will be considered extended attack. If a fire threatens to exceed the initial attack capabilities of the park and local cooperating agencies, an Interagency Fire Management Overhead Team may be requested by the Incident Commander, Area Fire Management Officer or Chief Ranger through the Minnesota Interagency Fire Center Coordinator or Wisconsin Interagency Coordination Center. The amount and type of assistance needed and requested will depend on the present and expected complexity of the fire situation, and will be documented on a Resource Order Form (NFES-1470).

Prescribed fires where implementation actions are unsuccessful or the fire cannot be returned to prescription parameters with the project funds designated, will be considered extended attack fires. The Wildland Fire Situation Analysis (WFSA) is initiated when any of these three situations occurs.

b) Implementation Plan Requirements – WFSA Development

Preparation of a WFSA for an extended attack operation or large fire organization will be undertaken as a means to evaluate and document the appropriate management response to manage the fire. Enhanced resource values may be a collateral benefit of the planned action under the WFSA, but cannot be part of the objective of the management response. It will be the responsibility of the District Rangers to initiate this document. The Park Superintendent or his/her designee is responsible for its approval. WFSA procedures are outlined in the Wildland and Prescribed Fire Management Policy Guide (1998).

c) Complexity Decision Process

The purpose of this process is to lessen the burden on the Riverway when an incident exceeds local management capabilities. The Incident Commander will determine when the fire exceeds initial attack capability and that additional resources need to be ordered. Procedures

for activation and implementation of an Incident Management Team (IMT) are in the MNICS Mobilization Plan (2003). The following issues will be considered when evaluating the need for activation of an IMT:

Is the Riverway nearing depletion of initial attack resources?
What is the availability of addition resources locally, regionally, and nationally?
What is the likelihood of holding the fire under current and expected conditions?
What are the available air resources?
What are the values at risk?
What are the logistics issues related to the incident?

d) Delegation of Authority

Should fire activity or complexity warrant the ordering of an Incident Management Team, a Delegation of Authority, signed by the Superintendent or his/her designee and by the incoming Incident Commander, will be used to give the IMT authority to manage the incident.

5. Minimum Impact Suppression Tactics (MIST)

Implementation of Minimum Impact Suppression Tactics (MIST) is essential to ensure protection of the Riverway natural and cultural resources. The principles of MIST should be emphasized annually prior to the fire season during interagency meetings, Volunteer Fire Department (VFD) meetings, and Riverway Management Team meetings to ensure cooperator and unit manager's awareness and support, and during basic and refresher firefighter training. As a minimum, the following basic MIST principles will be applied during all fire management activities at the Riverway:

Use natural barriers as much as possible to avoid cutting or scraping the fireline on the perimeter of the fire. Where the fire has stopped, feel the line to make sure it is out.

Use water, where possible, to halt fire spread. If direct attack is needed, construct the fireline as narrow and shallow as adequate. Avoid cutting brush and branches if possible.

When felling of a tree or snag is necessary, leave the bole intact without bucking.

Use water saturation where practical during mop-up to avoid stirring or mixing ashes or otherwise further disturbing the soils.

As time permits during mop-up, let fuels consume naturally.

Use natural openings for helispots whenever possible to minimize clearing new sites. Return helispots to a natural appearance after use.

Exercise caution with chemical retardant near lakes, waterways, and wetlands.

Protect archeological sites from disturbance during wildland fire suppression activities.

Pack out all material transported into the fire.

6. Rehabilitation Guidelines and Procedures

Cultural or natural resource damage caused by suppression activities will be assessed for rehabilitation. The primary strategy is to leave the fire area as natural-appearing as possible. Implementation of rehabilitation actions will be initiated while fire suppression crews, equipment, and resources are still on the site. These actions are appropriately financed from emergency operation funds.

7. Records and Reports

Fire Reports (1202's)

The Riverway will prepare reports on all fires as required by Director's Order (DO) #18. The District Ranger will review all DI-1202 fire reports before they are submitted to the Chief Ranger for signature. As required by DO-18, DI-1202 Fire Reports will be completed and entered into the Shared Applications Computer System (SACS) within 10 days of the wildland or prescribed fire being declared out. Copies of reports will be forwarded to the Minnesota or Wisconsin DNR for any fire that burns off NPS lands and on to state lands. The respective DNR or VFD will furnish the Riverway with copies of reports for fires suppressed on NPS land. Copies of all fire reports and associated fire documentation and maps will be maintained in the Chief Ranger's files.

A complete report will include the following attachments if applicable:

Any written policies, guidelines, or authority statements signed by the Superintendent.

Copies of equipment purchase or personnel request orders.

All situation maps.

Personnel lists (including Individual Fire Fighter Time Reports (OF 288).

Approved prescribed fire plan (if prescribed fire).

Fire Behavior Analyst Report/Post Burn Evaluation.

Press clippings.

Accident reports.

All weather data reports and records.

Burning permits and air quality clearances for prescribed fires.

Documentation of all financial charges made against the assigned fire account number.

Rehabilitation Plan.

Daily Situation Report

All wildland fires will be closely monitored. The following information will be relayed to the Regional Fire Management Officer or the Area FMO by 9:30 a.m. daily for entry into the nationwide fire summary report via the Shared Applications Computer System (SACS). The fire coordinator will be responsible for contacting the Regional FMO or Area FMO.

Fire name and start date (only for the first day).

Present fire behavior.

Estimate of acreage burned in last 24 hours.

Direction of spread.

Rate of Spread.

Type of fuels on ground.

Windspeed, temperature and relative humidity on-site readings.

Number of personnel and equipment committed to the fire.

Resources threatened and whether or not actions need to be re-evaluated.

Document all cultural resources encountered, affected visibility, archaeological, or cultural landscape features.

Estimated control date.

Judgment of the ability of local forces to control the fire.

Anytime BI's reach the 90th percentile and GWCA moves into Staffing Class IV and V.

Individual Training and Experience

Every employee who has had training or fire experience in the past year will complete these forms. This will be done once a year after the fire season. The Fire Coordinator will keep the originals and send copies to the Area FMO for entry into the SACS computer. Those employees who are not in the computer but wish to participate in the fire program will fill out the initial Employee Master Record Update Form.

C. Wildland Fire Use

Wildland Fire Use is the management of naturally ignited fires to accomplish specific resource management objectives in predefined geographic areas within predetermined parameters as outlined in the FMP. During the analysis of alternatives that took place as part of the development of the environmental assessment for this FMP, it was determined that wildland fire use is not a management option appropriate for the Riverway due to the narrowness of the Riverway boundary, and amount of wildland urban interface.
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D. Prescribed Fire

Prescribed fire is recognized as an important tool for the management of vegetation communities, the control and manipulation of certain plant species, and achievement of resource management goals outlined in the St. Croix National Scenic Riverway Resource Management Plan. Prescribed fire may be used as a tactic to develop defensible space around values a risk and in conjunction with mechanical tools to treat hazardous fuels to lessen threat of unwanted wildland fire. It may occasionally be used as part of research projects.

