

DRAFT

WILDLAND FIRE MANAGEMENT PLAN

Roosevelt-Vanderbilt National Historic Sites
Hyde Park, New York

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Draft Wildland Fire Management Plan
Roosevelt-Vanderbilt National Historic Sites
2005

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EXECUTIVE SUMMARY

The wildland fire management policies of the National Park Service (NPS) support Roosevelt-Vanderbilt National Historic Sites resource management goals. The overriding goal is restoration, maintenance and protection of the historic scene and the associated cultural resources. Also important are providing for firefighter and public safety, protection of natural resources, and protection of human developments from unwanted wildland fire.

This Wildland Fire Management Plan contains the following program direction:

To guide the decision-making process where safety, social, political, and resource values are evaluated, and appropriate management response strategies are identified for wildland fires.

To provide a framework for fuels management strategies through the use of prescribed fire and mechanical fuel treatments.

To provide a basis from which to cooperate more fully in planning and implementing a wildland fire program across agency boundaries.

Program operations included in the Plan are:

- 1) prevention
- 2) preparedness
- 3) suppression
- 4) fuels management.

Applicable resource goals and objectives are derived from approved agency resource and general management plans.

The Plan is organized to combine the latest scientific knowledge, including regional and local studies, with policy direction from the National Park Service, the Department of the Interior, the Federal Wildland and Prescribed Fire Management Policy and Program Review (USDI/USDA1995), and other Federal Government level wildland fire policies to accomplish resource and fire management goals and objectives. The intent of the plan is primarily operational in nature.

This Plan is in compliance with the requirements found in the National Environmental Policy Act (NEPA). These requirements ensure a prudent assessment and balance between a federal action and any potential effects of that action, leading to consensus between fire managers, agency resource

specialists, and the public. Any constraints or limitations imposed on the fire management program are also included.

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I. INTRODUCTION

A. The Wildland Fire Management Plan

National Park Service (NPS) wildland fire management activities are essential to the protection of human life and property, the protection and management of irreplaceable natural and cultural resources, and to the accomplishment of the NPS mission. The Roosevelt-Vanderbilt National Historic Sites Wildland Fire Management Plan is the primary planning document directing fire management activities at Roosevelt-Vanderbilt National Historic Sites (the park). These fire management activities include prevention, planning, preparedness, staffing, training, wildland fire suppression, and fuels management.

As required by *National Park Service Management Policies*, this plan complies with the principles and policies of the *Federal Wildland Fire Management Policy and Program Review* of the (USDI/USDA 1995). These principles and policies were cooperatively developed by the U.S. Department of the Interior (including the National Park Service) and the U.S. Department of Agriculture (including the National Forest Service) to use the knowledge and experience of these agencies to develop a consistently excellent fire management program on Federal lands.

Wildland fire management within Roosevelt-Vanderbilt National Historic Sites is conducted in support of park management, resource management, and fire protection goals and objectives. These goals and objectives are defined in the General Management Plan for Eleanor Roosevelt NHS (1980) and Master Plans for Vanderbilt Mansion and Home of Franklin D. Roosevelt NHS (1976), park Natural and Cultural Resource Management Plan, and the park Strategic Plan. The Fire Management Plan is a detailed program of action to support these goals and objectives.

This Plan meets the requirement in Director's Order-18 (DO-18) that all park units with vegetation capable of sustaining fire develop a Fire Management Plan. The fire management plan complies with the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). Development of this plan was coordinated with neighboring land management and fire management agencies. Please see Appendix N for a list of individuals and agencies that reviewed or commented on this plan.

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Roosevelt-Vanderbilt National Historic Sites consists of three geographically distinct units administered by a single Superintendent. These units are the Vanderbilt Mansion National Historic Site, The Home of Franklin D. Roosevelt National Historic Site, and the Eleanor Roosevelt National Historic Site. The combined acreage of these three sites is approximately 776 acres, set in a semi-rural environment.



Figure 1. Location Map of Roosevelt-Vanderbilt National Historic Sites

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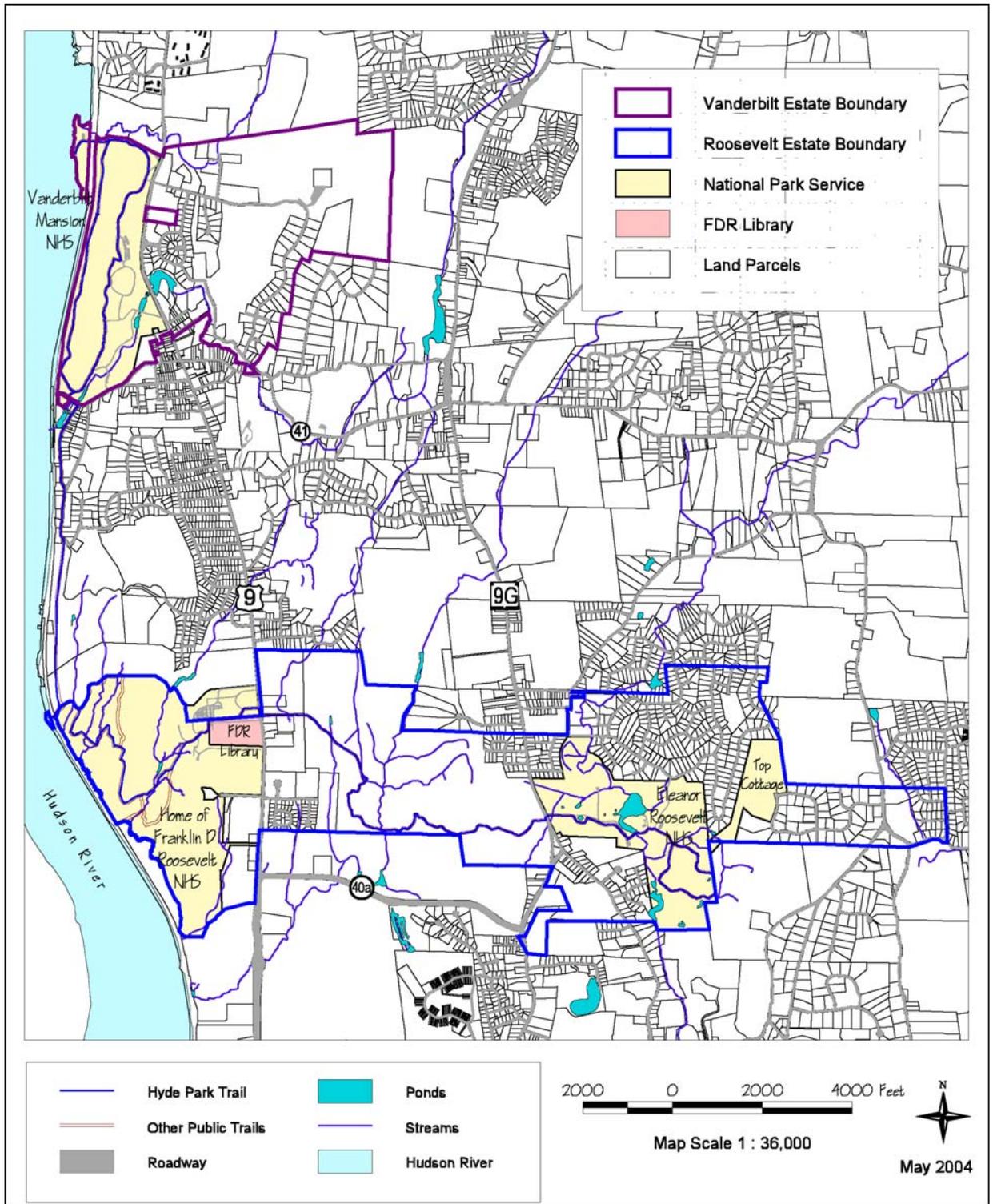


Figure 2. Vicinity Map of Roosevelt-Vanderbilt National Historic Sites

Section I: Introduction

B. Collaborative Process Used to Develop This Plan

This FMP was created incorporating input and advice from federal, state, and local agencies, neighboring landowners, the local community, and NPS area and regional staff. The FMP relies on close cooperation with the local fire department and emergency services, and coordination with area and regional NPS fire management staff.

C. Policy Implementation

This FMP will implement Federal fire management policies and help achieve resource management and fire management goals defined in:

- Federal Wildland Fire Management Policy and Program Review (2001)
(http://www.nifc.gov/fire_policy/index.htm)
- Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOJ/USDA, 2000)
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment; 10 Year Comprehensive Strategy (2001)
- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment; 10 Year Comprehensive Strategy Implementation Plan (2002)
- The Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide (1998)
- Managing the Impacts of Wildfires on Communities and The Environment (2001)
- National Fire Plan (2001)
- National Park Service Wildland Fire Management Strategic Plan; 2003 - 2008 (2003)
- National Park Service Management Policies (2001)

D. Compliance

Wildland fire suppression is conducted within the Roosevelt-Vanderbilt National Historic Sites as an emergency action (exempt from regulatory requirements of

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NEPA). Because it is useful to understand the impacts of wildland fire suppression and subject the entire fire management program to public review, the environmental analysis associated with this plan considered the impacts of emergency wildland fire suppression. The evaluation and public review of these activities will help the park to make informed choices regarding all fire management and potential fire related impacts.

Other elements of this plan include non-emergency activities including prevention, preparedness, burned area rehabilitation, and fuels management are non-emergency actions. These activities are subject to the requirements of NEPA, NHPA and other applicable regulations.

This plan meets National Environmental Policy Act (NEPA) and National Historical Preservation Act (NHPA) compliance requirements for all activities described in the plan. The park completed scoping and consultation regarding this plan with local and state agencies and local interest groups. A draft of this plan was released for public comment. These comments were considered in preparation of this plan.

Under authorities provide in NEPA and the Healthy Forests Initiative Act (2003), a categorical exclusion was developed for the fire management activities carried out under this Plan. The categorical exclusion prepared as part of National Environmental Policy Act (NEPA) review of this plan is included in Appendix D. National Historical Preservation Act (NHPA) compliance is documented in Appendix D.

E. Authorities for Implementing the Fire Management Plan

The National Park System is comprised of more than 360 individual units administered by the National Park Service (NPS) for their intrinsic natural, cultural, and recreational values. Three laws provide the primary authorities for administration of the National Park System, including the development and execution of this plan.

- National Park Service Organic Act of 1916
- The General Authorities Act of 1970
- The National Parks & Recreation Act of 1978

Additional authorities for the development of this plan and the management and use of fire within the park come from the park's enabling legislation and an amendment that expanded the park's boundaries:

- Order Designating the Vanderbilt Mansion National Historic Site, Hyde Park, N.Y [Dec. 18, 1940, 5 F.R. 5282].

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- Order Designating the Home of Franklin D. Roosevelt National Historic Site, Hyde Park, New York [Jan. 15, 1944, 9 F.R. 977]
- An Act to Establish Eleanor Roosevelt National Historic Site [May 27, 1977. PL 95-32]
- Additional Acts, regulations, and guidelines providing authorities related to fire management.

See Appendix G for a brief summary of these acts, regulations, and guidelines.

II. RELATIONSHIP TO LAND MANAGEMENT PLANNING AND FIRE POLICY

A. NPS Management Policies

National Park Service Management Policies is the basic Service-wide policy document of the National Park Service. It is the highest of three levels of guidance documents in the NPS Directives System. NPS Management Policies is designed to provide NPS management and staff with clear information on NPS policy, required and/or recommended actions, and other information to help them manage parks and programs effectively.

National Park Service Management Policies include the following guidance related to the preparation of fire management plans and the management of fire on national park sites:

Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. The plan will be designed to guide a program that responds to the park's natural and cultural resource objectives; provides for safety considerations for park visitors, employees, neighbors, and developed facilities; and addresses potential impacts to public and private property adjacent to the park. An environmental assessment developed in support of the plan will consider the effects on air quality, water quality, health and safety, and natural and cultural resource management objectives. Preparation of the plan and environmental assessment will include collaboration with adjacent communities, interest groups, state and federal agencies, and tribal governments.

All fires burning in natural or landscaped vegetation in parks will be classified as either wildland fires or prescribed fires. All wildland fires will be effectively managed through application of the appropriate strategic and tactical management options. These options will be selected after comprehensive consideration of the resource values to be protected, firefighter and public safety, and costs. Prescribed fires are those fires ignited by park managers to achieve resource management and fuel treatment objectives. Prescribed fire activities will include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met. All parks will use a systematic decision-making process to determine the most appropriate management strategies for all unplanned ignitions, and for any prescribed fires that are no longer meeting resource management objectives. (NPS Management Policies, Chapter 4)

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The NPS is committed to protecting park resources and natural ecological processes; but firefighter and public safety must be first priority in all fire management activities. (NPS Management Policies, Chapter 4)

There may be situations in which an area may be closed to visitor use to protect the natural resources (for example, during an animal breeding season) or for reasons of public safety (for example, during a wildland fire). Such closures may be accomplished under the superintendent's discretionary authority. The closures will comply with applicable regulations (36 CFR 1.5 and 1.7).

The second level of NPS guidance documents are Director's Orders. Director's Orders provide operational policies and procedures that support and supplement Management Policies. Director's Orders are often further supported with a third level of guidance consisting of reference manuals or handbooks.

Director's Order 18 – Wildland Fire Management and Reference Manual 18 – Wildland Fire Management are the documents that provide National Park Service sites with specific guidance on the preparation of Wildland Fire Management Plans and on wildland fire management. *Director's Order 18 (DO-18)* States:

Wildland fire may contribute to or hinder the achievement of park management objectives. Therefore, park fire management programs will be designed to meet resource management objectives for the various areas of the park and to ensure that firefighter and public safety are not compromised. Each park with vegetation capable of burning will prepare a fire management plan to guide a fire management program that is responsive to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities.

Reference Manual 18 (RM-18) states:

The paramount considerations of each park fire management program will be:

- Protection of life, both employee and public*
- Protection of facilities and cultural resources*
- Perpetuation of natural resources and their associated processes*
- Perpetuation of cultural and historic scenes*

These priorities are further emphasized in RM-18 (chapter 3, page 1) with the following language:

Safety is the responsibility of everyone assigned to a wildland or prescribed fire incident. The safety of employees and visitors alike must be of prime concern during fires. Agency administrators at all levels need to stress that

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firefighter and visitor safety always takes precedence over property and resource loss.

B. Roosevelt-Vanderbilt National Historic Sites Enabling Legislation

Vanderbilt Mansion National Historic Site (VAMA) was established in 1940 by a Designation Order of the Secretary of Interior (Dec. 18, 1940, 5 Federal Register 5282) with the expressed interest of President Franklin D. Roosevelt. It opened to the public in 1940.

The Home of Franklin D. Roosevelt National Historic Site (HOFR) was authorized the Joint Resolution of July 18, 1939 and designated by the Secretary of Interior a National Historic Site in 1944. (Federal Register Doc. 44-1345, January 26, 1944). It opened to the public in 1946.

Eleanor Roosevelt National Historic Site (ELRO) was established in 1978 by Public Law 95-32. It opened to the public in 1984.

While Roosevelt-Vanderbilt National Historic Site (ROVA) consists of three geographically distinct units, each with a unique legislative history, the three units are administered by a single Superintendent, and the Fire Management Plan designates the three units as a single fire management unit. For clarity, the resources of each of the three sites are described under separate site headings.

C. Roosevelt-Vanderbilt National Historic Sites Management Plans

1. General Management Plan

The main function of a general management plan (GMP) is to identify desired resource conditions and visitor experiences to be achieved by the park over a 10 – 20 year period. The desired resource conditions and visitor experiences ultimately determine the strategies, programs and actions the park will utilize.

All parks within the national park system are required by law to operate under approved general management plans. This ensures that park managers carry out the mission of the National Park Service and the individual park unit as effectively and efficiently as possible. Existing plans are old and outdated, and a new General management Plan covering all three units is in process with a projected completion date of fall 2007.

General management plans/master plans provides a foundation to guide and coordinate all subsequent park planning and management. Other park planning documents, including fire management plans and resource management plans, must follow the management direction of the GMP

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The content of the ELRO GMP (1980) and HOFR/VAMA Master Plans (1976) guided the development of this Fire Management Plan. The GMP and Master Plans list the following goals:

- Preservation of natural resources and perpetuation of natural processes;
- Preservation of historic features;
- Restoration/maintenance of historic landscape features;

There are no specific fire-related objectives in any of these planning documents.

2. Strategic Plan

The Strategic Plan for Roosevelt-Vanderbilt National Historic Sites describes the park mission, purpose, and significance, the management goals and objectives of the park, and the actions needed to accomplish these goals and objectives. All of these are derived from the park enabling legislation and park planning documents including the General Management Plan and the Resource management Plan. The content and organization of strategic plans follow the guidelines established by the National Park Service under the Government Performance and Results Act of 1993 (GPRA).

The mission statements of the units comprising Roosevelt-Vanderbilt NHS are derived from the parks' legislated mandates found in their enabling legislation. The mission statements are a synthesis of our mandated purpose and the park's primary significance. The following statements are excerpted from the ROVA Strategic Plan:

Vanderbilt Mansion NHS (VAMA):

Park Mission: Preserve the estate of the late Frederick W. Vanderbilt, which has been found to be representative and illustrative of a period and hence of national significance in the economic, sociological and cultural history of the United States, and to enhance public understanding of that period.

Park Purpose and Significance: The 1980 National Register Nomination characterizes the Vanderbilt Mansion National Historic Site as, "...a splendid artifact of the period between the Civil War and World War I when financiers and industrialists lived in a style which consciously emulated European pomp." In addition, the Nomination cites the estate as, "...one of the earliest horticultural endeavors in the United States, begun in the late eighteenth century by Samuel Bard." Recent National Park Service research on the cultural landscape and other historical efforts on Hudson River landscapes has

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supported the identification of the Vanderbilt Estate as being a significant example of 19th century landscape design in the picturesque style and of great significance in its own right.

Home of Franklin D. Roosevelt NHS (HOFR):

Park Mission: Preserve the estate and memorial gravesite of the only four term President of the United States and one of the pivotal figures of the 20th century, as well as enhance public understanding of Franklin D. Roosevelt's life.

Park Purpose and Significance: The Home of Franklin D. Roosevelt National Historic Site was conveyed to the Federal Government by the President and Mrs. Roosevelt in 1943. The "Deed of Gift", required that, "...the property be maintained as a National Historic Site in a condition as nearly as possible approximating the condition of the residence and grounds prevailing at the expiration of the life estate of Franklin D. Roosevelt, as hereinafter reserved." On January 15, 1944, the estate was designated a National Historic Site by Interior Secretary Ickes.

The estate, named "Springwood" by the family, held a special spot in the heart and mind of the President. Both he and Eleanor chose the family rose garden as their final resting place and personal memorial. The preservation of the cultural landscape and view shed that so influenced President Roosevelt is as important as the preservation of the structure and collections.

Eleanor Roosevelt NHS (ELRO):

Park Mission: The Eleanor Roosevelt National Historic Site was created to, "Commemorate for the education, inspiration and benefit of present and future generations the life and work of an outstanding woman in American history, Eleanor Roosevelt, to provide, in a manner compatible with preservation, interpretation and use thereof by and for the general public, a site for continuing studies, lectures, seminars and other endeavors relating to the issues to which she devoted her considerable intellect and humanitarian concerns, and to conserve for public use and enjoyment in a manner compatible with the foregoing purposes an area of natural open space in an expanding urbanized environment..." as stated in the park enabling legislation.

Park Purpose and Significance: The site's intimate association with Eleanor Roosevelt during the most prominent and influential period of her life, the years from 1924 until her death in 1962 where she stated that she, "...emerged as an individual" defines the significance of Val-Kill, her name for what has today become the Eleanor Roosevelt National Historic Site. It was here that she wrote many of her "My Day" columns and books. It was also the place where she formulated, developed and lived many of her political and social beliefs. In the 1926-1936 period she became very active in increasing women's political involvement in our society. She also operated Val-Kill Industries at

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the site, a prototype for a cottage industry movement designed to supplement rural incomes in a largely agrarian America. In the overlapping period, 1932-1945, Val-Kill was a center for her as First Lady of the Nation and the site of many gatherings of national and international significance. In the 1945-1962 period, this was her home as she worked as a delegate to the United Nations and First Lady of the World to create the International Declaration of Human Rights and tirelessly worked on national and international humanitarian causes.

D. Resource Management Plan Objectives Related to Fire Management

The park Resource Management Plan (RMP) does not specifically address wildland fire. However, the RMP includes the following fire management-related objectives for Roosevelt-Vanderbilt National Historic Sites:

- To preserve natural resources and perpetuate natural processes;
- To maintain and preserve cultural landscapes, individual specimen trees, and historically significant orchard trees and associated plant varieties
- To identify all threatened, endangered, or rare species present and to develop specific management and action plans to protect them;
- Preservation of the open space character and viewshed.

E. Meeting GMP, RMP, and Strategic Plan goals through the FMP

Implementation of the Roosevelt-Vanderbilt National Historic Sites Fire Management Plan (FMP) will help meet the objectives of the General Management Plan, Resource Management Plan, and Strategic Plan by:

- Contributing to the preservation and rehabilitation of historic landscapes
- Protecting historic, cultural, and natural resources
- Ensuring human health and safety throughout fire management programs and activities

The Fire Management Plan is a detailed program of action to implement fire management policies and objectives.

III. WILDLAND FIRE MANAGEMENT STRATEGIES

All fires that are not ignited by park managers for specific purposes are defined as wildland fires. All wildland fires will receive management actions appropriate to the safety of firefighters and the public, the resources and values to be protected, the condition of fuels, current and predicted fire behavior, weather, and topography to accomplish the specific objectives for that individual fire. These management actions, termed *appropriate management responses* (AMR), will vary from fire to fire and may vary within an individual fire.

A. General Management Considerations

The primary goals of the wildland fire management program at Roosevelt-Vanderbilt National Historic Sites are to protect human health and safety, protect property, enhance community protection, diminish risk and consequences of severe wildland fires and, to the extent possible, increase health of the ecosystem.

To accomplish these goals, wildland fires at ROVA will be managed through suppression strategies. Fire managers will balance the potential impacts of wildland fire with the potential impacts of fire suppression activities in choosing the appropriate management response.

Important values to be protected at ROVA include the primary resources of the park. These include cultural landscapes (and the natural resources of which they are composed) and historic structures associated with the park. Values to be protected also include natural resources and processes, natural levels of biodiversity, and archeological resources. Values to be protected and their susceptibility to damage or loss by fire are discussed in more depth in the description of the fire management unit (see part D of this section).

Preplanned decisions based on historical fire behavior indices will be considered in selecting appropriate management responses for suppression. The park will not use wildland fire for resource benefit. The park's application of wildland fire use is prohibited by the lack of fire management staff, the small size of the park, the adjacent wildland/urban interface and the insignificant role that fire has historically had in the park's natural resources.

Wildland fires at ROVA are managed with the support of local community fire department. This community-based approach to wildland fire management involves partnership, cooperation and collaboration between the Hyde Park Fire Department, Roosevelt Fire Department, other fire management agencies, and the park.

Additional fire planning support and collaboration is provided by the NPS North Country Area Fire Management Officer (Area FMO) located at

Acadia National Park. The Area FMO provides technical assistance to the park on all fire management matters, including fire management programs such as the Weather Information Management System (WIMS), the NPS Wildland Fire Computer System, the National Fire Danger Rating System (NFDRS), the resource ordering system (ROSS), the Incident Qualification and Certification System (IQCS), Fire Program Analysis (FPA), and FIREPRO budgeting. The Area FMO also assists with the Park's wildland fire qualification and certification program, coordination of fire training and mobilizations, development of cooperative agreements with local and state agencies, administration of Rural Fire Assistance Program grants to local fire departments, and developing fire prevention, preparedness, and suppression operational plans.

The park, in accordance with NPS policy, uses Minimum Impact Suppression Tactics (MIST) in all fire management activities. MIST is defined as the application of techniques that effectively accomplish wildland fire management objectives while minimizing the impacts to cultural and natural resources commensurate with ensuring public and firefighter safety and effective wildland fire control. Examples of MIST include using existing natural or constructed barriers to contain wildland fires, mowing firebreaks in grassland, and using pumps and hoses to apply water to suppress fire activity and reduce fire spread.

B. Wildland Fire Management Goals

The wildland fire management goals and objectives of Roosevelt-Vanderbilt National Historic Sites are:

Goal 1. Maintain public and firefighter safety. Firefighter and public safety is the highest priority of every fire management activity.

Goal 2. Protect life, property, and resources from wildland fires.

Goal 3. Use non-fire treatment methods to meet resource management objectives and conserve park resources.

Goal 4. Where natural or cultural resources are damaged or may be damaged by wildland fire or fire management activities, monitor the resources, stabilize damaged resources, and prevent further resource degradation.

Goal 5. Use information gained through inventory and monitoring to evaluate and improve the fire management program and conservation of park resources.

Goal 6. Integrate fire management with all other aspects of park management.

Goal 7. Maximize efficiencies in the fire management program through interagency coordination and cooperation.

Goal 8. Educate employees and the public about the scope and effects of wildland fire and wildland fire management activities.

C. Wildland Fire Management Options

The following wildland fire management options are available for use in the park.

1. Wildland Fire Suppression

Consistent with the Federal Wildland Fire Management Policy, all fires that are not ignited by park managers for specific purposes (prescribed fires) are defined as wildland fires. Historically, all wildland fires in the park have been extinguished. Under this plan, the park will continue to suppress all wildland fires to protect life, property, and park resources.

Suppression actions will use the appropriate management response (AMR) for that particular fire. The AMR will take into consideration the safety of firefighters and the public, the resources and values to be protected, the condition of fuels, current and predicted fire behavior, weather, and topography. The AMR selected may vary from fire to fire and may vary within an individual fire.

The full range of management responses is available to park fire managers. These responses range from monitoring with minimal on-the-ground actions to intense suppression actions on all or portions of the fire perimeter. Detailed information on this process can be found in the *Wildland and Prescribed Fire Policy, Implementation Procedures Reference Guide*.

2. Prescribed Fire

Prescribed fires are any fires ignited by management actions in defined areas under predetermined weather and fuel conditions to meet specific objectives. *Prescribed fire use at Roosevelt-Vanderbilt National Historic Sites is not proposed under this plan.* This decision is based upon the availability of other tools to accomplish resource management goals and because park management has determined that park and community fire management resources are better used on other management priorities at this time.

Prescribed fire use may be used in future fire management plans. If prescribed fire use is proposed, appropriate NEPA compliance, NHPA compliance, and public notification and review will be completed at that time

a. Debris Disposal

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Fire is occasionally used to dispose of natural vegetative debris. This is usually done when it is infeasible or impractical to remove the fuels mechanically. Debris burning may be carried out under this FMP when conducted away from wildland fuels, e.g. in parking lot, storage yard, gravel pit, or similar area. Any material being burned for debris disposal must be classified as permissible to burn under applicable Federal, State, and Local regulations. Debris burning will be following the procedures identified in RM-18 for that purpose.

3. Wildland Fire Use

Wildland fire use is the management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans. Wildland fire use may be appropriate where not actively suppressing all or some part of a wildland fire will result in desirable effects on park resources. Examples of desirable effects can include reducing hazardous fuel loading, removing thatch from fields, and controlling invasive woody vegetation.

Wildland fire use at Roosevelt-Vanderbilt National Historic Sites is not proposed under this plan. Naturally ignited wildland fires are extremely rare at Roosevelt-Vanderbilt National Historic Sites, the individual units are small in size, and all three units are in wildland/urban interface settings in close proximity to adjoining properties. Park management has determined that park and community fire management resources are better used on other management priorities at this time.

Wildland fire use may be used in future fire management plans. If wildland fire use is proposed, appropriate NEPA compliance, NHPA compliance, and public notification and review will be completed at that time.

4. Non-Fire Applications

Non-fire applications are activities that are used to control fire activity (intensity, duration, presence/absence, etc.) and protect structures and adjacent properties without the use of fire. Examples of non-fire applications include creation of fuel breaks around structures, removing dead and downed wood, removing other fuels (dead leaves, etc.), and mowing buffers around trails and roadways. Non-fire applications are elements of the integrated fire control and landscape rehabilitation and maintenance programs at Roosevelt-Vanderbilt National Historic Sites.

Non-fire applications used at Roosevelt-Vanderbilt National Historic Sites include, but are not limited to mowing, cutting woody vegetation, pruning trees, chipping slash and woody debris, and removing burnable vegetation and other organic materials. Non-fire methods are a critical component of the parks fire, historic landscape conservation, and vegetation management programs

Wildland fuel complexes within Roosevelt-Vanderbilt National Historic Sites are managed to achieve resource benefits and management goals such as hazard fuels reduction, landscape preservation, invasive plant management, and maintaining field habitat. Fuels management includes strategic planning and implementation of treatments ranging in scale from site specific to landscape level. These treatments are designed to improve the park's ability to protect life and property, to maintain or restore the sustainability of healthy ecosystems, and to preserve or rehabilitate historic landscapes.

Hazard fuels are wildland fuels or accumulations of fuels that have the potential to burn with uncharacteristically high intensity or to create an unusually high risk to values to be protected. Hazard fuels are normally reduced as they accumulate or as part of the park's cyclic maintenance program.

Hazard fuels at Roosevelt-Vanderbilt National Historic Sites are typically managed through mowing (grasses and other herbaceous vegetation), raking or vacuuming (fallen leaves), cutting and chipping (woody vegetation), and other mechanical and cultural means. Fire may occasionally used to reduce vegetative debris through debris burning.

Fuels around buildings, boundaries, roads, trails, picnic areas and other sites occasionally accumulate sufficient fuel density to create a hazard to real property, historic resources, or human health and safety. These fuels are usually managed by mechanical removal.

D. Description of Fire Management Units

A fire management unit (FMU) is any land management area defined by fire management objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, major fire regime groups, or other factors that set it apart from management characteristics of other units.

While Roosevelt-Vanderbilt National Historic Sites consists of three geographically distinct units, because of the small size of the units, the similar fuel types present, and common fire management objectives for the sites, all three units of the park are included in and managed as a single fire management unit (the ROVA FMU).

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1. ROVA Fire Management Unit

a. Characteristics

i.) Location

The ROVA FMU is located in the Town of Hyde Park, Dutchess County, in the lower Hudson River Valley of New York. The FMU is located eight miles north of the City & Town of Poughkeepsie, New York (population 73,000). Large areas of open land mixed with commercial and residential development characterize the areas surrounding the site.

ii.) Climate

Weather in the park area is dominated by air masses flowing out of the west, with occasional coastal storm systems (“Nor-easters”). These factors are responsible for the highly variable weather patterns seen at the park. Total precipitation is relatively uniform and averages 40.72 inches. Total snowfall in this region averages 34.3 inches annually.

Table 1. Climatic Information for the Region Including Roosevelt-Vanderbilt NHS

	Average High (°F)	Average Low (°F)	Warmest Ever (°F)	Coldest Ever (°F)	Average Dew Point (°F)	Average Precipitation (inches)	Average Snowfall (inches)
Jan	33	14	65	-28	14	2.70	9.4
Feb	37	16	68	-21	15	2.56	9.5
Mar	47	26	89	-21	23	3.10	6.7
Apr	59	36	92	10	33	3.49	1.0
May	71	47	94	26	45	4.33	0.0
Jun	79	55	99	36	55	3.81	0.0
Jul	84	61	100	40	60	3.94	0.0
Aug	82	59	99	34	59	3.60	0.0
Sep	74	51	100	24	52	3.40	0.0
Oct	63	39	89	16	41	3.08	0.0
Nov	51	32	82	5	31	3.61	1.1
Dec	38	21	71	-22	20	3.09	6.6
Average	60	38	---	---	33	40.72	34.3

iii.) Topography

The landscape within the three sites is comprised of fluvial (stream and river) floodplains and lowlands, moderate to steep slopes bordering the floodplains, flat plateau areas, and scattered hills with variable slopes.

