FIRE MANAGEMENT PLAN

for the

APPALACHIAN NATIONAL SCENIC TRAIL

U.S. Department of the Interior
National Park Service
Appalachian National Scenic Trail
Harpers Ferry, West Virginia

Fire Management Plan for the Appalachian National Scenic Trail

Prepared for
U.S. Department of the Interior
National Park Service
Appalachian National Scenic Trail
Harpers Ferry, West Virginia

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CHAPTER 1. INTRODUCTION

Fire management in the National Park Service (NPS) is critical to protecting life, property, and cultural and natural resources, as well as implementing policies for preservation of natural ecosystems. This Fire Management Plan (FMP) focuses on the Appalachian National Scenic Trail (A.T.) and those lands directly managed by the National Park Service for the Appalachian National Scenic Trail (APPA) and serves as an update to a previously approved FMP. The FMP applies current policy and terminology and lays out a path for future development.

The FMP is intended for use as an operational plan for NPS, and to advise partners and cooperators in fire planning and response to the Appalachian National Scenic Trail.

The following definitions are provided up front to help clarify the acronyms commonly used throughout the document to describe different facets of the Appalachian Trail:

> **A.T.** = Appalachian National Scenic Trail
> This is the actual footpath and the associated trail features such as trail shelters, as well as the natural and cultural resources that constitute the lands the trail traverses from Maine to Georgia.
>
> **A.T. Corridor** = All the lands that provide direct protection to the A.T. and are specifically acquired or managed for A.T. values. The A.T. Corridor is made up of many different land ownerships including USDA Forest Service, other National Parks, state and local agencies, as well as APPA-managed lands. The sum of these together make up the A.T. Corridor
>
> **APPA** = The National Park Service organizational entity with lead responsibility for the overall management of the A.T. and the sole land managing agency responsible for APPA-managed lands.
>
> **APPA-managed lands** = Lands purchased by the National Park Service specifically to provide a permanent publicly owned corridor for the A.T. These APPA-managed lands may be fee owned or less than fee, such as an easement of right-of-way.

Per current guidance, it has five chapters. This chapter provides an overview of the A.T. and APPA. Chapter 2 highlights the FMP's relationship with other APPA planning documents and with agency, U.S. Department of Interior, and interagency policy. In Chapter 3, the plan describes in detail APPA fire program implementation goals, objectives, standards and procedures. This is intended to provide management guidance for all wildland fire activities on the Appalachian National Scenic Trail. While the specific requirements and actions detailed are required on APPA lands, they are recommended to cooperator agencies for adoption to the extent possible. Because the actions relate directly to protection of natural and cultural resources, such features that require special treatment are identified through mapping protocols, and constraints designed to prevent or mitigate negative impacts on them are listed. Chapter 4 spells out program management guidance for APPA; Chapter 5 provides information regarding adaptive management and research applicable to future program enhancement.

As stated in the APPA Comprehensive Plan for the Protection, Management, Development and Use of the Appalachian National Scenic Trail (Comprehensive Plan, 1981):

> The Appalachian Trail is a way, continuous from Katahdin in Main to Springer Mountain in Georgia, for travel on foot through the wild, scenic wooded, pastoral, and culturally significant lands of the Appalachian Mountains. It is a means of sojourning among these lands, such that the visitors may experience them by their own unaided efforts.
>
> In practice, the Trail is usually a simple footpath, purposeful in direction and concept, favoring the heights of land, and located for minimum reliance on construction for protecting the resource. The body of the Trail is provided by the lands it traverses, and it's soul is the living stewardship of the volunteers and workers of the Appalachian Trail community.

The purpose of the Appalachian Trail Fire Management Plan is to provide a framework to ensure firefighter safety and to accomplish park-specific fire management goals and objectives, consistent with federal fire management policies and related regulations and laws. This FMP is written to help protect and preserve the values that make the Trail unique; it incorporates the administrative re-alignment of the APPA office to the NPS Northeast Region.

1.1 Reasons for the Fire Management Plan

APPA lands along the A.T. have burnable vegetation that must be addressed in an approved FMP, per Department of Interior Policy (620 DM 1) and Director's Order (DO): 18 Wildland Fire Management (January 1, 2008).

1.2 General Description of the Appalachian National Scenic Trail

The Appalachian Trail or A.T. is a footpath extending approximately 2,180 miles along Appalachian Mountain ridgelines from Georgia to Maine. The A.T. is an official unit of the National Park System, and crosses a variety of other federal, state, and public land. See Figure 1.1 for a trail overview.

The trail was designed, constructed, and marked in the 1920s and 1930s by volunteer hiking clubs inspired and brought together by the vision of Benton MacKaye. Volunteers began marking and cutting the Trail in 1922. Existing sections of New York/New Jersey Trail Conference, Dartmouth Outing Club, and the Appalachian Mountain Club hiking trails, and a portion of the Green Mountain Club's Long Trail, were incorporated into the A.T. in the 1920's. The Civilian Conservation Corp helped construct the Trail in Maine. Pennsylvania's State Game Commission and the Maryland State Forester participated in establishing the Trail in those states, and in the south, National Parks and National Forests shared with volunteers in developing the Trail within their boundaries. Along the Trail, individual and corporate landowners gave passage to the Trail across their lands and, in some cases, joined in the management efforts.

In the late 1930's, agreements were signed between the Appalachian Trail Conference and each state and between the Forest Service and the National Park Service, to formally recognize the Trail and the role of the Conference in maintaining it. These agreements were the basis of Trail

management over the next 30 years. New agreements were put in place following passage of the National Trails System Act in 1968.

The joint public and private involvement in the Trail's beginning has persisted in its management today. The Appalachian Trail Conference (today the Appalachian Trail Conservancy), formed in 1925, has unified and coordinated the efforts of volunteers to the present. Where the Trail lies on public lands, the responsible agencies have a cooperative role in managing the A.T.

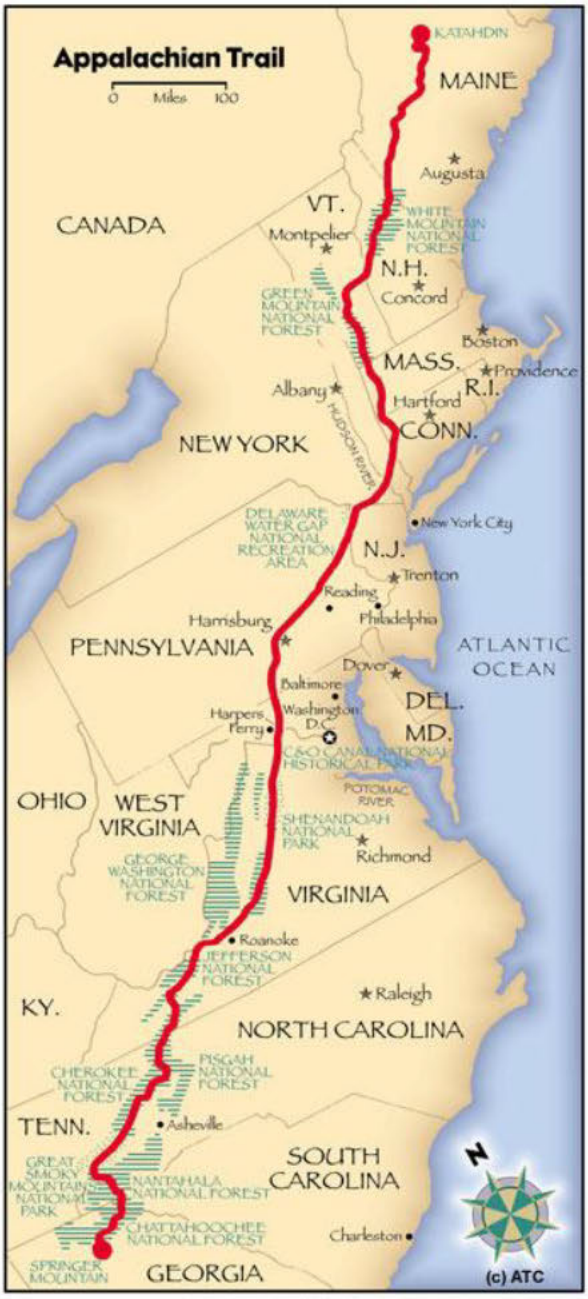

Figure 1.1. Appalachian Trail Overview

1.3 MANAGEMENT ENVIRONMENT

In 1968, the National Trails System Act established the Appalachian Trail as the nation's first national scenic trail. The NPS has overall lead management responsibility for the trail, which is carried out through APPA. Actual management of the trail is a shared responsibility of the NPS, the USDA Forest Service (USFS), various state and local agencies of the 14 states through which it passes, and the Appalachian Trail Conservancy (ATC) and its affiliated hiking clubs. All of the agencies owning or managing lands that the A.T. crosses retain jurisdictional authority.

The APPA Resource Management Plan states, "The responsibility for managing these lands, the Trail footpath, Trail facilities, and the vast array of natural and cultural resources that exist on these lands falls to ATC, its 31 Trail clubs, and their agency partners in a complex cooperative relationship referred to as the 'Appalachian Trail Cooperative Management System'" (APPA 2008: I-3).

The Cooperative Management System is described in the APPA Comprehensive Plan as "the relationship between the individual trail club and the designated government agency. The sum total of these partnerships covers the entire Trail. The cooperative effort emphasized at the local level allows the decentralization of decision-making and responsiveness to local problems and needs. While agreements between the partners may vary on different sections of Trail, the goal of cooperative management is to preserve and strengthen the existing volunteer-centered system through agreement on division of responsibilities between volunteer organization and agency." (1981:12)

1.3.1 LAND OWNERSHIP, SIGNIFICANT, RESOURCES, MISSION, AND MANAGEMENT DIRECTION

The Appalachian Trail 2008–2012 strategic plan provides the following direction:

> **"Mission:** It is the Mission of the Appalachian Trail Park Office to foster the Cooperative Management System of the Appalachian National Scenic Trail in order to preserve and provide for the enjoyment of the varied scenic, historic, natural and cultural qualities of the areas between the states of Maine and Georgia through which the Trail passes.
>
> **Purpose:** The Appalachian National Scenic Trail will be administered primarily as a footpath in cooperation with the United States Forest Service, the Appalachian Trail Conservancy and the 14 States encompassing the Trail, providing for maximum outdoor recreation potential as an extended trail and for the conservation and enjoyment of the nationally significant scenic, historic, natural, and cultural resources of the areas through which the Trail passes" (APPA 2009: II).

On lands in the A.T. corridor managed by other federal agencies, each park or forest with jurisdiction will address fire management of the respective trail section in the unit's FMP. Where the trail passes through various other state or local government ownerships, the management agency's planning policies and procedures are considered adequate to address wildfire response needs. For private lands, state policies will apply.

Table 1.1 below displays land ownership within the A.T. corridor, based on APPA GIS data in March 2013.

Table 1.1. Land Ownership within the A.T. Corridor

Land Ownership	Acres	Acre Portion
APPA (federal)	84,217	32.4 %
Other NPS units (federal)	23,618	9.1 %
National Forests (federal)	110,428	42.5 %
Wallkill National Wildlife Refuge (federal)	143	0.05%
Other federal land crossed or within 50 feet	316	0.12%
State land	39,716	15.3%
Private land within 50 feet	1,467	0.57%
Total	**259,906**	**100%**

Land Ownership data was provided by APPA from GIS data in March 2013; acreages reported are within 50 feet each side

The table provides a snapshot of the complex patchwork of the land and its owners and managers within the A.T. corridor. Nearly 85% of it is in federal ownership, managed mostly, but not entirely, by NPS units and the National Forests. Various state agencies are involved in the 15% of state lands within the corridor. Private ownership is a small percentage of the total acreage, and it is often composed of areas where the trail crosses railroads or private roads so that in any given location within the A.T. corridor, the private interest is very small.

1.3.2 Overview of Physical and Biotic Characteristics of the Park

The APPA Appalachian Trail Resource Management Plan (APPA 2008) documents extensive information about natural and cultural resources along the trail and is a valuable reference for future planning efforts. Since the APPA Resource Management Plan was completed, approximately 40 special resource protection areas have been identified. These resource areas are reviewed and updated on an annual basis and are available from APPA. Species of concern are listed in the Master Table, Appendix I, which also include resources needing special protection.

Elevations

The Appalachian Trail generally follows the height of land, along backbone of the Appalachian Mountain chain, although with numerous crossings of major watercourses, the trail also meanders across much lower elevations. Elevations range from 124 feet above mean sea level at Bear Mountain on the Hudson River in New York to 6,625 feet at Clingmans Dome in Tennessee.

Soils

Soils vary widely depending on elevation, underlying material, and other factors. Most soils at upper elevations are thin and subject to erosion, while lowland soils are generally deeper and more productive.

Water Resources

Several well known rivers including the Penobscot, Kennebec, Androscoggin, Connecticut, Housatonic, Hudson, Delaware, Lehigh, Schuylkill, Susquehanna, Potomac, James, New, Holton, Wautaga, Nolichucky, French Broad, Big Pigeon, Little Tennessee, and the Nantahala are crossed by the trail. The trail also crosses many numerous small streams with a wide variety of water quality. The municipal watersheds of some towns are crossed by the A.T. Corridor, which is often at the headwaters of these watersheds, so any negative impacts to the streams and springs can have significant effects downstream.

Wildlife

Much of the APPA corridor is located in areas under federal or state ownership and management, thus wildlife is considered abundant. A list of known occurrences of federally listed threatened and endangered species in the trail corridor is included in the 2005 Environmental Assessment (EA:3-13). Appendix C contains tables of listed species in states with APPA lands.

Cultural Resources

Inventories completed in Pennsylvania and Connecticut have identified hundreds of cultural resource sites. As funding allows, additional inventories are being conducted on a state by state basis. Every effort will be made to protect archeological sites both known and those discovered as a result of fire on the landscape. As these resources are cataloged**,** site-specific protection plans may be developed. In all locations, every effort will be made to avoid damage to known resources during wildfire response. Because APPA staff is limited in number, resource specialists will not be available to provide advice during suppression operations. Providing standards to responding agencies in Chapter 3 of this FMP and in spatial FMP products will protect sites as much as practical.

Air Quality

The A.T. passes through five mandatory Class I areas: Great Smoky Mountains National Park in Tennessee and North Carolina, Shenandoah National Park and the James River Face Wilderness in Virginia, the Lye Brook Wilderness in Vermont, and the Presidential Range-Dry River Wilderness; the trail skirts the perimeter of a sixth, the Great Gulf Wilderness in New Hampshire. These six Class I areas are administered by other NPS units or the USFS. No Class I areas are located on APPA-administered lands. Air quality can be adversely affected by wildfire, depending on fire size and duration. FMPs for areas which include Class I areas are required by law to detail efforts to mitigate air quality degradation and meet Clean Air Act and State Implementation Plan requirements including the National Ambient Air Quality Standards (NAAQS). This may include establishing monitoring stations.

Values at Risk

Nearly 271 three-sided overnight shelters are located in the A.T. Corridor. Approximately 20 of these may have been constructed by the Civilian Conservation Corps. Some of the others may also have historic significance. There are trailhead parking lots, bridges, dams, and more than 1,240 miles of NPS-maintained corridor boundary. Normal grounds maintenance helps mitigate wildfire hazards; no other mitigation is preplanned at this time.

Various structures have come with parcel acquisition. Evaluation of these for inclusion in the National Register of Historic Places is ongoing. The expansive scenic views and pastoral landscapes that can be seen from various points and open areas along the A.T. are an important resource for both natural resources as well as visitor experience. The open character of some of these landscapes is currently maintained through mowing or other agricultural practices such as grazing or farming. Prescribed fire is another potential tool that may be used to accomplish the objective of maintaining an open character in such areas.

Vegetation

Park vegetation ranges from boreal and pine forest to mixed and bottomland hardwoods. Much of the A.T. follows ridges with rock outcrops, while others cross grassland and pasture. Completed natural heritage surveys from all 14 states have identified more than 1,700 occurrences of more than 300 rare, threatened, and endangered plant and animal species within the A.T. Corridor. These numbers change as new species are discovered and state and federal status of species are adjusted. Species locations and information is managed by each state and made available to APPA. A broad-scale cover type map of the eastern United States is found in Figure 1.3, with the trail corridor and APPA lands delineated. A fine-scale aerial photography and mapping project is underway that will provide more information for management decisions and formulation of vegetation management objectives.

1.3.3 ROLE OF FIRE

Fire is a natural component of forest and grasslands. Humans have used fire since prehistoric times for managing brush and game. Especially in the twentieth century, fires have usually been excluded, which has contributed to fuel build-up, insect infestations, and disease. Fire effects on vegetation vary with species, season of burning, fire type, and many other factors. As a result, it is difficult to understand the role of fire landscape without adequate fire history records. A.T. fire history records are sporadic since many fires are not reported. Fires on A.T. lands managed by national forests, other national park units, and state agencies are often not reported to APPA. Detailed vegetation mapping of the trail is underway, but not yet completed. Once all these threads are drawn together, a clearer picture of the mosaics and interactions of fire on the landscape will emerge. In the meantime, a general, broad-scale map such as Figure 1.3 gives as good a picture of vegetation along the trail corridor as any. Note that the map indicates areas of the A.T. that are the APPA-managed lands.

The fire regime along the corridor has been altered several times and in various ways since European settlement. Clearing for agriculture removed forest cover and provided row crops or grass in its place. As agriculture became more marginal, some areas came back into forested vegetation. Recent infestations of gypsy moth have created areas of dead fuels on and adjacent to the A.T. corridor. Diseases including Dutch elm disease, hemlock wooly adelgid, and Chestnut blight have also affected areas along the trail.