Due to the proximity of other state and local public lands along and within the boundaries of the Riverway, the Riverway, through an approved plan, will accept prescribed fire from these entities if:

The fire plan and staffing requirements meets NPS standards.

The reason to accept the fire is based upon control factors including the use of natural and existing human built or constructed control lines.

The prescribed fire will achieve and support Riverway fire management and natural resources management objectives.

1. Planning and Documentation

a) Annual Implementation Activities

Prescribed fire will be used each year at the Riverway to achieve resource management objectives established in the Resource Management Plan. St. Croix National Scenic Riverway's annual prescribed fire program will be prepared by the Riverway Natural and Cultural Resource Management and Resource Protection staff in cooperation with Border Waters Area Park Group Fire Management Staff. This program will consist of a review of prescribed fires completed for the current year and those proposed for the following fiscal year. Priorities for use of prescribed fire are determined by the length of time since previous fire, current fuel loading and vegetative conditions, topographic advantage, and by personnel and logistical requirements. The Long Term Prescribed Fire Plan (Appendix E) will provide the guidance for yearly priorities. Units to be burned will be identified and budget requests submitted on the timeline set by the National Fire Program Management Center.

The Area Fire Management Officer or designee Burn Boss with the input of Natural and Cultural Resource Management staff will develop unit specific prescribed fire plans for each proposed unit. Guidance for prescribed fire plan development is found in Chapter 10 of Reference Manual 18. The Burn Boss writing the plan will conduct a field reconnaissance of the proposed prescribed fire unit with Riverway staff members to discuss special problems, conditions, objectives, and firing techniques. At the completion of the reconnaissance, the Prescribed Burn Boss will prepare a prescribed fire plan.

b) Long-term Prescribed Fire Strategy

The primary goal for prescribed fire is to restore and maintain fire-adapted vegetation communities, including prairies, oak savannas, oak woodlands, pine barrens and pine forests along the Riverway by controlling encroachment of woody species, preventing succession to shade-tolerant species, and controlling exotic species. The Riverway has currently identified approximately 550 acres (32 sites) where the application of prescribed fire would meet resource management objectives. New sites may be identified through additional surveys. A Long Term Prescribed Fire Plan proposed prescribed fire schedule has been developed for the Riverway. It proposes burning 110 acres in 8 high priority sites and 440 acres in 23 lower priority sites over the next five years using low-intensity surface fires. Prescribed fire units are ranked according to a priority system based on criteria including feasibility of the project, degree of degradation of the community, measurable resource benefits, public education value, complexity, opportunities for collaboration, and logistics. The Long Term Prescribed Fire Plan is included in this FMP in Appendix E.

Activity fuels are byproducts of management activity. An interdisciplinary assessment will be used to determine if wildland fuel conditions following an activity are commensurate with resource management goals and will not impact efficient, effective management of the fire program. If necessary, a site-specific fuel treatment plan describing the desired end-result fuel condition and treatment method will be included with the activity plan. Treatments of activity fuels will include piling and burning debris, scattering and burning debris, and prescribed burning natural and activity fuels together.

c) Personnel Requirements

The Area FMO will designate, with approval by the Superintendent, a qualified Prescribed Burn Boss who will be responsible for all aspects of a prescribed fire project. Using the Incident Command System format, s/he will also designate appropriate incident management staff as outlined in the prescribed fire plan. Qualified Prescribed Burn Bosses, Ignition Specialists, Holding Specialists, Fire Monitors, and other personnel will be qualified for their respective positions according to NWCG standards. Prescribed fire operations normally require assistance in the form of holding and lighting resources from NPS staff outside the park, or local interagency partners (through MNICS or WIFC). An effort will be made to develop a highly trained cadre of individuals within each division that will provide the nucleus of the Burn Team and ensure professional execution of the program. In order to allow for attendance at winter and spring fire training programs and to provide continuity, permanent staff will be given priority over seasonal employees for training opportunities.

d) Monitoring

All prescribed fires will be monitored. Information gathered during fire monitoring is needed to: keep fires within predetermined criteria, know when to take suppression action, protect human life and property, and increase knowledge of fire effects on ecosystems. A fire monitoring team will observe the fire, assess its potential and provide a historical record. Monitoring will include documenting the fire environment (weather, fuels, topography), fire behavior (manner and rate of spread, flame length, type of fire), and fire effects (percent of fuels consumed, changes in plant and animal community composition and structure, etc.). Photographs may be taken. Weather readings will be made periodically with a belt weather kit at the fire site. Weather and fire behavior monitoring will be the responsibility of the burn boss. Fire effects monitoring will be the responsibility of the Fire Ecologist.

Fire weather for prescribed fires will be recorded by the Prescribed Burn Boss or a designee at least 14 days, and preferably 30 days, prior to the earliest ignition date of the prescribed fire. When possible, a portable, temporary weather station will be established for each prescribed fire so that fire danger indexes can stabilize before the fire. The station will be positioned, and readings will be taken, in such a way as to

reflect the average peak burning period conditions within the most flammable fuel type in the unit, as well as 24 hour variations.

The National Park Service Fire Monitoring Handbook (NPS 2001) will be the standard for monitoring fire weather, behavior, and effects at the Riverway. It describes in detail all aspects of a comprehensive monitoring program. The St. Croix National Scenic Riverway Fire Effects Monitoring Plan is an unattached appendix, Appendix F, to this FMP. It defines for the park: fire monitoring goals and objectives; monitoring types, minimum qualification standards for fire monitors; and monitoring levels and minimum acceptable standards for documenting fire weather, behavior and effects.

e) Critiques

A team composed of the Chief, Resource Management, representatives from Resource Management staff, the Chief Ranger and the District Ranger of the district in which the project was conducted, the Area FMO, and the Burn Boss, if possible, will critique each prescribed fire on the Riverway to determine the effectiveness of the prescribed fire project. A report of the results of the critique will be prepared and submitted to the Superintendent. RM-18, Chapter 10 provides a “Post-Project Evaluation” template for each project. A post-season critique and review of monitoring data will help managers determine if prescribed fire program objectives are being met.

f) Reporting and Documentation

The Prescribed Burn Boss will prepare a final report on the project for the Riverway and for the Area FMO, including, at least, the total work-hours and burn costs, a summary of the fire chronology, complete weather and prescription records, and a map of the actual burn perimeter. Other data may be requested by the Chief of Resource Management as part of the final prescribed fire report package. The Area FMO and Chief Ranger will then complete all necessary fire reports for signature by the superintendent, forward the reports to the regional office, and keep all fire related records for future use in planning and evaluating prescribed fire operations. All of the documentation forms for each prescribed fire within the Riverway will be archived in the park's fire records maintained by the VRP Program Assistant.

g) Historic Fuels Treatments

No prescribed fires have been conducted at the Riverway prior to implementation of this FMP.

h) Prescribed Fire Plan Requirements

Requirements for Prescribed Fire Plans are described in RM-18, Chapter 10.