The slopes of the Hudson River Valley are the dominant topographic features of the region. At The Home of Franklin D. Roosevelt NHS and Vanderbilt Mansion NHS, the land rises from the river in a series of ridges and ravines. Slopes in these ridge and ravine areas vary widely (0 - 60 percent). The ridge and ravine landscape ends on a broad plateau traversed by streams. Most of the primary historic structures at the sites were constructed near the edge plateau to take advantage of the views overlooking the Hudson River. Bedrock outcrops are common in both sites.

Eleanor Roosevelt National Historic Site is located approximately two miles east of the Hudson River. The site consists of a lowland portion with gentle relief traversed by a large stream and dotted with wetlands, and an upland portion containing steep slopes (10 - 40 percent) with numerous bedrock outcrops.

Elevations at the sites range from sea level on the shores of the Hudson River to 450 feet above sea level at Top Cottage east of Val-Kill.

The location and topography of the Roosevelt-Vanderbilt National Historic Sites are depicted on the *Hyde Park* USGS 7.5 minute quadrangle map (See Appendix E).

iv.) Soils

Park soils are relatively young, having formed since the retreat of the last glacier (the Laurentide ice sheet) some 10,000 years ago. The soils are largely derived from various stratified and non-stratified glacial deposits that were laid down over metamorphic and igneous bedrock and have broken down to form soils.

Except for floodplain deposits along the Hudson River and other stream and alluvial deposits surrounding the Fall-Kill Creek, the soils of Roosevelt-Vanderbilt NHS are characteristically stony and moderately to well drained,

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Much of the area contained within the sites was formerly in agricultural use. While some areas have been in agricultural use since well before the start of the American Revolutionary War, agricultural activity has greatly diminished in the past 50 years. Many areas that once supported crops are now forested or in residential or commercial use.

Refer to Appendix E for a listing of dominant soil series and a soil map.

v.) Aquatic Resources

Each of the three park units lies within the Hudson River watershed. The units each contain a variety of wetland resources, including permanent and intermittent streams, vernal ponds, impoundments, sedge meadow, freshwater marsh, and swamp. Although not actually within park boundaries, the Hudson River (actually a freshwater estuary here) and associated tidal wetlands are significant water resources.

Approximately 4.35 miles of streams, 14 acres of permanent ponds, and 80 acres of non-tidal wetlands are found in the park. A 25-acre tidal marsh lies between the Home of Franklin D. Roosevelt NHS and the Hudson River.

The New York State Department of Environmental Conservation (NYSDEC) is the agency responsible for regulating water resources in New York State. Under State law, water bodies must meet specific water quality criteria based on their rating in a classification system. All waters in the park are classified as Class C (suitable for fish propagation and fishing) or Class D (suitable for fishing).

Water quality in the park is considered good overall. An ongoing water quality monitoring program tracks the following parameters: chlorides, alkalinity, total phosphorus, nitrate, dissolved oxygen, total dissolved solids, pH, benzene-ethylene-toluene-xylene, and fecal coliform/fecal streptococcus. For more, refer to the parks Water Resource Management Plan.

vi.) Air

The Clean Air Act (42 USC 7401 et seq.) requires that federal land managers protect air quality. National Park Service Management

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Policies direct parks to analyze potential impacts to air quality during park planning. All debris burning activities must meet the requirements set forth in the Clean Air Act (P.L. 88-206) and subsequent amendments. State and local regulatory authorities enforce these air quality standards.

States are responsible for the attainment and maintenance of national ambient air quality standards developed by the Environmental Protection Agency. These standards have been established for several pollutants: inhalable particulate matter, sulfur dioxide, nitrogen oxides, ozone, carbon monoxide, and lead. The State of New York is responsible for regulating and permitting the release of smoke from debris burning, and other planned ignitions on lands administered by the National Park Service within New York. Wildland fire is an unplanned occurrence and is not subject to permitting.

The New York State Department of Environmental Conservation has jurisdiction over air quality permitting for activities including prescribed burning and debris burning. State law regulating open burning can be found in Article 70 of the New York State Environmental Conservation Law, the Uniform Procedures Act (UPA) and 6NYCRR Parts 200, 201, and 621.

In order to conduct a burn an Air Quality Permit must be obtained by contacting the New York State Department of Environmental Conservation in writing (Letter of Intent to Burn) prior to the anticipated burn date.

In addition to the Air Quality Permit, NYSDEC must also issue a burn permit through the Environmental Conservation Officer in whose town the burn will take place.

Roosevelt-Vanderbilt National Historic Sites is in a Class II air quality area. By law, air quality in Class II areas must be maintained within national air quality standards. States may permit moderate amounts of new air pollution as long as neither ambient air quality standards, nor the maximum allowable increases over established baseline concentrations are exceeded.

The park is located eight miles north of the City & Town of Poughkeepsie, New York (population 73,000). Large areas of open land mixed with commercial and residential development characterize the immediate area. Sources of air pollutants are primarily motor vehicle emissions. There are point sources that impact air quality to any identifiable degree in the park. The region

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is subject to periodic atmospheric inversions that trap emissions, primarily during the summer. These episodes prompt health advisories on rare occasions, usually related to ozone levels.

In general, air quality at the park is fair to good. The U.S. Environmental Protection Agency monitors six air quality indices in the Mid-Hudson Valley: sulfur dioxide, ambient particulate matter, carbon monoxide, ozone, nitrogen dioxide and lead. For 2004, Dutchess County was a nonattainment area for 1- and 8-hour ozone, with a rating of moderate by EPA. These findings are reported on an annual basis.

The park will consider air quality during wildland fire situation analysis and in choosing appropriate strategies for wildland fire suppression. If smoke from wildland fire within the park is contributing to an existing exceedance of national ambient air quality standards (NAAQS) or if smoke from a wildland fire in the park may create an exceedance of NAAQS, the park will make a good faith effort to choose a fire suppression strategy that limits volume and duration of smoke production.

vii.) Vegetation

Plant communities in the park include forest, shrub, and meadow communities common in the northeastern United States. Rare or sensitive communities include freshwater cattail tidal marsh and cedar rocky summits. Vegetation inventories focusing on forest systems have been conducted. A vegetation classification map is in production in 2005.

There are three major categories of plant communities in the park. Oak, maple, birch, beech, ash and sporadic patches of eastern white pine dominate the hardwood forest communities. The brush communities are an intermediate stage between open field and mature forest and are comprised of pioneer species such as ash, maple and locust. The grass/open field communities consist primarily of timothy, alfalfa, red top and orchard grass. Poison ivy is common on recently disturbed, non-cultivated sites.

Many non-native (exotic) plant species have been introduced to the park and surrounding region. Several of these non-native species, including purple loosestrife (*Lythrum salicaria*) and tree-of-heaven (*Ailanthus altissima*), are invasive species that can rapidly colonize an area and, over time, eliminate native plant species as they grow into largely monocultural stands.

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The types of vegetation communities present, and approximate acreage, can be found in Table 2 (see Appendix C for a plant list). An inventory completed in 1998 identified a number of New York State listed Endangered, threatened, and rare plant species at the sites. These species are listed in Table 3.

Table 2. Land Cover at Roosevelt-Vanderbilt NHS

Cover Type	VAMA		HOFR		ELRO		ROVA TOTAL	
	Acres	%	Acres	%	Acres	%	Acres	%
Forest	95	45	269	70	83	46	447	58
Field	48	23	48	13	30	17	126	16
Wetlands	1	<1	22	6	41	23	64	8
Open Water	4	2	2	<1	13	7	19	2
Landscaped	64	30	43	11	13	7	120	16
Total	212	100	384	100	180	100	776	100

viii.) Forest Pests

Forest health within the three sites is generally good. Several invasive non-native forest pests present in the park have reduced forest diversity and forest health. A number of other forest pests have the potential to cause significant impacts to forest diversity and health in the future.

Occasional outbreaks of gypsy moth (*Lymantria dispar*) have caused some defoliation, but little tree mortality. The last major of gypsy moths outbreak was in 1990. Since that time, gypsy moth populations have been significantly reduced by entomophaga spp., fungal disease. Gypsy moths are expected to continue to cause some localized defoliation during years when large populations of gypsy moth caterpillars are present.

Butternut canker is causing significant loss of butternut trees. There is no effective treatment for this widespread and nationally significant forest pest. The expected extirpation of butternut trees from the park is a significant loss to the forest diversity of the park both because of the loss of the trees and because of the other species that utilize the habitat and resources that butternut trees provide. Because there are relatively few butternut trees in the park, the overall impact of the reduction or loss of butternut trees to the park's forest health is difficult to measure.

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The hemlock wooly adelgid (*Adelges tsugae*), a non-native invasive scale-insect, was first documented in the park in 1991. Hemlock wooly adelgids pose a significant threat to Eastern Hemlock (*Tsuga Canadensis*) in the park and the region. The adelgids feed on hemlock trees and can cause tree mortality in as little as two years. These insects have caused massive hemlock die-offs in Connecticut and southeastern New York.

Hemlock trees hold a unique ecological role the region in that they populate both steep, dry slopes and moist ravines. Eastern Hemlock is an abundant and critically important component of eastern forest diversity and forest health. It is possible to treat limited numbers of hemlock trees to control hemlock wooly adelgid. Adelgid control must be repeated regularly (annually or every few years) to be effective. Adelgid control is not currently economically or physically practical away from roadways or in large forested areas. Significant reduction or loss of hemlock populations in the park and surrounding region caused by adelgids would have a significant impact on forest diversity and forest health.

Other forest pests that may become management problems at the park include emerald ash borer and dogwood anthracnose.

Pest activity can result in increased numbers of stressed trees, increased tree mortality, and increased numbers of trees with multiple dead limbs. These impacts can cause significant increases in hazard fuel loading in forested areas.

ix.) Agricultural Use

Thirty-three acres of hayfield at ROVA are cut under special use permit. The purpose of the permit program is to maintain the site's historic landscape while reducing the burden operational costs. This program supports the park's goal of maintaining the historic landscape of the park.

x.) Wildlife

A wide variety of animal species utilize the park. Forests, hay fields, herbaceous meadows, orchards, wetlands, streams, ponds, rock ledges, stone walls, and the Hudson River create a wide diversity of habitat. White-tail deer, eastern coyote, bobcat, red fox, gray fox, red squirrel, gray squirrel, eastern chipmunk, cottontail rabbit,

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striped skunk, opossum and raccoon are some of the more common species found in the park.

Federally threatened or endangered species found in the park or the surrounding area includes Bald Eagle, Osprey, and Peregrine Falcon. State listed species include Blanding's turtle (threatened) and several species of special concern (including birds, reptiles, and amphibians).

The collection of baseline data on animal species occurrence and distribution is ongoing. An extensive database of known information has been compiled by the park. This information is stored and maintained by park natural resource staff. See Appendix C for a list of all vertebrates known to occur within the park.

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xi.) Threatened and Endangered Species

Table 3. Sensitive Plant Species found at Roosevelt-Vanderbilt NHS		
Species Name	Species Status (NYS)*	Site(s)**
Swamp buttercup (<i>Ranunculus hispidus</i>)	Endangered	HOFR
Yellow Harlequin (<i>Corydalis flavula</i>)	Threatened	HOFR
Field dodder (<i>Cuscuta pentagona</i>)	Threatened	HOFR, VAMA
Smooth bur-marigold (<i>Bidens laevis</i>)	Threatened	HOFR
Spring avens (<i>Geum vernum</i>)	Endangered	HOFR
Gypsy-wort (<i>Lycopus rubellus</i>)	Endangered	HOFR
False-lettuce (<i>Lactuca floridana</i>)	Endangered	HOFR
Hill's pondweed (<i>Potamogeton hillii</i>)	Threatened	VAMA
Flat sedge (<i>Cyperus odoratus</i>)	Threatened	VAMA
Bush clover (<i>Lespedeza violacea</i>)	Threatened	VAMA
Kentucky coffee-tree (<i>Gymnocladus dioica</i>)	Endangered	VAMA
Rough goldenrod (<i>Solidago rugosa</i>)	Endangered	VAMA
Bugleweed (<i>Lycopus rubellus</i>)	Endangered	VAMA
* The status of species as designated by the State of New York.. These species are not listed under the Federal Endangered Species Act.		
** Sites include: HOFR – Home of Franklin D. Roosevelt NHS; VAMA – Vanderbilt Mansion NHS; and ELRO – Eleanor Roosevelt NHS.		

Table 4. Sensitive Animal Species found at Roosevelt-Vanderbilt NHS		
Common Name	Scientific Name	Status
Peregrine Falcon	<i>Falco peregrinus</i>	Endangered (NYS)
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Threatened (Federal & NYS)
Blanding's turtle	<i>Emydoidea blandingii</i>	Threatened (NYS)
Osprey	<i>Haliaeetus leucocephalus</i>	Special Concern (NYS)
Sharp-shinned Hawk	<i>Accipiter striatus</i>	Special Concern (NYS)
Cooper's Hawk	<i>Accipiter cooperii</i>	Special Concern (NYS)
Red-shouldered hawk	<i>Buteo lineatus</i>	Special Concern (NYS)
Common Nighthawk	<i>Chordeiles minor</i>	Special Concern (NYS)
Jefferson's Salamander	<i>Ambystoma jeffersonium</i>	Special Concern (NYS)
Blue-spotted salamander	<i>Ambystoma laterale</i>	Special Concern (NYS)
Marbled salamander	<i>Ambystoma opacum</i>	Special Concern (NYS)
Spotted Turtle	<i>Clemmys guttata</i>	Special Concern (NYS)
Wood turtle	<i>Clemmys insculpta</i>	Special Concern (NYS)

Peregrine falcon, osprey, and bald eagle are transients through Roosevelt-Vanderbilt National Historic Sites and fire would pose a negligible threat to the population. Semi-terrestrial turtles (Blanding's, wood, box, and spotted) could be impacted if fire occurred during nesting season in May through July when these species travel to nesting sites. The salamander species are only above ground during migrations during wet nights in March, otherwise they are either in water or underground. Fire would pose a negligible risk to their populations.

xii.) Cultural Resources

The cultural resources at Roosevelt-Vanderbilt NHS are extensive and include: 45+ historic structures, over 1000 specimen trees, 5 historic gardens, 8 miles of unpaved carriage roads, 3+ miles of historic paved road, and over 100,000 museum objects.

1.) Historic Structures

Roosevelt-Vanderbilt National Historic Sites includes [describe number and type of historic structures].

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Historic structures within the park are documented on the List of Classified Structures (LCS). The LCS includes a wide variety of information on the history and condition of each structure. Copies of the LCS are available for review at the park. See Table 5 for a list of structures included on the park LCS.

Table 5. Structures on the List of Classified Structures (LCS), Roosevelt-Vanderbilt National Historic Sites		
<u>Buildings</u> 38	<u>Structures/Sites</u> 56	<u>Landscape Features</u> 9
<u>Monuments/markers</u> 7	<u>Roads and Trails</u> 24	<u>Other</u>

The historic structures within the park have a wide range of vulnerability to fire. Roads and trails, stone and mortar, and stone and earth structures are largely resistant to damage from fire. High intensity fires may cause spalling or discoloration from heat or smoke. Fire retardant use in suppression operations may cause temporary or permanent discoloration to stone and mortar. Hazard fuels are generally reduced near these structures as part of normal maintenance operations such as road and trailside margin maintenance, mowing, debris removal, and leaf removal.

Metal statuary and plaques are generally moderately resistant to fire, but because of they are irreplaceable works of art, they are treated as highly sensitive resources. Other statuary or other artwork with metal elements is occasionally exhibited in the park. Statuary are normally located in highly managed landscapes (lawns or gardens) away from heavy fuels. Fuel breaks are normally maintained around these structures by mowing and normal maintenance operations including debris removal and leaf removal. Protection of these structures during wildland fire management is a very high priority.

Wooden structures within the park have low resistance to fire. Most wood structures in the park are surrounded by lawn and gardens that serve as fuel breaks. These fuel breaks are typically maintained through mowing and other normal maintenance operations including debris removal and leaf removal. Protection of historic wooden structures is a very high priority.

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Some of the park's historic buildings have wooden shingle roofs. These roofs have low resistance to ignition from embers thrown by wildland fires. In situations where wildland fires generating airborne embers are present near the park, structures with wooden roofs should be monitored. Protection of historic wooden structures during wildland fires is a very high priority.

2.) Archeological Resources

Some archeological sites, artifacts, and other archeological resources lie within the top 6 inches of the soil at Roosevelt-Vanderbilt National Historic Sites. Given expected fire behavior in the park, direct fire effects on archeological resources are not expected to be significant. In areas with high fuel density, exceptionally intense or sustained fires could affect some near-surface archeological resources.

Archeological resources and their context are more likely to be damaged or destroyed by wildland fire suppression activities than by wildland fire. Significant direct impacts (disturbance, breakage, removal from context, etc.) and indirect impacts (breakage or destruction due to soil compaction, soil disturbance, post-fire erosion, etc.) to archeological resources from fire suppression activity are possible. Activities such as the construction of “hand line”, the use of heavy equipment to construct fire lines or manipulate fuels, and other similar activities may damage archeological resources.

Soil disturbance and soil compaction should be avoided when practicable. A resource advisor from park and/or regional staff will be available to apprise the Incident Commander of the potential impacts of fire suppression activities on archeological resources.

xiii.) Real Property

The park contains a variety of real property resources. These include buildings, bridges, trails, roads, and equipment.

xiv.) Adjacent Property

Properties adjacent to the park and in-holding within the park contain a variety of real property, historic, and natural resources. These include historic and non-historic buildings, bridges, trails, roads, and equipment owned by private individuals, non-government organizations, and the State of New York.

b. Fire Management Unit Objectives

Because the entire park is managed as one fire management unit, a single set of goals and objectives apply to the entire park. These goals and objectives are:

Goal 1. Maintain firefighter and public safety. Firefighter and public safety is the highest priority of every fire management activity.

Objective: Conduct 100% of wildland fire operations so that they cause no injuries to the public and limit injuries to firefighters consistent with NPS Strategic Plan goals for employee safety.

Objective: 100% of park staff with fire management responsibilities will receive sufficient training and experience to bring them to the appropriate level of certification and to maintain that certification.

Goal 2. Protect life, property, and resources from wildland fires.

Objective: Rapidly detect, respond to, and effectively suppress 100% of wildland fires using minimum impact suppression techniques (MIST) so all wildland fires are limited to less than 5 acres and within 36 hours.

Objective: Protect 100% of cultural and natural resources and intrinsic values from unacceptable impacts from fuel reduction, wildland fire and fire suppression activities.

Objective: Employ strategies and tactics in 100% of wildland fire suppression actions that minimize costs and resource damage consistent with values at risk.

Objective: Manage 100% of suppression actions so that rehabilitation costs are less than 25% of suppression costs.

Objective: Ensure 100% of wildland fire operations are conducted in accordance with NPS policy and guidelines

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Goal 3. Use non-fire treatment methods to meet resource management objectives and conserve park resources.

Objective: Identify, manage and, where appropriate, reduce 100 % of known hazardous fuel accumulation that could contribute to the damage of primary park resources or the properties of neighboring landowners through manual and mechanical treatments.

Objective: Ensure National Ambient Air Quality Standards thresholds are not exceeded in the region and overall visual quality is not compromised in adjacent air sheds during 100% of park debris burning activities.

Goal 4. Where natural or cultural resources are damaged or may be damaged by wildland fire or fire management activities, monitor the resources, stabilize damaged resources and prevent further resource degradation.

Objective: Monitor 100% of wildland fire in accordance with NPS standards.

Objective: When monitoring reveals resource damage, take timely and appropriate action to stabilize the resource and prevent further degradation.

Goal 5. Use information gained through inventory and monitoring to evaluate and improve the fire management program and conservation of park resources.

Objective: Monitor 100% of wildland fire sites in accordance with NPS standards.

Objective: Collect and enter data on 100% of wildland fires into national fire records databases in accordance with NPS fire management policy.

Objective: Review 100% of wildland fire in accordance with NPS policy.

Objective: Use 100% of the information gathered in the objectives above to inform, and, when appropriate, make changes in the Fire Management Plan and fire management activities.

Goal 6. Integrate fire management with all other aspects of park management.

Objective: Wildland fire management and preparedness will be considered in 100% of park planning activities.

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Objective: 100% of park preparedness activities will include providing park staff basic information on fire effects, and fire management, fire prevention, and the current park fire situation

Objective: Provide appropriate fire training and certification to 100% of park staff who would like to participate in the park and NPS fire management programs and who are authorized by their supervisor, the park FMO, and the superintendent to participate.

Goal 7. Maximize efficiencies in the fire management program through interagency coordination and cooperation.

Objective: Develop and maintain cooperative agreements with 100% of the appropriate local, regional, and national fire management organizations.

Objective: Review 100% of cooperative agreements annually to ensure that they are consistent with management and resource management goals.

Goal 8. Educate employees and the public about the scope and effects of wildland fire and wildland fire management activities.

Objective: 100% of Roosevelt-Vanderbilt National Historic Sites employees will be able to provide basic fire information to visitors or direct them to a park employee who is able to provide it.

Objective: When the fire danger is very high or extreme, park staff will contact at least 80% of park visitors with a fire prevention message through signage, handouts, interpretive activities, or personal contact. When wildland are burning within the park or adjacent lands, 80 % of park visitors will be provided with information on the fire and fire effects

c. Management Considerations

Management considerations for operational implementation fall into four general categories:

- Health and safety (firefighter and public)
- Resource protection
- Maximum manageable area limits
- Fire management outside of park boundaries

These issues are discussed in more detail below:

i.) Firefighter Health and Safety

1.) Firefighter Training and Equipment

The NPS fire training program and the qualification and certification process are the foundations of the NPS fire safety program. Department of the Interior policy requires that all NPS personnel engaged in suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG). The National Park Service wildland fire qualification system meets or exceeds all NWCG standards. Only fully qualified personnel will be assigned fire management duties (unless assigned as trainees under the supervision of fully qualified personnel).

Fireline operations personnel, including emergency hire firefighters engaged in fireline operations, must have completed a minimum of 32 hours of basic wildland fire training, including the modules on basic firefighting, basic fire behavior, and standards for survival. All NPS firefighting personnel will receive at least eight hours of annual safety refresher training. All firefighting personnel will be equipped with the proper personal protection equipment (PPE) as defined in RM-18, Chapter 3.

Firefighting is an inherently dangerous job. To minimize the level of danger firefighters are exposed to, firefighters and the incident command team must be aware of site-specific risk factors.

A number of site-specific risk factors exist at Roosevelt-Vanderbilt National Historic Sites that could affect firefighter health and safety. Fire management staff should ensure that all fire personnel are briefed on these conditions. These factors are discussed below. This is not a comprehensive listing of all risk factors found within the park.

Fire managers should be familiar with issues concerning each of the risk factors listed below and how to mitigate threats these factors may pose to firefighter health and safety. Incident Commanders and Fire Safety Officers should contact park staff for additional information on site-specific hazards as needed.

2.) Stinging and Biting Invertebrates

Stinging and biting invertebrates including ticks, mosquitoes, bees, wasps, ants, spiders and centipedes are common native species at Roosevelt-Vanderbilt National Historic Sites. Stings and bites from these animals can cause reactions that range from minor itching and swelling to life threatening allergic reactions. Fire managers should attempt to determine if firefighters have known allergies to stings or bites. Use of repellents, protective clothing, and avoidance are generally effective in mitigating risks from stings and bites.

3.) Vector-bourn diseases

A number of diseases carried by invertebrate vectors (animals that harbor a disease) are known to occur at Roosevelt-Vanderbilt National Historic Sites. These diseases include Lyme Disease (carried by deer ticks and mammals) and West Nile Virus (carried by mosquitoes and birds).

Risk of contracting these diseases can be significantly reduced by use of insect repellent, wearing protective clothing, and conducting daily self-examinations for ticks. Firefighters should be briefed on these diseases and how to reduce the risk of contracting them.

Rabies is commonly carried by bats and occasionally by other mammals. Firefighters should not handle wildlife or animal carcasses without proper training, personal protective equipment, and specific permission from the incident command management team.

4.) Hazardous Plants

Poison ivy is common at Roosevelt-Vanderbilt National Historic Sites. Irritating oils on the leaves and in the sap of these species commonly cause contact dermatitis (rash, itching, etc.) with onset of symptoms beginning several hours after coming into contact with the plant. Symptoms can range from mild dermatitis to systemic allergic reactions.

Avoiding contact with these plants is the most effective method of preventing all health impacts. If skin contact occurs, wash the exposed area with warm soapy water as soon as possible. Wash all clothing that comes in contact with these plants to avoid plant oils trapped on clothing. Avoid smoke from burning poison ivy (see below).

5.) Smoke

Smoke is an unavoidable hazard when fighting fires. Smoke is a complex mixture of fine particulates and gasses created by burning materials. The composition of smoke varies depending on the material being burned and the temperature at which it is burning.

All smoke has the potential to impact human health due the inhalation of particulates, the inhalation of combustion gasses, and the reduction of available oxygen in smoke filled air. Smoke from fires burning plants containing irritating or toxic chemicals, hazardous materials, plastics, or other fuels can be particularly dangerous.

Smoke from fires burning in poison ivy often carries the unburned oils from these plants. Inhaling smoke containing these irritating oils can cause potentially fatal reactions tissues in the respiratory tract (lungs, bronchi, trachea, mouth, sinuses, and nose) swell and prevent normal breathing. Skin contact with smoke containing these oils can provoke allergic reactions that can incapacitate firefighters for weeks. Firefighters should avoid smoke from fires burning in poison ivy whenever possible.

6.) Steep Slopes

Steep slopes are present at many areas at ROVA. Along the Hudson River, the edge of the Hudson River terrace, and the upland portion of Val-Kill all contain steep slopes. In some cases, these slopes are unstable and/or have loose material at or near the angle of repose. Firefighters in these areas should be alert to the dangers of falling on slopes and loose material including soil, debris, and rocks cascading down slopes.

Firefighters should be aware of the effect of slope on fire behavior. Fires on steep slopes frequently have higher flame heights, spread rates, and intensities than fires on flatter terrain.

Fire managers should be aware that steep slopes at ROVA might require post-fire monitoring and rehabilitation if the ground on the slope is disturbed or the slope has lost a significant percentage of its vegetation. The rehabilitation may be required to protect soils and the historic landscape.

7.) Open Water

Open water is present in streams, the Hudson River, stream impoundments, and ponds in and around Roosevelt-Vanderbilt National Historic Sites. Extra care should be taken to avoid bank edges, slippery rocks (especially near drop-offs), areas with strong currents, and other hazardous areas. Care should be taken around all open waters to avoid accidental drowning.

ii.) Public Health and Safety

The primary management concerns relating to public health and safety and the park fire management program are smoke impacts, community resources, fire exceeding maximum manageable area limits, and managing fires outside of park boundaries that threaten park resources.

1.) Smoke

Smoke is associated with all fires. The primary public health threat from smoke at ROVA is from reduced visibility on roadways in and adjacent to the park. When smoke from fires threaten to create dangerous circumstances on local roadways, park staff will make a good faith effort to work with local public safety agencies to facilitate the safe passage of vehicles and pedestrians.

Individuals with asthma, emphysema, or other respiratory disease may suffer some respiratory distress in smoky air. The short-term nature of most fires at ROVA and the fact that smoke tends to disperse rapidly at distance from the fire creates natural limits on these health risks.

Wildland fires burning at periods of very high or extreme fire danger have the potential to generate very large volumes of smoke. These unusually intense fires could create a short-term threat to individuals with compromised respiratory health (asthma, emphysema, etc.). The park will make a good faith effort to control smoke from wildland fires as part of its wildland fire management program.

iii.) Resource Protection

1.) Park Resources

All appropriate steps necessary to protect the Park's cultural resources will be taken as long as those steps do not endanger firefighter and public safety.

Bulldozers and other tracked vehicles will not be used in the Park without prior approval of the superintendent

2.) Community Resources

Along with protecting firefighter and public health and safety and protecting park resources, a primary goal of the park's Wildland fire program is the protection of community resources. All fire preparedness and suppression activities will be informed by this goal. Community resources will be protected by:

- Ensuring that only qualified personnel conduct fire management activities
- Ensuring that cooperative agreements and other instruments permit resource sharing between the surrounding communities and the park.
- Ensuring that real property within the park and adjacent to the park are priorities for protection from fire impacts.

iv.) Maximum Manageable Area Limits

Maximum Manageable Area (MMA) limits are set for all fires during the Wildland Fire Implementation Plan (WFIP) process. MMAs are set based on safety considerations, current and projected fire behavior, management objectives, and values to be protected.

The park will make a good faith effort to limit the extent of all fires to less than their MMA. Fires will be subject to Wildland Fire Situation Analysis (WFSA) with sufficient frequency that there is a high level of awareness of the fire situation. Fires that threaten to exceed MMA limits, especially near park boundaries and highly sensitive resources, will be aggressively managed, consistent with protection of firefighter and public safety, to prevent fire moving outside of the MMA.

v.) Fire Management Outside of Roosevelt-Vanderbilt Site Boundaries

Activities that take place outside park boundaries may have profound effects on park management's ability to protect natural and cultural resources inside the park. ROVA staff will act to protect natural and cultural resources from impacts caused by external activities by working cooperatively with federal, state, and local agencies; user groups; adjacent landowners; and others to identify and achieve broad natural and cultural resource goals. By working cooperatively through both formal and informal lines of communication and consultation, the park will better achieve park management objectives and the protection of park natural and cultural resources.

Where permitted by law and regulation, authorized by the incident commander or superintendent, and authorized by property owners, NPS fire management staff may assist in fire management activities outside of park boundaries. These activities could include providing information to the public on wildland fire management and prevention at the urban-wildland interface, coordinating and planning with other fire management and public safety agencies, assisting other agencies with fire management, and assisting in wildland fire suppression.

d. Fire Ecology and Fire History

The New England Piedmont Ecological Sub-region (including Roosevelt-Vanderbilt National Historic Sites) has a very low incidence of natural disturbances including fires and hurricanes. Native American hunter-gatherer economic activities were prevalent within the area as long ago as 10,000 years. Settlements were small and short term. Prehistoric fire use and wildland fire occurrence seems to have played a minor role in creating and maintaining the landscape and ecology in the ecological sub-region.

European settlement occurred in the region as early as the 17th century and increased during the following centuries. Fire was widely used by individuals to clear land, dispose of logging slash, and to remove field stubble. Nineteenth century timber harvesting resulted in a largely deforested landscape by the early 20th century. Tourism, and winter and summer recreational activities, began in the 19th century and continue to thrive.

Composition of present day forests on a landscape scale is heavily influenced by agriculture dating from the colonial period and subsequent farm abandonment from about 1870, as well as by selective logging of certain species, particularly conifers. Forest pests (insects, fungi, and diseases), including chestnut blight, gypsy moth, spruce budworm, beech bark disease, butternut canker, and periodic birch and sugar maple

defoliators have altered the composition and health of forests. The percentage of land under forest land-cover continues to increase over time.

The natural fire regime of the area has been significantly altered by human activities. Wildland fires have been actively suppressed within the region surrounding ROVA for over 100 years. Historically, the combination of active suppression and conversion of forested lands to agricultural, residential, and industrial use reduced the ability of the land to support large scale wildland fires. The combination of continuing wildland fire suppression, which may allow fuels to build-up, and the conversion of land back to forest land cover may eventually lead to a higher incidence of fire.

According to fire occurrence history research conducted on the National Wildland Fire Computer Database there were a total of 2 wildland fires in the park between 1981 and 2002. Each fire incident involved less than 0.5 acres. No records have been located at the park to determine the occurrence of wildland fires within the park before 1981.

e. The Wildland Fire Management Situation

i.) Historical Weather Analysis

An evenly distributed average rainfall of 40.72 inches occurs in the park. The region receives about 45 inches of snow annually.

ii.) Fire Season

Wildland fires are most likely to occur during the normal fire seasons of March 1 to May 31 and September 30 to November 30. The greatest potential for fires occurs during the late winter and early spring, as fuels dry prior to the vegetation greening/leaf-out and again in the late summer and fall as herbaceous vegetation browns and cures coincident with leaf-drop. Short and tall grass fuel models can become more available to fire at an earlier time in the summer during periods of low rainfall and/or high temperatures.

iii.) Fuel Characteristics

Roosevelt-Vanderbilt National Historic Sites has similar vegetative cover across the park. Four (4) major fire behavior fuel models comprise the majority of fuels found within the Roosevelt-Vanderbilt National Historic Sites:

1.) Fuel Model #1 - Short Grass:

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DESCRIPTION: Fire spread is governed by fine herbaceous fuels that have cured or are nearly cured. Very few, if any, shrubs or trees are present. Trees and shrubs generally cover less than one-third of the area.