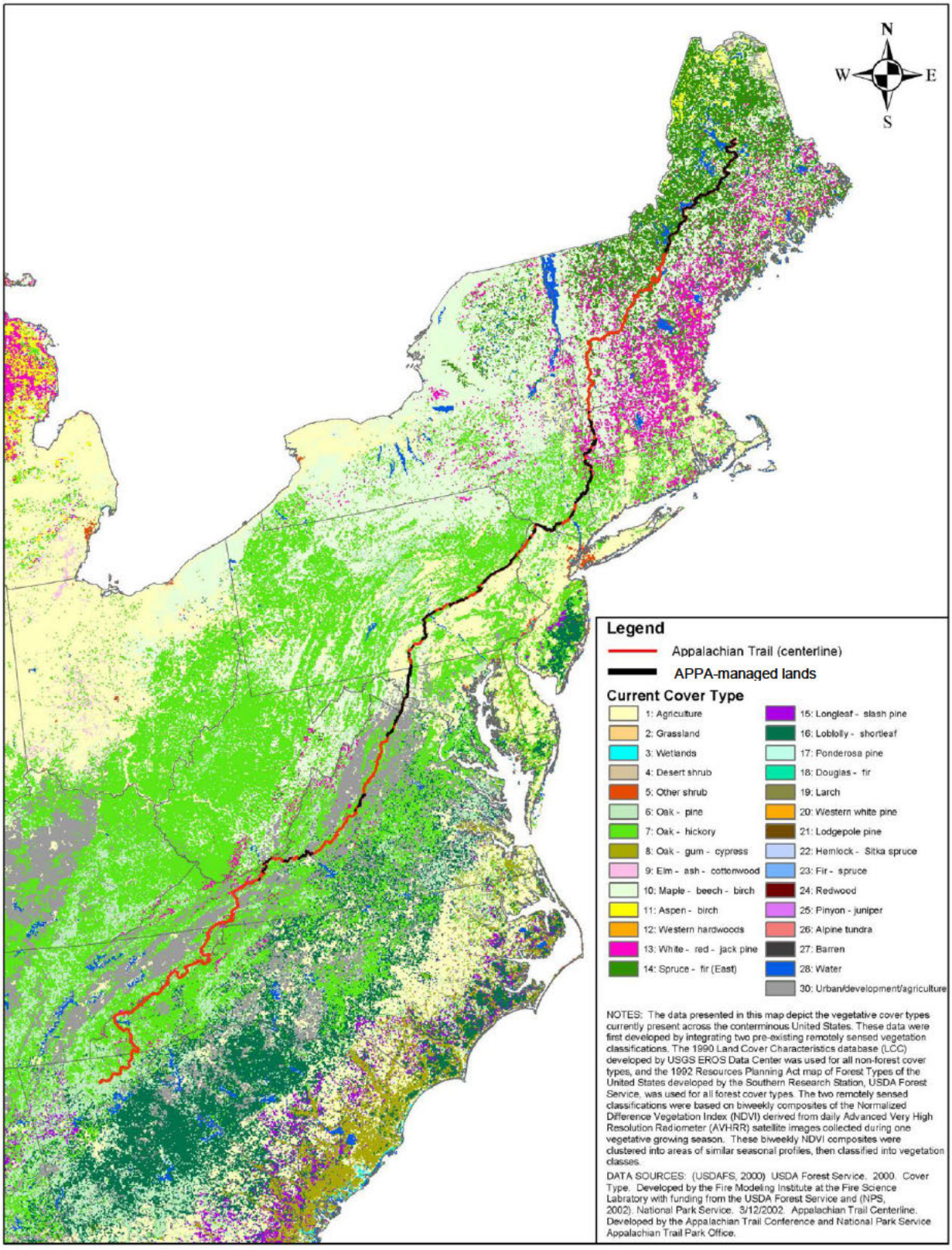

Figure 1.2. Current Cover Types of the Eastern United States

Recent fire regime mapping for the eastern United States (see Figure 1.3) suggests that current habitat along the A.T. falls into three major fire regimes. (Fire regimes and their characteristics are summarized in Table 1.2 below. Hardwood forests, both upland and bottomland, are expected to be in Fire Regime III. The boreal forest (in Maine) is expected to be in Fire Regime V. Grassland complexes are expected to be in Fire Regime II.

Table 1.2. Fire Regime Groups and Descriptions

Group	Fire Frequency	Severity	Severity description
I	0 – 35 years	Low/mixed	Generally low-severity fires replacing less than 25% of the dominant overstory vegetation; can include mixed-severity fires that replace up to 75% of the overstory
II	0 – 35 years	Replacement	High severity fires replacing more than 75% of the dominant overstory vegetation
III	35 – 200 years	Mixed/low	Generally mixed-severity; can also include low severity fires
IV	35 – 200 years	Replacement	High-severity fires
V	200 + years	Replacement/any severity	Generally replacement-severity; can include any severity type in this frequency range

Table from LANDFIRE Refresh Project 2010. Note in original: These regime groups have been modified slightly from earlier versions (Hardy and others 2001; Schmidt and others 2002; FRCC Guidebook Version 1.2.0) to remain consistent with the ongoing LANDFIRE project (specifically Fire Regime III now includes low-severity fires and Fire Regime V now includes fires of any severity type).

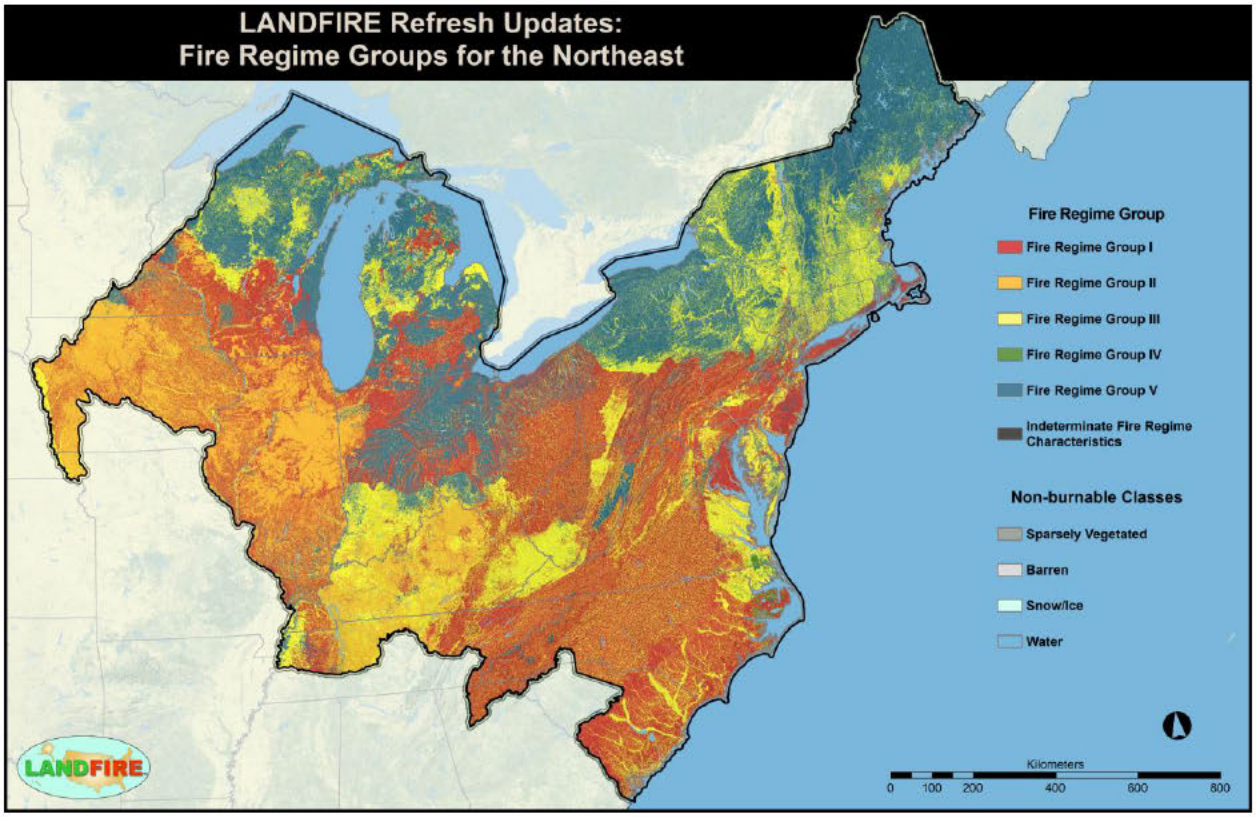

Figure 1.3. Fire Regime Groups for the Northeastern United States

1.4 ENVIRONMENTAL COMPLIANCE

This FMP meets the requirements of NEPA, the Endangered Species Act (ESA), and Section 106 of the NHPA.

1.4.1 NATIONAL ENVIRONMENTAL POLICY ACT

An EA completed in March 2005 guided the previous FMP and this update. A copy of the approved 2005 EA and a Finding of No Significant Impact (FONSI) with signatures is included in Appendix D, with the original document in official APPA files and a copy in the Regional Fire Management Office. A categorical exclusion allows updates of administrative plans such as this, without further compliance.

1.4.2 NATIONAL HISTORIC PRESERVATION ACT

APPA will implement activities in accordance with the regulations and directions governing the protection of historic and cultural properties as outlined in the U.S. Department of Interior Manual, Part 519 (519 DM), and 36 Code of Federal Regulations (CFR) 800. The NHPA of 1966, as amended, particularly Section 106, sets the requirements for protection of historic properties. Several properties along the APPA are currently in the process of being evaluated in this regard. Management and protection will require continued interaction of numerous agencies and private parties. NHPA requirements for this FMP have been met through consultation with the appropriate State Historic Preservation Officer(s) in 2005. Additional consultation may be required for any future fuel treatment or restoration activities that may affect historic or archeological resources. Appalachian Trail resource staff will coordinate this SHPO consultation and retain file copies of any consultations that occur.

1.4.3 ENDANGERED SPECIES ACT

The Endangered Species Act prohibits harm to any species of fauna or flora listed by the U. S. Fish and Wildlife Service (USFWS) as being threatened or endangered. Such harm includes not only direct injury or mortality, but also disrupting the habitat on which these species depend. Section 7 consultations with the USFWS are required for planned activities, such as fuel treatments or burned area restoration projects. Contact with the appropriate USFWS office will be made by the A.T. Natural Resource Manager.

Inventory surveys for threatened and endangered species have been conducted in all 14 states of the A.T. The FONSI lists 12 federally listed threatened and endangered species that were located within the A.T. corridor and the extent of their ranges (the trail corridor is made up of the lands generally about 500 feet on either side of the actual A.T. footpath). The inventories are updated on a regular basis and current information is available from APPA.

While it is considered unlikely that wildfire occurrence would impact wildlife populations or habitat (Smith 2000), emergency consultation may be needed in the event of some wildfires. The office with which consultations are made will depend on the geographic location of the project. Emergency consultation will be initiated by the APPA Chief Ranger or Resource Manager, as needed, if the point of origin is identified as APPA lands.

CHAPTER 2.
POLICY, LAND MANAGEMENT PLANNING, AND PARTNERSHIPS

2.1 Introduction to Current Fire Policy and the National Cohesive Strategy

Large, destructive wildfires led to the 1995 Federal Wildland Fire Policy and Program Review, which focused on fire management issues on federal lands. The magnitude of the wildfires in 2000 and a report of the Government Accountability Office (GAO) on the need for a cohesive strategy for wildfires resulted in the National Fire Plan, a 10-year effort to protect communities and restore healthy forests in fire-adapted ecosystems (USFS 2000). The National Fire Plan brought together diverse stakeholders and firefighting agencies to reduce fuels, protect communities through education and homeowner assistance, and improve firefighting capacity and coordination.

Other reviews in 2005 and 2009 advanced a unified strategic vision for the five federal resource management agencies under the U.S. Department of the Interior and U.S. Department of Agriculture, in partnership with others in the fire management community. The Federal Land Assistance and Enhancement Act (FLAME Act) of 2009 catalyzed development of a strategy to manage fire-prone landscapes and wildland fire across the nation, and led to the creation of a national cohesive strategy, not a federal one.

The National Cohesive Wildland Fire Management Strategy (Cohesive Strategy) builds on the foundation of other efforts (as above) to establish direction for fire management in America. It is a collaborative effort to identify, define, and address problems and opportunities for successful fire management in the three regions of the United States: the Northeast, the Southeast, and the West. Nationally, the Wildland Fire Leadership Council (WFLC)—an intergovernmental council of federal, state, tribal, county, and municipal government officials—is the leadership body to direct the Cohesive Strategy effort and ensure the work and activities align with the spirit of the FLAME Act and other key collaborative documents. The WFLC's basic role is to provide strategic oversight to the regions as they work to improve efficiencies, to fully utilize existing authorities to accomplish national goals, and to provide the necessary resources and investments to implement successful regional actions. As part of Phase I (of three), the WFLC adopted the following vision for this century:

> "To safely and effectively extinguish fire when needed; use fire where allowable; manage our natural resources; and as a Nation, to live with wildland fire."

Guiding Principles and Core Values from the Cohesive Strategy (May 2012)

- Reducing risk to firefighters and the public is the first priority in every wildland fire management activity.
- Sound risk management is the foundation for all management activities.
- In accordance with management objectives, agencies will actively manage the land to make it more resilient to disturbance.

- Agencies will improve and sustain both community and individual responsibilities to prepare for, respond to, and recover from wildfire through capacity-building activities.
- Rigorous wildfire prevention programs are supported across all jurisdictions.
- Wildland fire, as an essential ecological process and natural change agent, may be incorporated into the planning process and wildfire response.
- Fire management decisions are based on the best available science, knowledge, and experience, and used to evaluate risk versus gain.
- Federal, local, state, and tribal governments support one another with wildfire response. They engage in collaborative planning and the decision-making processes that take into account all lands and recognize the interdependence and statutory responsibilities among jurisdictions.
- Where land and resource management objectives differ, prudent and safe actions must be taken through collaborative fire planning and suppression response to keep unwanted wildfires from spreading to adjacent jurisdictions.
- Safe, aggressive initial attack is often the best suppression strategy to keep unwanted wildfires small and costs down.
- Wildland fire management programs and activities are economically viable and commensurate with values to be protected, land and resource management objectives, and social and environmental quality considerations.

The Three National Goals of the Cohesive Strategy (2012)

- **Restore and Maintain Landscapes:** Landscapes across all jurisdictions are resilient to fire-related disturbances in accordance with management objectives.
- **Fire-adapted Communities:** Human populations and infrastructure can withstand a wildfire without loss of life and property.
- **Wildfire Response:** All jurisdictions participate in making and implementing safe, effective, efficient risk-based wildfire management decisions.

2.2 FIRE POLICY

The legal authority for the NPS Fire Management Program is found in 16 United States Code (USC) Chapters 1 and 3 with specific authorities found in 620 DM 1.1. The Organic Act of the National Park Service (August 25, 1916 [16 USC 1 et seq.]) provides the authority for implementation of this plan under its broad mandate "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 a manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Some key laws, regulations, policies, and directives that affect fire management programs are listed below. The list is not meant to be comprehensive; e.g., none for budget/fiscal management are included.

- National Environmental Policy Act (NEPA) of 1969, as amended in 1975
- Wilderness Act of 1964
- National Historic Preservation Act (NHPA) of 1966
- Endangered Species Act of 1973
- Antiquities Act of 1906
- Executive Order 11990 Protection of Wetlands
- 36 CFR 1–199 contains regulations for national park management and use
- 40 CFR 1500–1508, Council on Environmental Quality Regulations for Implementing National Environmental Policy Act Procedural Provisions
- Clean Air Act
- Clean Water Act

The NPS has a three-leveled directives system to express policy and provide instructions for implementation, described below

Level 1: NPS Management Policies provide a framework for management decisions and are approved by the Director after review. Adherence is mandatory. This includes NPS Management Policies (2006).

Level 2: NPS Director's Orders (DOs) include instructions for implementing policy (and may articulate new or revised policy) and outline requirements/standards for NPS functions, programs, and activities. Relevant documents include:

- DO-12 Environmental Impact Analysis and DO-12 Handbook
- Reference Manual 41 Wilderness Stewardship (DO-41 being developed)
- NPS-28 Cultural Resources Management Guideline (DO-28 is currently sunset.)
- DO: 60 Aviation Management and Reference Manual 60
- DO 77 Natural Resource Protection and Reference Manual 77
- DO-18 Wildland Fire Management and Reference Manual 18
- *Interagency Standards for Fire and Fire Aviation Operations*

Level 3: Handbooks, Reference Manuals, and Other Professional Materials include:

- Minimum Impact Suppression Tactics, Incident Response Pocket Guide, and other publications of the National Wildfire Coordinating Group

DO-18 identifies the following mission goals for the NPS Wildland Fire Management Program:

- Protect Values Through Effective Risk Management: Protect life, communities, and resources from adverse effects of wildland fire without compromising safety.
- Restore and Maintain Fire-adapted Ecosystems: Maintain and restore fire-adapted ecosystems using appropriate tools and techniques in a manner that will provide sustainable, environmental, and social benefits.

- Science Based Management: General and park-specific science and research guide the wildland fire program.
- Integrate Wildland Fire with Other NPS Programs: Fire management programs are responsive to NPS-wide and park priorities and are integrated with other NPS programs.
- External Audiences Understand and Support Wildland Fire Programs: NPS fire management will communicate and coordinate with interagency organizations and other stakeholders to pursue common goals, programs, and projects.
- Build and Promote Organizational Effectiveness: Fire management programs achieve desired outcomes by building program capacity, leadership, and effective management practices.

Interagency Standards for Fire and Fire Aviation Operations (the "Red Book") is agency policy. Chapter 3 summarizes specific requirements for NPS fire management programs. It states, "Fire managers should consult DO-18 Wildland Fire and Reference Manual 18 (RM-18) Wildland Fire for full guidance and descriptions of requirements summarized in this chapter. If there is a discrepancy between guidance found in this document and DO or RM-18, information contained herein will be considered authoritative as updates occur on a more frequent cycle than either the DO or RM" (USDI/USDA 2013: 03-1).