2. Exceeding the Existing Prescribed Fire Plan

Prescribed fires that exceed prescription parameters outlined in the approved prescribed fire plan will be declared unwanted wildland fires and a WFSA will be initiated to determine the appropriate suppression strategy and tactics (*Wildland and Prescribed Fire Management Policy Guide, 1998*). Fire suppression actions will be the same as those described above in the Suppression section of this FMP. The Contingency Plan section of the prescribed fire plan will provide details and information necessary to complete the WFSA,

3. Air Quality and Smoke Management

a) Issues

The Riverway is a Class II air shed, which recognizes some degradation in air quality over the park. Smoke may be viewed as a short term effect unavoidable when using fire as a management tool.

Although the effects of smoke on air quality may be a concern to local residents, these effects will be transient and of short duration. Concerns may develop depending on the duration and intensity of the smoke event, so the effects of smoke, as well as mitigation measures, are addressed in prescribed fire plans.

Effects of smoke will be mitigated as much as possible. Measures such as use of a test fire, notification of local residents, and restrictions on prescribed fires in or near developed sites and cultural resource sites will be used as needed.

b) Management Actions

Although most of the proposed prescribed fire units are on the Wisconsin side of the Riverway, all prescribed fire actions will comply with the Minnesota Smoke Management Plan (2002). The MNICS Agencies along with the Minnesota Pollution Control Agency, have developed a Smoke Management Plan (SMP) for Minnesota which describes the procedures for managing smoke emission from prescribed fires. Unit specific prescribed fire plans will include within the Smoke Management Sections of the plan the following components:

- Actions to minimize smoke emissions
- Evaluation of smoke dispersal
- Public notification and exposure reduction procedures
- Smoke monitoring

E. Non-Fire Fuel Treatment Applications

Non-fire treatment methods are used for reducing fuel hazards in areas where safe and effective prescribed fire treatment is impractical. Non-fire treatment methods may include cutting, mowing, trimming, and clearing of herbaceous or woody fuels using powered hand tools such as chainsaws and mowers. Mechanical treatments could be used by itself or in conjunction with prescribed fire and/or herbicide treatments to maximize benefits. Topical herbicides would be used on a limited basis to prevent resprouting of exotic species such as buckthorn and honeysuckle. Herbicides would be used in strict adherence to label requirements. In accordance with NPS policy, an integrated pest management plan would be developed for all species targeted for herbicide treatment.

1. Annual Activities

Residential landscaping techniques such as regular mowing will be used to maintain defensible spaces around most NPS structures. Activities normally conducted by Riverway maintenance staff will not be considered fire management activities for the purposes of this FMP.

2. Restrictions

MIST will be applied during non-fire treatments to protect soils and cultural resources. MIST will take into consideration soil moisture content, sensitivity of plant and animal species to disturbance and noise, and aesthetic impacts of treatments.

3. Monitoring

Due to the low-impact nature of non-fire treatments to be used at the Riverway, monitoring will be conducted primarily by visual, subjective assessment of the success of the project in reducing the fire hazard. Photographs and dead-and-down fuels transects such as Brown's lines may be used to provide more quantitative information.

4. Critiques

Critiques of non-fire treatment projects will occur as part of the annual fire management program review process.

5. Cost Accounting

The Chief Ranger and Area FMO will maintain cost records for all non-fire treatment projects.

6. Reporting and Documentation

All non-fire treatment projects other than in routine activities by Riverway maintenance staff will be documented according to the guidelines described in RM-18, Chapter 10, Section C.

In addition, compliance with NEPA requirements will be documented on a Project Screening Form with minimal tool analysis.

7. Planned Projects

No non-fire treatment projects are planned at the time this FMP was approved. Mechanical treatment will be used to reduce woody encroachment in preparation for prairie restoration but is not a fuel treatment application.

F. Emergency Rehabilitation and Restoration

No rehabilitation of burned lands within the Riverway boundary area has been necessary in the past. The topography of the Riverway is such that erosion after fires has not been a problem. Natural regeneration of ground cover after fires is likely to be satisfactory to ensure adequate protection of soils.

Special consideration needs to be taken for burned areas along the Namekagon River which might be susceptible to spotted knapweed, an invasive exotic plant. Appropriate mitigating measures, including possible seeding, may be necessary to ensure control of this species.

All rehabilitation actions will be in accordance with National Park Service Policy found in RM-18, Chapter 12, Departmental Manual (620 DM 3, Burned Area Emergency Stabilization and Rehabilitation) and the guidelines found in the Interagency BAER Handbook. After the fire is declared out, all flagging, litter and trash associated with the suppression operations will be removed. Firelines will be rehabbed and erosion control devices installed as necessary. Brush will be scattered and stumps will be flush cut and covered with soil. Plow furrows will be rehabilitated by rolling the materials back into the furrow. Public use trails will be patrolled and measures taken to ensure public safety.

The severity of the burn and the resulting impacts will dictate the need to re-seed or reestablish native plant species. Although the likelihood of the need is considered to be quite low, before any action is taken a rehabilitation plan will be prepared and approved in accordance with Park Service policy.

Interagency BAER handbook states that damage to improvements caused by suppression efforts and repairs required to protect Riverway resources from imminent damage can be charged to the individual fire suppression account. Emergency Stabilization and Rehabilitation (ESR) funds can be used to repair damage caused by the fire itself as follows:

Health and safety (imminent danger or immediate threat to life and property)
Municipal water source loss of capacity (not water quality)
Threatened and endangered species habitat treatments (not enhancements)
Cultural site treatments to prevent further erosion (not inventory or mitigation of site)

Treatments to prevent invasive plant establishment
Resource protection treatments (site stabilization of soil)

ESR funds generally cannot be used to repair fire damage to park infrastructure. Funds to repair or replace fire damaged infrastructure will come from non fire sources. ESR funds, if approved, are available for the first two years after the fire is declared out. Rehabilitation extending beyond two years is not considered an emergency. Long term rehabilitation will be funded from non fire funding sources.