FIRE BEHAVIOR: Wind driven surface fires that can burn very rapidly.

2.) Fuel Model #3 - Tall Grass:

DESCRIPTION: Fire spread is in tall stands of grass averaging about three feet high where one-third or more of a stand is considered dead or cured. Fire may be carried by wind through the upper heights of grasses standing in water.

FIRE BEHAVIOR: Fires in this fuel are the most intense of the grass group and display high rates of spread under the influence of wind.

3.) Fuel Model #5 - Brush:

DESCRIPTION: Fire is generally carried in the surface fuels that are made up of litter cast by the shrubs and the grasses or forbs in the understory. Shrubs are generally not tall but have nearly total coverage of the area.

FIRE BEHAVIOR: Fires are generally of low intensity as surface fuel loads are light, shrubs are young with little dead and the foliage contains little volatile materials.

4.) Fuel Model #9 - Hardwood Litter:

DESCRIPTION: Fire spread is primarily in surface litter such as concentrations of dead, dry leaves in fall or spring. Stands can be hardwoods, mixed hardwood/conifers or long needle conifers.

FIRE BEHAVIOR: Fires normally carry only through the surface litter. Fire may rarely torch out trees, spot, and crown where concentrations of dead-down woody materials are encountered.

NOTE: In the summer, during leaf out, this fuel model is represented by Fuel Model #8. Fires burning in Fuel Model #8 are characterized by very slow rates of spread and low flame lengths due to the normally high fuel moisture contents and shaded canopies found in this fuel model.

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Fuel loads and fuel moisture within the park are usually such that potential for ignition is limited, fire intensity/rate of spread is generally low, and fire duration is short. Fuel Model 3 (tall grass) probably poses the greatest threat for extreme fire behavior at the park, but only comprises approximately a small percentage of the site's total acreage. An evenly distributed annual precipitation of 35 inches limits the threat of extreme fire behavior.

Fire Behavior Fuel Model	Fuel Type	Rate of Spread (chains/hour)	Flame Length (feet)
1	Annual and perennial grasses (short)	78.0	4.0
3	Annual and perennial grasses (tall)	104.0	12.0
5	Shrubs	75.0	19.0
9	Hardwood Forest litter	7.5	2.6

The fire behavior values contained in Table 6 are based on the following assumptions:

- Wind speed of 5 miles per hour
- Fuel moisture content of vegetation of 8 percent
- Live fuel moisture content of 100 percent

Actual fire behavior will vary widely based upon various environmental factors. The values in Table 6 are meant to serve as a model for "typical" conditions at the park. Higher wind speeds, greater slopes, and/or lower fuel moistures can result in significantly higher flame lengths and rates of spread. Weather conditions and seasonal climatic variation may result in conditions that diverge widely from those presented above.

Forest fuels rarely accumulate sufficiently to become a significant large scale hazard at ROVA, though isolated jackpots of fuels may occur. Medium and heavy fuels typically retain enough moisture to limit their flammability and to ensure that decay limits the total accumulation of fuels.

Fires within the forests of ROVA are generally restricted to surface fuels, consume leaf litter and branch wood, and reduce reproduction. Under most conditions, such fires are of low intensity and short duration. Flame lengths of 2 feet or less are common; fire spread is influenced primarily wind and topography.

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Fire effects include the removal of surface fuels, occasional scorching of trees, and the reduction of young woody reproduction.

Under unusual conditions (BI 50-60+), surface fires may torch out and occasionally crown where fuel ladders exist. The extent of such fire behavior is rather limited. Under these conditions, fire intensity may be sufficient to kill mature trees, particularly those with thin bark, and consume organic matter in soils. These fire effects occur only during periods of severe and prolonged drought.

Fires within park fields are typically of low to moderate intensity and short duration. Fires within this fuel type spread very rapidly under the influence of wind and topography. Flame lengths of 1 to 4 feet are common depending on fine fuel moisture content, height of the grass, and wind intensity. Fire intensity is generally sufficient to consume all herbaceous surface fuels, kill a percentage of shrubs, and scorch trees where present. Fire does not typically carry in mowed lawn areas.

Fuels around buildings, boundaries, roads, trails, picnic areas and other sites occasionally accumulate sufficient fuel density to create a hazard to real property, historic resources, or human health and safety. These fuels are usually managed by mechanical removal.

Hazard fuels at Roosevelt-Vanderbilt National Historic Sites are typically managed through mowing (grasses and other herbaceous vegetation), raking or vacuuming (fallen leaves), cutting and chipping (woody vegetation), or other mechanical or cultural means. Fire may occasionally be used to reduce hazard fuels and woody debris.

During periods of very high or extreme fire danger, fire in any fuel type could display rapid spread rates and large flame lengths. Under these conditions, virtually all fuels can be considered as hazard fuels because of the high potential for the ignition and spread of wildland fire.

During periods of very low fuel moisture (such as during droughts), and especially where low fuel moisture and high winds occur together, the potential for the occurrence of large wildland fires exists. When the fire danger is very high or extreme, ignition sources may be managed by limiting potential sources of ignition (open fires, sparks from automobiles, etc.), limiting public access to portions of the park, limiting park directed activities, and/or by increased fire detection activity.

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iv.) Fire Regime Alteration

Natural fire regimes are a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning. They are based upon the natural frequency and severity of fire in a particular landscape and are divided into five separate natural fire regimes.

The fire regime in the area of the park has been altered since settlement. Forest cover that was originally in the area was used for construction and fuel wood to satisfy the subsistence needs of the settlers, agriculture and local industry. As these uses declined, many areas within the FMU have reverted back to forest, but other areas have been maintained in grasslands, lawns and orchards. The natural fire regime for the FMU is Fire Regime III, which represents the mature forests of the FMU as originally found by the first European settlers.

Table 7 illustrates the fire regimes as found in the Cohesive Strategy document.

Table 7 - Fire Regimes		
<i>Fire Regime Group</i>	<i>Frequency (Fire Return Interval)</i>	<i>Severity</i>
I	0-35 years	Low severity
II	0-35 years	Stand replacement severity
III	35-100+ year	Mixed severity
IV	35-100+ year	Stand replacement severity
V	>200 years	Stand replacement severity

Fire regime condition classes (FRCC) are a classification of the amount of departure from the natural regime of a particular landscape. The FRCC in the FMU is Condition Class 3. Condition Class 3 occurs when there is a significant level of departure from the natural (historical) regime of vegetation characteristics; fuel composition; fire frequency, severity and pattern, and other associated disturbances.

The natural fire regime in the FMU has been effectively removed from the landscape for at least the past 200 years and in some cases for the past 300 years. This is a result of both active wildland fire suppression and conversion of forested lands to agricultural lands and then to rural residential use. Since all wildland fires within the FMU and the surrounding area will continue to be fully suppressed due to the

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wildland/urban interface present, fire and its effects will continue to be excluded from its natural role across the landscape of the FMU

Table 8 illustrates the Condition Classes as found in the Cohesive Strategy document.

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Table 8 - Condition Class Descriptions	
Condition Class ¹ Descriptions	
<i>Condition Class</i>	<i>Fire Regime</i>
Condition Class 1	Fire regimes are within an historical range and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.
Condition Class 2	Fire regimes have been moderately altered from their historical range. The risk of losing key ecosystem components is moderate. Fire frequencies have departed from historical frequencies by one or more return intervals (either increased or decreased). This results in moderate changes to one or more of the following: fire size, intensity and severity, and landscape patterns. Vegetation attributes have been moderately altered from their historical range.
Condition Class 3	Fire regimes have been significantly altered from their historical range. The risk of losing key ecosystem components is high. Fire frequencies have departed from historical frequencies by multiple return intervals. This results in dramatic changes to one or more of the following: fire size, intensity, severity, and landscape patterns. Vegetation attributes have been significantly altered from their historical range.
¹ Current conditions are a function of the degree of departure from historical fire regimes resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire suppression, timber harvesting, grazing, introduction and establishment of exotic plant species, insects or disease (introduced or native), or other past management activities	

v.) Control Problems and Dominant Topographic Features

Wildland fire could threaten park buildings, especially historic structures, and adjacent private development. Smoke from a wildland fire could obscure visibility on roadways, perhaps causing vehicle accidents, or cause respiratory problems in area residents. Steep ravines exist along the Hudson River boundary of the park.

vi.) Values to be Protected

Important values to be protected at Roosevelt-Vanderbilt National Historic Sites include the primary resources of the park. These include

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the cultural landscapes (and the natural resources of which they are composed), historic structures, and archeological sites. Values to be protected also include natural resources and processes, natural levels of biodiversity, sensitive species and sensitive habitats, and historical and archeological resources not associated with the Roosevelts or Vanderbilt families. Values to be protected and their susceptibility to damage or loss by fire are discussed in the description of the Fire Management Unit (section III.D. of this plan).

IV. WILDLAND FIRE MANAGEMENT PROGRAM COMPONENTS

A. General Implementation Procedures

The wildland fire management program at the park is guided by the park's general management plan (GMP). The basic goals of the GMP is to preserve natural and cultural resources, provide for safe public use and enjoyment, work cooperatively with other interested parties, and ensure organizational effectiveness.

The direction provided by the GMP indicates that prompt, aggressive suppression actions, with due consideration to firefighter and visitor safety and resource protection, will be the normal response to all wildland fires within the park. Based upon this, all wildland fire at Roosevelt-Vanderbilt National Historic Sites will be managed to minimize damage to values to be protected, infrastructure, and threats to visitor and staff safety. To accomplish this, fire managers will balance the potential impacts of wildland fire with the potential impacts of fire suppression activities.

Implementation of all wildland fire suppression and use will follow the guidelines of the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide. A Wildland Fire Implementation Plan (WFIP) will be initiated for all wildland fires.

In the event of a wildland fire, the incident commander will conduct a *Stage I: Initial Fire Assessment*, as well as all other required documentation. Because the entire park is in a single FMU which calls for full suppression of all fires, the WFIP requirement for completing the *Decision Criteria Checklist* as a part of the Stage I analysis is considered met. The *Fire Situation* assessment, however, will still be completed with the assistance of the park fire management officer at a later date.

The WFIP process will begin with a Stage I: Initial Fire Assessment and continue with additional stages as appropriate under NPS guidelines. The WFIP documents the current and predicted fire situation, documents all appropriate administrative information, and provides a decision framework for selecting the appropriate management responses. The full range of appropriate management responses are available and range from aggressive wildland fire suppression to containment with active monitoring.

In addition to the checklist shown in the Implementation Guide, other significant management criteria that should be considered in the decision process include:

Minimum Impact Suppression Tactics (MIST) will be used to minimizing soil disruption or compaction and avoid potential impacts on archeological artifacts and sites.

Wildland fires in large fields and meadows (>3 acres) should be managed to protect nesting grassland birds and juvenile grassland birds between April and August 15.

[List other criteria]

B. Wildland Fire Suppression

The objective of fire suppression at the park is to suppress all wildland fires at minimum size and cost consistent with values at risk while minimizing the impacts from suppression activities. Further, wildland fire suppression is an emergency operation and takes precedence over all other park operations with the exception of safeguarding human life.

1. Range of Potential Fire Behavior

Fires within the forests of Roosevelt-Vanderbilt National Historic Sites generally are restricted to surface fuels, only consume surface litter, and may kill some small diameter trees and shrubs. Under most conditions, park fires are of low intensity, have short to moderate residence times, and slow to moderate rates of spread. Flame lengths of 2 feet or less are common. Fire spread is primarily influenced by wind and topography. Fire effects include the removal of surface fuels, occasional scorching of trees, and the reduction of young woody reproduction.

Under unusual conditions (BI 50-60+), surface fires may climb into the trees (torch out) and occasionally crown where fuel ladders exist. Under these conditions, fire intensity may be sufficient to kill mature trees, particularly those with thin bark, and consume organic matter in soils. Crown fires may have flame lengths in excess of 50 feet, moderate to long residence times, and rapid rates of spread. The conditions that create the potential for this level of fire behavior rarely occur at the park.

Fires within the grasslands of Roosevelt-Vanderbilt National Historic Sites are typically of low to moderate intensity and short duration. Fires within this fuel type spread very rapidly under the influence of wind and topography. Flame lengths of 1 to 4 feet are common depending on fine fuel moisture content, height of the grass, and wind intensity. Fire intensity is generally sufficient to consume all herbaceous surface fuels, kill a percentage of shrubs, and scorch trees where present.

Flame lengths in excess of 15 feet may occur when grassland fuels are well-cured (dry) and light winds are present. In strong winds or on steep slopes flame lengths can exceed 30 feet with very rapid rates of spread and short residence times. (See Table 6 in Section III.)

2. Preparedness Actions

"Preparedness" refers to activities that lead to a safe, efficient, and cost-effective fire management program in support of land and resource management objectives through appropriate planning and coordination. Preparedness includes planned activities for the development and implementation of the wildland fire management program. These activities include staffing, training, fire prevention activities, education, provision and maintenance of support facilities, purchase of and contracting for equipment, supplies, support, planning and coordination, policy development and oversight, research, and interagency coordination.

Management requirements for all wildland fire management applications include measurable objectives, qualified personnel, adequate equipment, quantified ranges of conditions under which wildland fires will be managed a description of actions which will be taken if these conditions are exceeded, a monitoring and documentation process, and a review and approval process. These requirements are addressed through preparedness planning.

Preparedness planning is the foundation of an effective fire management program. Thorough planning enables managers to meet other fire management objectives efficiently. For example, the step-up plan should enable the park to have the right resources at the right place, at the right time, to deal with increasing levels of fire danger. As fire danger increases, the level of preparedness must increase. Preparedness actions are preplanned and delineated by staffing classes in the step-up plan (see Appendix I). The step-up plan is updated each year prior to the fire season.

Preparedness activities Roosevelt-Vanderbilt National Historic Sites will undertake include:

- Incorporate preparedness and fire prevention considerations into all management functions.
- Maintain a cache of supplies, materials, and equipment sufficient to meet normal fire year requirements.
- Maintain cooperative agreements to provide for effective wildland fire management and to coordinate interagency operations.
- Maintain the qualification levels of park firefighters commensurate with providing initial attack suppression capabilities in the park and seek to support national wildland fire suppression capabilities through providing park staff with fire training as workload, management priority and funding allow.

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- Ensure that information on all wildland fires within Roosevelt-Vanderbilt National Historic Sites are documented and entered into NPS automated fire record systems.
- Maintain a step-up plan.
- Maintain record systems, weather data, maps and other related information.
- Provide for a dispatch system for fire management resources within and adjacent to the park.
- Maintain detection and initial attack capabilities.

a. Fire Prevention, Education, and Community Assistance

The objectives of the park's fire prevention program are to prevent human caused wildland fires and to minimize damage to park resources and adjoining properties. A detailed fire prevention plan will be developed for the park. When completed, the plan will be added as an appendix to the FMP.

The program of public education regarding wildland fire prevention, potential fire benefits and dangers will be conducted as appropriate to help support the FMP goals. Visitor contacts, bulletin board materials, handouts, messages in interpretive programs and specific interpretive programs may be used to increase visitor and park neighbor awareness of fire hazards and benefits. On-site wildland/urban interface assessments of adjoining structures utilizing Firewise concepts and standards may be conducted for adjoining landowners. The Acadia National Park fire prevention specialist also serves as the North Country Area fire prevention specialist and is responsible for assisting with the park's fire prevention program.

Park employees will be provided with information about fire prevention, the wildland/urban interface, the objectives of the fire management program, and the dangers and benefits of prescribed fire and wildland fire. Employees will be kept informed about changes in the fire situation throughout the fire season.

The park's fire prevention and education program may be implemented in conjunction with other fire management and public safety agencies, including the Hyde Park Fire Department, to increase awareness of fire prevention, develop understanding of the dangers and benefits of fire, protect human life and property, minimize risk to the wildland/urban interface, and prevent damage to real property and cultural and natural resources.

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Additionally, the following measures are taken to help prevent the start of wildland fires:

- Campfires and cooking fires are prohibited in the park except when allowed by the Superintendent.
- High visibility ranger patrols are conducted at times of high visitation and in areas prone to fire-related problems, (i.e., areas where local youths congregate and in the past have built fires for parties).
- Special use permittees are not permitted to have fires.
- Fire regulations under Title 36 CFR are strictly enforced.

b. Training

There is an ongoing effort to get more employees, both permanent and seasonal, trained as basic firefighters. The park will support additional training to personnel certified as basic firefighters to develop additional skills in support of the fire management program as management priority, staff time, and funding allow. Certifications up to the level of squad boss and skills certifications including the use of chain saws and pumps are current park priorities.

Departmental policy requires that all personnel engaged in wildland fire and prescribed fire duties meet the standards set by the National Wildland fire Coordinating Group (NWCG). The National Park Service wildland fire qualification system meets or exceeds all NWCG standards. Individuals will not be assigned to duties for which they lack training and/or certified experience. Roosevelt-Vanderbilt National Historic Sites will support training, skill development, and certification to meet or exceed NWCG standards for park staff with specific fire management duties.

Roosevelt-Vanderbilt National Historic Sites staff without specific fire management duties may receive fire related training with the support of their supervisor and the park superintendent. Staff members who receive fire training may be required to participate in local, regional, or national fire management activities as a condition of their training.

Training should follow a planned career development path. Employees are encouraged to consult with the park FMO to ensure that training is pertinent to future target jobs or training needs listed in their wildland fire qualification and to park or service-wide needs.

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All fireline personnel are required to complete an eight-hour fire safety training annually. Staff members with advanced training and certification are required to apply their training in fire management situations and/or complete additional training to maintain their certification. Specific training needs will vary with the type and level of certification held by park staff.

c. Equipment and Supply Readiness

The park maintains a cache of fire management equipment at the park that is available for use by trained fire fighting personnel including local fire departments. The equipment cache is located in the Vanderbilt Coach House. The portable fire cache trailer contains the following equipment:

Pulaskis; shovels; fire rakes; bladder bags; chain saw; log lifter; peavy

All fire management equipment and supplies will be inventoried in accordance with NPS fire and property management policies.

All fire management equipment will be maintained in good working order and will be inspected and tested as appropriate, including inspection and testing before the start of the spring fire season. Equipment maintenance shall include sharpening edged tools, inspecting tool handles, testing and lubricating pumps, inspecting and testing hoses, testing radios and batteries, and similar activities.

As fire management equipment is used and returned to the fire cache its condition will be checked and appropriate maintenance will be performed to return it to ready condition. Damaged equipment will be repaired or replaced.

All fire supplies will be inventoried before the start of the fire season. During the fire season, the supplies will be inventoried with sufficient frequency to ensure that the stock of all fire supplies is sufficient to meet park needs.

Following the fall fire season, all fire management equipment and supplies will be inventoried and stored appropriately to maintain it in good condition and to ensure its availability for future fire management activities. Additional equipment and supplies will be purchased as needed to return the fire cache to ready condition.

d. Fire Weather and Fire Danger

i.) Weather Stations

The NPS does not maintain a weather station in the park. Weather data can be obtained from closest National Weather Service automated weather station, located at the Dutchess County Airport in Poughkeepsie, New York. This station is located approximately ten miles south-southeast of the park. The data from this station can be obtained at the National Weather Service's Albany, New York office website at <http://www.erh.noaa.gov/er/aly/> under the listing of "Decoded Surface Observations: 2 Day History". Daily fire weather forecasts are also available at this website.

ii.) National Fire Danger Rating System

The National Fire Danger Rating System (NFDRS) helps fire managers estimate the difficulty of control of a wildland fire. NFDRS utilizes a series of indexes based upon cumulative observed weather data to provide predictions for broad areas of how difficult it would be to bring a wildland fire under control within that area on that particular day. The park utilizes the 1978 National Fire Danger Rating System. Under the NFDRS, fire danger is broadly divided into five classes according to the intensity of fire danger factors. These classes (adjective ratings) relate to the expected difficulty to control a wildland fire and indicate the projected staffing level of fire suppression resources for each class.

The NPS does not generate specific NFDRS ratings for the park. The US Forest Service does generate adjective ratings for large scale areas throughout the United States. These ratings for the park can be found in the "Fire Danger Maps", a product of the Wildland Fire Assessment System. The maps can be accessed at the US Forest Service website at <http://www.fs.fed.us/land/wfas/wfsa23.html>.

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Table 9 National Fire Danger Rating System		
ADJECTIVE RATING	STAFFING CLASS	BURNING INDEX
Low	I	0 - 11
Moderate	II	12 - 22
High	III	23 - 55
Very High	IV	56 - 71
Extreme	V	72+

Predicted fire danger at Roosevelt-Vanderbilt NHS commonly remains in the low to high range during the fire season. Predicted fire danger is rarely rated as very high or extreme for more than a few days per year.

e. Step-Up Plan.

The step-up plan describes additional staffing, preparedness activities, detection, and suppression strategies that are put in place as the local fire danger rating (see Table 9) increases from low to extreme. These activities are “stepped-up” as fire danger increases to ensure that appropriate detection and initial attack resources are available to protect public safety and park resources.

The staffing classes relate to the expected difficulty of controlling a fire. The park superintendent) may choose to increase the staffing class by one level for unusual events that would increase the potential for wildland fire. Preparedness actions are based on the latest fire danger rating (see Table 4) and the next day forecast from the National Fire Danger Rating System. Fire conditions that typify each staffing class are listed below:

Staffing Classes I and II (Low/Moderate)

Fires will present at low to moderate level of control difficulty. Fires occurring at these levels may be controlled with existing forces (park staff and local fire departments). Wind speed and direction will determine speed of fire spread. Fine fuels are may be wet or re drying.

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Staffing Class III (High)

Fires will present a moderate level of control difficulty. Light fuels are becoming dry. Heavy fuels are drying. Mop-up may be more difficult and time-consuming.

Staffing Classes IV and V (Very High/Extreme)

Fire will present a moderate to high level of control difficulty. Initial attack and reinforcing crews may have difficulty controlling a fire at this level. All fuels are dry. Air temperature is high and humidity is low. Strong gusty winds are possible. Spotting may occur. Emergency preparedness FIREPRO funds may be used at these staffing levels to fund increased fire preparedness activities.

For descriptions of each preparedness level based on staffing classes, all actions planned and authorized at each staffing class level, and funding sources see the Step-up Plan in Appendix I.

3. The Pre-Attack Plan

Due to the limited risk of fires large enough to warrant extended attack, no formal pre-attack plan has been written. The local fire department has developed protocols and procedures for initial attack of fires within the Park. The Park's historic structures receive the highest priority in regard to any fire suppression actions. Measures currently being taken to prevent the damage or destruction of these structures by fire include creating defensible space around them and maintaining mowed lawns.

The Pre-attack checklist (Wildland Fire Management Reference Manual 18, Chapter 7, Exhibit 3) has been reviewed and park staff have identified and documented all critical elements described in the checklist. This information is maintained by the park fire management officer.

4. Initial Attack

Initial attack is the first wildland fire suppression action applied to a fire. Since suppression of all wildland fires is a park fire management goal, no Stage I Wildland Fire Situation Analysis is required to determine that initial attack is the appropriate management response to the current or expected fire situation. This presumption will stand until the fire is suppressed or escapes initial attack.

Initial attack strategies will vary with the threat to firefighter and public safety, the fire situation, the range of values to be protected threatened by the fire, and the cost of suppression activities. Initial attack can range from aggressive

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suppression on the fire line (where firefighters attempt to suppress the fire at or near the perimeter of the fire) to confinement (where firefighters use natural barriers or construct barriers to limit fire activity to a specific area).

Suppression is the most commonly chosen management response during initial attack of wildland fires at Roosevelt-Vanderbilt National Historic Sites. Due to the relatively mild fire behavior seen at Roosevelt-Vanderbilt National Historic Sites, most fires within the park are completely suppressed during initial attack. Extended attack of wildland fire is very rarely needed.

Initial attack is typically carried out by park staff and volunteer firefighters from the Town of Hyde Park, New York, dispatched by the Dutchess County Fire Bureau.

a. Information required to Set Initial Attack Priorities

A variety of information to be used for setting wildland fire suppression priorities is held by the resource management and fire management staff of the park. This information includes GIS data layers of:

Vegetation; Sensitive Habitat ; Archeological Resources; Wetlands ; Soil; Historic Resources; Park infrastructure; Roads and Trails; Topography; Water sources; Adjacent properties

In addition, maps including:

Cultural resources site maps displaying archeological sites, structures, and other resources;

Natural resources site maps displaying sensitive habitats and species, wetlands, and other resources;

Roosevelt-Vanderbilt National Historic Sites facility maps;

Maps showing adjacent properties and structures;

Areas where suppression tactics are restricted;

Roosevelt-Vanderbilt National Historic Sites staff will make information needed to make appropriate fire management decisions available to the Incident Commander.

b. Criteria for Appropriate Initial Attack Response

Criteria for choosing the appropriate initial attack strategy and the intensity of response warranted include:

Protection of firefighter and public safety

Protection of cultural, historic, and natural resources

Protection of real property

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Use of minimum Impact Suppression Tactics (MIST)

Observed and predicted fire behavior as determined by fuels, weather, topography

Available suppression resources and response times

The need for park management approval for the use of mechanized equipment off of established roads

Minimizing suppression costs when consistent with safe and effective fire suppression

These criteria are consistent with the objectives of the park's General Management Plan, the park's Resource management Plan, and with NPS Management Policies and guidance. These criteria should be used to define the intensity of the response to the fire situation based on the fire behavior, weather conditions, and potential fire effects.

When there are multiple fires burning at the same time, the incident commander will allocate fire management resources as appropriate to conserve resources identified in the GMP, RMP, and this plan as having high value. These values to be protected include:

Public and firefighter health and safety. Safety will always be the highest priority.

Protection of primary park resources

Protection of real property

Sensitive species and habitats

c. Confinement as an Initial Attack Strategy

A confinement strategy may be used as the initial attack action as long as it is not used to meet resource objectives. Confinement may be selected for reasons including, but not limited to, maximizing firefighter safety, minimizing cost, and maximizing the availability of critical fire suppression and management resources during periods of need.

When confinement is selected as a fire management strategy during initial attack, the choice of confinement is made to:

- maximize firefighter safety
- minimize suppression costs
- minimize cost and loss in low valued and commodity resource areas
- conserve values to be protected

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- maximize availability of critical suppression and management resources during periods of very high or extreme fire danger associated with fire in highly valued resource areas

A confinement strategy may also be selected in the Wildland Fire Situation Analysis (WFSA) process when the fire is expected to exceed initial attack. When confinement is selected as an initial attack or extended attack strategy, the same management process applies as for wildland fire use decisions. A Wildland Fire Implementation Plan (WFIP) is prepared in stages as the fire dictates.

A confinement strategy may be selected for initial or extended attack as long as it is not being used solely to meet resource management objectives. Resource benefits may be a by-product, but the strategy must be based upon the criteria listed above.

d. Wildland Fire Response Times

Typical fire wildland fire response times will vary depending on the staffing at the park, availability of local fire departments, and time of day.

Roosevelt-Vanderbilt National Historic Sites staff members are typically dispatched in ten to fifteen minutes following the report of a fire during normal working hours. Outside of normal operating hours, dispatch time is commonly between 15 and 30 minutes following the report of a fire. Arrival time at the fire is dependent on the location of the fire and the location the firefighter is dispatched from. The first firefighter will normally be at the closest road access in ten to thirty minutes after dispatch and on scene between ten and forty minutes after dispatch.

Local fire departments are typically dispatched within ten minutes following the report of a fire. Firefighters and fire engines typically arrive at the park within fifteen to thirty minutes and arrive at the nearest road access between five and fifteen minutes later.

During times of elevated fire danger, the park may increase the level of fire detection activity. This may include stationing park staff to monitor for fires while the park is open to the public or, during periods of extreme fire danger, 24-hours per day. Initial response time may be less than five minutes at these detection levels.

e. Restrictions and special concerns by management area.

The incident commander is delegated the authority for making restricted use exemptions. In non-emergency situations, the incident commander will consult with the appropriate park and regional resource advisers and the superintendent or their representative before granting restricted use exemptions.

i.) Limits on equipment use and fire-line construction

Use of fire fighting equipment and techniques are limited by the potential for direct and indirect impacts to archeological resources, the historic landscape, sensitive species, and sensitive habitats. Use of fire fighting tools and equipment, including tracked vehicles, off-road wheeled vehicles, plows, and other equipment or techniques that by nature or common use are ground disturbing or and/or may crush artifacts at or near the surface should only be used when required to control or contain a fire.

Equipment and activities that could damage archeological resources, sensitive species, and sensitive habitats include:

- Driving wheeled or tracked vehicles/equipment off of established roadways
- Digging fire-line with hand-tools, heavy equipment, or fireline explosive
- Removing vegetation from steep slopes or otherwise creating conditions where erosion or mass wasting is likely
- Other ground disturbing activity

Except in cases where:

- Human health and safety are at direct risk
- Fire directly and immediately threatens to cause significant damage to primary park resources, or
- Fire on the park directly and immediately threatens significant real property on or adjacent to the park,

The incident commander shall consult with the archeological resource advisor (appointed by the regional archeologist) and/or other resource advisors designated by the superintendent before any equipment use or activity that could threaten park archeological

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resources (i.e. ground disturbing activity or off-road vehicle use) is undertaken.

Maps of sensitive historical and archeological resource areas within the park are maintained by park resource management staff. Incident commanders and park resource management staff are responsible for ensuring that these maps are available to the Incident Command Team, including resource advisors and the incident commander, in a timely manner and are used to make informed decisions on appropriate suppression activities.

ii.) Sensitive Species and Habitats

No Federally listed threatened or endangered Species are resident in the park. Several species of special concern including state listed species and grassland birds do occur within the park.

Maps of sensitive species occurrence and sensitive habitat within the park are maintained by park resource management staff. The and park resource management staff are responsible for ensuring that these maps are available to the incident command team, including resource advisors and the incident commander, in a timely manner and are used to make informed decisions on appropriate suppression activities.

iii.) Aircraft Use

In exceptional circumstances, aircraft may be used to transport firefighters and equipment within the park. Landing sites for helicopters will be designated by the incident commander or his designee in consultation with the archeological resource advisor and/or other park resource management staff designated by the superintendent.

iv.) Fire Retardant and Foam

Chemical fire retardant and Class A foam may be used in the park if the alternative is the construction of fire line. Use of chemical retardant and foam is preferred to the use of heavy equipment off of established roadways, especially on steep slopes or other areas with high potential for erosion. Use of fire retardant must be approved by the superintendent or their representative.

Chemical fire retardant can stain or corrode the wood and stone of historic structures and will not be used in the vicinity of these

structures. If structure protection is necessary, Class “A” foams may be used. Class A foams will be kept a minimum of 25 feet away from any water body.

v) Hazardous Materials

There are no known hazardous materials sites within the park. If hazardous materials are discovered, maps of known or suspected hazardous materials occurrence will be developed and maintained by park resource management staff. Incident commanders and park resource management staff are responsible for ensuring that these maps are available to the incident command team, including resource advisors and the incident commander, in a timely manner and are used to make informed decisions on appropriate suppression activities.

f. Local Government Relations and Community Involvement

Initial attack suppression actions are usually conducted by the park and volunteer firefighters from Hyde Park, New York. Additional assistance may be requested from other towns through the mutual support network. Support may also be requested through the North Country Area Fire Management Officer at Acadia National Park.

Fires at Roosevelt-Vanderbilt National Historic Sites are typically extinguished within 24 hours of detection. Fires are rarely, if ever, large enough or of sufficient duration to require the hiring of local wildland fire fighters. Individuals or businesses from the local communities are available for contracting for services (catering, hauling water, etc.) and equipment.