A policy excerpt regarding fire management policy from the Red Book follows:

> "On February 13, 2009, the Fire Executive Council (FEC) approved guidance for the implementation of federal wildland fire management policy. This guidance provides for consistent implementation of the *Review and Update of the 1995 Federal Wildland Fire Management Policy (January 2001*), as directed by the Wildland Fire Leadership Council.

The following guidelines should be used to provide consistent implementation of federal wildland fire policy:

- Wildland fire management agencies will use common standards for all aspects of their fire management programs to facilitate effective collaboration among cooperating agencies.
- Agencies and bureaus will review, update, and develop agreements that clarify the jurisdictional inter-relationships and define the roles and responsibilities among local, state, tribal, and federal fire protection entities.
- Responses to wildland fire will be coordinated across levels of government regardless of the jurisdiction at the ignition source.
- Fire Management Plans will be intergovernmental in scope and developed on a landscape scale.
- Wildland fire is a general term describing any non-structure fire that occurs in the wildland. Wildland fires are categorized into two distinct types:

  a. Wildfires - Unplanned ignitions or prescribed fires that are declared wildfires.

  b. Prescribed Fires - Planned ignitions.

- A wildland fire may be concurrently managed for one or more objectives and objectives can change as the fire spreads across the landscape. Objectives are affected by changes in fuels, weather, topography; varying social understanding and tolerance; and involvement of other governmental jurisdictions having different missions and objectives.
- Management response to a wildland fire on federal land is based on objectives established in the applicable Land/Resource Management Plan, and/or the Fire Management Plan.
- Initial action on human-caused wildfire will be to suppress the fire at the lowest cost with the fewest negative consequences with respect to firefighter and public safety.
- Managers will use a decision support process to guide and document wildfire management decisions. The process will provide situational assessment, analyze hazards and risk, define implementation actions, and document decisions and rationale for those decisions." (USDI/USDA 2013: 01-5).

State Laws and Policy

State laws and policies also guide management activities and impact accomplishment of wildland fire and resource management goals, which include the following:

- Mandates to suppress wildland fire on state and private lands.
- Laws and policies that limit or prevent prescribed fire and/or the use of fire for resource benefit.
- Water quality standards.
- Differing state laws governing jurisdictional responsibilities for wildfire suppression, prescribed fire operations, and open burning permits.
- State statutes governing wildfire and emergency management training requirements.
- Liability laws.
- Air quality standards and policies pertaining to smoke management and emissions permitting.

2.3 PARK AND RESOURCE MANAGEMENT PLANNING

The NPS performance management process requires all NPS units to organize goals and efforts under four goal categories in broad, service-wide mission goals that state ideal future conditions: 1) preserve park resources, 2) provide for the public enjoyment and visitor experience of parks, 3) strengthen and preserve natural and cultural resources and enhance recreational opportunities managed by partners, and 4) ensure organizational effectiveness.

The Appalachian Trail Comprehensive Plan goes a long way to meeting all these goals. First completed in 1981, it was updated in June 1987. Its primary purpose is to provide Congress information needed for its trail oversight responsibility. It is also intended to provide a framework for development and management of the trail and its immediate environs. Foremost among nine statements of management philosophy is: "Management will be carried out through the Cooperative Management System as defined in the Comprehensive Plan" (APPA1987:5). This is elaborated as follows:

> The 'soul' of the Appalachian Trail is what has distinguished it over the years from all other trails. This soul results from the high level of participation by the people who live along it and provide for its care and maintenance. The Trail has been attended to by the many, without direct supervision, which makes it basically a grassroots undertaking. It reflects the personalities of thousands of persons who have devoted their energies to the Trail because they love it. Volunteers with little means help keep the Trail a simple footpath. (APPA 1987:5)

The 2008 APPA Resource Management Plan summarizes the inventory and status of many resources. The fire management program is guided by resource management objectives to protect cultural resources and perpetuate the natural resources and their associated natural processes. This plan, as it relates to natural and cultural resources, is a compliment to the park's natural resource management plan (RMP). The RMP defines major land management issues, describes past and current activities and establishes actions that will be taken in the future. While the park RMP references the conventional perspective to suppress all fires on APPA lands, it cites that specific exceptions will be made in order to protect park resources.

As cited in the park RMP, there are approximately 4,490 acres of open areas that need to be maintained to provide habitat diversity and scenery. Roughly 1850 acres are kept open under agricultural special use permit arrangements; and another 300 acres, on average, are mowed annually by contractors and volunteers. However, these fields and pastures are being lost to succession. Endangered species such as the variable sedge (Carex polymorpha) have been identified within open areas along the A.T. and are at risk of extirpation due to succession. "Prior to European colonization of New England, Carex polymorpha probably persisted in scattered populations in areas prone to fire. Fire and storm damaged areas provided the necessary habitat conditions for this species to flower vigorously and undergo dramatic population expansions until these habitats once again reverted to a forested state. Today, habitat fragmentation and control of wildfires may limit or prevent such expansion and may be a factor in the rarity of this species." Rawinski, T. J. 1988

The Comprehensive Plan (1981) established a trail management philosophy, as summarized:

- Management will be carried out through the Cooperative Management System.
- The A.T. will be managed to favor those values that have been identified as goals within the A.T. community. The trail will lie lightly on the land, remaining a simple footpath.
- Diversity in the character and use of A.T. lands will continue.
- Basic maintenance, construction, and marking will be in accord with standards as defined in the Appalachian Trail Conference manual, *Trail Design, Construction, and Maintenance*.
- Hikers along the trail must be responsible for their own safety and comfort.
- Managers will foster and unregimented atmosphere and otherwise encourage self-reliance and respect for trail values by users.
- Incompatible activities will be controlled by educational efforts and, failing this, by enforcement of laws and trail regulations.

- Motorized vehicles are specifically prohibited from the footpath by the National Trails System Act, except in emergencies or where specific crossings for landowners have been arranged.
- The A.T. will be continuous in its marking and be open to all to walk upon it.

This philosophy directly applies to fire management programs. In particular, because the ownership of lands along the A.T. involves many landowners besides the NPS, fire protection along the trail is provided by numerous partners, each of whom has various legal responsibilities. It also relates to the concern to minimize negative impacts to the trail from fire suppression actions, especially limitations on use of motorized vehicles.

2.4 PARTNERSHIPS

While the National Trails System Act gives administrative authority for the entire trail to the NPS, it recognizes the existing jurisdictional authority of other land management agencies. The act also recognizes the volunteer-based Cooperative Management System in place prior to the National Scenic Trail designation. A complex web of working relationships exists under this agreement. Because the trail is over 2,000 miles long and traverses portions of 14 states, cooperative efforts are the only means of maintaining the A.T.'s integrity. This system has managed and continues to successfully manage a resource that spans 14 states, with less than 40% of the land directly administered by APPA.

Collaborative involvement in A.T. management and protection has been a norm since the trail began in 1925. Most recently, the Strategic Plan (NPS 2008) has benefited from collaboration by other federal agencies, the Appalachian Trail Conservancy, and other state and local supporters. No regional strategies related to fire management exist along the trail. Each organization with land management or statutory fire protection responsibilities follows its own policy and strategies. Generally these organizations are oriented to immediate and complete suppression of wildfires.

In 1983 the NPS formally delegated management responsibilities to the Appalachian Trail Conservancy for lands directly administered by APPA with the exception of the following responsibilities:

- Law enforcement
- Special park uses
- Land acquisition on behalf of the United States
- Boundary survey and maintenance
- Structure removal
- Removal of hazardous materials
- Fulfilling agency compliance requirements per federal laws and executive orders

In 2004, A formal Memorandum of Understanding (MOU) between the NPS and the Appalachian Trail Conservancy was signed for the purpose of reaffirming the pioneering relationship between the two parties, delegating management responsibilities to the Appalachian

Trail Conservancy for lands acquired by the NPS, and ensuring the cooperative protection and management of the A.T. through implementation of the Comprehensive Plan for the Appalachian Scenic Trail. A cooperative agreement was signed concurrently. Both of these documents supersede pre-existing understandings between the two parties. In the 2004, APPA retains its responsibility to carry out non-delegated responsibilities, as above.

Specific reference to fire management is not included. It is understood that this responsibility is retained by the NPS and that wildfire response will be provided by numerous partners with varying legal responsibilities. The Appalachian Trail Conservancy has the responsibility to ensure that local trail-maintaining clubs develop local land management plans.

In general, on non-federal lands, the responsible government agency partner is a state government agency.

The NPS is signatory to various statewide agreements that identify partners and procedures for wildfire response, and in some cases, to Stafford Act emergencies. A summary of the agreements is provided in the Master Table.

Where the trail passes through other federal ownerships, e.g., National Forests and other NPS units, the existing agency FMP should provide direction for a wildfire response consistent with current federal fire management policy. The APPA FMP provides guidance to the other agency FMPs for the A.T. within their jurisdiction.

2.5 Planning Process to Develop this Fire Management Plan

The 2005 FMP and EA was developed with assistance of Mangi Environmental Group. Those involved are listed in that plan, including contractor and NPS employees.

In 2012, SWCA Environmental Consultants was selected (contract P12PD14012) to update the 2005 FMP in accord with the 2005 EA. A meeting to start the update process was held on December 12, 2012, at the National Conservation Training Center (NCTC) in Shepherdstown, West Virginia, attended by

- SWCA Environmental Consultants – Victoria Amato (phone)
- Wildland Fire Associates – Paul Head, Art Latterell (phone)
- APPA – David Reus, FMP Project Manager, Todd Remaley, Chief Ranger, Casey Reese, Natural Resource Program Manager, Brent Allen, Compliance Specialist, Matt Robinson, Geographic Information Specialist (GISS), and Justin Shedd, contract GISS
- NPS Northeast Region – Mark Musitano, Regional Fire Management Officer (FMO)
- NPS National Capital Region – Jeff (Zeke) Seabright, Zone FMO
- NPS Mountain to the Sea Zone – Jeff Koenig, Shenandoah National Park, Zone FMO
- NPS Mid-Atlantic Zone – Cliff Lively (phone), Delaware Water Gap National Recreation Area, Zone FMO

It was determined that the updated FMP would not include a program of prescribed fires or fuels treatments, since that had not been an option under the original FMP Environmental Assessment, but it could include steps to enable future prescribed fire application in limited areas, where project level NEPA and other compliance activities might be undertaken. It was also determined that the wildfire management strategy of the 2005 FMP as stated was more oriented to a single response objective of full suppression, whereas the EA described responses that consideration of minimizing impacts to resources as part of a response to wildfires – the updated FMP should have updated language in this regard, consisted with current NWCG terminology.

An outcome of the NCTC meeting was to write chapter 3.2 with four APPA fire management units (FMUs) that would align with the four NPS Fire Management Zones along the Trail corridor from Maine to southern Virginia. Further discussion among Musitano, Remaley, and Latterell resulted in a decision to identify the A.T. as one FMU with states or other sub-divisions as map units, with these units to be determined during the process of developing spatial fire management displays currently proceeding on a track parallel to the FMP update. The current FMP is written with this intent in mind. This decision does not alter the fact that based on the current EA, the plan applies directly only to the APPA-managed lands; this does not preclude its adoption by other agencies in the remainder of the A.T. corridor and perhaps eventually lead to a Trail-length interagency FMP.

Consultation was made with Jeff Manley, NPS Fire Planning Specialist at the NPS National Fire Program Office regarding fire management objectives and Melissa Forder, Fire Ecologist at Shenandoah National Park regarding fire effects monitoring.

A draft FMP was prepared by SWCA and e-mailed to APPA in January 2013. This draft identified a few places where more information was needed. This product was reviewed by APPA staff and NPS Regional and Zone FMOs in February 2012 at NCTC and subsequently comments from this meeting and other reviews were provided to the contractor. The FMU/FMZ issue was finalized during the NPS review. All review comments were considered in editing the draft to produce an updated version in late March. Key points were discussed on a conference call on March 20.

The updated draft was returned to APPA for final review and correction in early April. APPA made final edits and returned the document to the contractor for final formatting and production in early April 2013. A final product was delivered to the APPA for final approval by the APPA Superintendent in April 2013.

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CHAPTER 3. PARK-WIDE AND FIRE MANAGEMENT UNIT CHARACTERISTICS

The NPS administers the APPA Fire Management Program in Maine, Massachusetts, Connecticut, New York, New Jersey, Pennsylvania, Maryland, West Virginia, and Virginia. Fire Management on the A.T. is administered by the USFS in New Hampshire, Vermont, Tennessee, North Carolina, and Georgia. In the area for which NPS is responsible, assistance is currently provided from NPS FMOs based in other NPS units, with zone areas on the trail as marked below (Figure 3.1) and in Figure 3.2 through Figure 3.5 later in this chapter. This configuration may be altered based on management considerations. The entire A.T. corridor is treated as one FMU in this Fire Management Plan. Details in this regard follow in 3.2 of this chapter.

3.1 General Protection Overview

All wildfires along the A.T. corridor, regardless of cause, will be managed in accordance with the Goals and Objectives in section 3.1.1.

The APPA Chief Ranger is the Fire Management Coordinator for lands addressed in this FMP.

NPS Zone FMOs currently based at Acadia National Park, Delaware Water Gap National Recreation Area, the National Capitol Region, and Shenandoah National Park assist the APPA Chief Ranger in areas along the A.T. where they have responsibility in this regard. Specific responsibilities are to be detailed in agreements between APPA and the affected NPS units. These agreements are intended to enable the Zone FMOs to better represent the APPA Fire Management Program goals and objectives, and take advantage of opportunities to educate fire management cooperators and responders during scheduled or ad hoc meetings with these parties throughout the year within each Zone. Some of this education is expected to involve discussion of the APPA fire management goals and objectives and differences between an initial attack strategy with a single objective such as minimizing fire size and an alternative initial response that considers multiple objectives, such as protecting resource values by using tactics that minimize adverse suppression impacts while effectively meeting suppression and incident objectives.

Always, maintaining the safety of firefighters and the public is the first priority. An important practice that can greatly enhance safety is the use of clear text in communications, particularly among different responding agencies. Clear text should be used at all time in fire management activities.

Figure 3.1. Fire Management Administration for the Appalachian Trail - NPS and USFS

3.2 General Fire Management Considerations

Following the guidance of this FMP is required for APPA-managed lands; it is recommended for lands under other ownership, consistent with the collaborative management of the A.T.

The updated NWCG definitions (Appendix B) are relevant to this FMP:

- **Suppression** – Management action to extinguish a fire or confining fire spread.
- **Protection** – Management objectives to limit the adverse physical, environmental, social, political, or economic effects of fire.
- **Response to wildland fire** – Decisions and actions implemented to manage a wildland fire based on ecological, social, and legal consequences, the circumstances under which a fire occurs and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected.

Figure 3.2 depicts the process federal agencies follow in managing ignitions. Under this FMP, a response will be made to all wildfires based on resource and protection objectives (L/RMP in Figure 3.2 refers to a Land or Resource Management Plan).

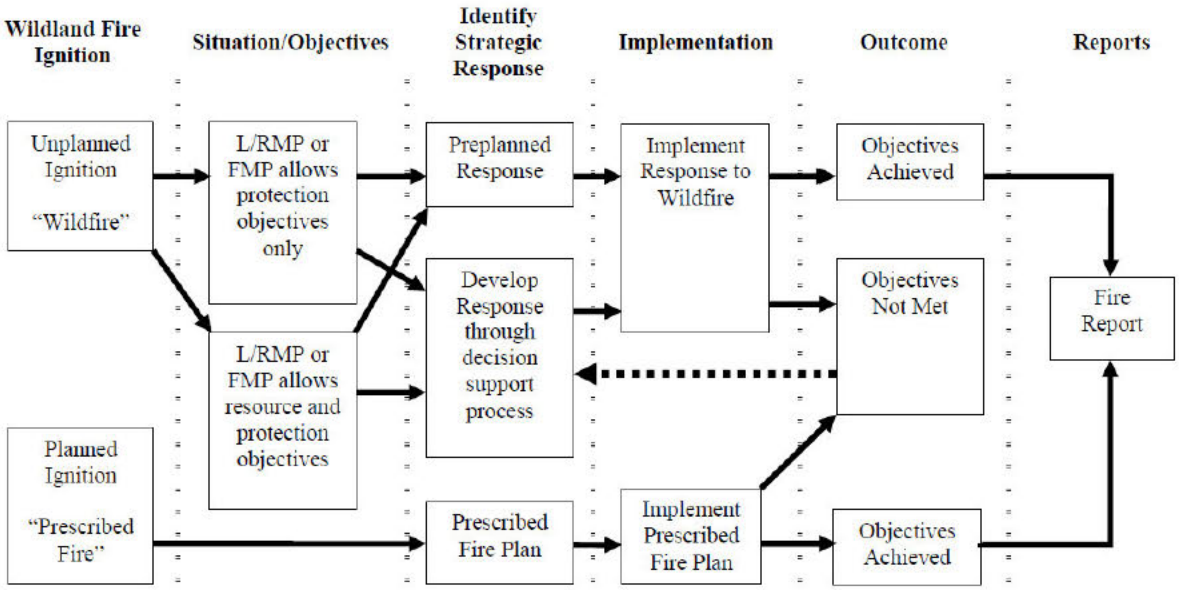

Figure 3.2. Wildland Fire Flow Chart (Guidance for Implementation of Federal Wildland Fire Management Policy, Appendix B, U.S. Department of the Interior and U.S. Department of Agriculture 2009)

The two definitions below relate to preplanned actions. If the 2005 plan appeared to require a suppression-oriented initial attack, this FMP points to preplanned actions of initial response, emphasizing size-up and suppression options that consider multiple incident objectives.

- **Initial Response –** Immediate decisions and actions taken to react to an ignition. (Defining a range of options, based on size-up, resource commitment, and assigns accountability that considers safety, cost, and consequence while retaining the flexibility to manage for multiple objectives.)
- **Initial Attack –** An aggressive action to put the fire out consistent with firefighter and public safety and values to be protected. (A preplanned response of full perimeter control and extinguishment to achieve fire-specific objectives that considers safety, cost, and consequences.)
- **Extended Attack** – Initial Response/Initial Attack that exceed 48 hours.