V. Organization and Budgetary Parameters

A. Organizational Structure

Superintendent – The Superintendent is responsible for overall operation and management of the Riverway and ensures that Department, Service, and Riverway policies are maintained and followed. Responsible for implementation of the Fire Management Plan and individual prescribed fire plans. In consultation with the Chief-Resource Protection (Chief Ranger), Chief-Resource Management and Area Fire Management Officer, approves all final decisions to manage suppression of wildland fires and planning and ignition of prescribed fires. Ensures all Riverway divisions support the team effort required to maintain a fire management program.

Chief, Resource Protection – The Chief Ranger is responsible for general oversight, in cooperation with the Chief-Resource Management, of the Riverway wildland fire management program, including coordination of activities with other park divisions. The Chief Ranger is primarily responsible for all preparedness and suppression activities, providing support and resources for prescribed fire and determining training needs of all Riverway personnel who are to be made available for fire duty. The Chief Ranger will insure that adequate NPS wildland fire qualifications ratings are attained and maintained by members of the park staff commensurate with their responsibilities.

Trego Sub-district Ranger – The Trego Sub-district Ranger coordinates, with the Area Fire Management Officer, Riverway training, fire prevention activities, wildland fire suppression, and post-fire activities. Maintains a central fire cache adequate to undertake initial attack actions on fires occurring on NPS lands within the Riverway and ensures that all equipment and supplies are in good working condition.

Resource Protection District Rangers – The District Rangers are responsible for maintaining, with the Trego Sub-district Ranger, a District fire cache adequate to undertake initial attack actions on fires occurring within their Districts and to lead initial attack on fires occurring within their Districts.

Resource Protection Program Assistant – The Program Assistant provides technical and administrative support to the Chief Ranger and other Riverway program managers

concerning fire management activities. Assists with dispatching and mobilization activities, including completing travel arrangements as needed. Maintains fire occurrence and qualification records for all personnel involved in wildland fire activities in cooperation with the Area Fire Program Assistant.

Chief, Resource Management – The Chief of Resource Management is responsible for working with the Chief Ranger, Area Fire Management Officer, and Fire Ecologist for determining and setting priorities for resource and fuels management projects. Coordinates any fire related research within the park and seeks funding sources for fire related research. With the Fire Ecologist, coordinates fire related monitoring within the Riverway.

Area Fire Management Officer (duty stationed at Voyageurs NP) – The Area FMO coordinates fire management activities within the Border Waters Park Group, providing assistance and advice as needed. Reviews and advises the Superintendent on requests for fire emergency assistance, operational activities required for the implementation of the Fire Management Plan, and completeness and accuracy of all final fire reports. Coordinates all prevention, pre-suppression, suppression, monitoring, and post fire activities at the Riverway. Coordinates the development and execution of short and long range plans for prescribed fires, as well as prescribed fire plans for individual projects. Issues Task Books for red carded personnel, and coordinates fire dispatching and fire training activities within the Border Waters Park Group, providing assistance and advice as needed. Coordinates, prioritizes, and submits all FIREPRO and project funding requests for fire program activities. Reviews all prescribed fire plans to ensure policy requirements are met. Coordinates the implementation of Fire Management Plan with other agencies on adjacent land and develops cooperative fire agreements with other federal, state, and local agencies. The Area FMO represents the Riverway at Wisconsin and Minnesota interagency meetings.

Area Fire Ecologist (duty stationed at Voyageurs NP) – The Fire Ecologist coordinates the fire effects monitoring program and is responsible for the fire monitoring plan. Analyzes fire effects data and communicates findings to fire staff and Riverway resource management staff coordinates research. Assists writing prescribed fire objectives and prescriptions for burning that will achieve the desired future conditions for Riverway vegetation.

Area Fire Program Assistant (duty stationed at Voyageurs NP) – The Area Fire Program Assistant provides technical and administrative support to the Area Fire Management Officer and all parks within the Border Waters Group. Assists with dispatching and mobilization activities. Maintains qualification records for all personnel involved in suppression and prescribed fire activities.

B. FIREPRO Funding

FIREPRO refers to normal fire year programming, and is the system used to determine annual budgets for NPS fire management programs. The analysis considers fire occurrence,

fuel types (as represented by NFDRS Fuel Models), and historical information such as occurrence, fire weather, and acres burned, and is based on the last five years' fire occurrence data. The budget determined by this program finances the base organization, facilities, and support for fire management activities on a NPS unit.

Because of the very low fire occurrence on NPS fee-lands and the small area burned within the period used for analysis, no funds are budgeted to finance a fire management program base organization at the Riverway. St. Croix National Scenic Riverway is included in the Border Waters Park Group, and as such is included in the budgeting process managed by the Area FMO. Annually, fire management funds are allocated for various fire management activities such as fire prevention, training travel expense and the fire cache at each district.

Planning and implementation of prescribed fire will be financed by the benefiting function(s) or by applying for project funds through Area FMO. Funding for hazard reduction and prescribed fire projects will vary from year to year. Usually it will be necessary to prioritize which projects to implement.

C. Relationship of Fire Management Organization to Unit Structure

At the Riverway, the fire management program is a component of both the Visitor and Resource Protection and Natural Resources Management programs, reflecting the importance of fire management for both resource protection and ecosystem management.

D. Wildland Fire Use Certification

Certification is not necessary as wildland fire use is not an option at the Riverway.

E. Interagency Coordination

St. Croix National Scenic Riverway is actively involved and committed to cooperative agreements and interagency coordination to ensure the fire management program is implemented in a timely, safe, cost efficient and professional manner. The primary method for interagency cooperation is active membership in the Minnesota Incident Command System (MNICS) and the Wisconsin Interagency Fire Council (WIFC). MNICS is made up of representatives from the Minnesota Department of Natural Resources (DNR), Minnesota Department of Emergency Management (NDEM), Bureau of Indian Affairs (BIA), U.S. Fish and Wildlife Service (USFWS), U.S. Forest Service (USFS) as well as the National Park Service (NPS) Units in Minnesota. WIFC is made up representatives from the Wisconsin DNR, USFS, USFWS, BIA, NPS, Menominee Tribal Enterprises (MTE), and the Bureau of Land Management (BLM). WIFC and MNICS purpose is to work towards common goals in cooperative training, fire suppression, and fire management including prescribed fire.

F. Interagency Contacts

The source for all MNICS contacts is the MNICS Mobilization Plan. Additional contacts for WIFC, Cooperating Volunteer Fire Departments, local Minnesota and Wisconsin DNR

offices, National Weather Service, and local law enforcement are found in the phone listing in Appendix G.