Recyclable materials from fire suppression activities will be incorporated into the park’s existing recycling program.

5. Extended Attack and Large Fire Suppression

Fires large enough to require extended attack are extremely rare. No extended attack wildland fires have occurred during the past twenty years at Roosevelt-Vanderbilt National Historic Sites. The existing mutual aid agreements between community fire departments and the Roosevelt-Vanderbilt National Historic Sites, combined with resources available from other NPS units and through the national resource ordering system are sufficient to meet anticipated extended attack and large fire suppression needs.

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a. Extended Attack Needs

Extended attack needs will be determined by considering the following:

Threats to life, property, and Park resources

Availability of suppression forces

b. Implementation Plan Requirements – Wildland Fire Situation Analysis (WFSA) Development

When a fire escapes initial attack, a new strategy must be developed to suppress the fire. This selection process is accomplished through the development of a WFSA.

The WFSA is a decision process that employs a systematic and reasonable approach to determine the most appropriate management strategy for a particular situation. Reasonable management alternatives are identified, analyzed, and evaluated, and are consistent with the expected probability of success /consequences of failure. The Superintendent shall approve the WFSA and any revisions. Evaluation criteria include firefighter safety, anticipated costs, resource impacts, and social, political, and environmental considerations. The evaluation of alternatives becomes the triggering mechanism for re-evaluation of the WFSA.

The Wildland Fire Implementation Plan (WFIP) describes the range of operational management decisions including initial attack and extended attack. The WFIP includes a decision making process that informs the incident commander of the range of appropriate fire management strategies for the fire situation. The development and use of each WFIP will follow the guidelines of the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide.

The incident commander will ensure that Wildland Fire Situation Analysis and a WFIP are completed for each wildland fire

An electronic version of a WFSA can be found at the U. S. Forest Service website at <http://www.fs.fed.us/fire/wfsa/>.

c. Incident Management Transition:

Transition from initial attack to extended attack will occur when an active fire exceeds one burning period or has exceeded the capabilities of the initial attack forces. Transition to a higher level incident command will occur whenever the fire complexity exceeds the management level of the incident management team in place.

Transition to an incident management team requires a briefing by the superintendent and a limited delegation of authority for the suppression of the fire(s). The briefing should address agency specific concerns, priorities, firefighter and public safety, economic and resource concerns, and other topics or issues of importance and relevance to the suppression effort

6. Exceeding the Existing WFIP

Fire thresholds include weather, predicted fire behavior, and observed fire behavior in Wildland Fire Implementation Plans (WFIP). When WFIP thresholds are exceeded, when WFIP thresholds are expected to be exceeded, when wildland fires cannot be controlled during the initial suppression response action, or when the appropriate management response has not been successful, the incident commander will initiate a new Wildland Fire Situation Analysis (WFSA). The goal of this WFSA will be selecting an appropriate management response that responds to the changing fire situation. A new WFIP must be developed utilizing a new strategy by which the fire should be managed

7. Minimum Impact Suppression Tactics Policy

Minimum Impact Suppression Tactics (MIST) is defined as the application of those techniques that effectively accomplish wildland fire management objectives with the least cultural and environmental impact, commensurate with public and firefighter safety. It is NPS policy that MIST will be used for all fire management activities on NPS lands.

Within Roosevelt-Vanderbilt National Historic Sites, the use of MIST generally involves the use of tactics that minimize soil disruption and compaction and disruption of plant root systems and/or vegetative cover that binds soils. These tactics minimize the potential direct damage to cultural landscapes and archeological resources in the soils and indirect damage from post fire erosion. Specific MIST guidelines for the park include:

- All fire management activities in the Park will rely on tactics, which do a minimum amount of resource damage while maintaining the safety of firefighters, personnel, and the public as the highest priority.
- Fireline construction will be minimized by taking advantage of natural barriers, rock outcrops, trails, roads, streams, and other existing fuel breaks.
- Limbing along the fireline will be done only as essential for the suppression effort and for safety.

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- Unburned material may be left within the final line.
- Clearing and scraping will be minimized.
- Snags or trees will be felled only when essential for control of the fire or for safety of personnel.

8. Rehabilitation Guidelines

Except in highly managed landscapes (lawn and garden areas) and where fires have burned with unusual intensity, occurred on steep slopes, occur near flowing water, or where suppression activities have disrupted soils and shallow root structure, burned area rehabilitation is generally not required. Wildland fires rarely consume all surface roots, organic duff or organic soil layers.

Where organic soils remain after fires pass over an area (typically the case at Roosevelt-Vanderbilt National Historic Sites), many woody and herbaceous perennial plants re-sprout quickly. Seeds of rapidly growing annual species are usually present in unburned organic soils or are carried into the burned area by wind and animals. Rainfall and soil moisture levels within the park are generally high enough to promote rapid re-growth of perennials and rapid germination of annual seeds.

All rehabilitation of areas impacted by fires and fire suppression activities will be conducted to comply with NPS Burned Area Rehabilitation (BAER) guidelines and procedures. Rehabilitation will be undertaken where monitoring reveals that natural processes alone are not sufficient to conserve values to be protected.

a. Immediate Rehabilitation

Immediate rehabilitation will be undertaken when there is a clear and immediate need for rehabilitation to meet resource protection goals. Immediate rehabilitation actions may be directed by the Incident Commander and carried out as part of the incident. Immediate rehabilitation activities are funded through the emergency fire suppression account for that fire.

Examples of immediate rehabilitation actions that do not require the permission of the Superintendent include:

- Ensuring safety for incident personnel and the public (e.g. cutting hazard limbs and felling hazard trees)
- Removing litter and trash from the incident site, staging areas, and camps

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- Restoring constructed fire line and other areas of soil disturbed by fire-related activities as needed to prevent erosion and rehabilitate the historic landscape.
- Flush cutting stumps of trees and brush as needed
- Scattering, chipping, burning, or otherwise managing woody debris generated by fire suppression actions

b. Short-term Rehabilitation

Short-term rehabilitation includes actions to stabilize a burned area and mitigate effects of fire suppression activities initiated within one-year of a fire incident. Most short-term rehabilitation projects are initiated within 60 days after incident closeout.

Roosevelt-Vanderbilt National Historic Sites staff, regional resource managers and scientists, regional archeologists, and others will be consulted as appropriate for proposed rehabilitation recommendations and project review. Re-vegetation and rehabilitation activities will be based on assessment and evaluation of resource damage and will comply with NPS policies and regulations.

If re-vegetation or seeding is necessary, only native plant species will be utilized, and the Natural Resource Specialist will be consulted for approval of the species chosen. Rehabilitation efforts should be initiated as soon as they can be safely implemented, which may be before the fire is declared controlled.

If extensive emergency rehabilitation is needed or if rehabilitation is needed to reduce the effects of a wildland fire then the Park can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS Branch of Fire and Aviation Management at the National Interagency Fire Center. The specifics of the policy can be found in 620 DM 3 DOI BAER Policy (2001). BAER project requests totaling \$300,000 or less can be approved by the Regional BAER Coordinator. Submissions over this amount are reviewed at the regional level, and forwarded to the Fire Management Program Center for approval. Requests for BAER funding must be made to the North Country Area Fire Management Officer within 72 hours of the date the fire is declared controlled.

c. Long-term Rehabilitation

The goal of long-term rehabilitation (recovery) is to bring impaired resources back to approximately their pre-fire appearance and function. Rehabilitation can include restoration of plant and animal communities, replacement of buildings or infrastructure, landscape rehabilitation, and

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other activities. Long-term rehabilitation will often continue activities begun as short-term rehabilitation projects.

Roosevelt-Vanderbilt National Historic Sites staff, regional resource managers and scientists, regional archeologists, and others will be consulted as appropriate for proposed rehabilitation recommendations and project review. Re-vegetation or rehabilitation activities will be based on assessment and evaluation of resource damage and will comply with NPS policies and regulations.

Recommendations for long-term rehabilitation (recovery) projects will be submitted to the Superintendent in the form of a written rehabilitation plan. Long-term rehabilitation plans will normally include monitoring elements. Restoration plans must be approved by the superintendent prior to execution. Plans involving re-vegetation and reseeding must use appropriate native species and require additional written approval from the regional director.

Long-term rehabilitation activities are normally considered part of ONPS operations rather than emergency actions.

9. Records and Reporting

All fire-related records and reports required will be completed, entered into appropriate databases, and retained as described in DOI RM-910, NPS DO-18 and NPS RM-18. The park fire management officer is responsible for completing and submitting records and reports on individual fires and all annual reports and annual data summaries.

a. Wildland Fire Implementation Plan (WFIP)

A Wildland Fire Implementation Plan will be prepared for every wildland fire and will be the responsibility of the park fire management officer. Stage I establishes documentation groundwork for the fire. It provides information on location, fire cause, administrative information, fuel conditions, weather, and fire behavior situations. Because the entire park is in an FMU which calls for full suppression of all fires, the WFIP requirement for a decision checklist as a part of Stage I analysis is considered met. The fire situation assessment sheets, however, will still be completed.

b. Individual Fire Reports (DI-1202)

The NPS report for documenting a wildland fire is the Individual Fire Report (DI-1202). It is important that all fires occurring within Park boundaries be documented using, at a minimum, this form. This includes

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fires that go out on their own, when the location can be documented. The DI 1202 is the basic document used by the National Park Service to document fire occurrence. The DI-1202 form may be downloaded at <http://ndc.fws.gov/forms/1202frm.pdf>

The park fire management officer is responsible for preparation of the individual fire report. These reports will be completed according to NPS procedures. Fires will be sequentially assigned a fire number by calendar year, i.e. fires in 1999 are numbered 9901, 9902, etc. Completed DI-1202 reports will be forwarded to the North Country Area Fire Management Officer, who will input the reports into the NPS Wildland Fire Management Computer System

C. Wildland Fire Use

Wildland fire use consists of allowing some portion of a wildland fire to burn under controlled circumstances to achieve park resource management goals and objectives. Because the incidence of wildland fires occurring under conditions that would allow wildland fire use is extremely low, the park size is very small, there is a high degree of wildland/urban interface areas surrounding the park, the work load associated with planning for wildland fire use is large and not a management priority, and park staff may not have the required level of certification required to support wildland fire use, the park will not use wildland fire as a resource management tool under this plan.

Wildland fire use may be used in future fire management plans. If wildland fire use is proposed, appropriate NEPA compliance, NHPA compliance, and public notification and review will be completed at that time.

D. Prescribed Fire

Prescribed fires are fires intentionally ignited at the direction of park management to accomplish specific management objectives. Prescribed fires are only ignited when predetermined (prescribed) fire safety, staffing, weather, fuel-moisture, and fire behavior conditions are met. Igniting fires under predetermined prescriptions allows fire managers to exert substantial influence over fire impacts including the rate of fire spread, level of fuel consumption, and fire intensity. Fire managers ignite prescribed fires to accomplish resource management objectives including landscape management, habitat management, and fuel reduction. All prescription parameters, acceptable ranges, and objectives are clearly stated in a burn unit specific prescribed fire burn plan.

Prescribed fire use at Roosevelt-Vanderbilt National Historic Sites is not proposed under this plan. This decision was made because of the availability of other tools to accomplish resource management goals and because park management has

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determined that park and community fire management resources are better used on other management priorities at this time.

Prescribed fire may be used in future fire management plans. If prescribed fire use is proposed, appropriate NEPA compliance, NHPA compliance, and public notification and review will be completed at that time.

Fire may be used by the park to dispose of natural vegetative debris deemed infeasible or impractical to remove mechanically. Debris disposal is only undertaken in a non-wildland fuel environment (parking lot, storage yard, gravel pit, or other area without burnable surface fuels.). The debris to be disposed of may be generated from routine maintenance activities, removal of hazard trees, or may come from other sources. Any material being burned for debris disposal must be classified as permissible to burn under applicable Federal, State, Tribal, and Local regulations, and be conducted under a NY State Burn Permit.

Burning of this debris in non-wildland fuel environments is not considered a prescribed fire under NPS policy. All debris burning will adhere to the applicable policy and procedure requirements found in DO-18 and RM-18.

E. Non-Fire Fuel Treatment Applications

The Roosevelt-Vanderbilt National Historic Sites fuels management program includes non-fire applications for landscape management, park maintenance, hazard fuel reduction, wildland/urban interface protection, debris removal, invasive species control, and habitat management.

The goals and objectives of the fuels management program are to:

- Preserve and maintain the historic landscape, historic structures, and other park structures through the periodic removal of hazard fuels.
- Control exotic and invasive species
- Ensure that real property adjacent to the park and within the park are protected from fire impacts and impacts from fire suppression activities
- Ensure that natural and cultural resources and values to be protected within and adjacent to the park are appropriately protected from fire impacts and impacts from fire suppression activities

- Reduce fuel loading to reduce risk of wildland fire ignition, reduce the intensity of wildland fires that do occur, and reduce potential fire damage to park resources

These goals and objectives support the goals of the Roosevelt-Vanderbilt National Historic Sites RMP, Strategic Plan, and GMP.

1. Mechanical treatments

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Hazard fuels at Roosevelt-Vanderbilt National Historic Sites are typically managed through mowing (grasses and other herbaceous vegetation), raking or vacuuming (fallen leaves), cutting and chipping (woody vegetation), or other mechanical and cultural means.

Fuels around buildings, boundaries, roads, trails, picnic areas and other sites occasionally accumulate sufficient fuel density to create a hazard to real property, historic resources, or human health and safety. These fuels are usually managed by mechanical removal. These fuels are typically removed on a cyclic basis.

Firebreaks are maintained around most structures, monuments, roads, trails, and support structures (fences, flagpoles, bridges, walls, hedges, etc) in the park. These firebreaks are typically mowed every two to four weeks during the growing season. Mowing frequency depends on the importance of the resource, the amount of visitation in the area, management priorities, and the availability of staff and equipment.

When fire danger is very high or extreme, fuels throughout the park may be managed by limiting potential sources of ignition (open fires, sparks from automobiles, prohibiting the smoking of tobacco products, etc.), by limiting public access to portions of the park, limiting park directed activities, and/or by increased fire detection activity.

Heavy equipment including industrial mowers, large trucks, and trailer-mounted wood chippers are commonly used in mechanical fuel removal. Heavy equipment except mowers should usually be confined to existing roads and trails. In all cases, tracked and wheeled vehicles should only be used off roads and trails under conditions where they will not significantly disturb soils, compact soils, or break up vegetative cover.

Monitoring objectives for hazard fuel removal include:

- Fuel breaks in grasses and forbs will be maintained at less than six (6) inches height.
- Dead and downed wood will be removed from an area of between five (5) to fifty (50) feet from structures, monuments, and other selected values to be protected. The area of fuel removal will depend on the composition (flammability, fuel density, fuel type) of the resource, its relationship to the park mission, the value of the resource, and other criteria.
- Accumulation leaves and other light fuels around the foundations of structures will be informally monitored the late summer and fall. Leaf accumulations of greater than six (6) inches will be removed promptly (no more than 2 weeks after discovery).

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a. Annual Preparedness

All equipment and supplies will be inventoried in accordance with NPS fire and property management policies.

All equipment will be maintained in good working order and will be inspected and tested as appropriate, including inspection and testing before the start of the spring fire season. Equipment maintenance shall include sharpening edged tools, inspecting tool handles, testing and lubricating pumps, inspecting and testing chippers, and similar activities.

As equipment is used and returned to the fire cache, its condition will be checked and appropriate maintenance will be performed to return it to ready condition. Damaged equipment will be repaired or replaced.

All supplies will be inventoried before the start of the fire season. During the fire season, the supplies will be inventoried with sufficient frequency to ensure that the stock of all supplies is sufficient to meet park needs.

Following the fall fire season, all fuel reduction equipment and supplies will be inventoried and stored appropriately to maintain it in good condition and to ensure its availability for future use. Additional equipment and supplies will be purchased as needed.

b. Equipment and seasonal use restrictions

Use of equipment and fire management techniques are limited by the potential for direct and indirect impacts to archeological resources, the historic landscape, sensitive species, and sensitive habitats. Use of tools and equipment, including tracked vehicles, off-road wheeled vehicles, plows, and other equipment or techniques that by nature or common use are ground disturbing or and/or may crush artifacts at or near the surface should only be used when required to meet specific fire management objectives.

Where non-emergency ground disturbing activity is required, archeological clearance through the Section 106 consultation process of the National Historic Preservation Act and written permission from the Superintendent is required.

c. Monitoring

Formal and informal fuel monitoring will be components of the park's fire monitoring program. Fuel levels will be monitored through visual

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inspection for accumulations of fuels, downed limbs, heavy growth adjacent to sensitive resources, and other applicable resource conditions.

Vegetation will be monitored for overall fuel load, fuel moisture, and areas of fuel accumulation. Measurable objectives include:

- Dead and downed woody fuels will be routinely removed from paths, trails, roads, visitor use areas and their margins
- Herbaceous vegetation in visitor and staff use areas including picnic areas, trailheads, and waysides will be kept mowed to a height of less than six inches.
- Fuel breaks of five to fifty feet will be maintained around buildings, monuments, signs, flagpoles, and other fire-sensitive infrastructure. Within these fuel breaks, herbaceous vegetation will be cut to a height of less than six inches, dead and downed woody vegetation will be removed, leaves or other debris will be removed if their depth exceeds six inches.

Monitoring will be conducted visually as part of the park's maintenance, visitor protection, and fire management programs. Much of this monitoring will be informal in nature. Protocols for formal monitoring efforts will follow the protocols found in the NPS Fire Monitoring Handbook.

d. Critiques

Critiques of the fuel reduction program undertaken as part of the park's normal maintenance will be by discussion between the park fire management officer and the chief of maintenance. These fuel reduction activities will be summarized as part of the park's annual fire report.

Critiques of fuel reduction projects where the primary goal is hazard fuel reduction will follow NPS fire management guidelines. Fuel reduction projects will be critiqued verbally after they are completed. A written summary of the critique will be placed in the fire management files and a summary of all fuel reduction projects accomplished each year will be included in the annual fire program report to maintain a permanent project record. The park fire management officer or project supervisor is responsible for conducting the verbal critique and completing the written summary. Additional documentation may be included in the project record at the discretion of the fire management officer.

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e. Cost Accounting

Fuel reduction projects where the primary goal is reducing hazard fuels may be funded through requests for FIREPRO project funding. Most fuel reduction projects at Roosevelt-Vanderbilt National Historic Sites have multiple goals including landscape maintenance, exotic species control, habitat maintenance, and hazard fuel reduction. These projects are typically funded using ONPS funds.

Supplemental funding from other sources may be used for any appropriate fuel reduction project. All costs associated with fuel reduction will be tracked and documented in accordance with NPS policy and guidance.

f. Reporting and Documentation

All fuel reduction records and reports required will be completed, entered into appropriate databases, and retained as described in DOI RM-910, NPS DO-18 and NPS RM-18. Incident Commanders and work supervisors are responsible for completing and submitting records and reports on individual projects. The park Fire Management Officer is responsible for ensuring the completion and submittal of all appropriate reports and annual data summaries.

V. ORGANIZATIONAL AND BUDGETARY PARAMETERS

A. Organizational Structure of the Fire Management Program

Roosevelt-Vanderbilt National Historic Sites is a small unit of the National Park Service with a small permanent and summer seasonal staff. The Division of Natural Resources has the primary responsibility for most wildland fire management activities at the park. The fire management team will include all wildland fire qualified employees.

The fire management team consists of employees with the requisite training, fitness, experience, and other fire qualifications. The size of the fire management team varies due to permanent staff transfers between parks and with the hiring of seasonal employees. Employees may become members of the fire management team, with the approval of their supervisor and the superintendent, after meeting training and work capacity requirements.

Roosevelt-Vanderbilt National Historic Sites will use the Incident Command System (ICS) as a guide for fireline organization. Fire management staff will meet all National Wildland fire Coordination Group (NWCG) requirements for wildland fire activities.

Park positions with specific fire management responsibilities are:

1. Superintendent and Deputy Superintendent

The Superintendent and Deputy Superintendent of Roosevelt-Vanderbilt National Historic Sites are responsible for all fire management activities conducted at the ROVA sites and are accountable to the regional director for the Northeast Region (NER). They are responsible for:

- Supporting and encouraging employee involvement in wildland fire prevention/education programs as appropriate
- Developing and implementing wildland fire prevention plans as a component of the fire management plan
- Preparing wildland fire plans, which shall be reviewed annually and updated as required
- Integrating wildland fire management issues into all management functions, including planning, interpretation, visitor protection, maintenance, and administration
- Developing cooperative agreements and/or memoranda of understanding with local fire departments and public safety agencies, land management agencies,

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and wildland fire protection groups to coordinate wildland fire management, prevention, and education programs

- Coordinating with adjacent landowners to establish objectives and priorities on fires involving multiple ownership or jurisdictions.
- Assessing, coordinating, and facilitating local wildland fire prevention/education training
- Developing and providing prevention/education, which supports resource management, to the public

Additionally, the superintendent will ensure that the park has a fire management plan that meets the requirements of DO-18 to guide a fire management program and that the plan is responsive to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities. The superintendent will review this plan annually and will update the plan every five (5) years.

The superintendent is responsible for periodically assessing and certifying that the wildland fire management plan and the fire management program as described in the plan appropriate.

The superintendent will ensure that RM-18 is available in sufficient quantities to serve the needs of fire management staff within the park, and will ensure that fire management staff is adequately versed in the departmental and NPS policies and procedures contained therein.

The superintendent has delegated responsibility for the fire management program to park fire management officer (FMO). The superintendent has directed the other ROVA division chiefs to provide support to park's fire management program.

The Superintendent is generally more involved in external programs and partnerships, while the Deputy Superintendent is more involved with daily management activities.

The Superintendent directly supervises the Facility Manager, Administrative Officer, and Natural Resource manager, while the Deputy Superintendent supervises the Chief Ranger, Chief of Interpretation, and Chief Curator.

2. Chief, Natural Resource Program

The Natural Resource Program Manager has the delegated authority for managing the overall fire program. The NR Program Manager coordinates fire management activities with the other division chiefs and the fire management

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officer as directed by the Superintendent. The NR program manager is supervised by the Superintendent.

The NR Program Manager coordinates the assignment of fire management personnel and resources from other divisions through the division chiefs. He also facilitates the flow of fire information to the media and the public or assign an individual to that task as needed. He provides assistance in fire prevention and public information and education program development and implementation.

The Natural Resources Program staff support the program manager on matters related to fire management objectives, goals, planning, monitoring, and research. Natural resource program biologists and technicians assist the FMO with documenting resources and resource status, assessing the impact of fire activity on resources, and coordinating research programs related to fire management.

The Superintendent supervises the Natural Resource Program Manager.

3. Chief, Division of Resource and Visitor Protection

The Chief, Division of Resource and Visitor Protection (Chief Ranger) has overall responsibility for enforcement of Federal laws and regulations with the park. In the absence of the fire management officer the chief ranger serves as the incident commander of a fire until a person with higher fire management certification arrives on scene.

The Deputy Superintendent supervises the Chief Ranger.

4. Facility Manager

The facility manager directs routine hazard fuel reduction (as part of the park maintenance program), manages maintenance planning and implementation for buildings, comfort stations, roads, trails, vehicles, and utilities. Major duties related to wildland fire include:

- Provide assistance in closures of roads, trails, and other facilities.
- Support park fire management operations and planning.
- Assist with the procurement and maintenance of all items contained in the park's wildland fire equipment cache.

The Superintendent supervises the Facility Manager.

5. Park Fire Management Officer

The park fire management officer (FMO) coordinates the planning and implementation of the fire management program and coordinates with other park programs. The park FMO has day to day responsibility for the fire management program. He/she procures supplies and training for personnel, stocks the fire cache, conducts fitness testing, maintains fire personnel records, maintains all program related mechanical equipment, communicates with Area FMO and Regional FMO on related matters and submits proposals for FIREPRO funding. The FMO conducts all fire incident reporting (DI-1202). In concert with the area FMO, the park FMO drafts amendments to the park FMP and other required reports. The FMO is the incident commander on all park fire suppression efforts in the absence of other fire personnel with higher levels of fire training. In the FMO's absence, another red-carded employee will be designated to complete all required fire reporting.

The FMO has overall responsibility for short and long range planning, and implementation of the park's wildland fire management program. The ROVA FMO coordinates fire preparedness (training, planning, staffing, supplies, etc.), fire mobilization, and fire suppression within the park. Other major duties associated with the FMO include:

- In the absence of other personnel with higher levels of fire certification, serves as the incident commander on park fire suppression and prescribed fire incidents.
- Monitors visitor and staff safety and implements park use restrictions or park evacuation as necessary.
- Facilitates the flow of fire information to the media and the public or assigns an individual to that task as needed.
- Reports personnel and other costs of suppression efforts to the administrative officer.
- Conducts or coordinates reviews of park fires as specified in this plan.
- Enters and retrieves data through the National Fire Danger Rating System (NFDRS) and Federal fire management programs (e.g. Weather Information Management System (WIMS), NPS Wildland Fire Computer System, etc.)
- Manages FIREPRO budget and park ONPS fire budget.

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6. Administrative Officer

The park administrative officer (AO) tracks all fire account allocations, obligations, expenditures, and allocations. The AO:

- Opens emergency preparedness and emergency suppression accounts upon written notification from the FMO.
- Maintains personnel records and time sheets with information provided from the field by the FMO.
- Ensures fire related personnel information is reported to other parks or agencies whose personnel participated in fire suppression efforts.
- Provides emergency procurement assistance for on-going park fires.

7. Chief of Interpretation

The chief of interpretation designs and implements the park public fire education program. This program makes the public, interested organizations, park neighbors, and park cooperators aware of the park fire situation and the effects, risks, and benefits of wildland fire, wildland fire use, fire suppression, and prescribed fire. The chief of interpretation is supervised by the superintendent.

8. Chief Curator

The Chief Curator is responsible for the care of the museum collection, including outdoor statuary. The Chief Curator oversees all aspects of the acquisition, documentation, preservation, and use of park collections.

9. Radio Dispatcher

When a wildland fire occurs during normal park business hours, the on-duty permanent law enforcement ranger will be delegated to coordinate all on-air communications. The dispatcher will remain in that role until relieved by the FMO, chief ranger or incident commander.

10. Other Park Positions With Fire Management Responsibilities

Fire qualified (“red-carded”) park staff are part of the park’s fire management team and may be directed to serve in any position for which they are qualified on fire incidents in the park or elsewhere.

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Fire management responsibilities and assignments to wildland fire management activities will be made based on qualifications and availability. Personnel will only engage in those activities for which they are currently qualified as described in the National Park Service Wildland Fire Qualification and Certification System

Non-park NPS positions and groups that support the park's fire management program are:

11. North Country Area Fire Management Officer

The area fire management officer (area FMO) is the FIREPRO funded fire management officer for Acadia National Park and the North Country Area Fire Management Park Group (NOCOPG). NOCOPG is comprised of 13 NPS units in Northern New England and Northern New York State.

Roosevelt-Vanderbilt National Historic Sites has an inter-park agreement with Acadia National Park to provide assistance with fire management issues through the area fire management Officer. A copy of the agreement is located at each park.

The area fire management officer:

- Provides the first level of technical assistance to the park for all fire management planning, and implementation activities. This includes assistance for managing the park's use of fire management programs such as the National Fire Danger Rating System, the Weather Information Management System (WIMS), the NPS Wildland Fire Computer System (SACS), the resource ordering system (ROSS), the Incident Qualification and Certification System (IQCS), Fire Program Analysis (FPA), FIREPRO budgeting, etc.

- Assists with the park's wildland fire qualification and certification program, fire monitoring, fire training and mobilizations, development of preparedness, suppression, wildland/urban interface, fuels management and prescribed fire operational plans, development of cooperative agreements with local and state agencies, and administration of Rural Fire Assistance Program grants to local fire departments. The area FMO coordinates fire management needs between the North Country Area parks and with the Northeast Region Fire Management Office, the Eastern Interagency Coordination Center (EICC) and the Northeastern Fire Coordination Center (NECC).

- Assists the park in acquiring needed resources and equipment, and in preparing FIREPRO funding requests.

- May be requested to serve on an incident management team as an agency representative regarding fire management operations.

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Park requests for assistance from the area FMO will be coordinated through the park FMO. Requests should be made as far in advance as is practical.

12. North Country Area Fire Prevention Specialist

The area fire prevention specialist (area FPS) is the FIREPRO funded FPS position for Acadia National Park. The area FPS provides assistance to the park in conducting fire prevention and education programs. The area FPS may also assist the park in evaluating park structures for wildland/urban interface issues and with an outreach interface program to park neighbors and local governmental bodies and agencies.

13. Northeast Region Fire Management Officer

The regional fire management officer (regional FMO) has delegated authority for the management of the region's fire management program. The regional FMO is responsible for planning, training, technical assistance, budget prioritization, coordination, and interagency issues for units of the National Park Service in the Northeast Region. The regional FMO assures that the regional fire management program is conducted accordance to established policy and procedures and that FIREPRO funds are used appropriately.

The regional FMO represents the parks in the Northeast Region to the NPS Fire Management Program Center, the Eastern Area Coordination Center (EACC), and other regional and national fire management organizations.

14. Northeast Region Prescribed Fire Specialist

The regional prescribed fire specialist (regional PFS) provides technical assistance to the park on fire ecology, prescribed fire and fuels treatment matters.

15. NPS Fire Management Program Center

The NPS Fire Management Program Center (FMPC) is located in Boise, Idaho and provides national leadership, direction, coordination and support for NPS fire, aviation and incident management. The primary purposes of the FMPC are:

- achieving national mandates for firefighter, NPS employee and visitor safety.
- protecting natural and cultural resources.

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- maximizing partnerships with federal, state, local and tribal entities, in order to achieve the greatest benefit for park resources.

- achieving and maintaining the highest standard of professionalism, using state-of-art concepts, technologies and practices.

B. FIREPRO Funding

Annual wildland fire management appropriation provides FIREPRO funding for necessary expenses for fire planning and oversight functions, along with budgeted activities necessary to prepare for the normal fire season, and for the development and implementation of the wildland fire emergency suppression, emergency rehabilitation, and hazard fuels reduction program.

The park is not a base funded FIREPRO Park and does not have FIREPRO-funded positions. FIREPRO funding is available for approved fire training, prevention, preparedness, suppression, prescribed fire, wildland/urban interface, fuels treatment, and burned area emergency stabilization and rehabilitation projects. Related equipment, personal protective equipment and supplies may be acquired with FIREPRO funding. Financial grants may be provided to qualifying local fire departments through the Rural Fire Assistance Grant Program (RFA).

All FIREPRO funding requests are made through the area fire management officer.

C. The Fire Management Program and the Park Organization

Other Divisions and Staff

By direction of the superintendent, all divisions will support the fire management program with available equipment and personnel. Chiefs of these divisions report to the superintendent.

All park employees will take advantage of appropriate opportunities to educate the public about the positive values of wildland fire and the manner in which the NPS manages fire to meet ecosystem management objectives.

The development, training, and certification of personnel for fire management activities will be carried out in a manner that includes all divisions and ensures flexibility in providing effective fire management responses. Any member of the Roosevelt-Vanderbilt National Historic Sites staff may be directed to assist with wildland fire and prescribed fire management programs in accordance with his or her qualifications and abilities.

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Many functions such as time recording, dispatching, motor vehicle operation, etc. can be performed by non-fire qualified personnel. Supervisory personnel are responsible for initiating and implementing operational activities in accordance with approved plans and procedures.

D. Wildland Fire Use Certification

Wildland fire use is not authorized under this plan for use in the park.

E. Interagency Coordination

Interagency cooperation is vital to the full realization of NPS fire management program objectives. The ability of a single agency to implement a fire management program of any complexity is limited without coordination with and assistance from other organizations.

1. Local Coordination

Roosevelt-Vanderbilt National Historic Sites is in the process of developing a cooperative agreement with fire departments from Hyde Park, New York, and the Dutchess County Fire Bureau that supports structural and wildland fire suppression in the park and surrounding areas. When completed, this agreement will be placed in Appendix H. Additional local fire departments support for fire suppression operations at Roosevelt-Vanderbilt National Historic Sites is available through mutual support agreements with the Hyde Park Fire Department. These fire departments offer significant support to the park fire management program.