When initial incident objectives are not achieved and the fire response goes into an extended attack, federal agencies developed a modified response through the Wildland Fire Decision Support System (WFDSS). Considerations to modify management actions include site-specific considerations, current and expected fire behavior, values at risk, other fire activity, and social/political concerns. While it is not probable that use of the WFDSS would involve only APPA lands, even if those lands were determined to be the point of ignition, APPA lands could be involved in wildfires initiating on neighboring lands; hence the APPA would be involved in the WFDSS process. See Appendix L for details.

3.2.1 ANNUAL FIRE SEASON

The wide variation of geography and elevation results in a wide variety of climates. The fire season is normally longer in the south than in the north and basically consists of both a spring and a fall season. The fall fire season normally lasts from around the first killing frost until snow cover. The spring season begins when snow cover is gone and lasts until the new season vegetation has achieved significant growth, typically referred to as green-up. Historic information from areas along the trail indicates a split season with the spring season being the more active.

3.2.2 VEGETATION, FUELS, AND FIRE BEHAVIOR

Vegetation varies considerably depending on location as seen in Figure 3.2 above. Fire behavior is modeled using a mathematical model developed at the Northern Forest Fire Laboratory (NFFL). A fuel models are selected to represent the vegetation based on characteristics that allow the vegetation to burn. Vegetation along the trail is expected to have fire behavior characteristics of one of these NFFL fuel models:

- Fuel Model 8 – litter under hardwood forests (leaves on) or short needle conifers
- Fuel Model 9 – leaf litter under hardwood forests (leaves fallen) or long needle conifers
- Fuel Model 10 – litter and understory under a conifer forest canopy
- Fuel Model 6 – dormant brush 2.5 feet in height
- Fuel Model 3 – tall grass, as in meadows or standing croplands

Fire behavior characteristics are estimated using various tools, including BEHAVE software. Table 3.1 compares fires in fuel models burning under the same conditions, i.e., mid-flame wind

speed 5 miles per hour, fine fuel moisture 8%, and live fuel moisture of 100% (Anderson 1982). This table is included only for comparisons among the NFFL fuel models.

Table 3.1. NFFL Fuel Models and Fire Behavior Characteristics

NFFL Fuel Model	Rate of Spread (feet/minute)	Flame length (feet)
3 Tall Grass	114	12
6 Dormant Brush	35	6
8 Compact Litter	2	1
9 Hardwood Litter	8	3
10 Timber with understory	9	5

Note: values are rounded.

Fires with flame lengths less than 4 feet can generally be attacked at the head or flanks by firefighters using hand tools, and hand line should hold the fire. Fires with flame lengths between 4 to 8 feet are considered too hot for the type of attack with hand tools only, as above, and hand line might not be effective. Use of water, foam, and other suppression tools can be effective. When flame lengths exceed 8 feet, problems such as torching and spotting can result, and control efforts at the head of the fire may be ineffective. Flame lengths over 11 feet may result in crown fires and major fire runs (Rothermel 1983).

Scott and Burgan published a set of 40 Standard Fire Behavior Fuel Models (2005) for use with the same Rothermel fire spread model as the NFFL models. The new models are intended for use in a broader range of conditions, by incorporating live fuel moisture content in a wider array of fuels. Because of this, the Standard Models can potentially be more accurate (especially over the course of a year) than the NFFL models in the Eastern U.S., where there is commonly adequate summer rainfall and higher humidity. The comparisons in the table below are only for relative model comparison; entries for rate of spread and flame length comparisons are taken from the crosswalk tables in the referenced publication (2005:13 – 15).

Table 3.2 Comparison of NFFL and Standard Fuel Models

NFFL Fuel Model	Standard Fuel Model	Standard Model Rate of Spread	Standard Model Flame Length
3	Grass GR-6	Slightly lower	Comparable
6	Shrub SH-4	Slightly lower	Comparable
8	Timber Litter TL-3	Comparable	Comparable
9	Timber Litter TL-6 or TL-9	Slightly lower to comparable	Comparable to higher
10	Timber Understory TU-5	Comparable	Slightly higher

Common Control Problems

- Delayed detection and reporting of fire occurrence
- Lack of road access
- Communication and coordination with and among multiple responding parties
- Continuous fuels – especially when dead and down or drought-stricken
- High winds resulting from fronts, thunderstorms, or channeling by topographic features
- Steep slopes
- Drought conditions and other periods of low relative humidity
- Lack of available resources for response actions

Values to be Protected

- Protecting the A.T.'s integrity as a footpath is of primary importance.
- Protecting trail improvements such as overnight shelters and hiker facilities.
- Protecting the APPA boundary line including survey markers, boundary line paint, and signs.
- Historic resources and structures currently being evaluated for historic significance may require special protection measures if included on the National Register of Historic Places.
- A few threatened or endangered species occur along significant portions of the A.T., including the Indiana bat, the bog turtle, the bald eagle, and the small whorled pogonia.
- Approximately forty "resource protection areas" have been identified along the trail with significant natural resource values.
- More detailed information on the current status of resources is available in Environmental Analysis chapter of the EA (2008:3-1 to 3-24).

3.2.3 FIRE MANAGEMENT GOALS AND OBJECTIVES

(Note: Goals are in bold with corresponding objectives bulleted below)

Protect human life

- Protect firefighter and public safety during all fire management activities.

Protect property adjacent to Park boundaries

- Minimize the spread of fire onto private lands.

Manage all wildland fires using tactics that minimize resource damage.

- Minimize disturbance to vegetation and soils when accessing fires.
- Select tactics that consider current and expected burning conditions and fire behavior, provides for safety and limits resource damage.
- Where possible use natural barriers, leaf blowers and wet lines as holding lines. Avoid the use of retardant in water and wetlands. Minimize mop-up. Minimize tree felling, and ORV use, and utilize hand tools where possible.
- Minimize direct effects to the treadway, the trail corridor and the boundary paint and monuments by limiting firefighting activity within sight of the trail and being aware of NPS boundaries. When firefighting within the corridor use leaf blowers or wet lines rather than digging, minimize the felling of trees. Avoid using the trail as a fire line. Avoid the use of ORV's and dozers on the trail or trail lands..
- Consider post-fire rehabilitation needs in consultation with and in compliance with National Park Service agency standards.

Minimize impacts to the hiking public while providing for their safety.

- Provide safety information and fire updates to hikers and cooperators.
- Accommodate hikers through alternate hiking routes or transportation.

Maintain close working relationships and mutual cooperation with surrounding fire management agencies.

- Consult and report all fire starts affecting the trail to the NPS APPA (SHEN Dispatch 800-732-0911) as early as possible during the initial attack phase.

Manage fire as a natural process on park lands.

- Maintain natural fire intensities, frequencies, and distribution across the landscape.
- Integrate knowledge generated through fire and natural resource research into fire management decisions and actions.
- Restore and protect the natural biological diversity and the natural disturbance regime of Park ecosystems.
- Identify areas having the greatest potential for the application of prescribed fire as a means of achieving desired resource management objectives. Based on this analysis and subject to the necessary additional environmental compliance, conduct prescribed fires.

3.2.4 FIRE MANAGEMENT STRATEGIC DIRECTION

As firefighter safety allows, the agency should make a prompt response to all wildfires to protect public safety, sensitive resources, and other values threatened. Direct attack is not required. An initial response should minimize fire size as much as possible given the management constraints on equipment and actions. The fire edge and interior areas should be extinguished using effective suppression tactics that minimize adverse impacts.

- The use of suppression tools and methods should be maximized with the least impact on resources while effectively meeting incident suppression objectives.
- Protect structures, improvements, infrastructure, communications equipment, and sensitive resources where and when it is safe to do so.
- The Incident Commander (IC) at the scene is responsible for the safety of all in his or her command.
- Fire responses may include direct attack, indirect attack, and other strategies as determined by the IC and within the scope of responses permitted by responding agency policy.
- Use of dozers or earth-moving heavy equipment is not authorized without consultation by the APPA Chief Ranger or designee.
- Aerial delivery of foam may be approved by the APPA Chief Ranger or Zone FMO.
- Use of helicopter and potential dip sites are at the discretion of the IC.
- APPA should consider need for post-fire emergency stabilization on steep slopes

Management Tactics

Following NPS guidance in DO-18 ("methods to suppress wildland fires should minimize impacts of the suppression action and the fire, commensurate with effective control and resource values to be protected"), the following guidelines (from the FMP EA) are to be followed.

- Keep all motorized equipment on existing roads.

- Restrict the use of heavy equipment such as bulldozers or plows for constructing fire lines. A tractor with a box blade or disc would be used for fire line construction only in extreme situations when high value resources are at risk, and then only with the consultation of the APPA Chief Ranger or designee.
- Prohibit heavy equipment line construction on the APPA footpath, unless necessary for emergency protection of public property and life safety.
- Use existing natural fuel breaks and human-made barriers, wet line, leaf blown line, or cold trailing the fire edge in lieu of hand line construction to mineral soil whenever possible.
- Keep fire line widths as narrow as possible when they must be constructed.
- Avoid ground disturbance within known natural and archeological/cultural/historic resource locations. When fire line construction is not discretionary and deemed necessary to protect human life or property in proximity to these resource locations, it would involve as little ground disturbance as possible and be located as far outside resource boundaries as possible.
- Use water or foam instead of fire retardant. If retardant must be used, use a non-fugitive type and avoid surface water resources.
- Use soaker hose, sprinklers, or foggers in mop-up; avoid boring and hydraulic action and other soil disturbance.
- Minimize tree falling and cutting. Flush-cut any new stumps to ground level.
- Scatter or remove debris as prescribed by the incident commander.
- Protect water quality by complying with the Clean Water Act and all other applicable federal, state, and local laws and requirements.

3.3 FIRE MANAGEMENT UNITS

The Fire Management Plan treats the entire A.T. and A.T. Corridor as one Fire Management Unit (FMU). The FMP recognizes that in addition to APPA-managed lands, there are a variety of Federal, State, and local agencies with land ownership that make up the A.T. Corridor. While wildland fire management for the A.T. is the primary responsibility of APPA, each agency partner retains jurisdiction for their lands. Treating the A.T. as one FMU is intended to communicate the desire for a common approach for all lands that comprise the A.T.

The goals and objectives that follow in this chapter apply generally to the entire A.T. and specifically to the APPA-managed lands. They are written to stimulate partner involvement and discussion regarding policy and practices with the hopes that they will be adopted, as appropriate, under the applicable agency policy. The goal is seamless fire management along the A.T. consistent with the interagency direction of the Cohesive Strategy and the exemplary accomplishments of the A.T. cooperative management system.

This FMP provides specific policy, operational and administrative guidance to meet NPS requirements for APPA-managed lands. Other applicable agency partner plans will provide those aspects for their own lands.

3.3.1 FIRE MANAGEMENT ZONES:

1. North Country

This Zone includes the northern-most sections of the A.T. in the States of Maine (south of Baxter State Park), Massachusetts , Connecticut, and New York. It extends south from Katahdin to the intersection of the A.T with New York route 17A, exclusive of the A.T. corridor in Vermont and New Hampshire, where wildland fire management is administered by units of the USDA Forest Service.Fire activity in this Zone is considered to be low and fire season generally expected to be short. There is potential in drought years for problem fires in the boreal conifer forest types in the northern portions of this Zone.

2. Mid-Atlantic

This Zone includes the A.T. from New York route 17A, south through the states of New Jersey and Pennsylvania to the Pennsylvania-Maryland state line. Generally there is no significant fire activity in the A.T. corridor in this Zone, but small fires are common and this zone contains high concentrations of Wildland-Urban Interface areas.

3. National Capital

This Zone includes the A.T. from the Pennsylvania-Maryland border south through Maryland and West Virginia and into Virginia to the intersection of the A.T. and Route 7, east of Winchester . Ths zone this zone contains high concentrations of Wildland-Urban Interface areas.

4. Mountains-to-Sea

This Zone includes the A.T. within Virgnia from Route 7 in northern Virginia to Route 311 south of Roanoke. This Zone typically has the most fire activity of the four Zones, with the longest fire season. There is potential for significant fire activity where there are large blocks of federal lands.

Figure 3.3. NPS North Country Fire Management Zone

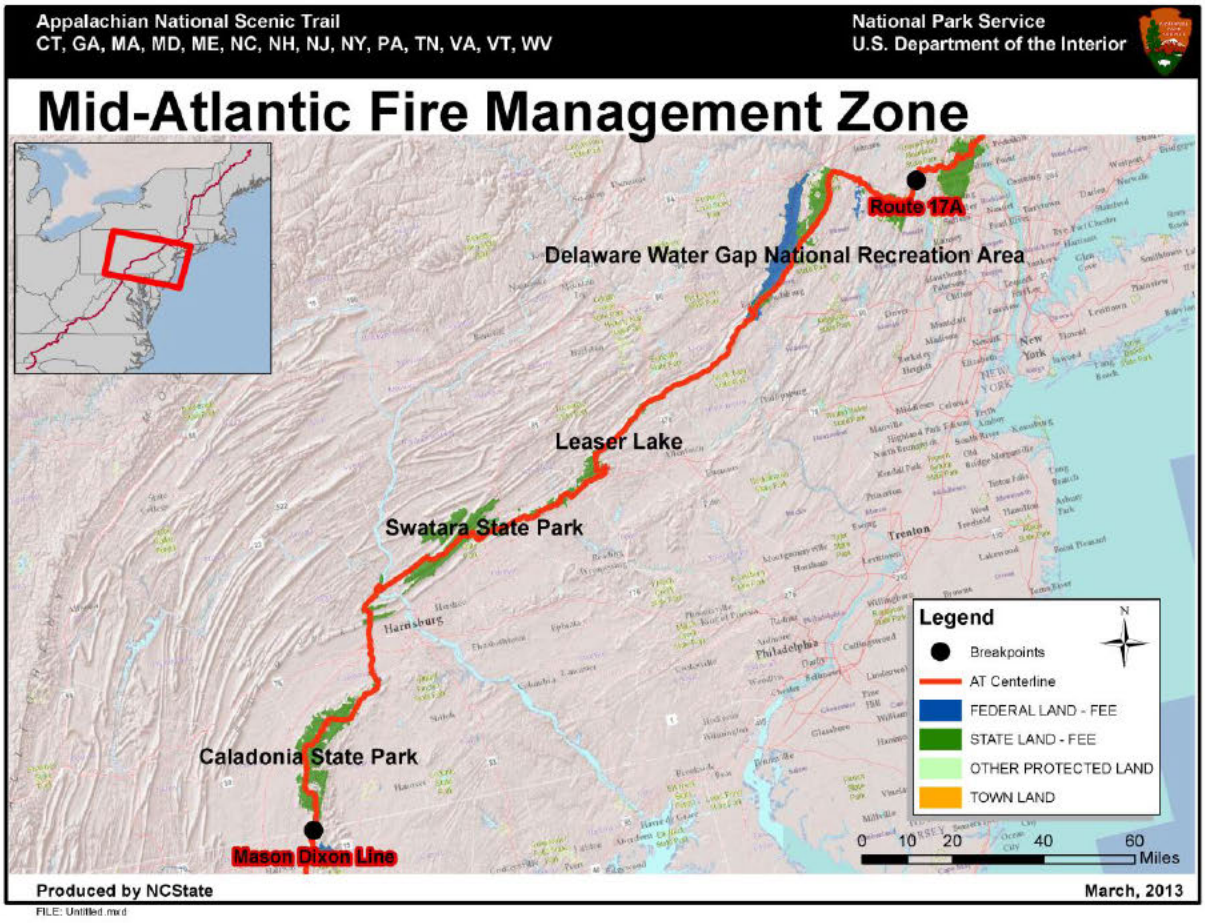

Figure 3.4. NPS Mid-Atlantic Fire Management Zone

Figure 3.5. NPS National Capitol Fire Management Zone

Figure 3.6. NPS Mountains to the Sea Fire Management Zone

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CHAPTER 4.
WILDLAND FIRE MANAGEMENT OPERATIONAL GUIDANCE

4.1 SAFETY

NPS RM-18 states, "Firefighter and public safety is our first priority." This FMP and the activities within reflect this commitment, which is a responsibility shared by all firefighters, supervisors, managers, and administrators. Every supervisor, employee, and volunteer is responsible to follow guidelines to ensure safe work practices and procedures, as well to identify and report unsafe conditions. All actions envisioned in this FMP will conform to agency and departmental safety policies, as well as the current version of the Red Book, DO-18: Wildland Fire, and RM-18, Chapter 3 - Standards for Operations and Safety.

4.1.1 FIREFIGHTER SAFETY FITNESS AND TRAINING

NPS personnel engaged in wildland fire activities must meet U.S. Department of the Interior and NPS health screening/medical surveillance and fitness requirements, as required in the Red Book. The Federal Interagency Wildland Firefighter Medical Qualification Standards only apply to arduous duty federal wildland firefighters. Non-arduous duty federal wildland firefighters and non-federal wildland firefighters should follow NWCG guidance on medical qualifications and standards. Information regarding the Medical Standards Program is found at www.nifc.gov/medical_standards. Per the Red Book, the law enforcement medical exam for NPS rangers who are collateral duty wildland firefighters meets the Medical Standards Program clearance. All medical clearance must be entered into the Incident Qualifications and Certification System (IQCS).

All NPS employees who participate in wildland fire activities are required to perform an annual Work Capacity Test, a fitness assessment for positions requiring arduous, moderate, or light fitness levels. Information for administering or participating in the Work Capacity Test can be found in the current Red Book. Once the test has been administered, completed documentation will be provided to the employee and to the Shenandoah Dispatch Center for entry into the IQCS database.

