# Wildland Fire Management Plan

# Canyon de Chelly National Monument


## June 2005

## (Amended March 8, 2006)

Canyon de Chelly National Monument (CACH) is made up of a wide variety of plant communities representative of the Colorado Plateau and because it contains burnable vegetation, it is required to have a Fire Management Plan (FMP). In 2004, the National Park Service (NPS), the Bureau of Indian Affairs (BIA) Navajo Region, and the Navajo Nation Branch of Forestry notified the public that the interagency cooperative group was in the process of preparing an Environmental Assessment (EA) in support of a comprehensive FMP for the Navajo Nation and Cultural and NPS units within Navajo Nation. The NPS units included CACH, Chaco Canyon National Historical Park, Hubbell Trading Post National Historic Site, and Navajo National Monument. The comprehensive interagency planning document and associated Environmental Assessment is in draft form and will be completed in FY '06.

Completion of an interim FMP that addresses wildland fire is critical to the management and preservation of park resources. The following summarizes short-term fire management needs:

- Guide the decision-making process where safety, social, political, and resource values are evaluated, and appropriate management strategies are identified for wildland fires.
- Provide a framework to be able to plan and implement a wildland fire program across agency boundaries.

## Wildland Fire Management Plan for Canyon de Chelly National Monument

**Prepared by:**_____ _____

**Elaine Leslie, Assistant Superintendent** **Date**

**National Park Service, Canyon De Chelly National Monument**

**Reviewed and Concur:**_____ _____

**Mark Mullenix, FMO** **Date**

**National Park Service, Mesa Verde National Park**

**Approved:**_____ _____

**Scott Travis, Superintendent** **Date**

**National Park Service, Canyon De Chelly National Monument**

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## I. Introduction

Purpose and Need

The 1995 Federal Fire Policy, IAM Release #99-04, Part 90, Chapter 2.1, the 2000 National Fire Plan, and the 2001 Review and Update of the 1995 Federal Fire Policy mandate that every burnable acre must have an approved fire management plan. Director's Order-18 (DO-18) requires that all NPS park units with burnable vegetation have a wildland fire management plan approved by the superintendent. This Fire Management Plan will help achieve the goals of CACH by developing strategies that will help protect the park from impacts of fire and fire suppression actions. This plan meets the requirement of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA).

This document establishes a Wildland Fire Management Plan (WFMP) under the guidelines and policies for the National Park Service (NPS) for CACH. Unwanted wildland fires have grown in size, intensity, and frequency over the last 20 to 30 years. This has caused undesirable changes in the composition and structure (age and size) of forest and rangeland vegetation. One of the primary factors responsible for the changes noted above is fire exclusion in forested ecosystems, which has led to uncharacteristically high fuel loadings and threats to both cultural and natural resources. The increasing size, intensity, and severity of wildland fires pose a greater threat to human life and property. More people are recreating in the park and occupying homes in wildland areas, increasing their exposure to naturally ignited wildland fires and increasing the risk of human-caused wildland fire ignitions.

While suppression of unwanted wildland fires will continue, land managers need additional options in addressing ways to help achieve the desired conditions as described in comprehensive fire management planning and implementation documents. Responsible and appropriate use of prescribed and wildfire for resource benefit at a landscape scale is needed to help reduce hazardous fuels and sustain wildland ecosystems into the future. Fire management direction has been modified accordingly, and new management direction will be added to the park's plans to address these concerns at a later date.

The goals of this FMP are to improve fire prevention and suppression and to promote community assistance, while ensuring the safety of employees and the public.