A permit for the release of smoke from the New York is required for debris burning and other fire use. The park applies to the New York for this permit as needed.

2. Area Coordination

Through an interpark agreement with Acadia National Park, the Park is a member of the North Country Area Fire Management Park Group (NOCOPG). NOCOPG is comprised of 13 NPS units in Northern New England and Northern New York State. The Acadia National Park FMO serves as the North Country Area FMO. The area FMO coordinates fire management needs between the North Country Area parks and with the Northeast Region Fire Management Office, the Eastern Interagency Coordination Center (EICC) and the Northeastern Fire Coordination Center (NECC).

3. Regional Coordination

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The NPS Northeast Region is an associate member of the Northeast Fire Compact. Federal and state agencies have agreed to share fire resources through this compact. Mobilization and dispatch of fire resources (staff, equipment, and supplies) is through the Northeastern Coordination Center (NECC) via the area FMO. A list of available resources and detailed procedures for requesting assistance are documented in the Northeast Region Fire Mobilization Plan. The mobilization plan is updated annually.

4. National Coordination

The National Park Service is a member of the Interagency Cooperative Fire Agreement and the National Wildfire Coordinating Group (NWCG). Participating members of the agreement include the U.S. Forest Service of the Department of Agriculture, the Bureau of Indian Affairs, Bureau of Land Management, National Park Service, and U.S. Fish and Wildlife Service of the Department of the Interior. Through additional agreements, state forestry and wildland fire agencies, private forestry companies, the Association of State Foresters, and many states participate in this agreement.

The principle objective of the Interagency Cooperative Fire Agreement is the cooperative and cost effective sharing of fire resources during national and regional emergencies. Through this agreement, a wide variety of fire resources and support services can be made available to units of the National Park Service. All requests for assistance through this agreement are directed to the Eastern Area Coordination Center through the area FMO.

F. Interagency Contacts

The key interagency contacts for the park fire management program are:

- 1. Park Fire Management Officer, Roosevelt-Vanderbilt National Historic Sites*
- 2. Chief, Hyde Park Fire District*
- 3. Chief, Roosevelt Fire District*
- 3. North Country Area Fire Management Officer, Acadia National Park*
- 4. North Country Area Fire Prevention Specialist, Acadia National Park*

Addresses and telephone information for these contacts can be found in Appendix F.

G. Related Agreements

1. Cooperative Agreement with the Hyde Park Volunteer Fire Department

An agreement to provide fire protection services to the park and to assist the Hyde Park Volunteer Fire Department is currently under development.

2. Inter-Park Agreement between Acadia National Park And Roosevelt-Vanderbilt National Historic Sites

An agreement to provide the park with technical fire and aviation management assistance and support.

Through an interpark agreement with Acadia National Park, the park is a member of the North Country Area Fire Management Park Group (NOCOPG). NOCOPG is comprised of 11 NPS units in Northern New England and New York State. The Acadia National Park FMO serves as the North Country Area FMO. The area FMO coordinates fire management needs between the North Country Area parks and with the NPS Northeast Region Fire Management Office, the Eastern Interagency Coordination Center (EICC) and the Northeastern Fire Coordination Center (NECC).

Copies of these agreements described above are included in Appendix H.

VI. MONITORING & EVALUATION

A. Monitoring Program

Post-burn monitoring of wildland fires and monitoring of non-fire mechanical fuel treatments are required by NPS policy. The park will implement long and short term monitoring to assess accomplishments, and determine the effects of fire management activities on cultural and natural resources.

The primary goals of the fire monitoring program are to:

- Record basic information for all fires
- Document post-fire effects and burned area rehabilitation needs
- Follow trends in fuels and plant communities

The Park will work closely with the area FMO and regional prescribed fire specialist in developing and implementing a fire monitoring program. Assistance in conducting fire monitoring activities, including the establishment and sampling of monitoring plots, will be coordinated through the area FMO.

B. Fire Monitoring Protocols

Roosevelt-Vanderbilt National Historic Sites will follow the fire monitoring protocols found in the NPS Fire Monitoring Handbook

This handbook will serve as the source document providing monitoring needs with minor adaptations made for local situations and conditions. An electronic copy can be found at <http://www.nps.gov/fire/fmh/FEMHandbook.pdf>

C. Fire Monitoring Plan

A fire monitoring plan, based upon the protocols found in the *NPS Fire Monitoring Handbook* will be developed as part of the implementation of this fire management plan. When completed, the fire monitoring plan will be added as Appendix J.

VII. FIRE RESEARCH

The primary objective of fire research in the National Park Service is to provide information for making fire management decisions. Research plays a critical role in fire management programs by identifying area specific fire regimes; determining whether human activity has affected native ecosystems; developing techniques for predicting fire behavior; documenting and analyzing fire effects and other topics.

Research may also provide the framework needed to justify maintaining historic scenes, investigate techniques to create these scenes, and determine the impacts of fire management on cultural and natural resources. Research serves to define the natural and aboriginal role of fire for use in formulating and implementing such fire management actions as suppression strategies and tactics, hazardous fuel abatement, and preparedness.

As the Roosevelt-Vanderbilt National Historic Sites fire management plan is implemented and tested, additional research needs will be identified. Fire research needs at Roosevelt-Vanderbilt National Historic Sites include:

- Establishing a system of “pre-burn” monitoring plots to allow evaluation of fire effects
- Determining the historical role of fire in natural and Native American influenced fire regimes in the region including the park
- Documenting the impacts of fire suppression on forest health.
- Determining the impact of fire and fire suppression on invasive exotic forest pests in park’s forests

VIII. PUBLIC SAFETY

Roosevelt-Vanderbilt National Historic Sites received an average of 597,000 recreational visitors per year (1995-2004) with a high annual visitor count of 656,000 recreational visitors in 1996. During periods of high visitor use parking lots, sections of park roads, the visitor center, and historic structures may be crowded.

A system of roads and trails carry visitors and staff throughout the park. Two major highways and other roads pass are adjacent to the park. During periods of high visitor use, traffic volume along the park road could make a rapid visitor evacuation or entrance of emergency vehicles difficult.

Lands surrounding the park include residential, commercial, and recreational properties. Many of these properties do not have significant separation from park wildland fuels. Properties at the urban-wildland interface without sufficient fuel breaks may be at some risk from wildland fire.

Smoke from fires could obstruct vision and lead to bicycle or motor vehicle accidents. Speed limits on park roads are low, but higher speed limits on adjacent roadways could create additional hazard. Smoke could cause respiratory distress for individuals with compromised respiratory systems. Smoke density and volume is expected to be highest in immediately adjacent to wildland fires.

Public safety issues are mitigated through this FMP by:

- Setting human health and safety as the highest priority in all fire management activities.
- Setting protection of real property as a high value. This will generally (except when human health and safety would be threatened) lead to aggressive suppression of fires threatening inholdings and adjacent lands.
- Including the use non-fire methods to reduce hazard fuel loading
- Providing for park staff to work with local and regional public safety organizations to control traffic when smoke impairs visibility
- Including smoke management and reduction in all park fire planning and fire suppression decision criteria
- Providing for closing all or part of the park and restricting activities within the park during periods of very high or extreme fire danger (NFDRS Class IV or V).
- Providing for cooperative fire management with local fire departments

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- Providing information to the public on wildland fire and preparedness along the urban-wildland interface (see section IX below)

IX. PUBLIC INFORMATION AND EDUCATION

The goals of the park's fire information and education program are to

- Provide timely information to the public, cooperators, government agencies, and others on fires within and adjacent to the park
- Reduce the incidence of human-caused fires
- Interpret the goals, objectives, and actions of the fire management program
- Interpret the role of wildland fire, the application of prescribed fire and the use of wildland fire to achieve resource management objectives
- Provide information on the wildland/urban interface and mitigation measures for minimizing the wildland/urban interface risk.

A. Public Information Capabilities

Through use of interpretive staff, other staff, and, where appropriate, trained fire information specialists temporarily assigned to the park, the Roosevelt-Vanderbilt National Historic Sites has the capability to:

- Rapidly and accurately, provide information on wildland fires, wildland fire use, prescribed fire application within the park, park fire goals, the fire situation, fire effects, and strategies and tactics being used to the public, the media, organizations, and government officials.
- Work with adjacent land owners and fire control agencies on issues of preparedness and suppression at the wildland-Urban interface
- Provide on-site fire information and interpretation to park visitors

The North Country Area Fire Prevention Specialist is a resource available to the park for consultation, support and assistance in providing public information and education.

Information will be disseminated using various media. These media may include:

- Signs, posters, and posted notices
- Distribution of printed materials
- Fire preparedness and fire effects information in interpretive programs
- Press releases

- Public outreach

- Other methods as appropriate

B. Public Information Step-up Activities

At all levels of fire danger the park will maintain staff and office capabilities to provide wildland fire information (preparedness activities, purpose, size, location, status, restrictions on park use, etc.) to the public, the media and government agencies as appropriate. During most fire-years, these duties will be completed by park staff. Park staff will usually provide information as part of their normal duties. NPS staff may occasionally be assigned to fires specifically to provide public information.

During high fire incidence periods, high fire risk periods, or where there is a high interest in park fire activities, a public information specialist may be assigned to the park or to a fire.

1. Public Information Step-up

At all levels of fire danger the park will maintain staff and office capabilities to provide wildland fire information on preparedness activities; size, location, and status of fires; restrictions on park use, etc. to the public, the media and government agencies as appropriate. During most fire-years, these duties will be completed by park staff. Roosevelt-Vanderbilt National Historic Sites staff will usually provide information as part of their normal duties. NPS staff may occasionally be assigned to fires specifically to provide public information.

During high fire incidence periods, elevate fire danger periods, or where there is a high interest in park fire activities, a public information specialist may be assigned to the park or to a fire.

See the park Staffing Step-up Plan (Appendix I) for more information.

X. PROTECTION OF SENSITIVE RESOURCES

A. Cultural Resources Requiring Sensitive Treatment

Roosevelt-Vanderbilt National Historic Sites was established to preserve and protect the natural and cultural resources of the Vanderbilt and Roosevelt estates. These structures, historic landscapes, and biota make up the very fabric of the park and must be considered and protected during all fire planning and fire management activities.

A summary of park historical and cultural resources and possible fire and fire management effects on these resources is shown in Table 6 following the text below.

1. Historic Landscapes

The historic and designed landscapes at Roosevelt-Vanderbilt National Historic Sites are among the park's most vital resources. The existing landscape includes the structures, natural landscape features, and designed landscape features. The landscapes and views of the landscape allow visitors to appreciate the scenic values which drew the Roosevelt and Vanderbilt families to Hyde Park.

The historic landscapes of Roosevelt-Vanderbilt National Historic Sites encompass the entire park and the surrounding viewshed. Significant efforts have been made to rehabilitate park lands to approximately the pattern of plant communities (forest, field, lawn, wetland, etc.) present during the periods of significance. These periods are 1940 (Vanderbilt Mansion NHS), 1945 (Home of FDR NHS), and 1962 (Eleanor Roosevelt NHS). Protecting this pattern of vegetation, especially in core area of the park, is a critical component of the fire management plan.

The landforms that make up the base of the historic landscape are critical elements of the landscape. No large-scale alteration of the surface should be undertaken during fire suppression. Fire line construction should be restricted to the minimum area and depth needed to preserve human health and safety and effectively manage the fire. Activities that disturb soils or remove vegetative cover (especially near-surface roots systems) should be avoided where possible. Where fire suppression does disturb soils or vegetative cover, post-fire monitoring and appropriate rehabilitation should occur.

2. Historic Structures

Historic structures related to the park mission include buildings, roads, dams, stone walls, bridges, and other dependencies. Historic wooden buildings are

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susceptible to direct damage or destruction from fire and should be offered very high levels of protection in all planning and fire suppression activities.

Earth and stone structures rarely sustain any significant direct damage from fire. Stonewalls, stone pools and other similar resources will rarely suffer significant direct damage from fire. Exposure to intense, long duration fire can cause rock spalling or discolorations. Cosmetic impacts from scorching or smoke staining can be persistent. Direct application of fire retardant may cause staining or spalling of rock surfaces.

The park's List of Classified Structures (see Table 5.), includes [number] historic buildings, [number] other structures, [number] landscape features, [number] historic statues and monuments, and [number] historic roads and trails that contribute to the park's national significance. See the List of Classified Structures documentation for more information on these features.

3. Archeological Resources

Roosevelt-Vanderbilt National Historic Sites contains many known archeological resources. The limited amount of archeological inventory work done to date makes it likely that additional sites are present within the park. Additional work should be undertaken to document park archeological resources.

Roosevelt-Vanderbilt National Historic Sites resource management staff has maps of known archeological resources. Roosevelt-Vanderbilt National Historic Sites resource management staff will make these maps available to Incident Commanders on an as needed basis. In the event of a major fire, the Regional Archeologist may dispatch a professional archeologist to serve as resource advisor on the Fire.

Fire effects on subsurface archeological resources are typically limited to artifacts within several centimeters of the surface and artifacts adjacent to burning subsurface roots. In these areas, where artifacts are adjacent to fuels, fires may elevate soil temperatures sufficiently to destroy organic materials including wood, leather and paper and to alter or damage ceramics. During fires of exceptional intensity or duration (associated with heavy fuels) soil temperatures may be elevated to a greater depth, so the risk of damage to subsurface archeological resources may be significantly increased.

Significant direct impacts (disturbance, breakage, removal from context, etc.) and indirect impacts (breakage or destruction due to soil compaction, soil disturbance, minor erosion, etc.) to archeological resources from fire suppression activity are possible. Activities such as the construction of hand line, the use of heavy equipment to construct fire lines or manipulate fuels, and other similar activities that have a high likelihood of damaging archeological resources require the superintendent's approval.

Section X: Protection of Sensitive Resources

Archeological resources and their context are easily destroyed by soil disturbance. Significant direct impacts (disturbance, breakage, removal from context, etc.) and indirect impacts breakage or destruction due to soil compaction, soil disturbance, post-fire erosion, etc., to archeological resources from fire suppression activity are possible. Activities such as the construction of “hand line”, the use of heavy equipment to construct fire lines or manipulate fuels, and other similar activities have a high likelihood of damaging archeological resources. Post-fire soil erosion following soil-disturbing suppression activities poses a significant threat to archeological sites, artifacts, and their context.

4. Actions to prevent or mitigate negative impacts to cultural resources

Wildland fires within the park that threaten archeological, cultural, and historical resources will usually be suppressed aggressively. Exceptions to this include, but are not limited to, when:

- Human health and safety would be compromised, or
- The Incident commander determines that the damage to significant park resources caused by aggressive suppression outweighs the potential damage to the natural resources at risk.

Wildland fires on lands outside of the park that threaten to move across the park and damage archeological, cultural, and historical resources will be monitored closely so that appropriate park action can be taken to protect park resources. NPS fire suppression staff may assist in monitoring or suppressing fires adjacent to the park where property owners grant permission, where appropriate legal authority exists, and when they are so directed by the incident commander.

Burned areas and areas disturbed by fires suppression activities will be monitored in accordance with NPS policy and guidelines. Where appropriate, these areas will be stabilized to limit on-going damage (e.g. erosion) to resources.

Archeological, cultural, and historical resources damaged by fire or fire suppression activities may be rehabilitated so that the disturbed area’s archeological, cultural, and historical resources are returned to approximately their pre-disturbance state. In some cases, damage to archeological sites may require subsequent excavation of part or all of the site to prevent loss of archeological resources

The park will maintain the appropriate resources (staff and equipment) to conduct initial response to wildland fires within the park.

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The park will undertake appropriate fire detection and preparedness activities as defined in this plan and the Step-up Plan to protect park resources and support the control of wildland fire.

B. Natural Resources Requiring Special Consideration

Natural resources requiring special treatment or consideration include landforms, patterns of land cover (plant communities), sensitive species and their habitats, wetlands, and visual air quality of important park scenic resources.

1. Landforms and Land Cover

Landforms and the patterns of land cover are natural elements of the park's historic landscape. Preserving these resources is a critical element of the park's legislated mission. See section A. above for more information regarding these resources.

2. Sensitive Species

No Federally listed Threatened or Endangered species are resident in the park. Federally listed bird species may occasionally pass through the park during migration.

Maps of known sensitive habitat are maintained by the park resource management staff. Roosevelt-Vanderbilt National Historic Sites resource managers are responsible for ensuring that these maps are available and considered in making wildland fire management decisions.

If a wildland fire occurs in known habitat for federally listed species, consultation with the United States Fish and Wildlife Service (USFWS) may be required. Under emergency conditions, this consultation may be deferred.

3. Sensitive Habitats

Sensitive habitats at Roosevelt-Vanderbilt National Historic Sites include known habitat of sensitive species, wetland habitats, and other areas of exceptionally high resource value. Fire impacts to sensitive habitats vary with species composition, season, and fire behavior.

Use of heavy equipment, fire line construction, and other soil disturbing activities should be avoided when practicable in sensitive habitats.

All large (>3 acres) grassland areas are prime habitat for nesting grassland birds. Smaller grassland (1-3 acres) may also serve as nesting habitat. Wildland fire should be excluded from areas containing nesting grassland birds from the nest site selection and nest construction period (early spring) until several weeks after the young of the year have fledged (mid-August).

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If wildland fires occur in known habitat for federally listed species, consultation with the United States Fish and Wildlife Service (USFWS) may be required. Under emergency conditions, this consultation may be deferred.

Maps of known sensitive are maintained by the park resource management staff and will be made available to fire planning and incident command staff.

4. Visual Air Quality and ROVA Scenic Resources

The Clean Air Act (42 USC 7401 et seq.) requires federal land managers to protect air quality and National Park Service Management Policies address the need to analyze air quality during park planning. States are responsible for the attainment and maintenance of national ambient air quality standards developed by the Environmental Protection Agency. These standards have been established for several pollutants: inhalable particulate matter, sulfur dioxide, nitrogen oxides, ozone, carbon monoxide, and lead. Elevated concentration of these pollutants can have adverse impacts on park resources and visitors.

Three air quality categories are established for the national park system areas: Class I, Class II, and Class III. Roosevelt-Vanderbilt National Historic Sites is in a Class II area, meaning that the state may permit a moderate amount of new air pollution as long as neither national ambient air quality standards, nor the maximum allowable increases over established baseline concentrations are exceeded. Dutchess County, New York complies with national ambient air quality standards for carbon monoxide, nitrogen oxide, particulate matter, and lead. The County has exceeded ambient air quality standards for ozone on a number of occasions, leading EPA to classify it in the moderate range of non-attainment. Current laws and policies require that the air quality in the park meet national ambient air quality standards and that healthful indoor air quality at National Park Service facilities is ensured.

A permit for the release of smoke from the State of New York is required for debris burning or other fire use. The park applies to the State of New York for these permits as needed.

Smoke from wildland fires at Roosevelt-Vanderbilt National Historic Sites may create impacts to the visual air quality of important park scenic resources, but these impacts are considered negligible because:

- Very few wildland fires occur in or around the park
- Wildland Fires in the Roosevelt-Vanderbilt National Historic Sites region rarely burn for more than a few hours, and virtually never burn for more than 24-hours
- Fires typically burn over fewer than one acre in the park or surrounding area

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Smoke impacts (at current levels) to the visual air quality related to park scenic resources are not considered significant.

5. Soils

The soils of Roosevelt-Vanderbilt National Historic Sites are a significant component of the landforms and landscapes associated with the occupancy and use of the site by the Roosevelts and the Vanderbilts. These soils also preserve significant archeological resources from the period of significance. Some soils at Roosevelt-Vanderbilt National Historic Sites have significant erosive potential due to their composition, their location (on steep slopes, adjacent to flowing water) or a combination of these features. The potential for creating conditions that will result in destructive soil erosion is markedly increased by disrupting vegetative cover and ground disturbing activities. There are no prime or unique agricultural soils within the park.

All fire planning and suppression activities at Roosevelt-Vanderbilt National Historic Sites will consider protection of soils and protection of vegetation that stabilizes soils. When ever practicable, within the context of protecting human health and safety, park resources, and private and public property, soil disrupting activities will be avoided.

Where wildland fire suppression or other fire-related activity disturbs soils or disrupts vegetative cover, the disturbed areas will be monitored after the fire and appropriate rehabilitation measures will be undertaken. Special attention will be paid to areas with steep slopes, areas adjacent to streams, and areas with soils with high erosive potential.

6. Actions to Prevent or Mitigate Natural Resource Impacts

Actions that may be taken to prevent or mitigate undesirable impacts to natural resources and values include:

a. Wildland fires within the park that threaten sensitive natural resources will usually be suppressed aggressively. Exceptions to this include, but are not limited to when:

- Human health and safety would be compromised, or
- The Incident commander determines that the damage to significant park resources caused by aggressive suppression outweighs the potential damage to the natural resources at risk.

b. Wildland fires on lands outside of the park that threaten to move across the park to sensitive natural resources will be monitored closely so that

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appropriate park action can be taken to protect park resources. NPS fire suppression staff may assist in monitoring or suppressing fires adjacent to the park where property owners grant permission, where appropriate legal authority exists, and when they are so directed by the incident commander.

c. Burned areas and areas disturbed by fires suppression activities will be monitored in accordance with NPS policy and guidelines. Where appropriate, these areas will be stabilized so no further damage occurs (e.g. erosion control) or rehabilitated so that the disturbed area's ecological functions and the historic landscape features are returned to approximately their pre-disturbance state.

d. The park will maintain the appropriate resources (staff and equipment) to conduct initial response to wildland fires within the park.

e. The park will undertake appropriate fire detection and preparedness activities as defined in this plan and the step-up plan to protect park resources and support the control of wildland fires.

C. Infrastructure, Inholdings, and Other Improvements

Roosevelt-Vanderbilt National Historic Sites infrastructure and other improvements that are sensitive to fire effects include visitor centers and headquarters buildings, historic structures, informational and interpretive signs, equipment and supply storage areas, footbridges, and similar structures. Maintaining fire breaks around infrastructure, removing accumulations of fuels, completing annual preparedness activities, and maintaining the capability to suppress fires that threaten park infrastructure aggressively effectively mitigates threats to these resources.

Inholdings are lands within the park's legislative boundary that are not owned and administered by the National Park Service. Inholdings within the park create a mosaic of residential, agricultural, historic, and undeveloped properties. These properties contain homes and outbuildings, agricultural fields and equipment, historic structures, and varied natural resources.

Other infrastructure includes the network of state highways, local roadways, and trails that pass through and adjacent to the park and provides access to the park and adjacent areas.

Actions to prevent or mitigate negative impacts to these resources include:

Wildland fires within the park that threaten improvements or inholdings will usually be suppressed aggressively. Exceptions to this include, but are not limited to when:

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- Human health and safety would be compromised, or
- The incident commander determines that the damage to significant park resources caused by aggressive suppression outweighs the potential damage to resources at risk from wildland fire

The park will maintain the appropriate resources (staff and equipment) and level of preparedness as defined by FIREPRO analysis to engage in initial attack in response to wildland fires.

The park will undertake appropriate fire detection and preparedness activities as defined in this plan and the step-up plan to protect park resources and support the control of wildland fires.

Wildland fires on lands outside of the park that threaten to move across the park to inholdings or infrastructure will be monitored closely so that appropriate park action can be taken to protect park resources and inholdings. NPS fire suppression staff may assist in monitoring or suppressing fires adjacent to the park where property owners grant permission, where appropriate legal authority exists, and when they are so directed by the incident commander.

The value of infrastructure and improvements within the park surrounding communities and their vulnerability to wildland fire damage will be considered in all wildland fire planning and suppression activities.

XI. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

A. Introduction

1. Scope

All wildland fires and fire-related incidents will be reviewed.

2. Reviews

Reviews are conducted for one or more of the following purposes:

- Examine the progress of an on-going fire incident and confirm effective tactical decisions or correct deficiencies.
- Identify new or improved fire management procedures, techniques or tactics.
- Compile consistent and complete information to improve or refine site, regional or national fire management programs.
- Examine fire-related incidents in order to determine cause(s), contributing factors, and where applicable, recommend corrective actions. If negligence is indicated, the circumstances will be reported and investigated in accordance with applicable regulations, policies, or guidelines.
- Determine the cost effectiveness of fire management activities.

3. Authority

The authority to convene a formal fire review rests with the park superintendent, the regional director for the Northeast Region, or the associate director for visitor and resource protection.

4. Incident Types

All wildland fire incidents that result in human entrapment, fatalities, or serious injuries, or incidents with the potential for such results, will be investigated and reviewed.

5. Purpose

All reviews will be conducted as constructive critiques aimed at determining the facts related to the specific fire or fire management activity. The review will identify commendable actions, techniques, and decisions, as well as areas that need improvement. Reviews are intended to resolve operational issues, not impose punitive actions.

B. 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 what corrective actions are needed.

The "hotline" review is normally conducted by the park FMO (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 will be included in the normal fire report narrative.

2. Incident Management Team (IMT) Closeout and Review

The park superintendent will conduct a closeout review with any Type II or Type I incident management team (IMT) assigned to a fire in the park prior to their release from that fire incident. The purpose of this review is to ensure complete transition of the incident management back to the unit and to evaluate the status of any remaining incomplete fire business. RM 18, Chapter 13, Exhibit 1 contains a sample of a Close-Out Review with an incident management team.

3. Park Level Review

The park superintendent, or their designated representative, will conduct a park level review of all fire incidents. Informal fire reviews for low complexity wildland fires will be conducted by the Acadia National Park FMO. Formal reviews may be conducted for more complex fire incidents as determined by the park superintendent.

The purpose of the review is to provide the park superintendent with information to recognize commendable actions and/or 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 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.

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- Involves serious injury to 1 or 2 personnel, significant property damage, or an incident with potential for such results.
- Results in controversy involving another agency.

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 (3 or more personnel).
- Any other fires that the associate director for visitor and resource protection , wants reviewed.

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. Entrapments and fire shelter deployments will be reviewed in order to gather complete and accurate information to determine the reasons for the deployment. All entrapments and fire shelter deployments will be reported immediately to the regional fire management officer. All entrapments and fire shelter deployments will be investigated as soon as possible after the deployment incident

C. Program Reviews

1. Operations Evaluations

Operations evaluations of the park may include review of fire management program to assure compliance with established Service standards.

2. Annual Fire Program Review

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

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3. FIREPRO Review

The NPS Fire Management Program Center may conduct an audit of the park's fire management program and use of FIREPRO funds. This review will be completed on a schedule set by the Fire Management Program Center.

XII. Consultation and Coordination

This fire management plan has been prepared by the Northeast Region staff biologist with assistance from the North Country Area FMO (Acadia NP), the Regional FMO, and staff from Roosevelt-Vanderbilt National Historic Sites, including the park FMO, the resource management specialist, and others. These documents have been reviewed by the park FMO, all park division heads, the superintendent, the area FMO and the regional FMO.

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Appendix A: References

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Appendix B: Definitions

1. Abbreviations and Acronyms

BI: Burn Index

DI-1202: Individual Fire Report

DO-18: Director's Order 18; Wildland Fire Management

EPA: Environmental Protection Agency

FIREPRO: National Park Service Normal Fire Year Program

FMH: Fire Monitoring Handbook

FMO: Fire Management Officer or Fire Management Office

FMP: Fire Management Plan

FMPC: Fire Management Program Center

FMU: Fire Management Unit

FPA: Fire Program Analysis

GMP: General Management Plan

HAZMAT: Hazardous Material

IHS: International Historic Site

IQCS: Incident Qualification and Certification System

KBDI: Keetch/Byram Drought Index

MIST: Minimum Impact Suppression Tactics

MMA: Maximum Manageable Area.

NEPA: National Environmental Policy Act

NER: Northeast Region of the National Park Service

NFDRS: National Fire Danger Rating System.

NFPORS: National Fire Plan Operations and Reporting System

NHPA: National Historic Preservation Act.

NIFC: National Interagency Fire Center.

NIFMID: National Interagency Fire Management Database

NHP: National Historical Park

NHS: National Historic Site

NP: National Park

NPS: National Park Service

PDSI: Palmer Drought Severity Index

PFP: Prescribed Fire Plan

PFP: Prescribed Fire Plan

RAWS - Remote Automatic Weather Station

RM-18: Reference Manual 18; Wildland Fire Management

RMP: Resource Management Plan

ROS: Rate of Spread

ROSS: Resource Ordering and Status System

SACS: Shared Applications Computer System

SHPO: State Historic Preservation Office

USDA: United States Department of Agriculture

USDI: United States Department of the Interior

USFS: United States Forest Service

USFWS: United States Fish & Wildlife Service

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WFIP: Wildland Fire Implementation Plan

WFA: Wildland Fire Situation Analysis

WIMS: Weather Information and Management System

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2. Glossary

Alien Species: See Non-native Species.

Annual: Plant species that complete their life cycle within a single growing season. Compare to Perennial, Biennial.

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

Backing Fire: A fire burning into (against) the wind or burning downslope without the aid of wind.

Biennial: Plant species that complete their life cycle within two years or two growing seasons, generally only flowering in the second season. Compare to Perennial, Annual.

Burn Index, Burning Index (BI): A number related to the contribution of fire behavior to the effort of containing a fire. BI is expressed as predicted flame length divided by ten.

Conditional Wildland Fire Use: Refers to a temporary Fire Management Unit (see definition below), where once fuels management objectives are accomplished, the Unit will be added to the Wildland Fire Use (see definition) Unit.

Confine: A fire suppression strategy that utilizes natural barriers, preconstructed barriers, or environmental conditions to restrict fire spread within a predetermined area. Suppression action could be minimal and may be limited to observation only.

Contain: A fire suppression strategy that surrounds a fire or part of a fire and any spot fires from the main fire utilizing control lines and natural or other barriers that can reasonably be expected to check the fire's spread under prevailing and predicted weather conditions.

Control: A fire suppression strategy that completes the control line around a fire, any spot fires from the main fire, and any interior unburned islands of fuels to be saved; burn out any unburned areas adjacent to the fire side of the control line; and cool down all hot spots that are immediate threats to the control line, until the line can reasonably be expected to hold under foreseeable conditions.

Cool Season Species: Plants whose growth continues during the late fall, winter, or early spring. Cool season species are often dormant during the mid-summer. Many non-native grasses and forbs are cool season species. Compare to Warm Season Species.

Creeping Fire: A low intensity fire with a negligible rate of spread.

Crown Fire: A fire that has ascended from the surface of the ground into the forest canopy.

Division of Fire and Aviation: See NPS Division of Fire and Aviation.

Duff: The soil layer containing abundant partially decomposed organic material. Typically located below the litter layer and above the humus layer.

Environmental Monitoring (Level 1 Monitoring): A basic overview of the baseline data to be collected prior to a burn event. Information to be collected as part of environmental monitoring includes historical data (weather, fire history, fire regime, etc.), socio-political factors, natural barriers, and other factors useful in a fire management program.

Fine Fuel: Fuels such as grass, leaves, pine needles, fern, and some kind of light slash, which, when dry, ignite readily and are rapidly consumed by fire. Also called "flash fuels" or "one-hour fuels".

Fire Behavior: The response of fire to its environment of fuel, weather, and terrain. Elements of fire behavior include ignition, flame length, rate of spread, pattern of spread, intensity, fuel consumption, etc. Common terms used to describe fire behavior include smoldering, creeping, running, spotting, torching, and crowning.

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Fire Behavior Monitoring: A process by which variables are measured to describe and characterize fire behavior, permit fire behavior prediction, and relate fire effects to burning conditions.

Fire Danger: A general term used to express an assessment of fixed and variable factors such as fire risk, fuels, weather and topography that influence whether fires will start, spread, and do damage; also the degree of control difficulty to be expected. See National Fire Danger Rating System.

Fire Effects: The physical, biological, and ecological impacts of fire on the environment.

Fire Event: A single fire or series of fires within an area at a particular time.

Fire Frequency: The return interval or recurrence interval of fire in a given area over a specific time.