Safety training includes annual wildland fire safety standards training for wildland fire operations personnel, including mandatory, annual, hands-on fire shelter deployment training, and adherence to safety training requirements listed in RM-18.

- Ensure each employee has access to the Incident Response Pocket Guide (NWCG 2010).
- Apply qualifications standards for Incident Command System positions as listed in
- NWCG 310-1 Wildland Fire Qualification System Guide (NWCG 2011).
- Equip all personnel on wildfires with proper personal protective equipment as specified in RM-18.

Work/Rest Standards

All wildland fire activity will adhere to standards for work, rest, length of assignment, days off, and assignment extension guidelines as stated within the Red Book.

Serious Accident/Incident Review Procedures

Information on serious injury or death procedures can be found in Appendix I of this plan. APPA adopts the Wildland Fire Safety and Health Network ground-based safety incident reporting system. Information about this can be found at http://safenet.nifc.gov/

APPA will report and investigate all wildland fire incidents resulting in serious wildland fire accidents, non-serious wildland fire accidents, entrapment, fire shelter deployment, near-misses, or fire trespasses, as defined and required by Red Book direction.

When necessary, APPA will conduct Escaped Prescribed Fire Reviews in accordance with the *Interagency Prescribed Fire Planning and Implementation Procedures Reference Guide*, Chapter 7 and 17 of RM-18, and the Red Book.

Right of Refusal of Assignment

All employees are empowered to refuse unsafe assignments and identify safe alternatives to accomplish the mission. All employees with wildfire response responsibility should have access to a current copy of the Incident Response Pocket Guide, which contains directions on how to properly refuse risk. All personnel are authorized to exercise emergency authority to stop and prevent unsafe acts.

Public Safety

Areas of the A.T. may be closed as necessary when a wildfire, suppression activity, or post-fire conditions endanger public safety. As needed, adjacent agencies and authorities will be notified as soon as possible to help manage or evacuate the closure area.

If a closure of the A.T. is anticipated or has been put in place due to public safety concerns, APPA should be notified as soon as practical.

Management partners may be utilized to notify hikers and other visitors as possible. When possible, hikers should be accommodated to provide for alternate safe hiking routes or transportation around the closed area.

During periods of high fire danger, Zone FMOs will have regular communications with APPA. APPA may choose to provide public information about the fire danger through management partners, signage, websites, etc.

Smoke warning signs on roadways and/or traffic control during wildfires will be set up as conditions warrant and at the direction of the IC, Safety Officer, or Law Enforcement Officer. Implementation of pilot car operations, staffed road closure points, night patrols, and monitoring for low-visibility conditions or congested roadways may become necessary and are acceptable mitigation efforts for any fire management activity.

Employees working on or adjacent to public roadways will wear high visibility vests. This includes all fire management employees, public safety employees, information personnel, and any escorted or non-escorted visitors or guests.

Once conditions allow, fire managers will assess post-fire hazards and mitigate them prior to allowing public access. A primary concern is standing snags or green trees weakened by fire or fire operations.

4.2 PREPAREDNESS

4.2.1 STAFFING

APPA has a small staff with no dedicated fire personnel or initial response resources. Response to unplanned ignitions is conducted by federal or state agencies and local fire departments. Preparedness activities are determined by those units and departments following the guidelines of the jurisdictional agency. A park-wide call-up list is not necessary.

APPA staff members with current fire qualifications (and their qualified and trainee positions) are listed in Appendix E. APPA has a small fire equipment cache available for response. Personal protective equipment is issued and assigned to fire-qualified individuals.

4.2.2 DELEGATION OF AUTHORITY

Annual Delegations of Authority from the Park Manager to those with responsibility for Fire Management Program and activities is a significant preparedness activity that may involve other park units. The requirement for this is in the Red Book, Chapter 4.

4.2.3 DISPATCH

Dispatch procedures and resource orders will follow standard interagency dispatch system channels, which typically have resource orders placed from a local unit to a statewide or area interagency dispatch center and then to a regional coordination center.

4.2.4 ANNUAL UPDATES

Annual updates of information in Appendix E will encompass annual preparedness activities. A significant part of this is the contact information for various agencies along the A.T. Maps and spatial fire management plans will be developed over time and revised and updated as needed.

4.2.5 SERVICES AND SUPPLY PLANS

Service and supply plans that can serve APPA are maintained by the NPS Zone FMO or their associated dispatch offices. APPA does not maintain any specific contracted equipment.

4.2.6 MASTER AGREEMENTS

A list of statewide master agreements pertinent to the A.T. is included in the Master Table, Appendix I. The agreements are incorporated into this FMP by reference.

4.2.7 STEP-UP PLANNING

Step-up plans are tiered to fire danger, based on indices of the National Fire Danger Rating System (NFDRS). This system incorporates specified data from specific weather stations, processes the data through mathematical models that compare current to historical conditions, and produces output indices and percentile ratings. The percentiles are grouped into fire danger classes: low (Class 1), moderate (Class 2), high (Class 3), very high (Class 4), extreme (Class 5). Typically extra-normal actions such as increased staffing for initial response resources occur at very high and extreme fire danger classes.

APPA generally does not manage initial response resources or any fire weather stations; however, APPA does follow the step-up plans for the Fire Management Zones it passes through. Specific step-up arrangements may be spelled out in the Inter-Park Agreements. The APPA Chief Ranger will monitor changes in fire danger through contacts with Zone FMOs and other fire program managers. Fire restrictions implemented by state agencies may be incorporated into APPA actions as needed.

4.3 MANAGEMENT OF UNPLANNED IGNITIONS/WILDFIRES

Management of wildfires will follow the Goals, Objectives, Strategies, and Tactics in Chapter 3 and follow federal fire management policy as referenced in Chapter 2, and as amended annually based on adaptive management principles in Chapter 5.

Initial Response is typically carried out by local fire resources, as outlined by the state master agreements. On APPA managed lands, APPA may assume control of the incident with Zone FMO assistance. If required, APPA may request transfer of an incident to an Incident Management Team, following federal and state procedures.

Reports of fires are typically made through local 911 offices to the local responding fire departments. In some cases, notification of NPS personnel is not made until after response action is made and the fire is out. Reports of all fire responses, including false alarms, are to be reported to the APPA Chief Ranger. Often the NPS Zone FMOs are contacted directly by state fire officials about fire occurrence in their areas. Fires may also be reported through the Shenandoah dispatch office. A decision tree has been developed for NPS fire reporting that is included in Appendix E. This will be reviewed on an annual basis and updated as needed

4.4 BURNED AREA EMERGENCY RESPONSE

Natural recovery is the preferred method of recovery from adverse fire effects after unplanned ignitions. However, where and when natural recovery is unlikely, Emergency Stabilization (ES) or Burned Area Rehabilitation (BAR) treatments may be needed to prevent further degradation of cultural and natural resources in a burned area and/or in downstream impact areas.

Chapter 19 of RM-18 provides policy and direction for all activities associated with the management of Burned Area Emergency Response (BAER) in National Park units. The BAER program encompasses the immediate actions taken to minimize post-wildfire threats to life and property and to prevent unacceptable resource degradation resulting from a wildfire. BAER consists of two funding activities, ES and BAR. Funds for post-wildfire treatments and activities

are allocated only for actions identified in approved ES or BAR plans. When required, ES and BAR plans will be completed at the field level and sent to the Northeast Regional Office for guidance and support. ES plans up to $500,000 can be approved at the Northeast Region Office, while those greater than $500,000 require approval of the NPS Fire Director. All BAR plans require NPS Fire Director approval.

There is potential for the APPA to be involved in ES or BAR activities in cooperation with neighboring federal units. Potential issues may include negative impacts to the habitat of species of conservation concern, impacts in the identified natural resource protection areas or other impacts such as loss of cover that opens previously undisturbed (or restored) areas to invasive species. Slope erosion that can impact municipal water supplies is another potential issue.

An IC may initiate ES actions before the fire is demobilized, as delegated. ES activities use emergency funding and are intended to mitigate further degradation of the site itself rather than mitigating first order fire effects.

The land management agency is responsible for ordering or assigning teams to develop ES or BAR plans. Resource specialists from cooperating units or the region may be needed to assist. Development of a BAR plan may require a team, and as such can be mobilized from the NPS Fire Program Office, to assess fire damage. BAER or BAR team members from within or outside the NPS may need access to park wildlife and vegetation inventories, cultural and historical location data, threatened and endangered or sensitive species information, and other data.

The appropriate sections of the *Interagency Burned Area Response Guide* or the current Red Book should be consulted for applicable policies, approval procedures, and other information.

4.4.1 MINIMUM IMPACT TACTICS

DO-18 requires consideration of the use of minimum impact suppression tactics on all wildland fires, including BAR, but it does not require use of any specific tactic. Direction in this regard is provided in the list of constraints and strategies in Chapter 3. Specific requirements for a burned area project may be provided in a delegation of authority or may be developed by project resource specialists.

4.4.2 EMERGENCY STABILIZATION

ES encompasses planned actions to stabilize and prevent unacceptable degradation to natural and cultural resources, minimize threats to life or property resulting from the effects of a fire, or repair/replace/construct physical improvements necessary to prevent degradation of land or resources. An ES plan specifies only emergency activities and treatments to implement within 1 year of wildfire containment. The plan must be completed within 7 calendar days of wildfire containment and approved within 6 business days of receipt by the approving office. Individual ES plans are to include planned treatment maintenance activities and monitoring for treatment effectiveness.

Allowable ES actions specified in the Department of Interior Manual (620 DM 3) potentially applicable include:

- 3.7 M (2) — placing structures to slow soil and water movement.
- 3.7 M (7) — seeding or planting to prevent permanent impairment of designated critical habitat for federally listed and state-listed proposed or candidate threatened and endangered species.
- 3.7 M (10) — directing treatment of invasive plants.
- 3.7 M (12) — monitoring treatments and activities for up to 3 years.

4.4.3 BURNED AREA REHABILITATION

BAR is a continuation of the ES actions, as necessary, to repair/replace minor facilities and damage to natural and cultural resources sustained by the unplanned fire. BAR funding is limited and projects compete for funding on an interagency basis. Replacement of major structures is not within its scope.

BAR activities must comply with NEPA. BAR projects that may affect threatened and endangered species and their habitats must comply with Section 7 of the Endangered Species Act. Projects that affect threatened and endangered species and their habitats will be submitted for Section 7 consultation. Because BAR is a planned action, a public meeting should be held early in the BAR plan development process. The purpose of the meeting is to inform the public of activities planned, obtain input from local communities and neighbors, and identify issues needing further discussion and resolution.

Allowable BAR actions in 620 DM 3 potentially applicable include:

- 3.8 M (2) — chemical, manual, and mechanical removal of invasive species and planting of native and nonnative species, consistent with 3.8 F, to restore or establish a healthy, stable ecosystem even if this ecosystem cannot fully emulate historical or pre-fire conditions.
- 3.8 M (4) — repair or replace fire damage to minor operating facilities (such as interpretive signs and exhibits, shade shelters, and fences).

4.5 MANAGEMENT OF PLANNED FUELS TREATMENTS

Because the EA upon which this FMP is based does not provide for a program of planned fuel treatments on APPA managed lands, no fuels treatments can be conducted without project-level compliance activities being completed.

Individual management units along the A.T. may have fuels programs detailed in an approved FMP or similar document. It is possible for APPA lands to be included in projects developed by other units, subject to completion of compliance activities and joint approval of the project plan by the Superintendent.

Planned treatments to alter vegetative characteristics include, but are not limited to, prescribed burns, mechanical fuel treatments, and/or application of herbicides (chemical). Whether these projects are intended to improve or maintain ecosystem conditions and/or reduce fire hazard, all have in common the objective of altering the vegetation and fuels to accomplish goals articulated in a land or resource management plan (L/RMP) and the FMP. Treatments are planned months or

years in advance, and managers can be very specific as to location, timing, and environmental conditions under which the treatments are made.

While there are variations in fuel treatment planning formats and information based on the type of treatments (fire, mechanical, and/or chemical), the plans share some common purposes as stated below:

- Guided by objectives and requirements found in L/RMPs and FMPs.
- Require fire managers to think about what desired outcomes and how to accomplish them.
- Allow fire managers to prioritize among treatment units based on constraints and objectives.
- Function as an operational plan detailing how a treatment will be safely and effectively managed.
- Establish a standard by which to evaluate the outcomes of the treatment.
- Provide a record for use when planning future projects.
- Become a legal record of the intended purpose and execution of the project.

There is currently no standard format for all activity plans across all land ownership; however, a prescribed fire (i.e., burn plan) template has been officially adopted for use by federal agencies and other entities if desired. For lands not required to use the federal template; numerous examples are available through individual state forester's offices and other non-governmental organizations, including the Nature Conservancy (see http://www.tncfiremanual.org).

For more information, see the Red Book and the NWCG *Interagency Prescribed Fire Planning and Implementation Procedures Guide* (2008), which detail federal agency requirements including a prescribed fire plan format outline (see http://www.nwcg.gov/var/sections/policy-planning-and-management/fuels-management-committee).

4.6 PREVENTION, MITIGATION, AND EDUCATION

4.6.1 PREVENTION/MITIGATION

Per RM-18 and the Red Book, NPS units that do not experience more than 26 human-caused fires per a 10-year period and do not experience problems with human-caused fires are not required to conduct a wildland fire prevention analysis or have a prevention plan. APPA managed lands fall in this category.

Prevention efforts are directed toward reducing human-caused ignitions. APPA does not conduct a formal prevention program due to jurisdictional limitations and the inability to provide timely information to a multitude of trail users (especially through hikers) at the many access points to the A.T. APPA does, however, participate in cooperative efforts during periods of drought or other periods of high fire danger to implement appropriate fire restrictions, such as campfire restrictions, coordinated with state forestry and fire organizations as needed. Fire danger warnings may be posted at trailheads or other locations through cooperators as needed.

There are no specific fire mitigation measures specified in this plan, such as hazardous fuels treatments. APPA has a regular vegetation maintenance program along the trail footpath and trail hiker facilities, conducted primarily by volunteers, which serves to protect some values at risk, although that is not its primary purpose.

The A.T. contains approximately 4,500 acres of managed open space. These areas are maintained through mowing, brushing, and in some cases grazing and farming. These actions are used to maintain the cultural landscape, however, the actions typically remove hazardous fuels as part of the projects.

4.6.2 COMMUNICATIONS/EDUCATION

Public information and education are key components of successful fire management programs. DO-18 states that "the NPS will administer its wildland fire program in a manner that will…educate employees and the public about the scope and effect of wildland fire management, including fuels management, resource protection, prevention, hazard/risk assessment, mitigation and rehabilitation, and fire's role in ecosystem management."

Public education about the natural role of fire on the landscape and the prevention of unwanted wildfires has become increasingly important as communities make inroads into wildland areas. While important to raise awareness of the risks of wildfire, it is also important to promote the overall mission of the NPS Fire Management Program and increase public understanding of fire as a natural part of the ecosystem and a potential ecological maintenance and restoration tool.

Parallel with development of this FMP, APPA staff are developing spatial fire management plans to coordinate and communicate with partners and first responders about fire program goals, objectives, constraints and recommendations, and map and contact information.

A copy of this FMP is available to the public on the APPA website: http://www.nps.gov/appa

4.7 AIR QUALITY/SMOKE MANAGEMENT

There are no Class I areas over APPA-managed lands and there is no program of prescribed fire use in this plan. This section may be developed/appended as part of prescribed fire program implementation. In interim, any air quality/smoke management issues will be addressed in project plans and compliance documents.

4.8 DATA AND RECORDS MANAGEMENT

RM-18 requires permanent project records for each incident to be retained at the park. Specific guidance for retention of wildland fire incident records are found at the National Interagency Fire Center incident records management website http://www.nwcg.gov/policies/records/index.html.

Note that the Retention Guidance section details for specific documents to retain for large fire incident records. At a minimum, the permanent project record should include the following:

- Approved planning documents that guided management actions (e.g., WFDSS report), with any amendments/revisions.

- Prescribed fire monitoring reports and summaries of findings, along with a summary of all monitoring activities including a monitoring schedule (Level 1 and 2 monitoring).
- Revalidation and certification documents.
- Funding codes and cost accounting.
- Project maps. Permanently map and archive all fires greater than 10 acres, using geographic information system (GIS) data if possible. See the RM-18 Information and Technology Management chapter for GIS and data standards.
- Other information as appropriate for the situation, such as photo points.

The APPA Chief Ranger and the Zone FMOs are responsible to ensure accurate and timely fire reports entered in the Wildland Fire Management Information System or its successor reporting system. Every wildfire, support action, and prescribed fire requires a report. (See Appendix E Fire Reporting Procedure.) Prescribed fires will have a separate report for each treatment. Temporary and permanent records related to Wildland Fire Management Information System reports are retained and archived in compliance with the NWCG policies as above in APPA fire files.

FMP updates and revisions are accomplished on an annual basis and are the responsibility of the APPA Chief Ranger. Updates and revisions will follow any regional office guidance and are approved by the APPA Superintendent.

The GIS Specialist is responsible for data and records management of GIS layers, including fire history (points and polygons for wildfire and prescribed fire), burn severity, and manual/mechanical fuels treatments. Metadata related to all GIS layers are required to meet standards identified by the Federal Geographic Data Committee (www.fgdc.gov/metadata). In order to facilitate timely and accurate data transfer, the GIS Specialist will establish data collection procedures.

- All wildfires need to have the point of origin located.
- Record fires less than 1 acre as points, those larger than 1 acre as polygons.
- Periodically re-map fires that have on-going spread (fire progression map).
- Global positioning system (GPS) devices should be set to Coordinate System, Latitude/Longitude, Decimal Degrees, NAD 83 _____.
- Locate prescribed fire project perimeters, including boundary preparation/thinning areas.

The IQCS is the database used for tracking NPS wildland firefighter qualifications, certifications, and training. Submission of updates of individual records is the responsibility of the APPA Chief Ranger.