G. Fire-Related Agreements

Table 3. – St. Croix National Scenic Riverway's Current Wildland Fire-Related Agreements

With Whom	Title of Agreement	Summary
MNICS Partners	MNICS Charter	Member Organization to operate under NIIMS (ICS)- Parent agreement for MNICS
MNICS Partners	Implementation Plan	Implementation plan for the Interagency Coordination Center
MNICS Partners	Interagency agreement for MIFC	Authorizes MIFC Operations
MNICS Partners	MIFC Operating Plan	Operating plan for MIFC Dispatch & financial plan
MNICS Partners	MOU for RX Fire	Authorizes cooperation on RX fire
National Park Service & Minnesota DNR	Agreement between MN DNR and NPS for shared protection responsibilities	Sharing initial attack resources and boundary fires between each NPS unit in MN and the DNR. How and when to bill each other.
WIFC Partners (under development)	Cooperative Fire Protection Agreement	Parent agreement for WIFC

VI. Monitoring and Evaluation

All wildland and prescribed fires will be monitored. Information gathered during fire monitoring is needed to keep fires within predetermined criteria, know when to take suppression action, and protect human life and property. A fire monitoring team will observe the fire, assess its potential, and provide a historical record. Monitoring will include documenting the fire environment (weather, fuels, topography), fire behavior (manner and rate of spread, flame length, fire type), and fire effects (percent of fuels consumed, changes in plant and animal community composition and structure, etc.). Photographs may be taken. Weather readings may be made periodically with a belt weather kit at the fire site.

Fire effects monitoring is critical to determine whether prescribed fire objectives are being met, and to ensure that unwanted effects are not occurring. Monitoring provides the basis for adaptive management. Fire effects monitoring entails the establishment of permanent vegetation/fuels plots, which are measure before a prescribed fire, and a specific intervals following the fire.

The National Park Service Fire Monitoring Handbook, developed by the National Park Service (U.S. NPS, 2001), outlines protocols for monitoring fire weather, behavior, and effects, and describes in detail all aspects of a comprehensive monitoring program. This Handbook will provide the standard for fire weather, behavior, and effects monitoring at the Riverway.

The St. Croix National Scenic Riverway Fire Effects Monitoring Plan is an unattached appendix, Appendix F, to this FMP. It defines for the park fire monitoring goals and objectives, minimum qualification standards for fire monitors, and monitoring levels and minimum acceptable standards for documenting fire weather, behavior and effects.

VII. Fire Research

A. Previous Research

To date, no fire research has been conducted at the Riverway.

B. Ongoing Research

Two planned projects will be used to research efforts. The first will test the effects of seeding rates upon biodiversity of plants, small mammal populations and birds. The second will be testing the effect of a specific herbicide on spotted knapweed.

C. Research Needs

With the development of the prescribed fire program at the Riverway, research questions will be developed. The Great Lakes Ecoregion Fire Ecologist will assist park resource managers to develop specific research questions, solicit researchers, and identify funding sources. Research needs include the determination the necessary fire regime to restore and maintain oak savannas and pine barrens.

VIII. Public Safety

A. Issues

As hazards exist in both wildland and prescribed fires, safety will always be the highest priority. Smoke that affects roads can affect the safety of local residents and the visiting public. While roads on and adjacent to the Riverway are generally not heavily traveled, smoke and reduced visibility is still of concern, particularly with emergency vehicles using the same roads. The flaming front of a fire can, potentially, put unsuspecting members of the public at risk. For this reason, areas affected by fire of any cause will be closed to the public.

B. Mitigation Actions

In order to make Riverway employees and the general public aware of such hazards, the following mitigation measures will be considered:

The general public will be made aware of wildland and prescribed fires through press releases and general interpretive presentations.
The general public will not be allowed access to any areas that have active fire, or unmitigated safety hazards remaining after a fire.
Safety briefings will be conducted for all personnel prior to any participation in wildland fire suppression or prescribed fires. All fire personnel will be reminded of the Watch Out Situations and will be expected to comply with the Ten Standard Fire Orders.
Appropriate regulatory and enforcement agencies will be notified prior to any prescribed fire to assist in safely managing vehicular traffic. Warning signs will be posted along roadways as necessary.

IX. Public Information and Education

The National Park Service has a long and proud tradition of fire suppression within units of the National Park System and, until the late1960's supported a philosophy that all fires must be controlled as quickly and as completely as possible. These traditional values concerning fires, particularly looking at the tremendous success of the Smokey Bear Program, have largely been accepted by the general public, so much so that to change these policies may cause confusion and non-acceptance by some.

Disseminating information about fire's natural role and effects is an important step in establishing public support for such programs (Stankey 1976, McCool and Stankey 1986). St. Croix's wildland fire management information program will be factual, straightforward, and aimed at many different audiences. The following guidelines will be followed:

A. The Chief of Education Partnerships (Public Information Officer) will be kept informed daily by the Chief Ranger of management actions, and the status of fires in the park.

B. Ecological concepts upon which the wildland fire management program is based will be incorporated into information handouts, selected books written about the park, park web page, and wayside and visitor center exhibits.

C. Information handouts explaining the fire management program will be prepared and periodically updated. During periods when prescribed fires are burning, these handouts will be distributed to visitors at park information boxes and visitor centers, and by NPS field personnel during informal contacts out in the park.

D. The fire management program will be incorporated into appropriate interpretative talks, walks, automatic slide and/or video-taped programs, the park newspaper, the park safety brochure, the park camping and hiking brochure, park web page, and wayside and visitor center exhibits. Particular attention will be given to these activities when fires are conspicuous from visitor centers and/or local communities.

E. During ongoing fires, news articles will be written and released to local newspapers, radio, television stations and posted on the park web site.

F. Articles will also be written about the Riverway's fire management program and released for publication in statewide or regional periodicals.

G. Public information outlets for neighboring land management agencies will be provided with fire management information, particularly when ongoing fires are burning in the park.

H. To effectively answer visitor questions, NPS employee in the park will be made aware of the wildland fire management program and the status of ongoing fires.

I. The wildland fire management program will be discussed in informal contacts with all divisions, any future park concessioners, Incidental Business permittees, special use permittees, park neighbors, and park visitors

K. Signs notifying the public about ongoing prescribed fires and unwanted wildland fires, area closures, dense smoke, or other special situations will be placed along roadways, and at visitor centers, boat launching ramps, trailheads, campsites, and day use sites.

X. Protection of Sensitive Resources

A. Cultural Resources

The Riverway's archeological and historical resources are a limited, fragile, and nonrenewable part of the environment that must be protected; when disturbed, the scientific information they provide is often lost forever. Public concern for cultural resources protection and preservation is contained in numerous pieces of legislation that have been passed since the Antiquities Act in 1906. Great care will be taken during fire suppression and prescribed fire activities in St. Croix National Scenic Riverway not to destroy or disturb important archeological and historical resources. Although a complete ground survey and inventory with detailed maps of sites, features, and environmental data are the best sources of cultural resources information for fire management planning, archeological and historical site surveys in the park are still incomplete. Completion of these surveys is therefore of the greatest importance. As knowledge is gained additional guidelines may be added.