Fire Front: The part of a fire within which continuous flaming combustion is taking place. Unless otherwise specified the fire front is assumed to be the leading edge of the fire perimeter. In ground fires, the fire front may be mainly smoldering.

Fire History: The chronological record of the occurrence and scope of fire in an ecosystem.

Fire Intensity: Energy release per unit length of flame front.

Fire Line: A strip of land cleared of fuels to stop or retard the spread of fire.

Fire Management: The integration of fire protection, prescribed fire and fire ecology into land use planning, administration, decision-making and other land management activities. An extension of the concept of wildland fire decision making which takes into account resource values, role of fire in the environment, the level of protection required, opportunities for prescribed use of fire, consideration of fire effects, and the efficiency of the fire control operation.

Fire Management Plan (FMP): A strategic plan that defines a program to manage wildland and prescribed fires and documents the fire management program in the approved resource management plan. The plan is supplemented by operational plans such as preparedness plans, preplanned dispatch, prescribed fire plans, and prevention plans.

Fire Management Unit (FMU): Any land management area definable by objectives, topographic features, access, values-to-be-protected, political boundaries, fuel types, or major fire regimes, etc., that set it apart from management characteristics of an adjacent unit. FMUs are delineated in FMPs. These units may have dominant management objectives and preselected strategies to accomplish these objectives.

Fire Observation Monitoring (level 2 monitoring): Direct monitoring of an active fire. Fire observation monitoring occurs in two stages: Reconnaissance Monitoring (basic assessment and overview of the fire) and Fire Condition Monitoring (monitoring the dynamic aspects of the fire).

Fire perimeter: The outer edge or boundary of a fire.

Fire Prevention: See Prevention.

FIREPRO: The NPS Normal Fire Year Program, which includes wildland fire management operations, analysis, and budget.

Fire Regime: The pattern of fire in an area as determined by the fire's systemic interaction with the biotic and physical environment. This pattern includes the timing, number, spatial distribution, size, duration, fire behavior, return interval, and fire effects of natural fires.

Fire Season: 1. The period or periods of the year during which fires are likely to occur, spread, and persist for long enough to warrant organized fire control. 2. A period of the year with set beginning and ending dates established by an agency to facilitate fire management.

Flame Height: The average height of flames as measured on a vertical axis. Flame height will be less than flame length if flames are angled.

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Flame Length: 1. The distance measured from the tip of the flame to the middle of the flaming zone at base of the fire. Flame length is measured on a slant when the flames are tilted due to effects of wind and slope. Flame length may be measured for individual sections of fire line (e.g. peak flame length) or averaged across larger areas. 2. The average length of the flame front from the ground to the flame tips.

Flare-up: Any sudden acceleration in the rate of spread of a fire.

Flanking Fire: A fire moving perpendicular to the main direction of the fire.

Forb: An annual, biennial, or perennial plant lacking significant woody growth. May include multi-stemmed woody plants that typically do not grow taller than 0.5 meters due to genetic or environmental constraints.

Fuel: Combustible material available to a fire. Fuels include living and dead vegetation, other natural fuels (coal, etc.) and human-built structures. Fuels are classified according to the amount of time a fuel gains or loses moisture:

1 Hour: responds to changes in relative humidity within 1 hour (<1/4" or 64 mm in diameter).

10 Hour: responds to changes in relative humidity within 10 hours (1/4"-1" or 64-254 mm).

100 Hour: responds to changes in relative humidity within 4 days (1-3" or 2.5-7.6 cm).

1000 Hour: generally within 42 days (>3" or <7.6 cm).

Fuels may also be referred to as

Fine, Flash, Flashy: needles, leaves, lichen etc.

Live or Green: living foliage, branches etc.

Downed: fuel on the ground.

Heavy: large logs and snags.

Fuel Complex: Any combination of fuels within a certain geographic area that are available for combustion.

Fuel load: The amount of available and potentially combustible material (fuel) present. Usually expressed as tons/acre.

Fuel Model: A simulated fuel complex for which all the fuel characteristics (size, loading, depth, compactness, live-dead ratio, etc.) for the solution of a mathematical fire spread model have been specified. As used in this plan, fuel models are not only a physical description of the vegetation, but also quantify the vegetation's fire behavior characteristics.

Fuel Moisture: The amount of water in a fuel. The proportion of water to dry material. Fire behavior is largely dependent on fuel moisture. Usually expressed as Percent Fuel Moisture = (Wet weight - Dry weight)/Dry weight x 100.

Fuel Type: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristic that will cause a predictable rate of spread (and other fire behavior) under specified weather conditions.

Goal: The desired state or target/threshold condition that a policy or program is designed to achieve. A goal is often not easily quantifiable and may not have a specific due date. Objectives are based on goals. Compare to Objective.

Ground Fire: A fire that burns the organic material in the soil layer (e.g., peat, roots, deep duff, buried logs, etc).

Hazardous Fuel: Fuels that, if ignited, have significant potential to threaten human life and safety, real property, park resources, or carry fire across park boundaries.

Hazardous Materials (HAZMAT): Materials that have significant potential to threaten human life or safety, environmental health or safety, or both.

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Head Fire, Heading Fire: A fire spreading, or set to spread, with the wind or upslope. Compare to Backing Fire.

Heavy Fuel: Fuels of large diameter such as snags, logs, and large downed limbs, which ignite and are consumed more slowly than flash fuels.

Herbaceous Layer: The layer of non-woody plants in a vegetation complex. The herbaceous layer is generally the lowest structural layer in the complex. See Vegetative Layer.

Humus, Humus Layer: A soil or soil layer containing abundant decomposed organic matter. The humus layer is typically found in soils below the litter and duff layers and above mineral soil layers. Compare to Duff, Litter, And Mineral Soil.

Holding Actions: Planned actions required to achieve wildland and prescribed fire management objectives. Specific holding actions are developed to preclude fire from exceeding the MMA (or Allowable Area).

Incident Qualification and Certification System (IQCS): A Department of Interior computer system used by all federal land management agencies (including the U.S. Forest Service) to maintain training, qualification and certification records for agency firefighters.

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

Inventory: The systematic acquisition and analysis of information needed to describe, characterize, or quantify resources. Inventory is often the first step in a monitoring program.

Intensity: The rate of heat energy released during combustion per unit length of fire edge. It is expressed as BTU/sec/ft. Also known as Fireline Intensity.

Keetch/Byram Drought Index (KBDI): A drought index that evaluates the long-term effects of drying on litter and duff. KBDI indices range from 0 (no moisture deficiency) to 800 (maximum drought).

Ladder Fuels: Fuels, such as branches, shrubs or an understory layer of trees, which allow a fire to spread from the ground to the canopy.

Level 1 Monitoring: See Environmental Monitoring.

Level 2 Monitoring: See Fire Observation Monitoring.

Level 3 Monitoring: See Short-term Monitoring.

Level 4 Monitoring: See Long-term Monitoring.

Litter: The top layer of material on the forest, shrubland, or grassland floor composed of loose debris including dead sticks, twigs, fruit (acorns, conifer cones, etc.), recently fallen leaves or needles, and other vegetative parts that have not been significantly altered in structure by decomposition. The litter layer lies directly above the duff layer. Compare to Duff.

Management Action Points: See Trigger Points.

Maximum Manageable Area (MMA): The firm limits of management capability to accommodate the social, political, and resource impacts of a wildland fire. When established as part of an approved plan, the general impact area is fixed and not subject to change. If they are developed after the ignition, their definition will occur during the Wildland Fire Implementation Plan Stage III process. In the event a fire occurs in a preplanned MMA and the local unit determines that this MMA is not the best-suited alternative for present conditions, a new MMA can be developed as part of the Stage III process. After this occurs, the Stage III MMA becomes the firm limits of the fire and is fixed.

Mineral Soil: Soil layers consisting of rock and mineral particles with little organic material present. Mineral soil layers are normally located under the litter, duff, and humus layers. Because mineral soils contain almost no organic materials (fuels), they are highly resistant to ignition.

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Mitigation Actions: Those on the ground activities that will serve to increase the defensibility of the MMA; check, direct, or delay the spread of fire; and minimize threats to life, property, or resources. These actions will be used to construct firelines, reduce excessive fuel concentrations, reduce vertical fuel continuity, create fuel breaks or barriers around critical or sensitive sites or resources, create "blacklines" through controlled burnouts, and to limit fire spread and behavior.

Monitoring: The orderly collection, analysis, and interpretation of data to identify change in natural systems or to evaluate progress in meeting management objectives.

National Environmental Policy Act (NEPA): A law passed by congress in 1969 to establish a national policy for the environment, to provide for the establishment of a Council of Environmental Quality, and for other purposes. NEPA regulations require that agencies proposing significant federal actions must consider the positive and negative impacts of the proposed action and provide opportunities for public input on the proposed action. This is normally accomplished through an Environmental Assessment or Environmental Impact Statement.

National Fire Danger Rating System (NFDRS): A fire danger rating system based on environmental factors that control fuel moisture content.

National Interagency Fire Center (NIFC): The national support center for wildland and prescribed fire operations and research, located in Boise, Idaho. NIFC is cooperatively supported by seven federal agencies (Bureau of Indian Affairs, Bureau of Land Management, U.S. Forest Service, U.S. Fish and Wildlife Service, National Park Service, National Weather Service, and Office of Aircraft Services).

National Interagency Fire Management Integrated Database (NIFMID): A federally managed database storing current and historical data on wildland fire occurrence and weather. Observations from the Weather Information Management System (WIMS) are automatically archived into NIFMID.

NPS Division of Fire and Aviation: A division of the Resource and Visitor Protection Division of the directorate of the National Park Service. Based in Washington, DC, with additional staff at the NPS Fire Management Program Center in Boise, Idaho, this division develops and ensures compliance with NPS fire management policy and coordinates NPS and interagency fire-related activities. The division functions in close cooperation with other federal agencies at the National Interagency Fire Center. See National Interagency Fire Center.

Native Species: Organisms living in a part of the world in which they originated.

Non-native Species: Organisms living in a part of the world other than that in which they originated.

Objective: Specific measurable results (outputs or achievements) to be completed within a stated period. Objectives are subordinate to and derived from goals. Objectives are normally considered as discrete steps toward attaining a goal. Objectives are narrower in scope, shorter in range, and have an increased probability of attainment compared to goals. Compare to Goal.

Palmer Drought Severity Index (PDSI): A long-term meteorological drought severity index. PDSI indices range from +6.0 (extremely wet) to -6.0 (extremely dry).

Perennial: A plant species or individual with a life cycle that lasts more than two growing seasons and persists for several to many years. Compare with Annual, Biennial.

Perimeter: The entire outer edge of a fire.

Periodic Fire Assessment: A process that periodically assesses (reassesses) and validates (revalidates) the level of implementation actions on a fire.

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PM-2.5: 1. An air quality measurement of the concentration of suspended atmospheric particulates (particulate matter) less than or equal to 2.5 microns in diameter. 2. An air quality standard established by the Environmental Protection Agency for the concentration of suspended atmospheric particulates less than or equal to 2.5 microns in diameter.

PM-10: 1. An air quality measurement of the concentration of suspended atmospheric particulates (particulate matter) less than or equal to 10 microns in diameter. 2. An air quality standard established by the Environmental Protection Agency for the concentration of suspended atmospheric particulates less than or equal to 10 microns in diameter.

Preparedness: Activities that lead to a safe, efficient, and cost-effective fire management program in support of land and resource management objectives through appropriate planning and coordination.

Prescribed Burn: See Prescribed Fire.

Prescribed Burn Boss: 1. A certification level under the National Park Service Wildland Fire Qualification System Guide that documents that an individual has the training and experience necessary to safely conduct, direct, and evaluate prescribed fire activities. 2. The person responsible for all decisions related to tactics and strategy (including organization, implementation, communication, and evaluation) on a prescribed fire.

Prescribed Fire: A fire ignited by park managers under known conditions of fuel, weather, and topography to achieve specific objectives. An approved prescribed fire plan must be completed and NEPA requirements must be met, prior to ignition.

Prescribed Fire Plan (PFP): A document that must be completed before a prescribed fire is ignited by park managers. A PFP must be prepared by a qualified Prescribed Burn Boss, reviewed by outside fire staff, and approved by the park superintendent to be considered complete. The PFP is one of the operational plans that document specific execution of the park's Fire management Plan. Also called prescribed fire burn plan.

Prescription: A written statement of measurable criteria that define conditions under which a prescribed fire may be ignited or allowed to burn. Prescription criteria include objectives, weather, environmental, geographic, administrative, social and legal considerations.

Prevention: 1. Actions taken to prevent the ignition and spread of human-caused wildland fires and other wildland fires. 2. An active program conducted in the park and in conjunction with other agencies to protect human life, prevent the occurrence and spread of human-caused wildland fires, and prevent damage to natural resources, cultural resources or physical facilities. Activities directed at reducing fire occurrence include public education, law enforcement, personal contacts, and reduction of hazard fuels, and reduction other fire hazards and risk factors. One element of Preparedness.

Rate of Spread (ROS): The time it takes the leading edge of a flaming fire front to travel a known distance. Rate of spread is commonly measure in chains/hour and meters/second.

Reconnaissance Monitoring: Monitoring that provides a basic overview of the physical aspects of a fire event.

Relative Humidity: The ratio of the amount of water in the air at a given temperature to the maximum amount of water it could hold at that temperature expressed as a percentage.

Remote Automatic Weather Station (RAWS): A solar-powered weather station that measures temperature, humidity, wind direction, wind speed, barometric pressure, fuel moisture, and precipitation. RAWS data may be transmitted via satellite, radio, or telephone, or may be recorded on-site for later collection.

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Research: Systematic investigation to establish principles and facts. Research usually has clearly defined objectives, which are often based on hypotheses. Research also includes the process of investigating and proving potential application of established scientific knowledge. Compare to Monitoring.

Resource Ordering and Status System (ROSS): A Department of Interior computer system used by all federal land management agencies (including the U.S. Forest Service) to order and track firefighting resources that are mobilized to fight fires outside of their home units.

Resource Value at Risk: A natural, cultural, or developed feature subject to threat by fire or smoke. Resource values at risk are classified as high or low.

Restoration Burn: A prescribed fire used to bring fuels and/or vegetation into a state similar to that which would be found naturally or as part of the historic landscape.

Running: The behavior of a rapidly spreading fire (running fire) with a well-defined head.

Shared Applications Computer System (SACS): A Department of Interior computer system integrating several fire management applications. The National Park Service uses this system primarily for FIREPRO budgeting and fire occurrence reporting.

Seed Bank: Un-germinated but viable seed that is contained in the soil. Also called the soil seed bank.

Short-term Change Monitoring: (Level Three Monitoring) A level of monitoring that provides information on fuel reduction, and vegetative change within a specific vegetation and fuel complex (monitoring type), and other variables according to management objectives. Short-term Change Monitoring typically focuses on changes observable within 12 months of a fire event.

Shrub: Any woody plant species that typically grows to more than 0.5 meters in height and less than 5 meters in height, generally with several to many erect, spreading, or prostrate stems per plant.

Slash: Debris left after logging, pruning, thinning, or brush cutting. Slash includes logs, wood chunks, bark, branches, stumps, and broken understory trees or brush.

Smoldering: The behavior of a fire burning without flame and barely spreading.

Snag: A standing dead tree or part of a dead tree from which at least the leaves and smaller branches have fallen.

Spot Weather Forecast: A special weather forecast issued by the National Weather Service to fit the time, topography, and weather of a specific fire. These forecasts are issued upon request of the user agency and are more detailed, timely and specific than zone forecasts.

Spotting: The behavior of a fire ("spotting fire") or the ignition of fires by sparks, embers, or other burning materials carried by the wind that ignite new fires beyond the zone of direct ignition of the primary (main) fire.

Suppression: The process of extinguishing fires or limiting the growth of fires. Suppression strategies and tactics must be appropriate to meet management objectives and may range from direct control to the more indirect methods of confinement, containment or observation. Methods used should be those causing or permitting the least damage to values to be protected, commensurate with human health and safety, effective suppression, and appropriate cost controls.

Suppression Activities: Actions intended to extinguish or limit the growth of fires.

Surface fire: A fire that burns leaf litter, fallen branches, and other fuels on or directly above the surface of the ground.

Surface wind: Wind speed near the earth surface unimpeded by vegetation or other obstructions. Surface wind air speed is measured 20 feet above the average top of vegetation.

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Timelag: 1. An indication of the rate at which a dead fuel gains or loses moisture due to changes in its environment. 2. The time necessary, under specified conditions, for a fuel particle to gain or lose approximately 63% of the difference between its initial moisture content and its equilibrium moisture content. Fuels are grouped into four timelag categories (1 hour, 10 hour, 100 hour, 1000 hour) based on how long it takes for the fuel to reach 95% of its equilibrium moisture content under stable (unchanging) conditions.

Torching: The ignition and subsequent flare-up, usually from the bottom to the top, of a tree or group of trees.

Trigger Points: Either geographic points on the ground or specific points in time where an escalation or alteration of management actions is warranted. These points are defined and the management actions to be taken are clearly described in an approved Wildland Fire Implementation Plan (WFIP) or Prescribed Fire Plan. Timely implementation of the actions when the fire reaches the action point is generally critical to successful accomplishment of the objectives.

Value to be protected: A resource (natural, cultural, or developed feature and human health and safety) that has high value based on park mission, goals, and objectives. Values to be protected will generally receive priority in the allocation of fire resources. Compare to Resource Value at Risk.

Vegetative Layer: A structural position within a vegetation complex. Generally, a forest sample plot consists of dead and downed fuel, herbaceous, shrub, understory tree, and overstory tree layers.

Visual Estimates: A method of quantifying a variable using visual means. Commonly used for estimating plant cover and species cover.

Warm Season Species: Plants whose major growth occurs during the spring, summer, or fall. Warm season species are normally dormant in the late fall, winter, and early spring. Many native grasses are warm season species. Compare to Cool Season Species.

Weather Information and Management System (WIMS): An interactive computer system designed to accommodate the weather information needs of all federal and state natural resource agencies. The system provides timely access to weather forecasts, current and historical weather data, the National Fire Danger Rating System (NFDRS), and the National Interagency Fire Management Integrated Database (NIFMID).

Wildland Fire: Any nonstructural fire, other than prescribed fire, that occurs in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

Wildland Fire Implementation Plan (WFIP): A progressively developed assessment and operational management plan that documents the analysis and selection of strategies and describes the appropriate management response for a wildland fire. A full WFIP consists of three stages. Different levels of completion may occur for differing management strategies (i.e., fires managed for resource benefits will have two-three stages of the WFIP completed while some fires that receive a suppression response may only have a portion of Stage I completed).

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

Wildland Fire Suppression: An appropriate management response to wildland fire that results in curtailment of fire spread and eliminates all identified threats from the particular fire. All wildland fire suppression activities provide for firefighter and public safety as the highest consideration, and attempt to minimize the loss of resource values, economic expenditures, and/or the use of critical firefighting resources.

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Wildland Fire Use for Resource Benefit, Wildland Fire Use: Naturally ignited wildland fires that are allowed to burn within a prescription in order to achieve management objectives.

Operational management of Wildland Fires Used for Resource Benefit will be through the WFIP process.

Wildland-Urban Interface: Zone where structures and other human developments meet, or intermingle with, undeveloped wildlands.

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Appendix C: Species lists

1. Plants

Roosevelt-Vanderbilt NHS Plant Species List		
FAMILY	GENUS/SPECIES	COMMON NAME
ACERACEAE	ACER RUBRUM	RED MAPLE
	ACER SACCHARUM	SUGAR MAPLE
	ACER PENNSYLVANICUM	STRIPED MAPLE/MOOSEWOOD
ADIANTACEAE	ADIANTUM PEDATUM	MAIDENHAIR FERN
	PTERIDIUM AQUILINUM	BRACKEN
ALISMATACEAE	ALISMA PLANTAGO-AQUATICA	WATER PLANTAIN
ANACARDIACEAE	COTINUS COGGYRIA	SMOKE TREE
	RHUS TYPHINA	STAGHORN SUMAC
	RHUS GLABRA	SMOOTH SUMAC
	TOXICODENDRON VERNIX	POISON-SUMAC
	TOXICODENDRON RADICANS	POISON-IVY
APIACEAE	CICUTA MACULATA	WATER-HEMLOCK
	CONIOSELENUM CHINENSE	HEMLOCK-PARSLEY
	CONIUM MACULATUM	POISON HEMLOCK
	CRYPTOTAENIA CANADENSIS	HONEWORT
	DAUCUS CAROTA	QUEEN ANNE'S LACE
	OSMORHIZA CLAYTONI	SWEET CICELY
	SANICULA TRIFOLIATA	LONG-FRUITED SNAKEROOT
	ZIZIA APTERA	GOLDEN ALEXANDERS
APOCYNACEAE	APOCYNUM CANNABINUM	INDIAN HEMP
	VINCA MINOR	MYRTLE
ARACEAE	ARISMAEA ATRORUBENS	JACK-IN-THE-PULPIT
	SYMPLOCARPUS FOETIDUS	SKUNK-CABBAGE
ARALIACEAE	ARALIA NUDICALIS	WILD SARSPARILLA
	ARALIA RACEMOSA	SPIKENARD
ARISTOLOCHIACEAE	ASARUM CANADENSE	WILD GINGER
ASCLEPIADACEAE	ASCLEPIAS SYRIACA	COMMON MILKWEED
	ASCLEPIAS VERTICILLATA	WHORLED MILKWEED
	ASCLEPIAS INCARNATA	SWAMP MILKWEED
ASPLENIACEAE	ASPLENIUM PLATYNEURON	EBONY SPLEENWORT
	ASPLENIUM TRICHOMANES	MAIDENHAIR SPLEENWORT
	AYTHERIUM ASPLENOIDES	LADY FERN
	CAMPTOSORUS	WALKING FERN

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	RHIZOPHYLLUS	
	CYSTOPTERIS FRAGILIS	FRAGILE FERN
	DRYOPTERIS MARGINALIS	MARGINAL WOODFERN
	DRYOPTERIS CARTHUSIANA	SPINULOSE WOODFERN
	POLYSTICHUM	CHRISTMAS FERN
	THELYPTERIS NOVEBORACENSIS	NEW YORK FERN
ASTERACEAE	ACHILLEA MILLEFOLIUM	COMMON YARROW
	AMBROSIA ARTEMISIIFOLIA	RAGWEED
	ANTENNARIA PLANTAGINIFOLIA	PLANTAIN-LEAVED PUSSYTOES
	ACTIUM MINUS	COMMON BURDOCK
	ASTER ERICOIDES	ASTER
	ASTER LOWRIEANUS	LOWRIE'S ASTER
	ASTER VIMINEUS	SMALL WHITE ASTER
	ASTER PUNICEUS	PURPLE STEMMED ASTER
	ASTER NOVE-ANGLIAE	NEW ENGLAND ASTER
	ASTER DIVARICATUS	WHITE WOOD ASTER
	BIDENS LAEVIS	SMOOTH BUR-MARIGOLD
	CENTAUREA MACULOSA	SPOTTED KNAPWEED
	CENTAUREA CALCITRAPA	STAR-THISTLE/BUSHY KNAPWEED
	CIRSIUM ARVENSE	CANADA THISTLE
	CIRSIUM VULGARE	BULL THISTLE/COMMON
	CONYZA CANADENSIS	HORSEWEED
	COREOPSIS LANCEOLATA	LANCE-LEAVED COREOPSIS
	ERIGERON ANNUUS	DAISY-FLEABANE
	ERIGERON PHILADELPHICUS	COMMON FLEABANE
	EUPATORIUM MACULATUM	SPOTTED JOE-PYE-WEED
	EUPATORIUM RUGOSUM	WHITE SNAKEROOT
	EUPATORIUM PERFOLIATUM	BONESET
	EUPATORIUM LEUCOLEPIS	WHITE BONESET
	EUPATORIUM FISTULOSUM	JOE-PYE-WEED
	EUTHAMIA GRAMINIFOLIA	BUSHY GOLDENROD/FLAT-TOP
	GALINSOLGA CILIATA	QUICKWEED
	HELENIUM AUTUMNALE	SNEEZEWEED
	HELIANTHUS DIVARICATUS	WOODLAND SUNFLOWER
	HELIANTHUS ANNUUS	COMMON SUNFLOWER,
	HELIOPSIS HELIANTHOIDES	OXEYE
	HIERACIUM VENOSUM	RATTLESNAKE WEED
	HIERACIUM CANADENSE	CANADA HAWKWEED

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	HIERACIUM PANICULATUM	PANICLED HAWKWEED
	KRIGIA VIRGINICA	DWARF DANDELION
	LEUCANTHEMUM VULGARE	OX-EYE DAISY
	RUDBECKIA LACINIATA	GREEN HEADED CONE
	RUDBECKIA HIRTA	BLACK-EYED-SUSAN
	RUDBECKIA TRILOBA	THIN LEAVED CONE
	RUDBECKIA FULGIDA	ORANGE CONEFLOWER
	SOLIDAGO CAESIA	BLUE-STEM GOLDENROD
	SOLIDAGO GIGANTEA	LATE GOLDENROD
	SOLIDAGO NEMORALIS	ROUGH LEAVED
	SOLIDAGO BICOLOR	SILVER ROD
	SOLIDAGO TENUIFOLIA	SLENDER FRAGRANT GOLDENROD
	SOLIDAGO ARGUTA	SHARP LEAVED
	TANACETUM VULGARE	TANSY
	TARAXACUM OFFICINALE	COMMON DANDELION
	TRAGOPOGON PRATENSIS	YELLOW GOAT'S-BEARD
	TUSSILAGO FARFARA	COLTSFOOT
	VERNONIA NOVEBORACENSIS	IRONWEED
	XANTHIUM STRUMARIUM	COMMON COCKLEBUR
BALSAMINACEAE	IMPATIENS CAPENSIS	SPOTTED JEWELWEED
BERBERIDACEAE	BERBERIS THUMBERGII	JAPANESE BARBERRY
	BERBERIS VULGARIS	COMMON BARBERRY
	CAULOPHYLLUM THALICTROIDES	BLUE COHOSH
BETULACEAE	ALNUS RUGOSA	SPECKLED ALDER
	BETULA POPULIFOLIA	GRAY BIRCH
	BETULA PAPYRIFERA	PAPER BIRCH
	BETULA ALLEGHANENSIS	YELLOW BIRCH
	BETULA LENTA	BLACK BIRCH
	CARPINUS CAROLINIANA	AMERICAN HORNBEAM
	CORYLUS AMERICANA	HAZEL, AMERICAN FILBERT
	OSTRYA VIRGINIANA	EASTERN HOPHORNBEAM
BIGNONIACEAE	CATALPA SPECIOSA	NOTHERN CATALPA
BORAGINACEAE	ECHIUUM VULGARE	VIPER'S BUGLOSS, BLUE
	HACKELIA VIRGINIANA	STICKSEED
	MYOSOTIS SCORPIOIDES	TRUE FORGET-ME-NOT
BRASSICACEAE	ALLIARIA PETIOLATA	GARLIC MUSTARD
	ARABIDOPSIS THALIANA	MOUSE-EAR CRESS
	ARABIS LYRATA	LYRE-LEAVED ROCK CRESS
	BARBAREA VULGARIS	COMMON WINTER-CRESS
	CAPSELLA BURSA-PASTORIS	SHEDHERD'S PURSE

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	CARDAMINE BULBOSA	SPRING CRESS
	CARDAMINE DIPHYLLA	TWO-LEAVED TOOTHWORT
	CARDAMINE ROTUNDIFOLIA	MOUNTAIN WATERCRESS
	HESPERIS MATRONALIS	DAME'S VIOLET
	LEPIDIUM CAMPESTRE	FIELD PEPPERGRASS
CABOMBACEAE	CABOMBA CAROLINIANA	WATER SHIELD/FANWORT
CACTACEAE	OPUNTIA HUMIFUSA	PRICKLY-PEAR CACTUS
CAESALPINIACEAE	CASSIA HEBECARPA	WILD SENNA
	GLEDITSIA TRIACANTHOS	HONEY-LOCUST
	GYMNOCLADUS DIOICA	KENTUCKY COFFEE-TREE
CAMPANULACEAE	CAMPANULA ROTUNDIFOLIA	BLUEBELL
	LOBELIA SIPHILITICA	GREAT LOBELIA
	TRIODANIS PERFOLIATA	VENUS' LOOKING GLASS
CAPRIFOLIACEAE	LONICERA JAPONICA	JAPANESE HONEYSUCKLE
	LONICERA MORROWI	FLY HONEYSUCKLE
	LONICERA TATARICA	TATARIAN BUSH-HONEYSUCKLE
	SAMBUCUS CANADENSIS	COMMON ELDER
	SYMPHORICARPOS ALBUS	SNOWBERRY
	VIBURNUM LENTAGO	WILD RAISIN
	VIBURNUM RAFINESQUIANUM	DOWNY ARROWWOOD
	VIBURNUM ACERIFOLIUM	MAPLE-LEAF VIBURNUM
	VIBURNUM ALNIFOLIUM	WITCH-HOBBLE
	VIBURNUM DENTATUM	SOUTHERN ARROWWOOD
CARYOPHYLLACEAE	CERASTIUM ARVENSE	FIELD CHICKWEED
	CERASTIUM VULGATUM	MOUSE-EAR CHICKWEED
	DIANTHUS ARMERIA	DEPTFORD PINK
	RUMEX ACETOSELLA	WOOD SORREL
	SAPONARIA OFFICINALIS	BOUNCING BET
	SILENE VULGARIS	BLADDER-CAMPION
	SILENE LATIFOLIA	EVENING LYCHNIS
	STELLARIA GRAMINEA	LESSER STITCHWORT
CELASTRACEAE	CELASTRUS SCANDENS	AMERICAN BITTERSWEET
	EUONYMOUS ALATA	WINGED EUONYMOUS
CHENOPODIACEAE	CHENOPODIUM ALBUM	LAMB'S QUARTERS
CLUSIACEAE	HYPERICUM PERFORATUM	COMMON ST. JOHNSWORT
COMMELINACEAE	COMMELINA COMMUNIS	ASIATIC DAYFLOWER
	TRADESCANTIA	SPIDERWORT
CONVOLVULACEAE	CALYSTEGIA SEPIUM	HEDGE-BINDWEED/WILD MORNING-GLORY
CORNACEAE	CORNUS FLORIDA	FLOWERING DOGWOOD
	CORNUS AMONUM	SILKY DOGWOOD
	CORNUS ALTERNIFOLIA	ALTERNATE-LEAVED DOGWOOD

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	CORNUS FOEMINA	GRAY DOGWOOD/PANICLED DOGWOOD
CUCURBITACEAE	SICYOS ANGULATUS	BUR CUCUMBER
CUPRESSACEAE	JUNIPERUS VIRGINIANA	EASTERN RED-CEDAR
	THUJA OCCIDENTALIS	NORTHERN WHITE-CEDAR
DENNSTAEDTIACEAE	DENNSTAEDTIA PUNCTILOBULA	HAY-SCENTED FERN
ERICACEAE	VACCINIUM STAMINEUM	DEERBERRY
	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY
	VACCINIUM PALLIDUM	LOW BLUEBERRY
FABACEAE	APIOS AMERICANA	GROUNDNUT
	DESMODIUM PANICULATUM	PANICLED TICK-TREFOIL
	DESMODIUM GLUTINOSUM	POINTED-LEAVED TICK-TREFOIL
	LESPEDEZA PROCUMBENS	TRAILING BUSH-CLOVER
	LOTUS CORNICULATUS	BIRD'S-FOOT TREFOIL
	MEDICAGO SATIVA	ALFALFA
	MEDICAGO LUPULINA	BLACK MEDICK
	MELILOTUS ALBA	WHITE SWEET-CLOVER
	ROBINIA PSEUDO-ACACIA	BLACK LOCUST
	TRIFOLIUM REPENS	WHITE CLOVER
	TRIFOLIUM DUBIUM	SMALLER HOP CLOVER
	TRIFOLIUM PRATENSE	RED CLOVER
	TRIFOLIUM INCARNATUM	SCARLET CLOVER
	TRIFOLIUM AUREUM	YELLOW CLOVER
	VICIA CRACCA	COW VETCH
	WISTERIA SINENSIS	CHINESE WISTERIA
FAGACEAE	CASTANEA DENTATA	AMERICAN CHESTNUT
	FAGUS GRANDIFOLIA	AMERICAN BEECH
	QUERCUS VELUTINA	BLACK OAK
	QUERCUS ALBA	WHITE OAK
	QUERCUS COCCINEA	SCARLET OAK
	QUERCUS RUBRA	NORTHERN RED OAK
	QUERCUS BICOLOR	SWAMP WHITE OAK
	QUERCUS MACROCARPA	BUR OAK
	QUERCUS PRINUS	CHESTNUT OAK
	QUERCUS PALUSTRIS	PIN OAK
FUMARIACEAE	CORYDALIS SEMPERVIRENS	PINK CORYDALIS/PALE CORYDALIS
	DICENTRA CANADENSIS	SQUIRREL CORN
GERANIACEAE	GERANIUM BICKNELLII	BICKNELL'S GERANIUM
	GERANIUM ROBERTIANUM	HERB-ROBERT
	GERANIUM MACULATUM	WILD CRANESBILL
GINKGOACEAE	GINKGO BILOBA	GINKGO/CHINESE MAIDENHAIR