4.9 Organizational and Budgetary Parameters

There are no dedicated fire management positions at the APPA. Program direction and management oversight are the responsibility of the Chief Ranger. The Fire Management Program is directly assisted by NPS Northeast Regional Office, and the four Zone FMOs described in

Chapter 3 In addition, other partners, primarily the U.S. Forest Service and state fire agencies also provide management assistance.

The APPA Chief Ranger is the park Fire Management Coordinator. Responsibility for development, evaluation, and implementation of the FMP and the overall fire program lie with the Chief Ranger and the Park Superintendent, including financial planning and fiscal responsibility. Fire budget and project submissions will be prepared by the Chief Ranger for approval by the Park Superintendent for submission in coordination with the Zone FMOs to the Regional Fire Management Office during periods of budget development.

Other APPA staff members with fire management responsibilities include the following:

- **Natural Resource Specialist:** Develops vegetation management objectives for wildland fire programs and projects. Identifies special resource protection needs. Plays a key role in Burned Area Restoration and Rehabilitation projects as needed. Contributes to program evaluations,
- **GIS Specialist:** Assists in developing maps and other products in support of the fire management program, and
- **Alternate Park Fire Management Coordinator:** One member of the primary park staff (i.e., those positions reporting directly to the Superintendent) will be assigned a collateral duty, to serve as assistant and back-up for the Chief Ranger.

All financial activities will meet NPS requirements and Interagency Fire Business Management Standards in accordance with RM-18, the *Interagency Incident Business Management Handbook* (NWCG 2009), and any supplemental regional business rules.

Fire accounts will be established for wildfire assistance when APPA-managed lands are threatened or impacted by wildfires. APPA will establish the fire suppression account as soon as feasible. Should APPA be unable to establish an account, NER will assist.

CHAPTER 5.
ADAPTIVE MANAGEMENT STRATEGY

Adaptive management is a process whereby partnerships of managers, scientists, and stakeholders learn together how to adapt actions to create and maintain sustainable ecosystems. It is based on evaluating the results of management actions and objectives. In the fire management program, adaptive management includes several steps:

- Setting clear, meaningful fire management objectives
- Designing fire management activities to accomplish objectives
- Using best available knowledge and practices when implementing management actions
- Monitoring to determine whether outcomes match the intent of the objectives
- Evaluating and adjusting management activities and/or objectives as needed based on outcomes/monitoring
- Initiating new research when needed to fill in knowledge gaps.
- Communicating results, new information, and changes in management activities or objectives to all stakeholders.

Adaptive management for the Appalachian National Scenic Trail fire management fits well with the overall cooperative management structure for the Trail.

5.1 FIRE MANAGEMENT OBJECTIVES

These objectives are listed in chapter 3.1.1 of this plan.

- Protect firefighter and public safety during all fire management activities.
- Minimize the spread of fire onto private lands.
- Minimize disturbance to vegetation and soils when accessing fires.
- Select tactics that consider current and expected burning conditions and fire behavior, provides for safety and limits resource damage.
- Where possible use natural barriers, leaf blowers and wet lines as holding lines. Avoid the use of retardant in water and wetlands. Minimize mop-up. Minimize tree felling, and ORV use, and utilize hand tools where possible.
- Minimize direct effects to the treadway, the trail corridor and the boundary paint and monuments by limiting firefighting activity within sight of the trail and being aware of NPS boundaries. When firefighting within the corridor use leaf blowers or wet lines rather than digging, minimize the felling of trees. Avoid using the trail as a fire line. Avoid the use of ORV's and dozers on the trail or trail lands..
- Consider post-fire rehabilitation needs in consultation with and in compliance with National Park Service agency standards.
- Provide safety information and fire updates to hikers and cooperators.
- Accommodate hikers through alternate hiking routes or transportation.

- Restore and protect the natural biological diversity and the natural disturbance regime of Park ecosystems.
- Consult and report all fire starts affecting the trail to the NPS APPA (SHEN Dispatch 800-732-0911) as early as possible during the initial attack phase.
- Maintain natural fire intensities, frequencies, and distribution across the landscape.
- Integrate knowledge generated through fire and natural resource research into fire management decisions and actions.
- Restore and protect the natural biological diversity and the natural disturbance regime of Park ecosystems.
- Identify areas having the greatest potential for the application of prescribed fire as a means of achieving desired resource management objectives. Based on this analysis and subject to the necessary additional environmental compliance, conduct prescribed fires.

5.2 MONITORING

Monitoring is a key component of adaptive management. A cooperative program is underway to monitor some rare, threatened, and endangered species to provide for better tracking of areas in GIS data in order to avoid conflicts with trail maintenance activities and to share information with partners along the A.T.; this can also include conflicts with fire management activities. The monitoring plan calls for a focus on the most critical areas first.

Exotic plants and insect pests are a major threat to rare, threatened, and endangered (RTE) species and other biological resources along the A.T. Natural heritage inventories completed since the mid-1990s have documented the presence of both exotic plants and insect pests. In Massachusetts, New Jersey, and New York, exotic plants cover an estimated 1,500 acres within APPA natural heritage sites. More than 55 exotic plant species have been documented at more than 40 natural heritage sites along the Trail corridor, though much of the corridor has not been surveyed for them.

The fire management program can assist in controlling invasive/exotic species and avoiding impacts on RTE species as follows:

- Use minimum impact suppression techniques to reduce soil and vegetation disturbance.
- Locate control lines, helispots, camps, and other soil-disturbing activities outside areas with known infestations of exotic plants or those with known RTE species.
- Establish areas for washing vehicles, equipment, and clothing to avoid non-native or invasive seed transport when needed.
- Identify and stabilize negatively impacted sites as soon as possible after disturbance, in consultation with APPA resource specialists. Develop BAER plans as appropriate.
- Use certified weed-seed-free mulches and native plant seeds for BAER/BAR operations.

When a wildfire location becomes known to NPS staff, an attempt will be made to visit the site, take photographs of the location, and establish a photo point using GPS, and take photos. A report of the visit be made and sent to the Chief Ranger and reported per Appendix E. Any formal follow-up monitoring that is needed will follow procedures described in the *National*

Park Service Fire Monitoring Handbook (2001). Post-fire monitoring on other lands will follow guidelines of the agency or those identified in FMPs or forest/resource management plans.

Site visits to wildfire locations will help monitor suppression impacts and identify any impacts that affect the integrity of the Trail as a footpath and impacts to associated Trail resources. Follow-up to such reports initiated by the Chief Ranger will be made to determine if more management actions are needed on-site and if more education/communication is needed to assist in minimizing suppression impacts in future responses to wildfires.

A fire effects monitoring crew based at Shenandoah National Park may be available to assist in developing a prescribed fire monitoring program. The monitoring crew supports programs in multiple parks and data to determine the effectiveness of prescribed fire and mechanical treatments. The scope of monitoring is determined by the objectives stated in each burn plan.

5.3 EVALUATION

Evaluation is a key component of adaptive management. It is usually how new knowledge is gained about how effective current practices actually are. New knowledge can come from research, monitoring reports, evaluation of program or project accomplishments, and operational evaluations such as After Action Reviews.

A paragraph above in 5.2 discusses follow-up evaluation of site visits to assess suppression impacts on Trail resources. Site visits will also help determine effectiveness of suppression actions to minimize impacts to resources.

All wildland fires and fire-related incidents will be reviewed in accordance with RM-18, Wildland Fire and Program Reviews Chapter 17, and the Interagency Standards for Fire and Fire Aviation Operations.

5.3.1 AFTER ACTION REVIEW STANDARDS/PROCESS

The Project Leader, IC, or designee should conduct an After Action Review after each project or incident shift to evaluate safety and effectiveness of work performed, and identify and discuss encountered hazards. The format for conducting an After Action Review can be found in the Incident Response Pocket Guide. Reports of After Action Reviews will include any lost time incidents, injuries, or fatalities.

RM-18 Chapter 4 requires that NPS fire management programs incorporate new knowledge on an annual basis and adjust as needed. Every 7 years, parks are required to conduct a larger review—including a larger group of knowledgeable parties such as regional and national fire management staff, university scientists, and others. The 7-year review is intended to reinforce park perceptions or challenge them (as needed) with a goal of continuous fire management improvement and excellence. Regional offices may initiate external program reviews for a variety of reasons, including significant fire events, changeovers in key park fire staff, or others.

The Park Superintendent and Chief Ranger are responsible for annual reviews of the FMP and the Fire Management Program, including results of fire site visits. This is intended to gain knowledge about the effectiveness of communications from the park to the first responders about

suppression standards and the use of tactics to minimize adverse impact on resources. Information gained will lead to new emphasis as needed in the spatial fire management plans distributed to first responder departments and cooperators along the A.T.

The Park Superintendent will dedicate a staff meeting when needed to outline a process for a 7-year review. Assistance in this will be provided by the Chief Ranger and the Regional FMO.

5.4 RESEARCH

In 2006, scientists with the NPS, the U.S. Geological Survey, the Smithsonian Museum, educational institutions, and non-profit conservation organizations held a symposium to propose the A.T. as an indicator of the environmental health of the eastern United States. APPA and its partners (including the Appalachian Trail Conservancy and the NPS Inventory and Monitoring Program) have established the Appalachian Trail Environmental MEGA-Transect program to monitor, understand, and respond to changes in the environment; engage partners, communities, and visitors in shared stewardship of the trail and its wealth of natural resources; increase the number of volunteers involved with the trail; and tell the story of the health of the trail and its surrounding lands to visitors, neighbors, and the American public. In this initiative, programs to monitor air, water, and biological resources along the A.T. and provide for data management and GIS support have been implemented.

There is a nearly completed project that will result in high resolution aerial photographs of the Trail Corridor. Study of the GIS layers and the photographs should assist managers evaluate potential areas to benefit from prescribed fire application, leading to development of a program of planned ignitions. Such study may also help identify high value areas within and adjacent to the Trail corridor where more aggressive suppression responses may be critical, especially during periods when fire danger reaches critical levels.

The process of adaptive management goes hand in glove with the Trail management strategy on many levels. It is the expectation of those who developed this FMP that through on-going partnerships, the APPA fire program will continue to improve its goals and objectives, as well as coordination with partners to protect the integrity of the Trail and its resources for all to enjoy.

APPENDIX A REFERENCES CITED

Anderson, H.E. 1982. *Aids to Determining Fuel Models for Estimated Fire Behavior*. General Technical Report INT-122. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

Appalachian Trail Park Office (ATPO). 1987. *Appalachian Trail Comprehensive Plan*. Appalachian Trail Park Office, National Park Service.

———. 2004. *Memorandum of Understanding for the Appalachian National Scenic Trail between the National Park Service and the Appalachian Trail Conference*. Appalachian Trail Park Office, National Park Service.

———. 2008. *Appalachian National Scenic Trail Resource Management Plan*. Appalachian Trail Park Office, National Park Service.

———. 2009. *Strategic Plan 2009-2012*. Appalachian Trail Park Office, National Park Service.

Brown, J. K., ed. 2000. *Wildland Fire in Ecosystems: Effects of Fire on Flora*. Gen. Tech. Rep. RMRS GTR-42-vol. 2. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

Deeming, J.E., R.L. Burgan, and J.D. Cohen. 1977. *The National Fire Danger Rating System - 1978*. General Technical Report INT-39. Ogden: Forest Service, Intermountain Forest and Range Experiment Station

National Park Service. 2001. *Fire Monitoring Handbook*.

———. 2006. *NPS Management Policies, Chapter 4 Natural Resource Management*.

———. 2008a. *DO-18: Wildland Fire Management*.
(http://www.nps.gov/policy/DOrders/DO-18.html)

———. 2008b. *RM-18: Wildland Fire Management*.
(http://www.nps.gov/fire/wildland-fire/resources/documents/reference-manual-18.pdf)

National Wildfire Coordinating Group (NWCG). 2008. *Interagency Prescribed Fire Planning and Implementation Procedures Guide*. Boise, Idaho: NWCG.

———. 2010. *NWCG #024-2010 Memorandum Attachment A: Terminology Updates List*. Boise, Idaho: National Interagency Fire Center, Program Management Unit.

———. 2010. *Incident Response Pocket Guide*.

Scott, Joe H. and Robert F. Burgan. 2005. *Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model*. General Technical Report RMRS-GTR-153. Fort Collins, CO. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station

———. 2012. *Glossary of Wildland Fire Terminology*. Boise, Idaho: National Interagency Fire Center, Program Management Unit. (http://www.nwcg.gov/pms/pubs/pubs.htm)

National Park Service Cultural Resource Management references (http://archnet.asu.edu/archnet/topical/crm/crmusdoc.html)

National Park Service Directors Orders are available at (home.nps.gov/applications/npspolicy/DOrders.cfm)

Rothermel, R.C. 1983. *How to Predict the Behavior of Forest and Range Fires*. General Technical Report INT-143. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

Smith, J.K., ed. 2000. *Wildland Fire in Ecosystems: Effects of Fire on Fauna.* Gen. Tech. Rep. RMRS GTR-42-vol. 1. Ogden, Utah: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station.

U.S. Department of the Interior. 2004. *Department Manual 620 DM3*: Burned Area Emergency Stabilization and Rehabilitation.

U.S. Department of the Interior and U.S. Department of Agriculture. 2013. *Interagency Standards for Fire and Fire Aviation Operations*. National Interagency Fire Center, Federal Fire and Aviation Task Group. (http://www.nifc.gov/policies/pol_intgncy_guides.html)

———.2009. *Guidance for Implementation of Federal Wildland Fire Policy*. http://www.nifc.gov/policies/pol_intgncy_guides.html）

———.2006. *Interagency Burned Area Rehabilitation Guidebook.*

Wildland Fire Leadership Council. 2011. *A National Cohesive Fire Management Strategy*.

———. 2012. *A National Cohesive Fire Management Strategy, Phase II: National Report*.

APPENDIX B DEFINITIONS

The first four entries are provided by the APPA. Unless otherwise noted, subsequent definitions are from the NWCG Glossary, July 2012. The NWCG 2010 reference is to an April 2010 NWCG memorandum that includes updates of terminology.

A.T. – Appalachian National Scenic Trail - This is the actual footpath and the associated trail features such as trail shelters, as well as the natural and cultural resources that constitute the lands the trail traverses from Maine to Georgia.

A.T. Corridor – All the lands that provide direct protection to the A.T. and are specifically acquired or managed for A.T. values. The A.T. Corridor is made up of many different lands ownerships including USDA Forest Service, other National Parks, state and local agencies, as well as APPA-managed lands. The sum of these together make up the A.T. Corridor

APPA – The National Park Service organizational entity with lead responsibility for the overall management of the A.T. and the sole land managing agency responsible for APPA-managed lands.

APPA-managed lands – Lands purchased by the National Park Service specifically to provide a permanent publicly owned corridor for the A.T. These APPA-managed lands may be fee owned or less than fee, such as an easement of right-of-way.

Backfire – A fire set along the inner edge of a fireline to consume the fuel in the path of a wildfire or change the direction of the fire's convection column.

Burning Index (BI) – An estimate of the potential difficulty of fire containment as it relates to the flame length at the head of the fire. A relative number related to the contribution that fire behavior makes to the amount or effort needed to contain a fire in a particular fuel type. Doubling the burning index indicates that twice the effort will be required to contain a fire in that fuel type as was previously required, providing all other parameters are held constant.

Class I Areas (Air Quality) – Geographic areas designed by the Clean Air Act subject to the most stringent restrictions on allowable increment of air quality deterioration. Class I areas include Forest Service wildernesses and nation memorial parks over 5,000 acres, National Parks exceeding 6,000 acres, international parks, as well as other designated lands.

Clean Air Act – A federal law enacted to ensure that air quality standards are attained and maintained. Initially passed by Congress in 1963, it has been amended several times.

Clear Text – The use of plain English in radio communications transmissions. No Ten Codes or agency specific codes are used when using Clear Text.

Climax – A biotic community that is in equilibrium with existing environmental conditions and represents the terminal stage of an ecological succession (Smith 2000).

Contained –The status of a wildfire suppression action signifying that a control line has been completed around the fire, and any associated spot fires, which can reasonably be expected to stop the fire's spread.

Controlled –The completion of control line around a fire, any spot fires there from, and any interior islands to be saved; burned out any unburned area adjacent to the fire side of the control lines; and cool down all hot spots that are immediate threats to the control.

Cover – The area on the ground covered by the combined aerial parts of plants, expressed as a percent of the total area.

Crown Fire – A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classes as running or dependent to distinguish the degree of independence from the surface fire.

Direct Attack – Any treatment applied directly to burning fuel such as wetting, smothering, or chemically quenching the fire or by physically separating the burning from the unburned fuel.

Duff – A layer of decomposing organic materials lying below the litter layer of freshly fallen twigs, needles, and leaves and immediately above the mineral soil.

Ecosystem – An interacting natural system including all the component organisms together with the abiotic environment and processes affecting them.

Escaped Prescribed Fire – Prescribed fire that has exceeded or is expected to exceed prescription parameters or otherwise meets the criteria for conversion to wildfire. Criteria for conversion are specified in "Interagency Prescribed Fire – Planning and Implementation Procedures Guide." (NWCG 2010)

Firebreak –A natural or constructed barrier used to stop or check fires that may occur, or to provide a control line from which to work.

Fire Interval – The number of years between two successive fire events for a given area; also referred to as the fire-free interval or fire-return interval.

Fire Management – All activities related to the management of wildland fires. (NWCG 2010)

Fire Management Plan (FMP) – A plan which identified and integrates all wildland fire management and related activities within the context of approved land/resource management plans. It defines a program to manage wildland fires (wildfire and prescribed fire). The plan is supplemented by operational plans, including but not limited to, preparedness plans, preplanned dispatch plans, and prevention plans. Fire Management Plans assure that wildland fire management goals and components are coordinated.