A. General Background

CACH was established in 1931 to preserve a significant collection of prehistoric and historic cultural/archeological resources representing nearly 4000 - 5000 years of Ancestral Puebloan, historic and modern-day Navajo settlement history. Along the canyon floor and rim areas of canyons de Chelly and del Muerto (both within the National Monument) remain the homes, farms, and traditional grazing lands of approximately 80 Navajo families. The 1931 legislation establishing the monument assigned primary responsibility for the management of cultural and natural resources, park administration and visitor services to the monument. Located in the northeastern corner of Arizona, near Chinle, CACH occupies an area of approximately 84,000 acres. The monument provides spectacular scenery and an unparalleled example of an Ancestral Puebloan landscape reflecting the relationship between community and environment through time. In addition, the canyon exhibits the historic and present utilization of the landscape by the Navajo people. Specific park purposes as identified by the parks enabling legislation include:

- To preserve outstanding prehistoric Ancestral Puebloan archeological resources for their scientific, cultural, and scenic values.
- To preserve and protect features of historical and sacred significance to the Navajo and other Native American peoples.
- To provide for the protection and care of other scientific features and objects.
- To provide for the education, care, and accommodation of visitors to the monument.

Director's Order-18 (DO-18) requires that all NPS park units with burnable vegetation have a wildland fire management plan approved by the superintendent. The FMP will help achieve the goals of the monument by developing strategies that will help protect the monument from impacts of fire and fire suppression actions. This plan meets the requirement of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). This FMP was completed through coordination and collaboration with park neighbors, constituent groups, stakeholders, cooperators, and partners.

Ultimate responsibility for fire management is under the CACH Superintendent. The Area Fire Management Officer from nearby Mesa Verde National Park (MEVE) provides support. Designation of a CACH staff member as Fire Coordinator will be essential to all phases of fire management. CACH currently has no staff members qualified above the level of Firefighter 2 (FFT2). Therefore, CACH has no individuals qualified to act as an Incident Commander (ICT5, ICT4 etc), or single resource boss. Because of this, CACH will rely heavily upon the MEVE fire program for support in addition to interagency partners for suppression actions.

CACH will review and update the fire management plan annually. Annual review is essential to ensure that the FMP continues to conform to current laws, objectives, procedures and strategies. A comprehensive plan revision, and NEPA compliance review, is required every five years. CACH will provide a digital copy of each approved FMP and all subsequent amendments to the NPS Fire Management Program Center (FMPC), located at the National Interagency Fire Center (NIFC), in Boise, Idaho.

B. Collaborative Processes used in Plan Development

This plan has involved local agency cooperators including the Navajo Nation, the Navajo Area of the Bureau of Indian Affairs, Chinle, Tsaile, and Wheatfields Chapters, Chinle Fire Department, and the State of Arizona. The FMP will implement the policies and support the achievement of goals identified in the Federal Wildland Fire Management Policy and Program Review (1996), Managing Impacts of Wildfires on Communities and Environment and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (1999), and A Collaborative Approach for Reducing Wildland Fire Risks to Communities and Environment: 10-year Comprehensive Strategy Implementation Plan (2002). Authority for development and implementation of the fire management program at CACH is included in the National Park Service Organic Act, August 25, 1916. Servicewide fire management policy is expressed in the NPS Directors Order #18 (DO #18 – Wildland Fire Management Guidelines) and NPS Reference Manual #18. The Interagency Standards for Fire and Fire Aviation Operations (the Red Book) references, or supplements policy for the National Park Service fire and fire aviation management operations. The document is updated and released annually.

Planning including this Fire Management Plan was developed with input from neighboring communities, and other NPS program management areas.

The activities covered by the Plan have been given due consideration in balance with other NPS unit management activities.

The superintendent is responsible for assuring policy compliance and the technical and operational soundness of the wildland fire management plan before he or she approves it. Before approving the plan, the superintendent sought the review and advice of Park staff, area and regional staff, and other fire professionals.

C. Authorities

The authority for fire management is found in the National Park Service Organic Act (Act of August 25, 1916), which states that the Agency's purpose:

*"... is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."*
This authority was further clarified in the National Parks and Recreation Act of 1978:

*"Congress declares that...these areas, though distinct in character, are united...into one national Park system.... The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."*

Additional statutory authorities are:

- The General Authorities Act of 1970
- 46 Stat. 1161, February 14, 1931. " An Act authorizing the establishment of a National Monument at Canyon de Chelly, Apache County, Arizona"
- The Clean Air Act, Clean Water Act
- The Endangered Species Act
- The Antiquities Act.