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		TREE
GROSSULARIACEAE	RIBES CYNOS-BATI	PRICKLY GOOSEBERRY
HAMAMELIDACEAE	HAMAMELIS VIRGINIANA	WITCH-HAZEL
	LIQUIDAMBAR STYRACIFLUA	SWEETGUM
HIPPOCASTANACEAE	AESCLUS HIPPOSCASTANUM	HORSE-CHESTNUT
IRIDACEAE	SISYRINCHIUM MONTANTUM	COMMON BLUE-EYED GRASS
JUGLANDACEAE	CARYA GLABRA	PIGNUT HICKORY
	CARYA TOMENTOSA	MOCKERNUT HICKORY
	CARYA CORDIFORMIS	BITTERNUT HICKORY
	CARYA OVATA	SHAGBARK HICKORY
	JUGLANS NIGRA	BLACK WALNUT
LAMIACEAE	AGASTACHE SCROPHULARIAEFOLIA	PURPLE GIANT HYSSOP
	AJUGA REPTANS	CARPET-BUGLEWEED
	CLINOPODIUM VULGARE	WILD BASIL
	CLINOPODIUM VULGARE	BASIL, DOG MINT
	COLLINSONIA CANADENSIS	RICHWEED/STONEROOT
	GLECHOMA HEDERACEAE	GILL-OVER-THE-GROUND
	GLECHOMA HEDERACEA	GILL-OVER-THE-GROUND
	LYCOPUS AMERICANUS	BUGLEWEED
	MENTHA ARVENSIS	FIELD MINT
	MONARDA FISTULOSA	WILD BERGAMOT
	PRUNELLA VULGARIUS	SELF-HEAL
	PRUNELLA VULGARIS	HEAL-ALL, SELF-HEAL
	PYCANthemum TENUIFOLIUM	NARROW-LEAVED MOUNTAIN- MINT
	SCULTELLARIA GALERICULATA	COMMON SKULLCAP
	STACHYS PALUSTRIS	WOUNDWORT
LAURACEAE	LINDERA BENZOIN	SPICEBUSH
	SASSAFRAS ALBIDUM	SASSAFRAS
LEMNACEAE	LEMNA MINOR	DUCKWEED
LILIACEAE	ALLIUM CANADENSE	WILD ONION
	ALLIUM TRICOCCUM	WILD LEEK/RAMP
	ASPARAGUS OFFICINALIS	ASPARAGUS
	CONVALLARIA MAJALIS	LILY-OF-THE-VALLEY
	ERYTHRONIUM AMERICANUM	YELLOW ADDER'S TONGUE/TROUTLILY
	HEMEROCALLIS FULVA	DAY-LILY
	LILIUM SUPERBUM	TURK'S-CAP-LILY
	LILIUM CANADENSE	CANADA LILY
	MAIANTHEMUM CANADENSE	WILD LILY-OF-THE-VALLEY

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	MEDEOLA VIRGINIANA	INDIAN CUCUMBER-ROOT
	ORNITHOGALUM UMBELLATUM	STAR-OF-BETHLEHEM
	POLYGONATUM BIFLORUM	SMALL SOLOMON'S-SEAL
	POLYGONATUM PUBESCENS	HAIRY SOLOMON'S-SEAL
	SMILACINA RACEMOSA	FALSE SOLOMON'S-SEAL
	TRILLIUM ERECTUM	PURPLE TRILLIUM
	UVULARIA PERFOLIATA	STRAWBEEL/BELLWORT
	UVULARIA SESSILFOLIA	BELLWORT, WILD-OATS
LYCOPODIACEAE	LYCOPODIUM LUCIDLUM	SHINING CLUBMOSS
	LYCOPODIUM COMPLANATUM	NORTHERN RUNNING-PINE
LYTHRACEAE	DECODON VERTICILLATUS	SWAMP LOOSESTRIFE
	LYTHRUM SALICARIA	PURPLE LOOSESTRIFE
MAGNOLIACEAE	LIRIODENDRON TULIPIFERA	TULIP TREE
	MAGNOLIA TRIPETALA	UMBRELLA MAGNOLIA
MALVACEAE	MALVA MOSCHATA	MUSK MALLOW
MONOTROPACEAE	MONOTROPA UNIFLORA	INDIAN-PIPE
MORACEAE	MORUS ALBA	YELLOW MULBERRY
NYMPHAEACEAE	NUPHAR LUTEUM	YELLOW POND LILY
	NYMPHAEA ODORATA	WHITE WATER LILY
NYSSACEAE	NYSSA SYLVATICA	BLACK GUM
OLEACEAE	FORSYTHIA VIRIDISSIMA	GREENSTEM FORSYTHIA
	FRAXINUS AMERICANA	WHITE ASH
	FRAXINUS PENNSYLVANICUS	GREEN ASH
ONAGRACEAE	CIRCAEA LUTETIANA	ENCHANTERS NIGHTSHADE
	CIRCAEA CANADENSIS	ENCHANTER'S NIGHTSHADE
	LUDWIGIA PALUSTRIS	WATER PURSLANE
	OENTOTHERA BIENNIS	COMMON EVENING-PRIMROSE
OPHIOGLOSSACEAE	BOTRYCHIUM VIRGINIANUM	RATTLESNAKE FERN
	BOTRYCHIUM LANCEOLATUM	LANCE-LEAF GRAPE FERN
ORCHIDACEAE	CYPRIPEDIUM ACAULE	PINK LADY'S SLIPPER
	EPIPACTUS HELLEBORINE	HELLEBORINE
OROBANCHACEAE	CONOPHILIS AMERICANA	SQUAWROOT
OSMUNDACEAE	OSMUNDA CINNAMOMEA	CINNAMON FERN
	OSMUNDA REGALIS	ROYAL FERN
	OSMUNDA CLAYTONIANA	INTERRUPTED FERN
OXALIDACEAE	OXALIS ACETOSELLA	COMMON WOOD-SORREL
	OXALIS STRICTA	LADY'S-SORREL
PAPAVERACEAE	CHELIDONIUM MAJUS	GREATER CELANDINE

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	DICENTRA CUCULLARIA	DUTCHMAN'S BREECHES
	SANGUINARIA CANADENSIS	BLOODROOT
	STYLOPHORUM DIPHYLLUM	CELANDINE POPPY
PHILADELPHIACEAE	PHILADELPHUS GRANDIFLORUS	MOCK-ORANGE
PHYTOLACCACEAE	PHYTOLACCA AMERICANA	POKEWEED
PINACEAE	ABIES NORDMANNIANA	NORDMAN FIR
	PICEA RUBENS	RED SPRUCE
	PICEA ABIEA	NORWAY SPRUCE
	PINUS SYLVESTRIS	SCOTCH PINE
	PINUS RESINOSA	RED PINE
	PINUS STROBUS	EASTERN WHITE PINE
	PINUS RIGIDA	PITCH PINE
	PSEUDOTSUGA MENZIESII	DOUGLAS-FIR
	TSUGA CANADENSIS	EASTERN HEMLOCK
PLANTAGINACEAE	PLANTAGO MAJOR	COMMON PLANTAIN
	PLANTAGO LANCEOLATA	ENGLISH PLANTAIN
PLATANACEAE	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE
POACEAE	ANTHOXANTHUM ODORATUM	SWEET VERNAL GRASS
	BRACHYELYTRUM ERECTUM	BRACHYELYTRUM GRASS
	DACTYLIS GLOMERATA	ORCHARD GRASS
	ECHINOCHLOA WALTERI	WATER-MILLET
	PHLEUM PATENSE	TIMOTHY
	PHRAGMITES AUSTRALIS	COMMON REED
	SECALE CEREALE	RYE
POLEMONIACEAE	PHLOX DIVARICATA	WILD BLUE PHLOX
POLYGONACEAE	POLYGONUM CESPITOSUM	LONG BRISTLED
	POLYGONUM PUNCTATUM	WATER SMARTWEED
	POLYGONUM SAGITTATUM	TEARTHUMB
	POLYGONUM CONVULVUS	BLACK BINDWEED
	POLYGONUM OPELOUSANUM	OPELOUSA SMARTWEED
	POLYGONUM PERSICARIA	LADY'S THUMB
	POLYGONUM VIRGINIANUM	JUMPSEED
	RUMEX CRISPUS	CURLEY DOCK
POLYPODIACEAE	ONOCLEA SENSIBILIS	SENSITIVE FERN
	POLYPODIUM VIRGINIANUM	COMMON POLYPODY
PONTEDERIAACEAE	PONTEDERIA CORDATA	PICKEREL-WEED
PRIMULACEAE	LYSIMACHIA	MONEYWORT

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	NUMMULARIA	
	LYSIMACHIA QUADRIFOLIA	WHORLED LOOSESTRIFE
PYROLACEAE	CHIMAPHILA MACULATA	SPOTTED WINTERGREEN
RANUNCULACEAE	ACTAEA PACHYPODA	WHITE BANE BERRY
	ANEMONELLA THALICTROIDES	RUE-ANEMONE
	ANENOME CYLINDRICA	LONG-HEADED
	ANENOME VIRGINIANA	TALL THIMBLEWEED
	AQUILEGIA CANADENSIS	WILD COLUMBINE
	CALTHA PALUSTRIS	MARSH MARIGOLD
	CLEMATIS VIRGINIANA	VIRGIN'S BOWER
	HEPATICACUTILOBA	HEPATICAC
	HEPATICACNOBILIS	BLUNT-LOBED HEPATICAC
	RANUNCULUS ACRIS	TALL BUTTERCUP
	RANUNCULUS BULBOSUS	BULBOUS BUTTERCUP
	THALICTRUM PUBESCENS	TALL MEADOW-RUE
	THALICTRUM DIOICUM	EARLY MEADOW RUE
RHAMNACEAE	RHAMNUS CATHARTICA	COMMON BUCKTHORN
	RHAMNUS ALNIFOLIA	ALDER-LEAF BUCKTHORN
ROSACEAE	AGRIMONIA	AGRIMONY
	AMELANCHIER CANADENSIS	SHADBUSH
	FRAGARIA VIRGINIANA	WILD STRAWBERRY
	GEUM ALEPPICUM	YELLOW AVENS
	GEUM VIRGINIANUM	ROUGH AVENS
	MALUS PUMILA	COMMON APPLE
	POTENTILLA RECTA	ROUGH CINQUEFOIL
	PRUNUS AVIUM	SWEET CHERRY
	PRUNUS SEROTINA	BLACK CHERRY
	PRUNUS VIRGINIANA	CHERRY
	ROSA MULTIFLORA	ROSE
	RUBUS ODORATUS	PURPLE FLOWERING RASPBERRY
	RUBUS ALLEGHENIENSIS	NORTHERN BLACKBERRY
	RUBUS OCCIDENTALIS	BLACK RASPBERRY
	SPIRAEA LATIFOLIA	MEADOWSWEET
	WALDSTEINIA FRAGAROIDES	BARREN STRAWBERRY
RUBIACEAE	CEPHALANTHUS OCCIDENTALIS	BUTTONBUSH
	GALIUM CIRCAEZANS	WILD LICORICE
	GALIUM MOLLUGO	WILD MADDER/WHITE BEDSTRAW
	GALIUM APARINE	CLEAVERS/BEDSTRAW
	MITCHELLA REPENS	PARTRIDGE-BERRY
SALICACEAE	POPULUS GRANDIDENTATA	BIGTOOTH ASPEN

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	POPULUS TREMULOIDES	QUAKING ASPEN
	SALIX NIGRA	BLACK WILLOW
SAXIFRAGACEAE	MITELLA DIPHYLLA	MITERWORT/BISHOP'S CAP
SCROPHULARIACEAE	CHELONE GLABRA	WHITE TURTLEHEAD, BALMONY
	DIGITALIS PURPUREA	FOXGLOVE
	LINARIA VULGARIS	BUTTER-AND-EGGS
	MELAMPYRUM LINEARE	COW WHEAT
	VERBASCUM BLATTERIA	MOTH-MULLEIN
	VERBASCUM THAPSUS	MULLEIN
	VERONICA PEREGRINA	NECKWEED
	VERONICA SERPYLLIFOLIA	THYME-LEAVED SPEEDWELL
	VERONICA OFFICINALIS	COMMON SPEEDWELL
SIMAROUBACEAE	AILANTHUS ALTISSIMA	TREE-OF-HEAVEN
SMILACACEAE	SMILAX HERBACEA	JACOB'S-LADDER
SOLANACEAE	SOLANUM NIGRUM	BLACK NIGHTSHADE
	SOLANUM CAROLINENSE	HORSE NETTLE
	SOLANUM DULCAMARA	CLIMBING NIGHTSHADE
STAPHYLEACEAE	STAPHYLEA TRIFOLIA	BLADDERNUT
STYRACACEAE	STYRAX AMERICANA	MOCK-ORANGE
TAXACEAE	TAXUS CANADENSIS	AMERICAN YEW
THELYPTERIDACEAE	THELYPTERIS PALUSTRIS	MARSH FERN
TILIACEAE	TILIA AMERICANA	AMERICAN BASSWOOD
TRAPACEAE	TRAPA NATANS	WATER-CHESTNUT
TYPHACEAE	TYPHA LATIFOLIA	COMMON CAT-TAIL
ULMACEAE	CELTIS OCCIDENTALIS	HACKBERRY
	ULMUS AMERICANA	AMERICAN ELM
	ULMUS RUBRA	SLIPPERY ELM
URTICACEAE	BOEHMERIA CYLINDRICA	FALSE-NETTLE/BOG HEMP
	PILEA PUMILA	RICHWEED
VALERIANACEAE	VALERIANA OFFICINALIS	COMMON VALERIAN
VERBENACEAE	VERBENA URTICIFOLIA	WHITE VERVIAN
	VERBENA HASTATA	BLUE VERVAIN
VIOLACEAE	VIOLA ROSTRATA	LONG-SPURRED VIOLET
	VIOLA INCOGNITA	LARGE-LEAVED VIOLET
	VIOLA PUBESCENS	YELLOW VIOLET
	VIOLA SORORIA	COMMON VIOLET/MARSH BLUE VIOLET
VITACEAE	PARTHENOCISSUS QUINQUEFOLIA	WOODBINE

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2. Mammals

SPECIES	COMMON NAME
MICROTUS PENNSYLVANICUS	MEADOW VOLE
SOREX FUMEUS	SMOKY SHREW
ZAPUS HUDSONICUS	MEADOW JUMPING MOUSE
BLARINA BREVICAUDA	NORTHERN SHORT-TAILED SHREW
PEROMYSCUS LEUCOPUS	WHITE-FOOTED MOUSE
MUSTELA VISON	MINK
URSUS AMERICANUS	BLACK BEAR
DIDELPHIS MARSUPIALIS	VIRGINIA OPOSSUM
MUS MUSCULUS	HOUSE MOUSE
UROCYON CINEREOARGENTEUS	GRAY FOX
PROCYON LOTOR	RACCOON
MEPHITIS MEPHITIS	STRIPED SKUNK
LUTRA CANADENSIS	RIVER OTTER
MARMOTA MONAX	WOODCHUCK
SCIURUS CAROLINENSIS	GRAY SQUIRREL
TAMIAS STRIATUS	EASTERN CHIPMUNK
TAMIASCIURUS HUDSONICUS	RED SQUIRREL
CASTOR CANADENSIS	BEAVER
ONDATRA ZIBETHICUS	MUSKRAT
ALCES ALCES	MOOSE
CANIS LATRANS	COYOTE
ODOCOILEUS VIRGINIANUS	WHITE-TAILED DEER
VULPES VULPES	RED FOX

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3. Reptiles & Amphibians

SPECIES	COMMON NAME
PLETHODON CINEREUS	RED-BACKED SALAMANDER
NOTOPHTALMUS VIRIDESCENS	RED-SPOTTED NEWT
PLETHODON GLUTINOSUS	SLIMY SALAMANDER
EURYCEA BISLINEATA	NORTHERN TWO-LINED SALAMANDER
HEMIDACTYLIUM SCUTATUM	FOUR-TOED SALAMANDER
AMBYSTOMA MACULATUM	SPOTTED SALAMANDER
AMBYSTOMA JEFFERSONIUM	JEFFERSON'S COMPLEX SALAMANDER
RANA SYLVATICA	WOOD FROG
BUFO AMERICANUS	AMERICAN TOAD
RANA CLAMITANS	GREEN FROG
RANA CATESBEIANA	BULL FROG
HYLA VERSICOLOR	GRAY TREE FROG
AMBYSTOMA LATERALE x JEFFERSONIUM	JEFFERSON'S COMPLEX SALAMANDER
HYLA CRUCIFER	SPRING PEEPER
RANA PALUSTRIS	PICKEREL FROG
AMBYSTOMA OPACUM	MARbled SALAMANDER
ELAPHE OBSOLETA	BLACK RAT SNAKE
TERRAPENE CAROLINA	EASTERN BOX TURTLE
CLEMMYS GUTTATA	SPOTTED TURTLE
CHELYDRA SERPENTINA	SNAPPING TURTLE
CHRYSEMYS PICTA	PAINTED TURTLE
GRAPTEMYS GEOGRAPHICA	MAP TURTLE
EMYDOIDEA BLANDINGII	BLANDING'S TURTLE
CLEMMYS INSCULPTA	WOOD TURTLE
STERNOTHERUS ODORATUS	MUSK TURTLE
COLUBER CONSTRICTOR	BLACK RACER
THAMNOPHIS SUARITIS	EASTERN RIBBON SNAKE
LAMPROPELTIS TRIANGULUM	MILK SNAKE
NERODIA SIPEDON	NORTHERN WATER SNAKE
THAMNOPHIS SIRTALIS	EASTERN GARTER SNAKE
AGKISTRODON CONTORTRIX	NORTHERN COPPERHEAD
DIADOPHIS PUNCTATUS	RING-NECKED SNAKE

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4. Fish

SPECIES	COMMON NAME
ESOX AMERICANUS	REDFIN PICKEREL
AMBLOPLITES RUPESTRIS	ROCK BASS
LEPOMIS MACROCHIRUS	BLUEGILL
FUNDULUS HETEROCLITUS	MUMMICHOG
CARASSIUS AURATUS	GOLDFISH
LEPOMIS GIBBOSUS	PUMPKINSEED
RHINICHTHYS ATRATULUS	EASTERN BLACKNOSE DACE
RHINICHTHYS CATARACTAE	LONGNOSE DACE
NOTROPIS CORNUTUS	COMMON SHINER
ANGUILLA ROSTRATA	AMERICAN EEL
NOTEMIGONUS CRYSOLEUCAS	GOLDEN SHINER
MICROPTERUS SALMOIDES	LARGEMOUTH BASS

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5 Birds

FAMILY	SCIENTIFIC NAME	COMMON NAME
Anatidae — Swans, Geese, and Ducks		
	<i>Branta bernicla</i>	Brant
	<i>Branta canadensis</i>	Canada Goose
	<i>Cygnus olor</i>	Mute Swan
	<i>Aix sponsa</i>	Wood Duck
	<i>Anas rubripes</i>	American Black Duck
	<i>Anas platyrhynchos</i>	Mallard
	<i>Anas discors</i>	Blue-winged Teal
	<i>Anas acuta</i>	Northern Pintail
	<i>Anas crecca</i>	Green-winged Teal
	<i>Aythya valisineria</i>	Canvasback
	<i>Aythya americana</i>	Redhead
	<i>Aythya collaris</i>	Ring-necked Duck
	<i>Aythya marila</i>	Greater Scaup
	<i>Aythya affinis</i>	Lesser Scaup
	<i>Bucephala albeola</i>	Bufflehead
	<i>Aythya clangula</i>	Common Goldeneye
	<i>Lophodytes cucullatus</i>	Hooded Merganser
	<i>Mergus merganser</i>	Common Merganser
Phasianidae — Partridges, Grouse, and Turkeys		
	<i>Phasianus colchicus</i>	Ring-necked Pheasant
	<i>Bonasa umbellus</i>	Ruffed Grouse
	<i>Meleagris gallopavo</i>	Wild Turkey
Gaviidae — Loons		
	<i>Gavia immer</i>	Common Loon
Podicipedidae — Grebes		
	<i>Podilymbus podiceps</i>	Pied-billed Grebe
Phalacrocoracidae — Cormorants		
	<i>Phalacrocorax auritus</i>	Double-crested Cormorant
Ardeidae — Bitterns, Herons, and Allies		
	<i>Ardea herodias</i>	Great Blue Heron
	<i>Ardea alba</i>	Great Egret
	<i>Butorides virescens</i>	Green Heron
	<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron
Cathartidae — American Vultures		
	<i>Coragyps atratus</i>	Turkey Vulture
	<i>Cathartes aura</i>	Black Vulture
Accipitridae — Kites, Eagles, Hawks, and Allies		

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	<i>Pandion haliaetus</i>	Osprey
	<i>Haliaeetus leucocephalus</i>	Bald Eagle
	<i>Accipiter striatus</i>	Sharp-shinned Hawk
	<i>Accipiter cooperii</i>	Cooper's Hawk A87
	<i>Buteo lineatus</i>	Red-shouldered Hawk
	<i>Buteo platypterus</i>	Broad-winged Hawk
	<i>Buteo jamaicensis</i>	Red-tailed Hawk
Falconidae — Caracaras and Falcons		
	<i>Falco sparverius</i>	American Kestrel
Rallidae — Rails, Gallinules, and Coots		
	<i>Rallus limicola</i>	Virginia Rail
	<i>Fulica americana</i>	American Coot
Charadriidae — Plovers and Lapwings		
	<i>Charadrius semipalmatus</i>	Semipalmated Plover
	<i>Charadrius vociferus</i>	Killdeer *
Scolopacidae — Sandpipers, Phalaropes, and Allies		
	<i>Tringa solitaria</i>	Solitary Sandpiper
	<i>Actitis macularius</i>	Spotted Sandpiper
	<i>Gallinago gallinago</i>	Common Snipe
	<i>Scolopax minor</i>	American Woodcock
Laridae — Skuas, Gulls, Terns, and Skimmers		
	<i>Larus delawarensis</i>	Ring-billed Gull
	<i>Larus argentatus</i>	Herring Gull
	<i>Larus marinus</i>	Great Black-backed Gull
Columbidae — Pigeons and Doves		
	<i>Columba livia</i>	Rock Pigeon
	<i>Zenaida macroura</i>	Mourning Dove
Cuculidae — Cuckoos, Roadrunners, and Anis		
	<i>Coccyzus erythrophthalmus</i>	Black-billed Cuckoo
	<i>Coccyzus americanus</i>	Yellow-billed Cuckoo
Strigidae — Typical Owls		
	<i>Megascops asio</i>	Eastern Screech-Owl
	<i>Bubo virginianus</i>	Great Horned Owl
	<i>Bubo scandiacus</i>	Snowy Owl
	<i>Strix varia</i>	Barred Owl
Caprimulgidae — Goatsuckers		
	<i>Chordeiles minor</i>	Common Nighthawk
Apodidae — Swifts		
	<i>Chaetura pelagica</i>	Chimney Swift
Trochilidae — Hummingbirds		

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	<i>Archilochus colubris</i>	Ruby-throated Hummingbird
Alcedinidae — Kingfishers		
	<i>Ceryle alcyon</i>	Belted Kingfisher
Picidae — Woodpeckers and Allies		
	<i>Melanerpes carolinus</i>	Red-bellied Woodpecker
	<i>Sphyrapicus varius</i>	Yellow-bellied Sapsucker
	<i>Picoides pubescens</i>	Downy Woodpecker
	<i>Picoides villosus</i>	Hairy Woodpecker
	<i>Colaptes auratus</i>	Northern Flicker
	<i>Dryocopus pileatus</i>	Pileated Woodpecker
Tyrannidae — Tyrant Flycatchers		
	<i>Contopus virens</i>	Eastern Wood-Pewee
	<i>Empidonax flaviventris</i>	Yellow-bellied Flycatcher
	<i>Empidonax virescens</i>	Acadian Flycatcher
	<i>Empidonax alnorum</i>	Alder Flycatcher
	<i>Empidonax traillii</i>	Willow Flycatcher
	<i>Empidonax minimus</i>	Least Flycatcher
	<i>Sayornis phoebe</i>	Eastern Phoebe
	<i>Myiarchus crinitus</i>	Great Crested Flycatcher
	<i>Tyrannus tyrannus</i>	Eastern Kingbird
Vireonidae — Vireos		
	<i>Vireo flavifrons</i>	Yellow-throated Vireo
	<i>Vireo solitarius</i>	Blue-headed Vireo
	<i>Vireo gilvus</i>	Warbling Vireo
	<i>Vireo olivaceus</i>	Red-eyed Vireo
Corvidae — Jays, Magpies, and Crows		
	<i>Cyanocitta cristata</i>	Blue Jay
	<i>Corvus brachyrhynchos</i>	American Crow
	<i>Corvus ossifragus</i>	Fish Crow
	<i>Corvus corax</i>	Common Raven
Hirundinidae — Swallows		
	<i>Progne subis</i>	Purple Martin
	<i>Tachycineta bicolor</i>	Tree Swallow
	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow
	<i>Hirundo rustica</i>	Barn Swallow
Paridae — Chickadees and Titmice		
	<i>Poecile atricapillus</i>	Black-capped Chickadee
	<i>Baeolophus bicolor</i>	Tufted Titmouse
Sittidae — Nuthatches		
	<i>Sitta canadensis</i>	Red-breasted Nuthatch

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	<i>Sitta carolinensis</i>	White-breasted Nuthatch
Certhiidae — Creepers		
	<i>Certhia americana</i>	Brown Creeper
Troglodytidae — Wrens		
	<i>Thryothorus ludovicianus</i>	Carolina Wren
	<i>Troglodytes aedon</i>	House Wren
	<i>Troglodytes troglodytes</i>	Winter Wren
Regulidae — Kinglets		
	<i>Regulus satrapa</i>	Golden-crowned Kinglet
	<i>Regulus calendula</i>	Ruby-crowned Kinglet
Sylviidae — Old World Warblers and Gnatcatchers		
	<i>Polioptila caerulea</i>	Blue-gray Gnatcatcher
Turdidae — Thrushes		
	<i>Sialia sialis</i>	Eastern Bluebird
	<i>Catharus fuscescens</i>	Veery
	<i>Catharus guttatus</i>	Hermit Thrush
	<i>Hylocichla mustelina</i>	Wood Thrush
	<i>Turdus migratorius</i>	American Robin
Mimidae — Mockingbirds, Thrashers, and Allies		
	<i>Dumetella carolinensis</i>	Gray Catbird
	<i>Mimus polyglottos</i>	Northern Mockingbird
Sturnidae — Starlings and Allies		
	<i>Sturnus vulgaris</i>	European Starling
Bombycillidae — Waxwings		
	<i>Bombycilla cedrorum</i>	Cedar Waxwing
Parulidae — Wood Warblers		
	<i>Vermivora pinus</i>	Blue-winged Warbler
	<i>Vermivora peregrina</i>	Tennessee Warbler
	<i>Parula americana</i>	Northern Parula
	<i>Dendroica petechia</i>	Yellow Warbler
	<i>Dendroica pensylvanica</i>	Chestnut-sided Warbler
	<i>Dendroica magnolia</i>	Magnolia Warbler
	<i>Dendroica caerulescens</i>	Black-throated Blue Warbler
	<i>Dendroica coronata</i>	Yellow-rumped Warbler
	<i>Dendroica virens</i>	Black-throated Green Warbler
	<i>Dendroica fusca</i>	Blackburnian Warbler
	<i>Dendroica pinus</i>	Pine Warbler
	<i>Dendroica discolor</i>	Prairie Warbler
	<i>Dendroica palmarum</i>	Palm Warbler
	<i>Dendroica castanea</i>	Bay-breasted Warbler

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	<i>Dendroica striata</i>	Blackpoll Warbler
	<i>Dendroica cerulea</i>	Cerulean Warbler
	<i>Mniotilta varia</i>	Black-and-white Warbler
	<i>Setophaga ruticilla</i>	American Redstart
	<i>Helmitheros vermivorum</i>	Worm-eating Warbler
	<i>Seiurus aurocapilla</i>	Ovenbird
	<i>Seiurus noveboracensis</i>	Northern Waterthrush
	<i>Seiurus motacilla</i>	Louisiana Waterthrush
	<i>Geothlypis trichas</i>	Common Yellowthroat
	<i>Wilsonia canadensis</i>	Canada Warbler
Thraupidae		
	<i>Piranga olivacea</i>	Scarlet Tanager
Emberizidae		
	<i>Pipilo erythrophthalmus</i>	Eastern Towhee
	<i>Spizella arborea</i>	American Tree Sparrow
	<i>Spizella passerina</i>	Chipping Sparrow
	<i>Spizella pusilla</i>	Field Sparrow
	<i>Passerella iliaca</i>	Fox Sparrow
	<i>Melospiza melodia</i>	Song Sparrow
	<i>Melospiza georgiana</i>	Swamp Sparrow
	<i>Zonotrichia albicollis</i>	White-throated Sparrow
	<i>Zonotrichia leucophrys</i>	White-crowned Sparrow
	<i>Junco hyemalis</i>	Dark-eyed Junco
Cardinalidae — Grosbeaks and Buntings		
	<i>Cardinalis cardinalis</i>	Northern Cardinal
	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak
	<i>Passerina cyanea</i>	Indigo Bunting
Icteridae — Icterids		
	<i>Agelaius phoeniceus</i>	Red-winged Blackbird
	<i>Sturnella magna</i>	Eastern Meadowlark
	<i>Quiscalus quiscula</i>	Common Grackle
	<i>Molothrus ater</i>	Brown-headed Cowbird
	<i>Icterus spurius</i>	Orchard Oriole
	<i>Icterus galbula</i>	Baltimore Oriole
Fringillidae — Fringilline and Cardueline Finches		
	<i>Carpodacus purpureus</i>	Purple Finch
	<i>Carpodacus mexicanus</i>	House Finch
	<i>Carduelis flammea</i>	Common Redpoll
	<i>Carduelis pinus</i>	Pine Siskin

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	<i>Carduelis tristis</i>	American Goldfinch
	<i>Coccothraustes vespertinus</i>	Evening Grosbeak
Passeridae — Old World Sparrows		
	<i>Passer domesticus</i>	House Sparrow