Fire Management Unit (FMU) – A land management area definable by objectives, management constraints, topographic features, access, values to be protected, political boundaries, fuel types, major fire regime groups, etc., that set it apart from the characteristics of

an adjacent unit. The FMU may have dominant management objectives and pre-selected strategies assigned to accomplish these objectives.

Fire Management Zone (FMZ) – There is no common definition by NWCG or NPS; this term is used in various ways within fire management agencies. In this FMP, it denotes areas where NPS Fire Management Officers have program management duties and responsibilities for National Park units. Specific details of these duties for units without an FMO on staff, such as APPA, are generally spelled out in intra-park agreements.

Fire Prevention – Activities such as public education, community outreach, law enforcement, engineering, and reduction of fuel hazards that are intended to reduce the incidence of unwanted human-caused wildfires and the risks they pose to life, property or resources.

Fire Progress Map – A map maintained on a large fire to show at given times the location of the fire, deployment of suppression forces, and progress of suppression.

Fire Regime – Description of the patterns of fire occurrences, frequency, size, severity, and sometimes vegetation and fire effects as well, in a given area or ecosystem. A fire regime is a generalization based on fire histories at individual sites. Fire regimes can often be described as cycles because some parts of the histories usually get repeated, and the repetitions can be counted and measured, such as the fire return interval.

Fire Regime Current Condition Class – A qualitative measure classified into three classes describing the relative degree of departure from historical fire regimes, possibly resulting in alterations of key ecosystem components such as species composition, structural stage, stand age, canopy closure, and fuel loadings.

Fire Regime Groups – A classification of fire regimes into a discrete number of categories based on frequency and severity. The national, coarse-scale classification of fire regime groups commonly used includes five groups: I - frequent (0-35 years), low severity; II - frequent (0-35 years), stand replacement severity; III - 35-100+ years, mixed severity; IV - 35-100+ years, stand replacement severity; and V - 200+ years, stand replacement severity.

Fire Severity – Degree to which a site has been altered or disrupted by fire; a product of fire intensity and residence time.

Fire Type – The type of fire based on whether the ignition was planned (type: prescribed) or unplanned (type: wildfire). (NWCG 2010)

Fireline Intensity – The product of the available heat of combustion per unit of ground and the rate of spread of the fire, interpreted as the heat released per unit of time for each unit length of the fire edge. The primary unit is BTU per second per foot (Btu/sec/ft) of fire front.

Firing Out – The act of setting fire to unburned fuels located between the control line and main fire in burning out operations.

First Order Fire Effects –The effects that concern the direct or immediate consequences of fire, such as biomass consumption, crown scorch, bole damage, and smoke production. First order

effects form an important basis for predicting secondary effects such as tree regeneration, plant succession, and changes in site productivity, but these involve interaction with many other non-fire variables.

Flame Length – The distance between the flame tip and the midpoint of the flame depth at the base of the flame (generally the ground surface), an indicator of fire intensity.

Fuel – Any combustible material, especially petroleum-based products and wildland fuels.

Fuel Loading – The amount of fuel present expressed quantitatively in terms of weight of fuel per unit area. This may be available fuel (consumable fuel) or total fuel and is usually a dry weight.

Fuel Model – Simulated fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified. (1972).

Fuel Moisture Content – The quantity of moisture in fuel expressed as a percentage of the weight when thoroughly dried at 212 degrees F.

Fuel Type – An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.

GIS – Geographic Information System

Hazard Fuel – A fuel complex defined by kind, arrangement, volume, condition, and location that presents a threat of ignition and resistance to control.

Incident Objectives – Site specific guidance and direction necessary to the selection of appropriate strategy(s) and the tactical direction of resources on an incident. (NWCG 2010)

Initial Attack – An aggressive action to put the fire out consistent with firefighter and public safety and values to be protected. (A preplanned response of full perimeter control and extinguishment to achieve fire specific objectives which considers safety, cost and consequences.) (NWCG 2010)

Initial Response – Immediate decisions and actions taken to react to an ignition. (Defining a range of options, based on size-up, resource commitment, and assigns accountability which considers safety, cost and consequence while retaining the flexibility to manage for multiple objectives.) (NWCG 2010)

Litter – The top layer of forest floor, composed of loose debris of dead sticks, branches, twigs, and recently fallen leaves or needles; little altered in structure by decomposition.

Mean Fire Return Interval – Arithmetic average of all fire intervals in a given area over a given time.

Mitigation – Those activities implemented prior to, during, or after an incident which are designed to reduce or eliminate risks to persons or property that lessen the actual or potential effects or consequences of an incident. Mitigation measures can include efforts to educate governments, businesses, and the general public on measures they can take to reduce loss and injury and are often informed by lessons learned from prior incidents.

Mixed-Severity Fire Regime – Fire regime in which fires either cause selective mortality in dominant vegetation, depending on different species' susceptibility to fire, or vary between understory and stand replacement (Smith 2000).

Moisture of Extinction – The fuel moisture content, weighed over all the fuel classes, at which the fire will not spread. Also called extinction moisture content (EMC).

Monitoring – The orderly collection, analysis, and interpretation of environmental data to evaluate management's progress toward meeting objectives, and to identify changes in natural systems. Monitoring is also conducted on wildland fires to observe fire effects, fire behavior, or both. For example, the work done by Fire Effects Monitor (FEMO) or Field Observer (FOBS) positions.

Mop Up – Extinguishing or removing burning material near control lines, felling snags, and trenching logs to prevent rolling after an area has burned, to make a fire safe, or to reduce residual smoke.

National Ambient Air Quality Standards (NAAQS) – A legal limit on the level of atmospheric contamination. The level is established as the concentration limits needed to protect all of the public against adverse effects on public health and welfare, with an adequate safety margin. Primary standards are those related to health effects. Secondary standards are designed to protect the public welfare from effects such as visibility reduction, soiling, material damage and nuisances.

National Fire Danger Rating System (NFDRS) – A uniform fire danger rating system that focuses on the environmental factors that control the moisture content of fuels.

National Wildfire Coordinating Group (NWCG) – A group formed under the Direction of the Secretaries of the Interior and Agriculture to improve the coordination and effectiveness of wildland fire activities and provide a forum to discuss, recommend appropriate action, or resolve issues and problems of substantive nature.

Natural Barrier – Any area where lack of flammable material obstructs the spread of wildfires.

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 Fire – Any fire intentionally ignited by management under an approved plan to meet specific objectives. (NWCG 2010)

Protection – Management objectives to limit the adverse physical, environmental, social, political, or economic effects of fire. (NWCG 2010)

Response to wildland fire – Decisions and actions implemented to manage a wildland fire based on ecological, social, and legal consequences, the circumstances under which a fire occurs and the likely consequences on firefighter and public safety and welfare, natural and cultural resources, and values to be protected. (NWCG 2010)

Snag – A standing dead tree or part of a dead tree, from which at least the leaves and smaller branches have fallen. Often called a stub, if less than 20 feet tall.

Stand-Replacing Fire – Fire which kills all or most of the living overstory trees in a forest and initiates forest succession or re-growth. Explicitly describes the nature of fire in grasslands and some shrublands.

Stand-Replacement Fire Regime – Fire regime in which fires kill or top-kill above-ground parts of the dominant vegetation, changing the above-ground structure substantially. Approximately 80 percent or more of the above-ground, dominant vegetation is either consumed or dies as a result of fires. Applies to forests, shrublands, and grasslands (Smith 2000).

Succession – The process of vegetative development whereby an area becomes successively occupied by different plant communities of higher ecological order.

Surface Fire – Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation.

Suppression – Management action to extinguish a fire or confining fire spread. (NWCG 2010)

Top-Kill – Kills aboveground tissues of plant without killing underground parts from which the plant can produce new stems and leaves (Smith 2000).

Uncontrolled Fire – Any fire which threatens to destroy life, property, or natural resources, and (a) is not burning within the confines of firebreaks, or (b) is burning with such intensity that it could not be readily extinguished with ordinary tools commonly available.

Understory Fire Regime – Fire regime in which fires are generally not lethal to the dominant vegetation and do not substantially change the structure of the dominant vegetation. Approximately 80 percent or more of the aboveground dominant vegetation survives fires. Applies to forest and woodland vegetation types (Smith 2000).

Wildfire – An unplanned ignition caused by lightning, volcanoes, unauthorized and accidental human-caused actions and escaped prescribed fires. (NWCG 2010)

Wildland Fire – A general term describing any non-structure fire that occurs in the vegetation and/or natural fuels. (NWCG 2010)

Wildland-Urban Interface – The line, area, or zone where structures and other human developments meet or intermingle with undeveloped wildland or vegetative fuel. (NWCG 2010)

APPENDIX C COMPLIANCE-RELATED INFORMATION

2013 Decision regarding Categorical Exclusion for update of FMP

2005 FONSI for FMP Environmental Assessment and FMP – A scanned PDF file of the original paper copies of the EA and FONSI is available at the APPA. The documents reference SHPO and Section 7 compliance as well as public comments.

The 2005 FONSI states the following:

> NPS selects the environmentally preferred alternative, identified as Alternative 2 in the EA. Under this alternative, the Appalachian National Scenic Trail will be divided into three fire management units (FMUs to facilitate the achievement of its fire management objectives. Because the Trail stretches over 2,000 miles and covers over 270,000 acres in fourteen states, the following FMUs have been designated by political boundaries and include: Federal Lands other than Appalachian Trail Park Office-administered lands FMU, State Lands FMU, Appalachian Trail Park Office-administered Lands FMU.
>
> Federally owned lands administered by other offices, including lands in other parks units, National Forest lands, and lands administered by other agencies, will address fire suppression needs along the Trail corridor by the responsible land-managing agency in their appropriate unit FMP. Where the Trail passes through other federal ownership, the hosting agency's planning policies and procedures will be used to address suppression needs. The selected alternative deals only with APPA-managed lands…
>
> The fire management plan addresses only NPS properties managed by APPA.
>
> Under the plan all wildland fires along the Trail corridor, human-caused fires and naturally ignited fires (e.g. lightning), will be declared wildland fires and suppressed in a manner that minimizes negative environmental and cultural impacts of suppression activities.

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APPENDIX D ANNUAL REVISIONS AND UPDATES

1. Update Fire Qualifications List

APPA staff members with current fire qualifications (and their qualified and trainee positions):

- Todd Remaley, Park Fire Coordinator: FFT2
- David Reus, Alternate Park Fire Coordinator: ICT5, FFT1, FFT2, READ, FALA
- Angela Walters: SCKN, PTRC, EQTR-T

2. Other Activities

- Attendance by Chief Ranger or Zone FMOs at annual state-wide and regional meetings to update agency and interagency agreements and operating plans
- Review and Update, as needed, Inter-Park Agreements between APPA and the 4 Zone FMOs include Annual Delegations of Authority from APPA Superintendent to FMOs. (Redbook Chapter 3 – Fire Management Staff Roles – Park Superintendent)
- Review and update of this FMP to ensure program is integrated with other park programs and supporting stated goals and objectives
- Develop and submit fire-related budget proposals, as needed.
- Complete, review, and approve prescribed fire plans/other fuel treatment plans
- Validate completion of Fire Management Leadership training by the Park Superintendent within two years of assignment to their post (Red Book, chapter 3)

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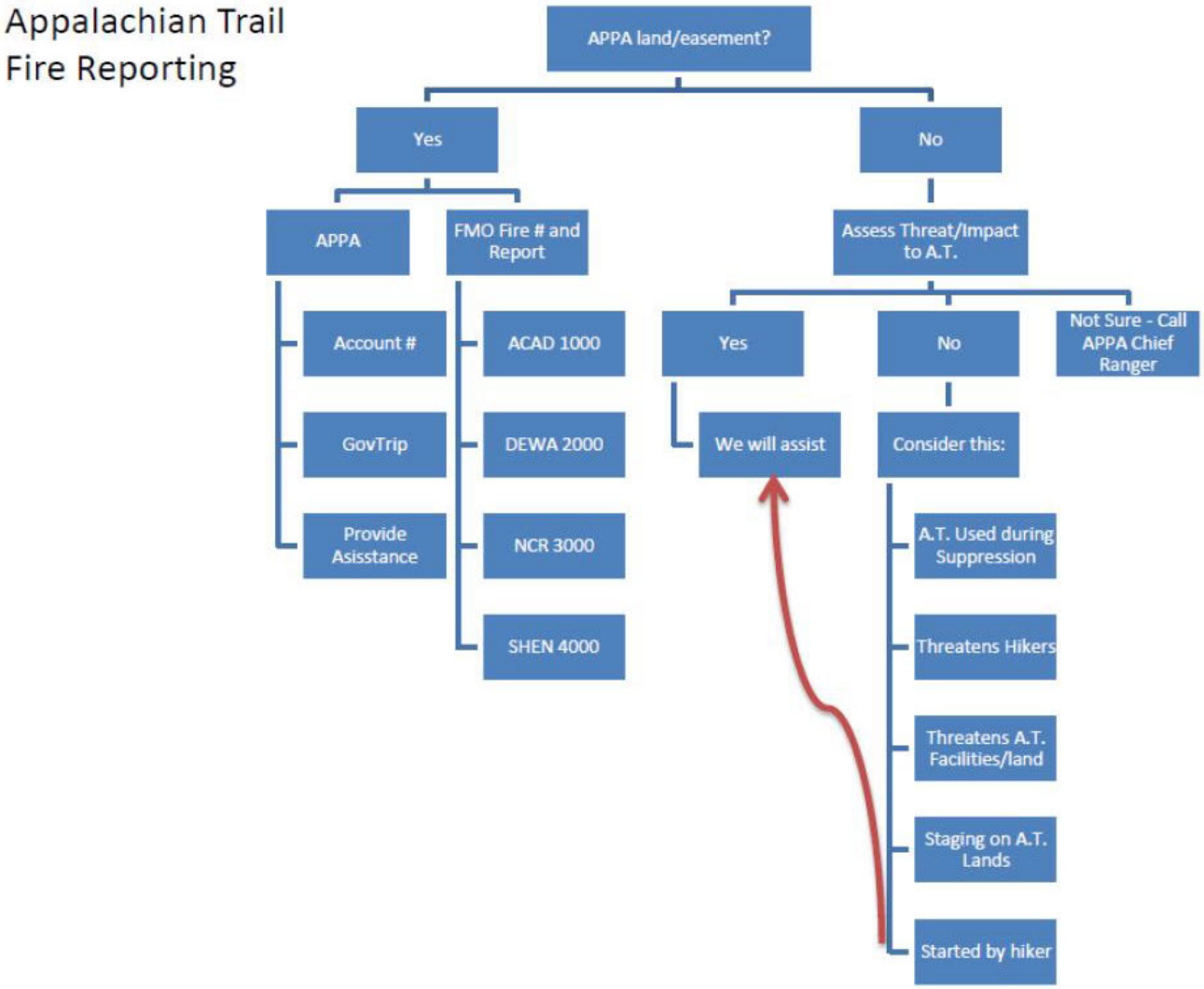
APPENDIX E FIRE REPORTING PROCEDURE



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APPENDIX F COMMUNICATION AND EDUCATION PLAN

No formal plan has been developed. This will be added as a program for prescribed fire implementation is initiated.

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APPENDIX G FIRE PREVENTION PLAN

There is no Wildland Fire Prevention Plan for APPA managed land at this time.

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APPENDIX H STANDARDS FOR MIST, BAER, AND REHABILITATION

Standards beyond the MIST-related objectives included in the Tactics in Chapter 3 and the BAER and Rehabilitation standards listed in Chapter 4.4 are yet to be developed.