D. Implementation of Federal Fire Management Policy

This Fire Management Plan will implement fire management policies and help achieve resource management and fire management goals defined in:

- Federal Wildland Fire Management Policy and Program Review (1995)

- Managing Impacts of Wildfires on Communities and the Environment, and Protecting People and Sustaining Resources in Fire Adapted Ecosystems – A Cohesive Strategy (USDOI/USDA, 2002)

- A Collaborative Approach for Reducing Wildland Fire Risks to Communities and the Environment: 10 Year Comprehensive Strategy Implementation Plan (2001)

- The Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide (1998)

- Managing the Impacts of Wildfires on Communities and The Environment (2002)

- National Fire Plan (2001)

- 10-Year Comprehensive Strategy (2001)

- Implementation Plan, 10-Year Comprehensive Strategy (2001)

- National Park Service Management Policies (2001)

- Canyon de Chelly National Monument Joint Management Plan (1989)

- The Interagency Standards for Fire and Fire Aviation Operations (The Red Book) states, references, or supplements policy for the NPS fire management operations (USDI/USDA 2005).

E. Compliance

Wildland fire suppression is conducted within CACH as an emergency action. Other elements of wildland fire management (prescribed fire, fuel management, burned area rehabilitation, etc.) are non-emergency actions.

An integrated resource management plan does not currently exist for the Navajo Nation. Therefore, comprehensive management objectives are being developed in the Navajo Regional Fire Management Plan in conjunction with several park units, Navajo Nation Department of Forestry (NNDF), and the Bureau of Indian Affairs (BIA). That document is expected to be completed in early FY'06. National Park Service Units establish management objectives from General and/or Cultural and Natural Resource Management Plans. Hubbell Trading Post manages resources under a Resource Management Plan and a Long Range Interpretive Plan. Chaco Culture NHS manages park resources under a General Management Plan and a Resource Management Plan. Navajo NM recently completed a General Management Plan. CACH is currently developing a General Management Plan.

These activities are subject to the requirements of NEPA, the National Historic Preservation Act (NHPA), the Endangered Species Act (ESA), and other applicable regulations. Compliance with NEPA guidelines is being satisfied through a Categorical Exclusion for CACH. On June 5, 2003, two new fire management

categorical exclusions (CEs) were published in the Federal Register (Vol 68, No. 108, pages 33814-33824). The NPS has determined that in very limited instances parks doing suppression and fuels reduction activities, which meet the guidelines, can use the CEs in conjunction with fire management plans. CACH meets those specified guidelines.

The NPS received few comments during the public scoping period. Because of the low level of controversy identified during public scoping and because CACH meets the specified guidelines for the use of the CE, the NPS has determined to proceed with a categorical exclusion for implementation of a FMP program and associated suppression activities.

The park will continue to work on an interagency comprehensive FMP with cooperators for release at a later date. Consultations, emergency, informal or formal, on individual future actions may be necessary depending on the magnitude and likelihood of project-specific effects. Section 7 consultations will be used as a tool to address adverse effects with the goal of avoiding or minimizing to the extent practicable. This plan meets NEPA, ESA and NHPA requirements for all activities described in the plan. The FMP incorporated a programmatic approach to the NEPA that covers all activities described in the fire management plan. This FMP outlines a program of action for implementing wildland fire management policies designed to achieve fire protection objectives at CACH.

## II. Relationship to Land Management Planning and Fire Policy

Documents Used to Develop this Plan Include:

- Federal Review and Update of the 1995 Federal Wildland Fire Management Policy and Program Review, January 2001
- Director's Order 18 Wildland Fire Management, 2003
- Reference Manual 18, Wildland Fire Management, 1999
- Interagency Standards for Fire and Fire Aviation Operations, 2004

This FMP will be an appendix to the BIA/NPS Joint FMP. This plan complies with the U.S. DOI requirement that Fire Management Plans must be developed for all areas subject to wildland fires, and with the Federal Wildland Fire Management Policy and Program Review; the Wildland and Prescribed Fire Management Policy and Implementation Procedures Reference Guide, *Managing Impacts of Wildfires on Communities and the Environment;* and *Protecting People and Sustaining Resources in Fire Adapted Ecosystems: A Cohesive Strategy* (FSM 5101, 5103, and 5108).