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Appendix D: Compliance

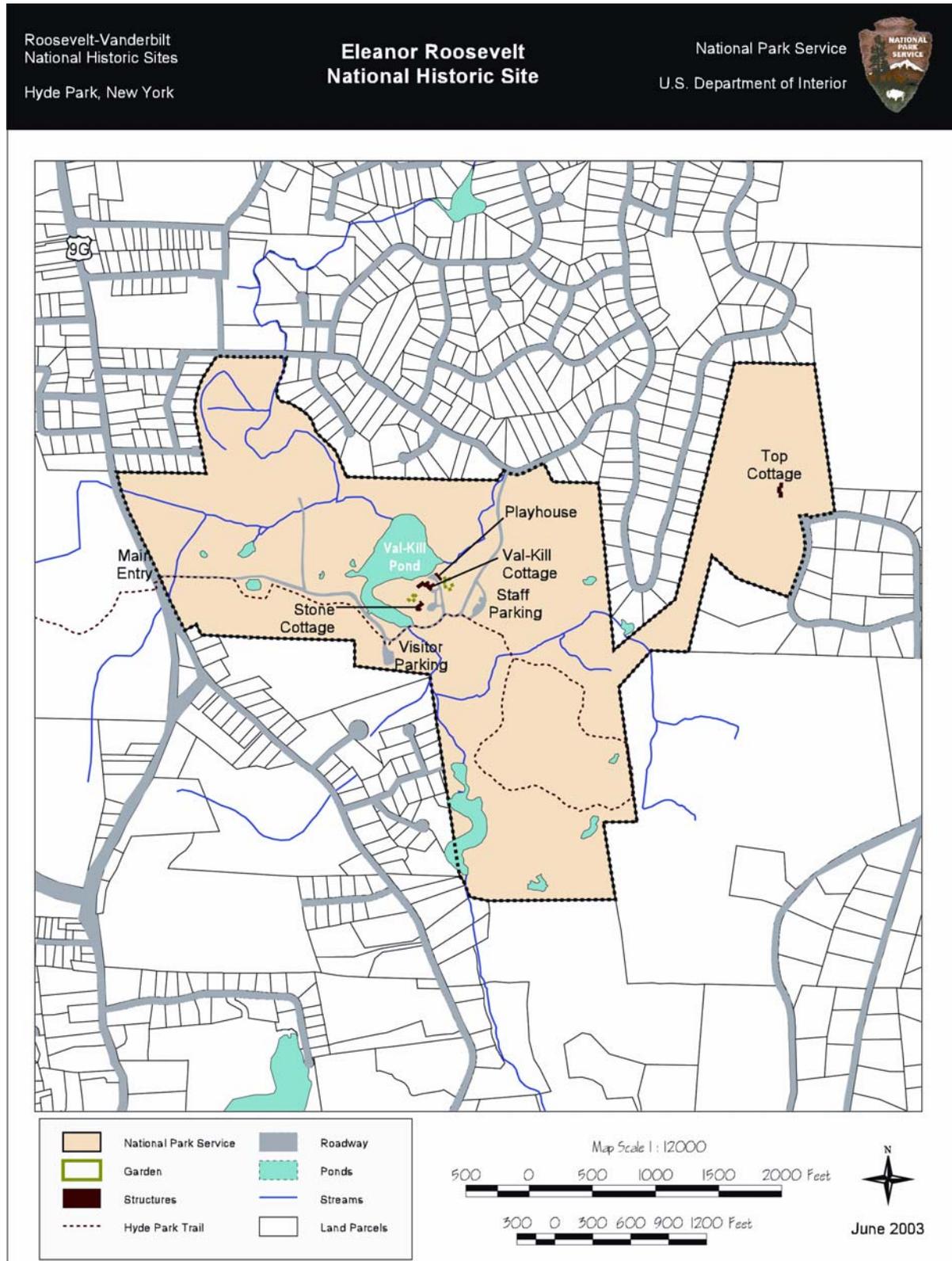
1. NEPA

In progress

2. NHPA

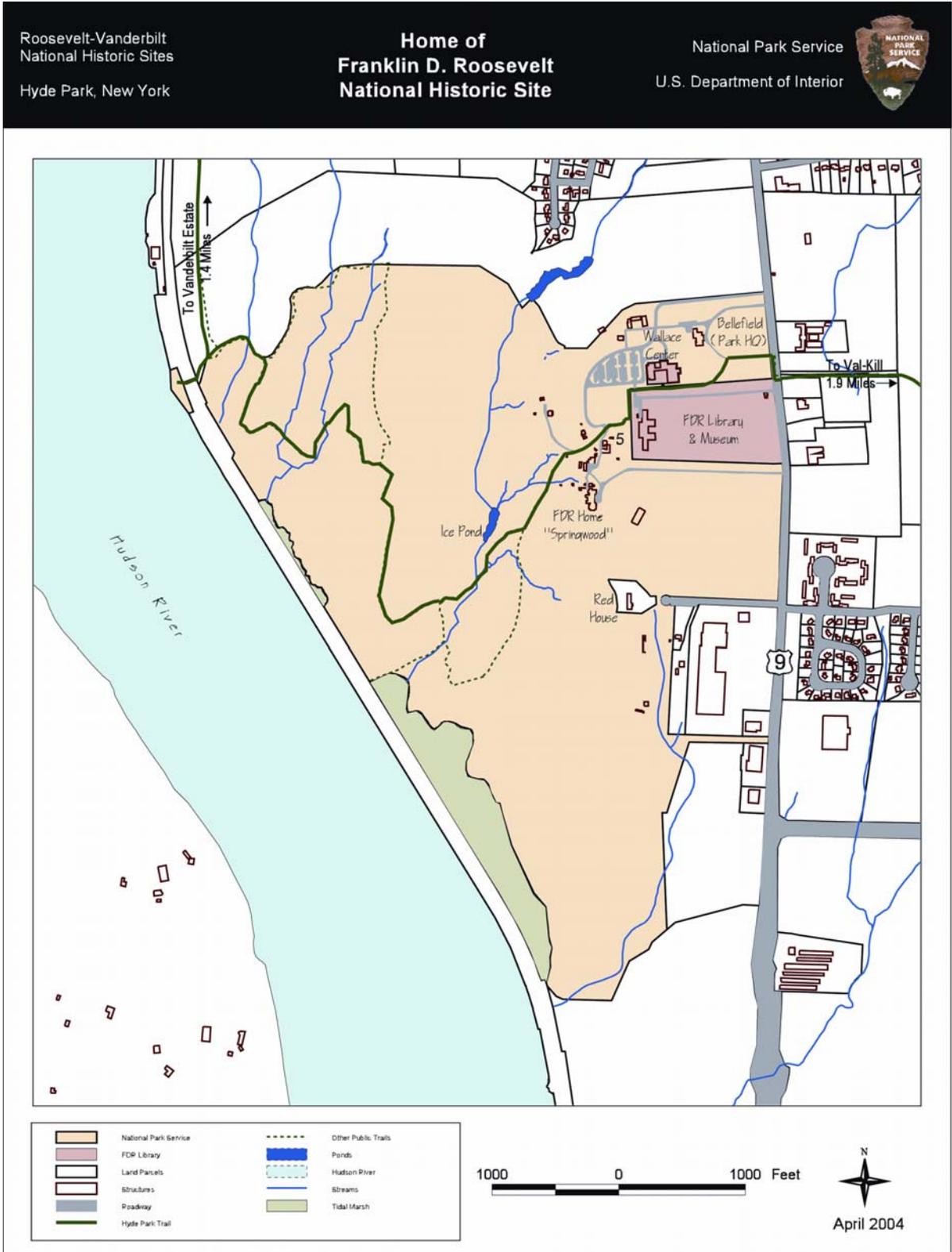
In progress

Appendix E: Supplemental information



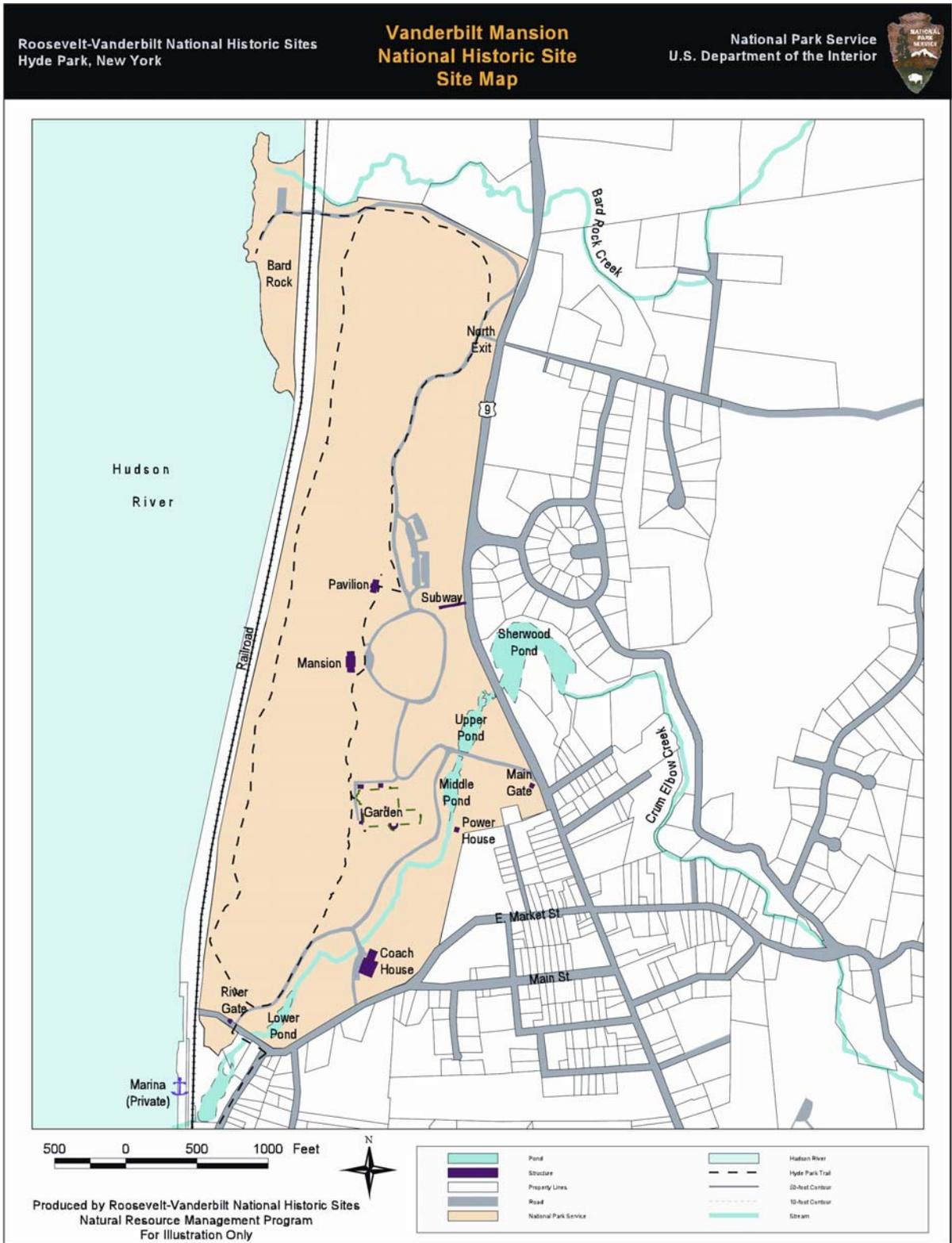
A. Site Map – Eleanor Roosevelt NHS

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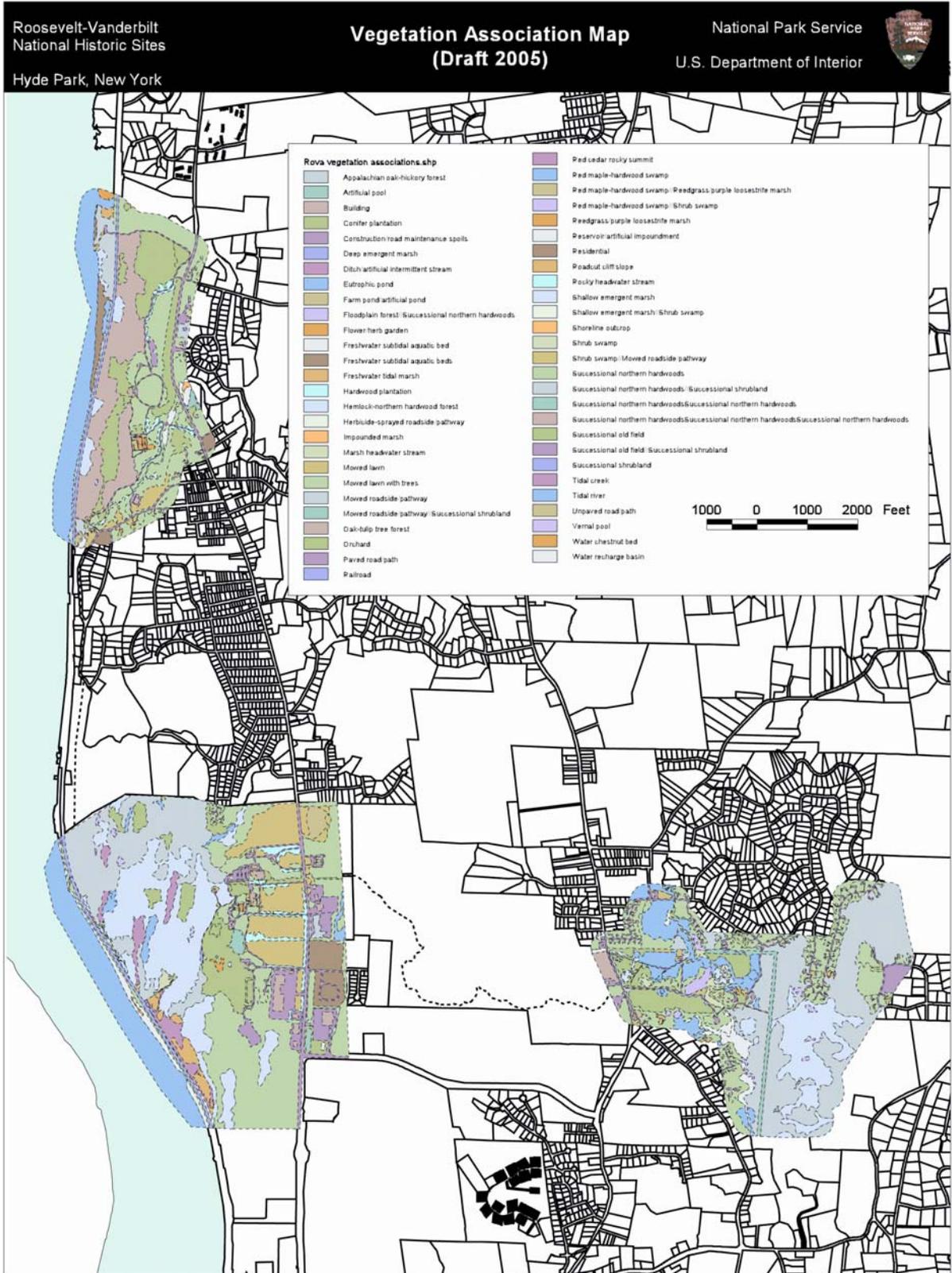
B. Site Map – Home of FDR NHS

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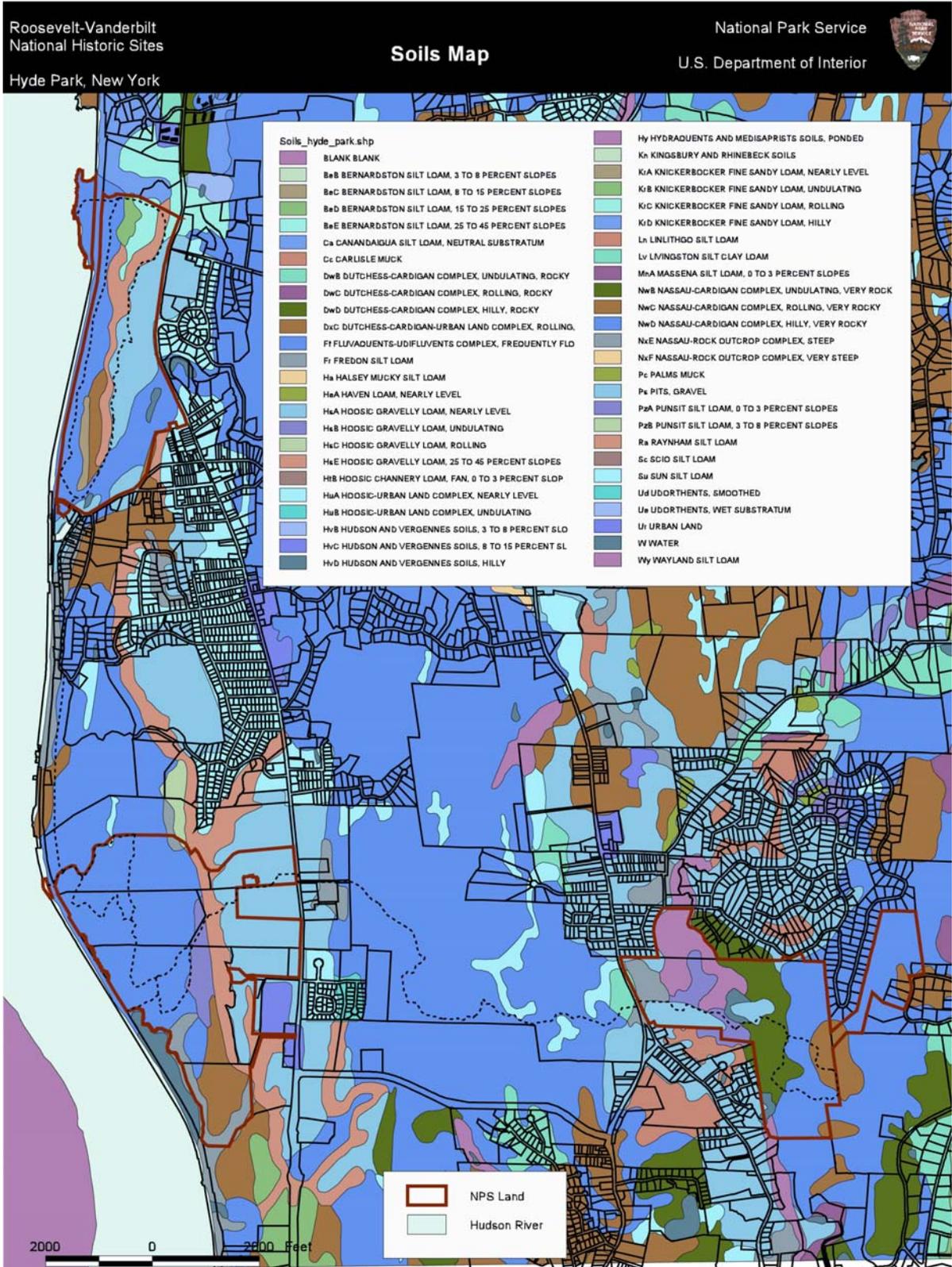
C. Site Map – Vanderbilt Mansion NHS

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D. Vegetation Map

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Appendix E



E. Soils Map

7. Soil Series List

Vanderbilt Mansion NHS

- Cl: Colonie fine sandy loam, nearly level phase (0-3 percent slopes)
- Ck: Colonie fine sandy loam, hilly and steep phases 15-35 percent slopes)
- Eb: Elmwood fine sandy loam (0-5 percent slopes)
- Hf: Hoosic gravelly loam, hilly phase (15-25 percent slopes)
- Hg: Hoosic gravelly loam, nearly level and undulating phases, (0-8 percent slopes)
- Hk: Hoosic gravelly loam, steep phase (25-45 percent slopes)
- Na: Nassau-Cossayuna gravelly loam, eroded hilly phases (15-30 percent slopes)
- Nc: Nassau-Cossayuna gravelly loams, undulating and rolling phases (3-15 percent slopes)
- Sd: Staatsburg gravelly loam, very ledgy rolling phase (5-15 percent slopes)

Home of Franklin D. Roosevelt NHS

- Ck: Colonie fine sandy loam, hilly and steep phases 15-35 percent slopes)
- Hg: Hoosic gravelly loam, nearly level and undulating phases, (0-8 percent slopes)
- Hf: Hoosic gravelly loam, hilly phase (15-25 percent slopes)
- Rb: Rhinebeck silt loam (0-5 percent slopes)
- Sc: Staatsburg gravelly loam, very ledgy hilly phase (15-30 percent slopes)
- Sd: Staatsburg gravelly loam, very ledgy rolling phase (5-15 percent slopes)
- Sf: Steep ledgy land (Wassaic and Staatsburg soil materials) (30+ percent slopes)
- Ta: Tidal marsh, fresh water phase (0-1 percent slopes)

Eleanor Roosevelt NHS

- Ae: Atherton silt loam (0-5% slopes)
- Bd: Boynton gravelly silt loam, (0-8 percent slopes)
- Cw: Cossayuna gravelly loam, hilly phase (15-30 percent slopes)
- Cx: Cossayuna gravelly loam, undulating and rolling phases (3-15 percent slopes)
- Cy: Cossayuna stony silt loam, hilly phase (15-30 percent slopes)
- Hg: Hoosic gravelly loam, nearly level and undulating phases, (0-8 percent slopes)
- Hh: Hoosic gravelly loam, rolling phase (5-15 percent slopes)
- Hl: Hoosic gravelly sandy loam, nearly level and undulating phases (0-8 percent slopes)
- Mg: Muck, acid, deep phase (0-2 percent slopes)
- Nc: Nassau-Cossayuna gravelly loams, undulating and rolling phases (3-15 percent slopes)
- Ra: Red Hook silt loam (0-3 percent slopes)
- Sa: Saco silty clay loam (0-2 percent slopes)
- Sc: Staatsburg gravelly loam, very ledgy hilly phase (15-30 percent slopes)

8. Applicable Laws and Regulations

National Park Service Organic Act of 1916

Authority for carrying out a fire management program at Roosevelt-Vanderbilt National Historic Sites originates with the National Park Service Organic Act of 1916 (16 U.S.C. 1 -4). This act, known as the National Park Service Organic Act, created the National Park Service. The Organic Act states that the fundamental purpose of all “[national] parks monuments, and reservations... is to conserve the scenery and the natural and historic objects and the wildlife 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.”

The General Authorities Act of 1970

The General Authorities Act of 1970 (16 U.S.C. 1a et seq.) act affirms that all national park sites, while “distinct in character,” are “united through their inter-related purposes and resources into one national park system as cumulative expressions of a single national heritage.” This act explicitly states that the NPS organic act and other mandates protecting natural and cultural resources apply equally to all sites in the national park system. This law clarifies the authority for parks primarily established to preserve natural resources to suppress fire to preserve both natural and cultural resources and for parks established primarily to preserve historical resources to use of fire to manage both cultural and natural resources.

The National Parks & Recreation Act of 1978

The National Parks & Recreation Act of 1978 amended National Park Service general authorities to mandate that all park units be managed and protected "in light of the high public value and integrity of the National Park System". The act further mandates that no activities should be undertaken "in derogation of the values and purposes for which these various areas have been established," except where specifically authorized by law. This law limits the authority of parks to undertake activities that will impair park resources and mandates that the National Park Service manage parks to preserve park resources. Under this law, preparedness activities including fuel reduction and suppression of wildland fire, are appropriate activities where they are used to protect park resources.

Park Legislation

Vanderbilt Mansion National Historic Site was established in 1940 by a Designation Order of the Secretary of Interior (Dec. 18, 1940 - 5 Federal Register 5282) with the expressed interest of President Franklin D. Roosevelt. It opened to the public in 1940.

The Home of Franklin D. Roosevelt National Historic Site of Franklin D. Roosevelt NHS) was authorized the Joint Resolution of July 18, 1939 and designated by the

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Secretary of Interior a National Historic Site in 1944. (Federal Register Doc. 44-1345, January 26, 1944). It opened to the public in 1946.

Eleanor Roosevelt National Historic Site (ELRO) was established in 1978 by Public Law 95-32. It opened to the public in 1984.

Additional Authorities for procurement, administration, and agreements

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

Authorities to enter into agreements with other Federal bureaus and agencies; with state, county, and municipal governments; and with private companies, groups, corporations, and individuals are cited in DO-20.

Authority for interagency agreements is found in "Interagency Agreement between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service of the United States Department of Interior and the Forest Service of the United States Department of Agriculture."

Authority for rendering emergency fire or rescue assistance outside the National Park Service is the Act of August 8, 1953 (16 USC 1b(1)) and Department Manual 910 (910-DM).

Authority for use of FIREPRO funds for preparedness, fire management, and restoration comes from the Department of the Interior and Agencies Appropriation Act, 1990 (P.L. 101-121).

Authority for the execution of agreements between the National Park Service and other agencies and instrumentalities for mutual aid and assistance in fire protection is contained in:

Public Law 84-46; The Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66; 42 U.S.C. 1856-1856d)

The Disaster Relief Act of May 22, 1974 (88 Stat. 143; 42 U.S.C. 5121-5203)

Public Law 100-428, as amended by Public Law 101-11, April 7, 1989

The Wildland fire Suppression Assistance Act of 1989

National Park Service Acts as amended (67 Stat. 495; 16 U.S.C. 1b)
The United States Department of Interior Departmental Manual (590 DM and 910 DM)

42 USC 1856 and 16 USC 1b(1) authorize the National Park Service to enter into reciprocal agreements and to render emergency fire-fighting and cooperative assistance to nearby fire prevention to extinguish fires and preserve life and property.

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Appendix F: Fire call-up list

The following ROVA personnel are currently certified:

<u>Name</u>	<u>Qualified Position(s)*</u>
Hanaburgh, Steve (Tree Worker)	Firefighter Type 2 (FFT2) Faller Boss B (FEBC) Faller Boss C (FEBC)
Hansen, Adella (Contracting Officer)	Purchasing Agent (PA25)
Hayes, David (FMC, biologist)	Firefighter Type 2 (FFT2)
Jurgens, Diane (Park Ranger)	Firefighter Type 2 (FFT2) Security Level 2 (SEC1)
Oldenburg, Kevin (Park Guide)	Firefighter Type 2 (FFT2)
Newhard, Cathy (Park Ranger)	Security Manager (SECM) Security Level 1 (SEC1)
Bob Sadrianna, Painter	Firefighter Type 2 (FFT2) Advanced Firefighter (FFT1) Crew Boss (CRWB) Dispatch recorder (EDRC) Support Dispatcher (EDSD)* Emergency Dispatch recorder (EDRC)*
Wiley, Hiley (Teller)	Firefighter Type 2 (FFT2)
Wiley, Wiley (Park Ranger)	Firefighter Type 2 (FFT2) Security Level 1 (SEC1)

*Indicates trainee position

This list should be updated annually. This list was last updated on June 13, 2005.

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Fire Management Plan*

Appendix G: Preparedness inventory

Fire Management Equipment: The park fire cache is located at the Vanderbilt Coach House at the Vanderbilt estate and contains the following equipment:

Swedish Brush Axes (1)
Collapsible Back Pack Pumps (8)
Chainsaws (1)
Pulaski (4)
Shovels (4)
Pickaroon (1)
Peavy (1)
Log lifter (1)
Bow saw (1)

Each permanent red-carded firefighter is assigned their own personal protective equipment (PPE). The current PPE inventory does not allow equipping additional fire fighting personnel.

Additional chainsaws and tools are available on loan from the Maintenance Division.

Fire Management Plan
Appendix H: Cooperative Agreements

Appendix H: Cooperative agreements

1. Agreements with Local Fire Departments

To be included when completed.

2. Interpark Agreement

To be added in final draft of this document.

Appendix I: Step-Up Plan

Roosevelt-Vanderbilt National Historic Sites-2005

The step-up plan describes additional staffing, preparedness activities, detection, and suppression strategies that are put in place as the local fire danger rating (see Table 1) increases from low to extreme. These activities are “stepped-up” as fire danger increases to ensure that appropriate detection and initial attack resources are available to protect public safety and park resources.

Preparedness activities during the fire season will be based on the outputs from the Fire Danger Maps, a product of the Wildland Fire Assessment System. The Wildland Fire Assessment System is found on the Internet at www.fs.fed.us/land/wfas. The assessments are based on the National Fire Danger Rating System (NFDRS). Fire danger is broadly divided into five staffing classes, according to the intensity of danger factors, as indicated by the adjective rating.

The staffing classes relate to the expected difficulty of controlling a fire. The park superintendent) may choose to increase the staffing class by one level for unusual events that would increase the potential for wildland fire. Preparedness actions are based on the latest fire danger rating (see Table 4) and the next day forecast from the National Fire Danger Rating System. Fire conditions that typify each staffing class are listed below:

ADJECTIVE RATING	STAFFING CLASS	BURNING INDEX
Low	I	0 - 11
Moderate	II	12 - 22
High	III	23 - 55
Very High	IV	56 - 71
Extreme	V	72+

If a fire weather station is established in the park, daily fire danger ratings will be determined locally using the National Fire Danger Rating System (NFDRS). Fire Behavior Fuel Models #1 (short grass) and #9 (hardwood litter) will be used for the NFDRS calculations.

If a fire weather station is established, the burning index (BI) will be used to determine the park's fire preparedness staffing and equipment level on a given day. Fuel model #1 indices will determine step-up actions:

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Fire conditions that typify each staffing class and the corresponding preparedness actions required are as follows:

Staffing Classes I and II (Low/Moderate)

Conditions

Fires will present at low to moderate level of control difficulty. Fires occurring at this level may be controlled with existing forces (park staff and local fire departments). Wind speed and direction will determine speed of fire spread. Fine fuels are may be wet or re drying.

Preparedness activities will be funded through the normal ONPS accounts

Preparedness Actions

1. Fire weather reviewed and reported daily.
2. Hand tools and portable equipment in a state of readiness.
3. Roosevelt-Vanderbilt National Historic Sites fire staff annual training and certifications are current.
4. Maintain staff and office capabilities to provide preparedness and wildland fire management information (preparedness activities, purpose, fire size, fire location, fire status, restrictions on park use, etc.) to the public, the media and government agencies as appropriate. Normal tours of duty will be maintained.

Suppression Actions

1. One employee will depart within five minutes of a reported fire for the fire location.
2. Additional attack forces will be dispatched as needed after size-up and upon request of the first firefighter to arrive on scene.
3. If necessary, cooperator assistance will be requested from local fire departments or other sources.

Staffing Class III (High)

Conditions

Fires will present a moderate level of control difficulty. Light fuels are becoming dry. Heavy fuels are drying. Mop-up may be more difficult and time-consuming.

Preparedness Actions

1. All actions specified for Staffing Class I and II days will be conducted.
2. Ensure that a minimum of one qualified firefighter is available for initial attack during normal working hours.

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3. Roosevelt-Vanderbilt National Historic Sites field staff may be notified of increased fire danger.

4. Roosevelt-Vanderbilt National Historic Sites staff may be asked to survey visible areas of the park to detect wildland fire ignitions from their normal duty stations.

Suppression Actions

All suppression actions indicated for Staffing Classes I and II will be taken. Additional attack forces will be dispatched after size-up and upon request of the first firefighter to arrive on scene or, at the discretion of superintendent or FMO, immediately.

Staffing Classes IV and V (Very High/Extreme)

Conditions

Fire will present a moderate to high level of control difficulty. Initial attack and reinforcing crews may have difficulty controlling a fire at this level. All fuels are dry. Air temperature is high and humidity is low. Strong gusty winds are possible. Spotting may occur.

Preparedness Actions

1. All actions specified for Staffing Class III days will be conducted.
2. Fire Situation reports will be forwarded to the area FMO daily before 9:30 A.M.
3. Roosevelt-Vanderbilt National Historic Sites staff will be notified of the high fire danger and asked to increase their level of fire detection effort.
4. Visitor center personnel will alert the public to fire hazards.
5. Interpretive activities will include a fire safety message.
6. Emergency fire preparedness FIREPRO funds may be used to bring staff to required levels. However, regularly scheduled personnel will be used to the extent possible.
7. Nonessential routine activities and project work may be postponed, at the discretion of the Superintendent, to ensure adequate preparedness and fire staffing levels.
8. Fire danger notices will be posted.
9. Sections of the park may be closed to preserve the safety of visitors and to protect park resources.
10. Roosevelt-Vanderbilt National Historic Sites staff may be stationed in the park to detect wildland fire ignitions. Detection activities may be extended outside of normal work hours.

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11. Roosevelt-Vanderbilt National Historic Sites fire staff may be placed on-call to respond to reports of wildland fire within the park.

Suppression Actions

All actions specified for Staffing Class III days will be taken.

Additional attack forces will be dispatched immediately following the report of a wildland fire.