APPENDIX I MASTER TABLE

NORTH COUNTRY FIRE MANAGEMENT ZONE													
FMZ Contact: Andy Mitchell (207) 288-8780 **State**		**Contact Name**	**Contact Number**	**Weather Stations**	**Agreements (initiated and expiration date)**	**GACC**	**APPA acres**	**Other Federal Acres**	**State Acres**	**Species of Concern**	**Special Resource to Note**	**Special Hazards**	**Spatial FMP Developed**
ME	**Katahdin (Baxter State Park) to Main-New Hampshire Line**	Andy Mitchell	[redacted]		7/17/12 Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 2017)	EACC	31,175	11	8,935	Eagle, bald; Lynx, Canada; Plover, piping; Puma, eastern; Tern, roseate; Wolf, gray; Pogonia, small whorled; Lousewort, Furbish; Orchid, eastern prairie fringed		Extreme fire behavior potential in boreal forests with large spruce component	
Primary State Fire Agency													
Maine Forest Service		Bill Hamilton ?	[redacted]										
Other Agency Partners													
Baxter State Park													
NH	**Maine-New Hampshire Line to New Hampshire-Vermont Line**				7/17/12 Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 2017)	EACC	41	22,110	775				
Primary State Fire Agency													
Other Agency Partners													
White Mountain National Forest													
VT	**New Hampshire-Vermont Line to Vermont-Massachusetts Line**				12/06/11 Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 2016)	EACC	1	19,282	527				
Primary State Fire Agency													
Other Agency Partners													
Green Mountain National Forest													
MA	**Massachusetts-Vermont Line to Massachusetts - Connecticut Line**				None	EACC	5,345	0	4,298	Beetle, American burying; Cooter, northern redbelly; Eagle, bald; Plover, piping; Puma, eastern; Tern, roseate; Tiger beetle, northeastern beach; Tiger beetle, Puritan; Turtle, bog (northern); Wolf, gray; Gerardia, sandplain; Pogonia, small whorled; Bulrush, Northeastern	Mount Greylock Summit Historic District and Tyringham Shaker Settlement Historic District		
Primary State Fire Agency													
Massachusetts Bureau of Forestry			[redacted]										
Other Agency Partners													
CT	**Connecticut-Massachusetts Line to Connecticut-New York Line**				None	EACC	6,686	0	812	Eagle, bald; Plover, piping; Puma, eastern; Tern, roseate; Tiger beetle, northeastern beach; Tiger beetle, Puritan; Turtle, bog (northern); Wolf, gray; Gerardia, sandplain; Pagonia, small whorled	Bull's Bridge and Falls Village District	Extreme fire behavior potential in boreal forests with large spruce component	
Primary State Fire Agency													
Connecticut Division of Forestry			[redacted]										
Other Agency Partners													
NY	**New York Connecticut Line to New York Route 17A**				7/17/2012 Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 2017)	EACC	8,517	0	3,080	Bat, Indiana; Butterfly, Karner blue; Eagle, bald; Plover, piping; Puma, eastern; Snail, Chittenango ovate amber; Tern, roseate; Turtle, bog (northern); Wolf, gray; Monkshood, northern wild; Gerardia, sandplain; Amaranth, seabeach; Fern, American hart's-tongue; Roseroot, Leedy's; Goldenrod, Houghton's	Bear Mountain Bridge and Toll House		
Primary State Fire Agency													
New York Dept of Environmental Conservation Protection and Emergency Management Unit		Colonel Andrew Jacob ?	[redacted]										
Other Agency Partners													
Wallkill National Wildlife Refuge		Mike Durfee, Zone FMO	[redacted]										
			[redacted]										

MID-ATLANTIC FIRE MANAGEMENT ZONE													
FMZ Contact:	Cliff Lively (570) 588-1845	Contact Name	Contact Number	Weather Stations	Agreements (initiated and expiration date)	GACC	APPA acres	Other Federal Acres	State Acres	Species of Concern	Special Resource to Note	Special Hazards	Spatial FMP Developed
State													
NJ	**New York Route 17A to Delaware River**				None	EACC	1,048	1,783	4,282	Bat, Indiana; Eagle, bald; Plover, piping; Puma, eastern; Tern, roseate; Tiger beetle, northeastern beach; Turtle, bog (northern); Wolf, gray; Joint-vetch, sensitive; Amaranth, seabeach; Pink, swamp; Pogonia, small whorled; Beaked-rush, Knieskern's; Chaffseed, American	High Breeze Farm		
Primary State Fire Agency													
New Jersey Forest Fire Service		Maris Gabliks, State Fire Warden	[redacted]										
Other Agency Partners													
Wailkill National Wildlife Refuge		Mike Durfee, Zone FMO	[redacted]										
PA	**Delaware River to Pennsylvania-Maryland Line**				None	EACC	14,018	414	13,162		Boiling Springs Historic District, Carbon County section of the Lehigh Canal, and Waterville Bridge	Palmerton Superfund site	
Primary State Fire Agency													
Pennsylvania Bureau of Forestry		Randy White, Chief, Forest Fire Protection Div	[redacted]										
Other Agency Partners													

NATIONAL CAPITAL AT FIRE MANAGEMENT ZONE													
FMZ Contact:	Jeffery Seabright (301-432-6945)	Contact Name	Contact Number	Weather Stations	Agreements (initiated and expiration date)	GACC	APPA acres	Other Federal Acres	State Acres	Species of Concern	Special Resource to Note	Special Hazards	Spatial FMP Developed
NCR Dispatch (Emergency):	866-677-6677												
State													
MD	**A.T. From MD-PA State line to Harpers Ferry, approximately 40 miles**	Jefferey Seabright	[redacted]5	180303-Antietam, 180301-Green Ridge, 180201-Catoctan	none	SACC	2,204		2,630	Bat, Indiana: Darter, Maryland: Eagle, Bald: Plover, piping: Puma eastern, Tiger beetle, northeast beach: Tiger beetle, Puritan: Turtle, bog (northern)		Overhead Powerlines	Draft
Primary State Fire Agency													
DNR-Forestry					none								
Other Agency Partners													
South Mountian Rcreation Area													
Greenbrier State Park													
Washington Monument State Park													
Gathland State Park													
Chesapeake and Ohio Canal NHP		NCR Dispatch	[redacted]		AT MOU			125					
WV	**AT from Potomac River to approximately Rt 9**				None	SACC	1,500		1	Bat, gray: Bat, Indiana: Bat, Virginia big-eared: Eagle, bald: Puma, eastern: Salamander, Cheat Mountain: Snail, flat-spired three-toothed: Squirrel, Virginia northern flying: Rock-cress, shale barren: Pogonia, small whorled: Harperella: Bulrush, Northeastern: Spirea, Virginia: Clover, running buffalo			
Primary State Fire Agency													
West Virginia Department of Forestry					None								
Other Agency Partners													
Harpers Ferry National Historical Park		Mark Howard	[redacted]		AT MOU			222					

NATIONAL CAPITAL AT FIRE MANAGEMENT ZONE													
FMZ Contact:	Jeffery Seabright (301-432-6945)	Contact Name	Contact Number	Weather Stations	Agreements (initiated and expiration date)	GACC	APPA acres	Other Federal Acres	State Acres	Species of Concern	Special Resource to Note	Special Hazards	Spatial FMP Developed
NCR Dispatch (Emergency):	866-677-6677												
State													
VA	A.T. from approximately Rt 9 to Rt 7				Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 12/31/13					Bat, gray; Bat, Indiana; Bat, Virginia big-eared; Eagle, bald; Isopod, Madison Cave Plover, piping; Puma, eastern; Salamander, Shenandoah; Snail, Virginia fringed mountain; Squirrel, Delmarva Peninsula fox; Squirrel, Virginia northern flying; Tern, roseate; Tiger beetle, northeastern beach; Turtle, bog (southern); Woodpecker, red-cockaded; Joint-vetch, sensitive; Amaranth, seabeach; Rock-cress, shale barren; Birch, Virginia round-leaf; Bittercress, small-anthered; Coneflower, smooth; Sneezeweed, Virginia; Pink, swamp; Mallow, Peter's Mountain; Pogonia, small whorled; Orchid, eastern prairie fringed; Harperella; Sumac, Michaux's; Bulrush, Northeastern; Spiraea, Virginia			
Primary State Fire Agency													
Virginia Department of Forestry		John Miller (Fire Chief)	[redacted]										
		Steve Counts (Operations)	[redacted]										
Other Agency Partners													

MOUNTAINS TO SEA FIRE MANAGEMENT ZONE													
FMZ Contact:	Jeff Koenig/SHEN Dispatch: 540-999-3412 (Emergency)	Contact Name	Contact Number	Weather Stations	Agreements (initiated and expiration date)	GACC	APPA acres	Other Federal Acres	State Acres	Species of Concern	Special Resource to Note	Special Hazards	Spatial FMP Developed
State													
VA	A.T. from Rt 7 to Shennandoah NP	Jeff Koenig	[redacted]	444002 Craig Valley, 440402 Fort Valley, 440901 Headquarters, 441801 Lime Kiln, 441906 Sawmill Ridge, 447502 Stony Fork	Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 12/31/13)	SACC	13,054		1,213	Bat, gray; Bat, Indiana; Bat, Virginia big-eared; Eagle, bald; Isopod, Madison Cave; Plover, piping; Puma, eastern; Salamander, Shenandoah; Snail, Virginia fringed mountain; Squirrel, Delmarva Peninsula fox; Squirrel, Virginia northern flying; Tern, roseate; Tiger beetle, northeastern beach; Turtle, bog (southern); Woodpecker, red-cockaded; Joint-vetch, sensitive; Amaranth, seabeach; Rock-cress, shale barren; Birch, Virginia round-leaf; Bittercress, small-anthered; Coneflower, smooth; Sneezeweed, Virginia; Pink, swamp; Mallow, Peter's Mountain; Pogonia, small whorled; Orchid, eastern prairie fringed; Harperella; Sumac, Michaux's; Bulrush, Northeastern; Spiraea, Virginia	Burke's Garden Rural Historic District, Skyline Drive Historic District, George T. Corbin Cabin and Stone Wall, Big Meadows Site	Fire behavior potential in areas with large tracts of NPS land, e.g., Catawba Mt. Any lands in Virginia can exhibit extreme fire behavior 15 to 20 days per year, typically during the spring fire season or during severe wind events.	
Primary State Fire Agency													
Virginia Department of Forestry		John Miller (Chief)	[redacted]										
		Jeff Counts (Operations)	[redacted]										
Other Agency Partners													
George Washington-Jefferson National Forest		Greg Sanders, Fire Program Manager	[redacted]										

MOUNTAINS TO SEA FIRE MANAGEMENT ZONE														
FMZ Contact: Jeff Koenig/SHEN Dispatch: 540-999-3412 (Emergency)		Contact Name	Contact Number	Weather Stations	Agreements (initiated and expiration date)	GACC	APPA acres	Other Federal Acres	State Acres	Species of Concern	Special Resource to Note	Special Hazards	Spatial FMP Developed
State													
VA	**AT from Shenandoah National Park to VA 311**			444002 Craig Valley, 440402 Fort Valley, 440901 Headquarters, 441801 Lime Kiln, 441906 Sawmill Ridge, 447502 Stony Fork	Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 12/31/13)	SACC				Bat, gray; Bat, Indiana; Bat, Virginia big-eared; Eagle, bald; Isopod, Madison Cave; Plover, piping; Puma, eastern; Salamander, Shenandoah; Snail, Virginia fringed mountain; Squirrel, Delmarva Peninsula fox; Squirrel, Virginia northern flying; Tern, roseate; Tiger beetle, northeastern beach; Turtle, bog (southern); Woodpecker, red-cockaded; Joint-vetch, sensitive; Amaranth, seabeach; Rock-cress, shale barren; Birch, Virginia round-leaf; Bittercress, small-anthered; Coneflower, smooth; Sneezeweed, Virginia; Pink, swamp; Mallow, Peter's Mountain; Pogonia, small whorled; Orchid, eastern prairie fringed; Harperella; Sumac, Michaux's; Bulrush, Northeastern; Spiraea, Virginia	Burke's Garden Rural Historic District, Skyline Drive Historic District, George T. Corbin Cabin and Stone Wall, Big Meadows Site	Fire behavior potential in areas with large tracts of NPS land, e.g., Catawba Mt. Any lands in Virginia can exhibit extreme fire behavior 15 to 20 days per year, typically during the spring fire season or during severe wind events.	
Primary State Fire Agency													
Virginia Department of Forestry		John Miller (Chief)	[redacted]										
		Jeff Counts (Operations)	[redacted]										
Other Agency Partners													
Blue Ridge Parkway		Steve Stinnett Chief Ranger	[redacted]										

Southern A.T. Fire Contacts													
This Zone does not contain any APPA-managed lands		Contact Name	Contact Number	Weather Stations	Agreements (initiated and expiration date)	GACC	APPA acres	Other Federal Acres	State Acres	Species of Concern	Special Resource to Note	Special Hazards	Spatial FMP Developed
State													
VA	**A.T. from Rt 311 south to Tennessee State Line**				Master Cooperative Wildland Fire and Stafford Act Response Agreement (expires 12/31/13)	SACC							
Primary State Fire Agency													
Virginia Department of Forestry		John Miller (Chief)	[redacted]										
		Jeff Counts (Operations)	[redacted]										
Other Agency Partners													
George Washington-Jefferson National Forest		Greg Sanders, Fire Program Manager	[redacted]										
TN							0		0				
Primary State Fire Agency													
Other Agency Partners													
Cherokee National Forest								11,758					

Southern A.T. Fire Contacts												
This Zone does not contain any APPA-managed lands **State**	**Contact Name**	**Contact Number**	**Weather Stations**	**Agreements (initiated and expiration date)**	**GACC**	**APPA acres**	**Other Federal Acres**	**State Acres**	**Species of Concern**	**Special Resource to Note**	**Special Hazards**	**Spatial FMP Developed**
NC						0		0				
Primary State Fire Agency												
Other Agency Partners												
Great Smoky Mountains National Park							7,457					
Pisgah & Nantahala National Forests							13,546					
Tennessee Valley Authority							90					
GA						0		0				
Primary State Fire Agency												
Other Agency Partners												
Chattahochee National Forest							7,790					

APPENDIX J CONTRACTS FOR WILDLAND FIRE RESOURCES

If any contracts are developed, they will be listed in the following table, including who the agreement is with, effective date, type and number of resources.

Contractor	Effective Date	Type and Number of Resources

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APPENDIX K INJURY OR DEATH PROCEDURE

Across the country, fire management responders and cooperators are involved in incidents that could result in firefighter injury or a fatality. All safety guidelines, like the 10 standard fire orders and LCES (Lookouts - Communications - Escape Routes - Safety Zones), will be followed on all fires and projects, but accidents may still occur. This plan addresses a communication process in the event of a serious injury or death on a wildland fire.

Serious Accident/Injury Definition

An unplanned event or series of events that resulted in death, injury, occupational illness, or damage to or loss of equipment or property. For wildland fire operations, a serious accident/injury involves any of the following:

- One or more fatalities.
- Three or more personnel who are in-patient hospitalized as a direct result of or in support of wildland fire operations.
- Property or equipment damage of $250,000 or more.
- Consequences that the Designated Agency Safety and Health Official (DASHO) judges to warrant Serious Accident Investigation. (For wildland fire-related serious accidents the NPS DASHO is the Division Chief, Fire and Aviation Management.)

Incident Commander Responsibilities

Request 911 Emergency Medical and LE assistance and/or Search and Rescue as needed. The IC has the overall responsibility for securing the accident/injury/fatality site and notifying the Chief Ranger. The IC may delegate control of the accident/fatality site to law enforcement or NPS personnel as appropriate.

Chief Ranger Responsibilities

- Notify the Park Manager, the Northeast Region Fire Management Officer, and the Wildland Fire Safety and Prevention Specialist at the Fire Management Program Center (FMPC) in Boise. The latter call is to order a Serious Accident Investigation Team (SAIT). The FMPC Specialist will prepare a delegation of authority for the team from the DASHO.
- Appoint a family liaison
- Prepare to deal with all administrative needs, and support information and communication needs.
- Prepare for incoming SAIT and make staff available to assist with related investigations.
- As needed, order qualified personnel to provide Critical Incident Stress Management.

More information regarding serious incident notification can be found on the NPS Law Enforcement, Security, and Emergency Services web page on Inside NPS. Non-wildland fire serious incidents may be reported by calling the NPS EICC at 540-999-3412 or 888-246-4335, or emailing NPS_EICC@nps.gov.

Initial Response Step-by-Step Procedures

1. Secure the scene.
2. Stabilize injured employees.
3. Account for all other employees.
4. Call 911, park dispatch, or other emergency service provider, or park Dispatch.
5. Secure the casualty site so no evidence is disturbed.
6. Notify the Chief Ranger.
7. Assist SAR shift rangers with extrication of injured or deceased.
8. Gather and document incident information (who, when, what, where).
9. Assist SAR shift rangers with securing and protecting the scene of the incident.
10. Notify park Superintendent.
11. Notify Northeast Region Fire Staff and FMPC Safety Staff.
12. Notify park Safety Officer, Public Affairs Officer, Human Resources Officer.
13. Appoint a family liaison.
14. Mobilize Critical Incident Stress Debrief staff, as needed.
15. Mobilize a SAIT team.
16. Notify the Shenandoah ICC at 540-999-3422 so that Shenandoah ICC can make notification to the DOI Emergency reporting system 877-246-1373 and the NPS DASHO 202-513-7218.
17. Notify appropriate Occupational Safety & Health Administration Area (OSHA) Office directly by dialing OSHA hotline 800-321-6742.
18. Start the administrative process.

References

NWCG PMS 926, Agency Administrator's Guide to Critical Incident Management, July 2008 www.nwcg.gov/pms/pubs/pms926.doc

Area Command / Incident Commanders – Information Officer Break Out, March 10, 2010 - Critical Incident Communication Plans /Dutch Creek.

Bureau of Land Management Employee Casualty Guide for Managers and Supervisors www.blm.gov/nhp/efoia/nhrmc/2000/IB/HRIB2000-108.pdf

Bureau of Land Management CSO, Serious Injury or Fatality Response Plan, Branch of Fire and Aviation. August 1, 2009.

National Park Service. Occupational Safety and Health Program. Reference Manual 50B. September 2008. www.nps.gov/policy/RM50Bdoclist.htm

APPENDIX L WILDLAND FIRE DECISION SUPPORT SYSTEM (WFDSS)

NPS fire policy (2013 Red Book) requires all wildfires that continue beyond initial attack to be entered into the WFDDS System for development of long-term management strategies. More detailed information about operations and input for WFDDS is located in the Red Book Chapter 11 and Appendix N. For APPA, this input will be made by the Zone FMO, with approval of the APPA Superintendent or Chief Ranger.

Minimum input information needed includes

- Point of origin and current fire size
- Strategic Objectives
- Management Requirements
- Geospatial data source location and managing authority

WFDSS approval authority levels differ between USFS and DOI. For DOI, cost estimates <$5 million may be approved by a Park Superintendent, $5 - $10 million by the Regional Director and >$10 million by the NPS Director. For USFS, approval authority levels are based on the incident management complexity; i.e., type 1 team, type 2, etc. For more information, see the Red Book, Chapter 11.

WFDDS Objectives for APPA lands:

- Protect firefighter and public safety during all fire management activities.
- Minimize the spread of fire onto private lands.
- Minimize disturbance to vegetation and soils when accessing fires.
- Select tactics that consider current and expected burning conditions and fire behavior, provides for safety and limits resource damage.
- Where possible use natural barriers, leaf blowers and wet lines as holding lines. Avoid the use of retardant in water and wetlands. Minimize mop-up. Minimize tree felling, and ORV use, and utilize hand tools where possible.
- Minimize direct effects to the treadway, the trail corridor and the boundary paint and monuments by limiting firefighting activity within sight of the trail and being aware of NPS boundaries. When firefighting within the corridor use leaf blowers or wet lines rather than digging, minimize the felling of trees. Avoid using the trail as a fire line. Avoid the use of ORV's and dozers on the trail or trail lands.
- Consider post-fire rehabilitation needs in consultation with and in compliance with National Park Service agency standards.
- Provide safety information and fire updates to hikers and cooperators.
- Accommodate hikers through alternate hiking routes or transportation.

  Restore and protect the natural biological diversity and the natural disturbance regime of Park ecosystems.