This document also complies with NPS requirements that FMPs help achieve resource management and fire protection goals defined in higher-tier management plans, such as the CACH General Management Plan. National Park Service fire management actions will be implemented in accordance with regulations and directions governing protection of historic and cultural properties outlined in Part 519 of the Department of the Interior's Departmental Manual; Title 36 of the Code of Federal Regulations; and Section 106 of the National Historical Preservation Act, and US Fish and Wildlife Wildland Fire Consultation Guidelines. Clearance procedures will be followed for any fire

management activity that could affect threatened or endangered species, historic, cultural, or archeological resources.

A. Fire-Related Management Policies

1. National Park Service Policy

The guiding policies for fire management at CACH are the *Federal Wildland Fire Management Policy* (2001, updated from 1995 policy), and *Draft CACH National Park General Management Plan (2005).*

In addition, CACH will use low impact methods and tactics as described in The National Park Service's Reference Manual, *Wilderness Preservation and Management* (1999) that includes the following policies:

- Actions taken to suppress wildfires will use the minimum requirement concept, and will be conducted in such a way as to protect natural and cultural features and to minimize the lasting impacts of the suppression actions and the fires themselves. Although no designated or proposed wilderness areas have been established in CACH, the park will embrace and implement these concepts.

2. Interagency Policy

The 2001 Federal Wildland Fire Management Policy directs federal agencies to achieve a balance between suppression to protect life, property, and resources, and fire use to regulate fuels and maintain healthy ecosystems. The policy provides nine guiding principles that are fundamental to the success of the federal wildland fire management program:

1) Firefighter and public safety is the first priority in every fire management activity.
2) The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
3) Fire Management Plans, programs, and activities support land and resource management plans and their implementation.
4) Sound risk management is a foundation for all fire management activities.
5) Fire management programs and activities are economically viable, based upon values to be protected, costs, and land and resource management objectives.
6) Fire Management Plans and activities are based upon the best available science.
7) Fire Management Plans and activities incorporate public health and environmental quality considerations.
8) Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.

Standardization of policies and procedures among federal agencies is an ongoing objective.

2001 Federal Wildland Fire Management Policy

1. Safety. Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.
2. Fire Management and Ecosystem Sustainability. The full range of fire management activities will be used to help achieve ecosystem sustainability, including its interrelated ecological, economic, and social components.
3. Response to Wildland Fire. Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, and across agency boundaries. Response to wildland fire is based on ecological, social, and legal consequences of the fire. The circumstances under which a fire occurs, and the likely consequences to firefighter and public safety and welfare, natural and cultural resources, and values to be protected dictate the appropriate management response to the fire.
4. Use of Wildland Fire. Wildland fire will be used to protect, maintain, and enhance resources and, as nearly as possible, be allowed to function in its natural ecological role. Use of fire will be based on approved Fire Management Plans and will follow specific prescriptions contained in operational plans.
5. Rehabilitation and Restoration. Rehabilitation and restoration efforts will be undertaken to protect and sustain ecosystems, public health, and safety, and to help communities protect infrastructure.
6. Protection Priorities. The protection of human life is the single, overriding priority. Priority-setting among protecting human communities and community infrastructure, other property and improvements, and natural and cultural resources will be based on human health and safety, the values to be protected, and the costs of protection. Once people have been committed to an incident, these human resources become the highest value to be protected.
7. Wildland–Urban Interface. The operational roles of federal agencies as partners in the Wildland–Urban Interface are wildland firefighting, hazardous fuels reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of Tribal, State, or local governments. Federal agencies may assist with exterior structural protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer, and may also enter into formal agreements to assist State and local governments with full structural protection.)
8. Planning. Every area with burnable vegetation must have an approved Fire Management Plan. Fire Management Plans are strategic plans that define a program to manage wildland and prescribed fires based on an area's approved land management plan. Fire Management Plans must provide for firefighter and public safety; include fire management strategies, tactics, and alternatives; address values to be protected and public health issues; and be consistent with resource management objective, activities of the area, and environmental laws and regulations.
9. Science. Fire Management Plans and programs will be based on a foundation of sound science. Research will support ongoing efforts to increase our scientific knowledge of biological, physical,

and sociological factors. Information needed to support fire management will be developed through an integrated interagency fire science program. Scientific results must be made available to managers in a timely manner and must be used in the development of land management plans, Fire Management Plans, and implementation plans.