Fire management activities that disturb the ground in any way, such as fireline construction using hand tools or heavy equipment, in the Riverway will use paraprofessional and professional archeologists working in cooperation with firefighters and preburn preparation crews to prevent needless cultural resource destruction. It must be recognized that during an unwanted wildland fire the highest priorities are safety and controlling the fire; if the fireline cannot be diverted, cultural resources may have to be sacrificed. In most cases, however, damage can be averted. Due to the narrow nature of the park, whenever possible the Riverway will allow the fire to burn to an existing natural or artificial barrier rather then digging. If there is time, historic structures will be wrapped rather than lines dug around them. Vegetation, if not essential to controlling the fire, will not be removed in the immediate area of historical structures. During fire suppression and rehabilitation activities:

Resource base maps showing archeological and historical site locations will be given to archeologists and incident commanders on the firelines. Prior to prescribed fires and rehabilitation, consultation with the National Park Service's Midwest Archeological Center will allow for a protection plan to be developed if archeological sites are within the burn area.

When numerous cultural resources are threatened by a fire, archeologists will be present to help mitigate the impacts of fire suppression and rehabilitation on cultural resources.

Priority will be given to monitoring heavy equipment through all aspects of the suppression and rehabilitation efforts. Heavy equipment will be kept away from all know human burials and mounds.

Archeologists serving on a fireline as technical specialists must hold a current red card to perform their specific advisory duties. If their duties do not require them to be on the actual fire, then a red card is not required.

Line archeologists will be equipped with appropriate standard firefighting safety equipment.

Special flagging will be used to identify archeological and historical sites.

A photographic record will be kept of all archeological materials uncovered during fire management and rehabilitation activities.

Following a fire, a survey of the area will occur to determine if unknown archeological material has been exposed or an archeological site impacted.

If possible, the Riverway Cultural Resource Management Specialist will coordinate all activities of line archeologists with fire bosses.

On prescribed fires, all units would be assessed prior to the burn to determine the presence of known cultural resources and the likelihood that unidentified resources may exist. An assessment would also occur on the potential effects of fire and erosion and the impact they could have on any cultural resources. **No heavy equipment would be allowed to drive on known mounds or burial sites. Extra caution would be used near archeological sites to prevent ground disturbance.** In addition to the measures outlined above for suppression and rehabilitation activities, the following measures will be undertaken to protect specific types of cultural resources:

Prehistoric Archeological Resources: All known archeological sites would be evaluated for vulnerability to fire. Surface sites would be excluded from the prescribed fire units. Threats to buried sites would be reviewed against the prescription for the fire, including the hazards of burning roots and large fuel masses. No heavy equipment or ground disturbance would be allowed on burial mounds or known grave sites. If stumps exist on burial mounds they would be cut flush with the ground and covered with soil so fire is not carried through the roots. No petroleum or chemical based sources of ignition would be used on the surface of any known archeological sites. Appropriate equipment including hand tools would be used as necessary to avoid impacts. A qualified archeologist or a staff member who has completed the NPS, Midwest Region paraprofessional archeologist training would walk the site after the prescribed fire to see if any artifacts from known or unknown sites were exposed on the ground surface and assess the potential for erosion on or near the archeological site.

Historic Archeological Resources: All avoidance/mitigation measures described under "Prehistoric Archeological Resources" would also apply to historic archeological resources. Historic archeological resources are often nearer the surface than prehistoric and may not have been exposed to fire in the past. Therefore, the NPS would consider excluding historic archeological resources from prescribed fire, or would reduce the heat of the fire through the archeological site by wetting the area or reducing the fuels present before the prescribed fire is set.

Historic Structures: There are currently 3 National Register eligible properties identified on NPS-owned lands at the Riverway, involving 11 structures. Each of these properties would be excluded from prescribed fire. The properties are the Gibson cabin, the Lessner cabin, and the Platter/Schaeffer cabin. Any additional structures that may be identified in the future as historic would also be excluded from prescribed fire.

Cultural Landscapes: There are currently no cultural landscapes identified in the Riverway. If landscapes are identified, they will be reviewed to see whether fire would help maintain or damage the landscape. Prescribed fire would be excluded from significant cultural landscapes.

Ethnographic Sites: Currently no ethnographic areas have been identified. If sites are identified, the park will work with the tribes to determine the best methods for protecting them, which might include fire.

Cultural resources would also be protected from fire line construction: Staging areas would be located in developed areas, rather than undeveloped, to avoid impacts to cultural resources. In most cases, wetlines and blacklines would be used to contain prescribed fire. No fire lines would be built in an area with known archeological sites or a high potential for archeological sites. **No ground disturbance would occur in areas known to be mound sites or likely to include human burial sites.**

B. Natural Resources

Minimum Impact Suppression Tactics (see Section IV.B.5.) are the primary procedures for protecting natural resources in the Riverway during prescribed fire and suppression activities. All known sensitive plant and animal locations which fall within or in close proximity to prescribed fire units, will receive mitigation in prescribed fire plans to ensure they are not impacted.

On prescribed fires, in addition to the Minimum Impact Suppression Tactics, the following measures will be undertaken to protect specific types of natural resources:

Air Quality: Prescribed fire plans would be prepared for every prescribed fire. The prescribed fire plans would document the steps taken prior to, during, and

after the prescribed fire to reduce air emissions. This could include actions such as rapid and complete mop up. When conditions are unfavorable for smoke dispersion and air quality standards would be threatened, prescribed ignitions would be postponed. The NPS would implement the fire management plan in conformance with State and Federal standards.

Water Resources: A mosaic of vegetation would be left immediately adjacent to the St. Croix River, Namekagon River and their tributaries in prescribed fire units to minimize the potential for erosion from runoff after a fire event. Small areas of unburned islands throughout each prescribed fire unit would be left to help stabilize soil and reduce run-off. In areas with high potential for erosion, such as steep sandy slopes, prescribed fire would not be used.

Rare Species: The following measures would be undertaken to avoid impacts to Federally or State listed threatened and endangered species and species of concern:

- *All species:* All prescribed fire units would be assessed prior to prescribed fires to determine the presence of rare species, their occurrence or use of special habitats in the area and their ability to thrive after the fire event.
- *Karner blue butterfly:* The Riverway does not currently have suitable habitat for Karner Blue butterfly because its host plant, wild lupine, does not occur within the boundary. Therefore, there would be no effect on Karner blue butterfly. However, the NPS does plan to seed wild lupine into some suitable habitats. If wild lupine is successfully established at the Riverway and sites containing it are proposed for prescribed fire, the NPS would reconsult with the USFWS to determine the best course of action to avoid adverse effects to Karner blue butterfly.
- *Kirtland's Warbler:* While this species has not been documented at the Riverway, precautions would be taken in potential habitat. Adverse effects of prescribed fire to this ground nesting species would be avoided by scheduling fires in jack pine forest either prior to or after their nesting season.
- *Bald Eagles:* Restoration of natural processes, such as fire would be conducive to providing and maintaining bald eagle nesting areas. However, to protect the bird from potential short-term adverse effects, all prescribed fire units would be assessed for nesting bald eagles prior to prescribed fires. If nesting bald eagles are present, all prescribed fire activity would be kept back at least 660 feet from the nest during the most critical and moderately critical nesting periods which run from February 1 to July 31. In the unlikely event that prescribed fire closer than 660 feet during this period is deemed desirable in order to meet other resource management goals, the NPS would reconsult with USFWS to determine the best course of action to avoid adverse effects to bald eagles. In all cases, the risk of fire to trees used for nesting within the past three years or

less would be assessed for the risk of damage by fire. If vulnerable, the tree would be protected from the fire.

- *Gray Wolves:* Wolves would be protected from the effects of prescribed fire by protecting den sites during the spring. Each year, the sites to be treated with prescribed fire the following spring would be identified and compared with the most recent information available from WiDNR on the location of wolf pack territories. Dens tend to be found near the center of a pack's territory. If a site near the center of a territory is scheduled for prescribed fire the following spring, the NPS would consult with the USFWS and the WiDNR to determine the best methods for determining if a den site could occur. Possibilities would include checking the area in late winter before a scheduled spring burn for signs of denning activity and/or increasing the intensity of track surveys in the area. If denning activity is discovered in or near an area schedule for prescribed fire, the NPS would continue to consult with USFWS and WiDNR to determine the best course of action to avoid adverse effects to gray wolves. Rendezvous sites are also generally found near the center of a packs territory. These are sites where adult wolves leave their pups during mid-to-late summer while they go off to hunt and return with food. Prescribed fire would not be used at the Riverway during mid-to-late summer in a typical year because vegetation would be too green to carry a fire. Therefore, rendezvous sites would not be affected by prescribed fire. In the unlikely event that a prescribed fire would be scheduled for mid-to - late summer and the area corresponds with the center of a packs territory, the NPS would consult with the USFWS and WiDNR to determine the best course of action to detect and protect rendezvous sites.
- *Rare mussels:* The sites proposed for treatment with prescribed fire are all small sites. The mitigation measures described above for protecting water resources would protect rare mussels from the effects of sedimentation. Therefore, prescribed fire would have no effect on rare mussels.

C. Scenic and Recreational Resources

On prescribed fires, the following measures will be undertaken to protect scenic and recreational resources:

Scenic Resources: All prescribed fire units would be assessed prior to prescribed fires to determine the potential effect of opening views. If fire would open views to intrusive structures, vegetative screening would be maintained between the primary viewing area and the structure. Control lines would be rehabilitated post-fire where visible to the public to leave them as naturally appearing as possible. Obvious large accumulations of cut limbs, seedlings and saplings would be scattered. Brush and limbs would be scattered on the control lines. Where tree cutting occurs near campsites, trails, adjacent to the river, or other areas readily

visible to the public, stumps will be cut flush with the ground or a slant cut will be used.

Recreation: Areas would be burned during times of low recreation use (early spring and late fall) and scheduled (year to be burned) in relation to other treatment areas to have the least impact on recreation use. Notice would be provided to visitors about timing of potential prescribed fire activities, what they should expect, and safety measures. Where necessary, trails and landings may be temporarily closed to ensure visitor safety. Visitor facilities such as backcountry footbridges and steps would be protected from the effects of fire.

D. Improvements

Protection of these resources will involve:

Increased prevention awareness in these areas.
Priority for initial attack and aggressive suppression actions in these areas.
Emphasis on hazard fuel reduction (both prescribed fire and mechanical treatment).
Creation of defensible space around buildings.

Real Property Values at risk include the following:

Off Highway 95, Washington County, Minnesota

Magney seasonal quarters

County Road S, Polk County near Osceola, Wisconsin

Lower District Maintenance facility to include Shop, Storage Pole Barn, Fuel Storage Building and tank/pump

Historic School House, now used as RP St. Croix District Office

St. Croix Falls, Wisconsin

Headquarters/Visitor Center
Ray's Garage (storage building)

Highway 70, Pine County, Minnesota just west of Grantsburg, Wisconsin

Marshland Visitor Center and Ranger Station

Marshland Maintenance Facility to include Shop, Carpentry Shop, Storage Pole Barn (2), Fuel Storage Building and tank/pump

Highway 63, Trego, Wisconsin

Namekagon Visitor Center and Ranger Station

Namekagon Maintenance Facility to include Shop, Pole Barn Storage Building (2), Fuel Storage Building and tank/pump

Seasonal Quarters/Duplex

XI. Fire Critiques and Annual Plan Review

All wildland fires, prescribed fires, and fire-related incidents will be reviewed. All wildland fire incidents which result in near miss or actual entrapments, serious injuries or fatalities will be investigated and reviewed. All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific fire or fire management program, and are intended to resolve operational issues, not impose punitive actions. They will identify commendable actions, techniques and decisions as well as areas which need improvement. Reviews are conducted for one or more of the following purposes:

To examine the progress of an on-going fire incident and to confirm effective decisions or correct deficiencies.

To identify new or improved procedures, techniques or tactics.

To compile consistent and complete information to improve or refine River, regional or national fire management programs.

To examine anomalous fire-related incidents in order to determine cause(s), contributing factors, and where applicable, recommends corrective actions. If negligence is indicated, the circumstances will be reported and investigated in accordance with applicable regulations, policies or guidelines.

To determine the cost effectiveness of a fire operation.

The authority to convene a fire review rests with the Riverway Superintendent, Regional Director, or the Associate Director, Park Operations and Education. It is the direct responsibility of the Superintendent to call for a review, to insure timely completion, and to implement recommended actions. The Regional Director has responsibility to follow-up with the Superintendent: that reviews are established and completed in a timely manner, and that recommended actions are completed. The Superintendent may request technical support from the NPS Fire Management Program Center, the Regional Office, other parks or interagency personnel with the appropriate expertise.

The Associate Director, Park Operations and Education, will convene an ad-hoc team to review Service-wide fire management programs subsequent to the occurrence of any significant, controversial or unusual wildland fire management activities.

A. Fire Reviews

1. ”Hotline” Review

The purpose of the hotline review is to examine the progress of an on-going fire incident, regardless of size. The review will provide a confirmation of the decisions being made daily in the Wildland Fire Situation Analysis or determine where the decision process has been faulty and corrective actions are needed.

The "hotline" review is normally conducted by the Riverway Chief Ranger (or an official who has designated fire program management responsibilities) in conjunction with the incident commander on the fire.

These reviews require no special reporting. Documentation of "hotline" reviews should be included in the normal fire report narrative.

2. Incident Management Team Closeout and Review

The Riverway Superintendent will conduct a closeout review with the IMT prior to their release from the fire incident. The purpose of this review is to ensure complete transition of the incident management back to the unit and evaluate the status of any incomplete fire business.

3. Unit Level Review

The Superintendent or his/her designated representative should conduct the unit level review. The Superintendent will appoint other qualified persons, including the Chief Ranger and/or Area Fire Management Officer (or an official who has designated fire program management responsibilities) to be a part of the review. The purpose of this review is to provide the Superintendent with information to recognize commendable actions and to take needed corrective action(s). Costs associated with the review will be charged to the account assigned to the fire with the approval of the Regional Fire Management Officer. A copy of the complete report will be sent to the Regional Fire Management Officer, who will review it and, if appropriate, forward a copy to the NPS Fire Management Program Center.

4. Regional Level Review

A regional level review may be conducted for any fire that:

Crosses a park's boundary into another jurisdiction without the approval of an interagency agreement.

Results in adverse media attention.

Involves serious injury to less than 3 personnel, significant property damage, or an incident with potential.

Results in controversy involving another agency.

The regional level review normally will be conducted at the unit where the fire occurred. The regional fire management officer or his/her designated representative will convene the review. Attendees will include the Superintendent of the unit, unit fire management officer (or the official who has designated fire program management responsibilities), the incident commander(s) for the fire, and other individuals agreed upon by the Regional Director and Superintendent. If possible, the review team should visit the actual fire site as part of the review. A copy of the review report will be sent to the Fire Management Program Center. Costs associated with the review will be charged to the account assigned to the fire.

5. National Level Review

A national level review may be conducted for any fire that involves Service wide or national issues, including:

Significant adverse media or political interest.

Multi-regional resource response.

A substantial loss of equipment or property.

A fatality, or multiple, serious fire-related injuries (three or more personnel).

Any other fires that the Associate Director, Park Operations and Education, wants reviewed.

The national level review normally will be conducted at the unit where the fire occurred. The National Fire Management Officer or his/her designated representative will convene it. It will be attended by the Superintendent of the unit, the fire management officer, the regional fire management officer, the incident commander(s) for the fire, and other individuals agreed upon by the National Fire Management Officer, the Regional Director and the Superintendent. If possible, the review team should visit the actual site of the fire as part of the review. All costs associated with the review will be charged to the account assigned to the fire.

6. Entrapment and Fire Shelter Deployment Review

Fire shelter deployment is defined as the use of a fire shelter for its intended purpose in any situation other than training. Use of the terms "precautionary deployment", "practice deployment" and "entrapment deployment" are not acceptable or recognized. Entrapments and fire shelter deployments will be reviewed in order to gather complete and accurate

information to determine the reasons for the deployment. Corrective recommendations will be developed to minimize future situations which might lead to other shelter deployments. All entrapments and fire shelter deployments will be reported to the regional fire management officer, who will be responsible for developing the review team in cooperation with the Fire Management Program Center. The team leader will contact the Superintendent for reporting information. See "Safety & Health" Chapter 3 for investigation and reporting requirements.

All entrapments and fire shelter deployments will be investigated as soon as possible after the deployment incident.

B. Program Reviews

1. Operations Evaluations

Operations evaluations of NPS units and regions may include review of fire management programs to assure compliance with established Service standards.

2. Annual Fire Program Review

The Superintendent will convene an ad-hoc team to review Riverway fire activity during any year in which significant, unusual or controversial fire activity occurs. This review team will analyze the reports from any reviews to determine what, if any, operational changes should be initiated. The review team will develop findings and recommendations and establish priorities for action.

3. FIREPRO Review

Annually, the Area Fire Management Officer will conduct a FIREPRO audit and review of the Riverway's values at risk, research, equipment and project needs. This review will be completed on the schedule set by the NPS Fire Management Program Center.

4. Fire Readiness Review

Fire readiness or preparedness reviews, utilizing the Interagency Fire Readiness Review Guide as adapted for River-specific needs, will be conducted annually prior to the established fire season by the Area Fire Management Officer, Riverway Chief Ranger, Resource Protection District Rangers and the Trego Sub-district Ranger.

XII. Consultation and Coordination

Public scoping for the fire management plan was initiated by letter of March 15, 1999 to interested parties including neighbors, the Wisconsin and Minnesota Departments of Natural Resources, local units of government and conservation organizations. The issues raised

during initial scoping are summarized in Chapter 2 of the attached Environmental Assessment (Appendix D). Scoping will continue through the review of this draft document.

The NPS initiated consultation under Section 7 of the Endangered Species Act of 1973, as amended by letter of March 27, 2001. The U.S. Fish and Wildlife Service responded by letter of April 27, 2001. Their letter provided an up-to-date species list for the counties bordering the Riverway. Their letter also stated that due to the nature and location of the proposed activities they concluded that the listed species would not be affected. The Draft EA and 5-year plan will also be provided to the U.S. Fish and Wildlife Service for their review.

The draft document will also be sent to the Wisconsin and Minnesota State Historic Preservation Offices and potentially affected Indian tribes for review.

An interdisciplinary team that included the following individuals contributed to the development of this Fire Management Plan, Environmental Assessment (Appendix D) and the Long Term Prescribed Fire and Hazard Fuel Reduction Plan (Appendix E). They included:

St. Croix National Scenic Riverway

Brian Adams, Chief of Resource Protection
Randy Ferrin, Chief of Resource Management
Robin Maercklein, Biologist
Jill Medland, Compliance Specialist
Jean Schaeppi, Cultural Resource Specialist
Dan Watson, Namekagon District Ranger
Marianna Young, GIS Specialist

Midwest Regional Office

Jim DeCoster, Fire Ecologist, Midwest Region
Kelly Ann Gorman, Fire Ecologist, Great Lakes Eco-region

Voyageurs National Park/Border Waters Fire Management Office

Steve Jakala, former Border Waters Fire Management Officer
Dave Soleim, Border Waters Fire Management Officer

Wisconsin Department of Natural Resources
Paul Kooiker, Biologist, Governor Knowles State Forest

XIII. Appendices

A. References

B. Definitions

C. Species Lists

D. NEPA and NHPA Compliance

E. Long-term Prescribed Fire and Hazard Fuel Reduction Plan

F. Fire Effects Monitoring Plan

G. Unit-Specific Information requiring Annual Revision

1. Fire Call-Up List
2. Preparedness Inventory
3. Cooperative Agreements
4. Preattack Plan
5. Fire Prevention Plan