**10.** Preparedness. Agencies will ensure their capability to provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, equipment, and management oversight.

**11.** Suppression. Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.

**12.** Prevention. Agencies will work together with local partners and other affected groups and individuals to prevent unauthorized ignition of wildland fires.

**13.** Standardization. Agencies will use compatible planning processes, funding mechanisms, training and qualification requirements, operational procedures, value-to-be-protected methodologies, and public education programs for all fire management activities.

**14.** Interagency Cooperation and Coordination. Fire management planning, preparedness, prevention, suppression, fire use, restoration and rehabilitation, monitoring, research, and education will be conducted on an interagency basis with the involvement of cooperators and partners.

**15.** Communication and Education. Agencies will enhance knowledge and understanding of wildland fire management policies and practices through internal and external communication and education programs. These programs will be continuously improved through the timely and effective exchange of information among all affected agencies and organizations.

**16.** Agency Administrators and Employee Roles. Agency administrators will ensure that their employees are trained, certified, and made available to participate in the wildland fire program locally, regionally, and nationally as the situation demands. Employees with operational, administrative, or other skills will support the wildland fire program as necessary. Agency administrators are responsible and will be held accountable for making employees available.

**17.** Evaluation. Agencies will develop and implement a systematic method of evaluation to determine effectiveness of projects through implementation of the 2001 Federal Fire Policy. The evaluation will assure accountability, facilitate resolution of areas of conflict, and identify resource shortages and agency priorities.

Desired Condition, Goals, and Objectives

Human life (firefighter and public safety) is the highest priority during a fire. Once firefighters have been assigned to a fire, their safety becomes the highest value to be protected. Property and natural and cultural resources are lower priorities. When assigning protection priorities to property and natural and cultural resources, decisions will be based on relative values to be protected, commensurate with fire management costs.

B. NPS Management Policies as Related to Fire Management

The *National Park Service Management Policies (2001)* is the basic Service-wide policy document of the National Park Service. It is the highest of three levels of guidance documents in the NPS Directives

System. *National Park Service Management Policies* is designed to provide NPS management and staff with clear information on NPS policy, required and/or recommended actions, and other information to help them manage parks and programs effectively. Appendix B contains a summary of elements relating to compliance with the 2001 Federal Wildland Management Policy.

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

- *Park fire management programs will be designed to meet park resource management objectives while ensuring that firefighter and public safety are not compromised. (NPS Management Policies, Chapter 4.5).*

Each park with vegetation capable of burning will prepare a fire management plan and will address the need for adequate funding and staffing to support its fire management program. The plan will be designed to guide a program that responds to the park's natural and cultural resource objectives; provides for safety considerations for park visitors, employees, neighbors, and developed facilities; and addresses potential impacts to public and private property adjacent to the park. Preparation of the plan will include collaboration with adjacent communities, interest groups, state and federal agencies, and tribal governments. (*NPS Management Policies, Chapter 4.5*).

All fires burning in natural or landscaped vegetation in parks will be classified as either wildland fires or prescribed fires. All wildland fires will be effectively managed through application of the appropriate strategic and tactical management options. These options will be selected after comprehensive consideration of the resource values to be protected, firefighter and public safety, and costs. Prescribed fires are those fires ignited by park managers to achieve resource management and fuel treatment objectives. Prescribed fire activities will include monitoring programs that record fire behavior, smoke behavior, fire decisions, and fire effects to provide information on whether specific objectives are met. All parks will use a systematic decision-making process to determine the most appropriate management strategies for all unplanned ignitions, and for any prescribed fires that are no longer meeting resource management objectives. (*NPS Management Policies, Chapter 4.5*)

There may be situations in which an area may be closed to visitor use to protect the natural resources (for example, during an animal breeding season) or for reasons of public safety (for example, during a wildland fire). Such closures may be accomplished under the superintendent's discretionary authority, and will comply with applicable regulations (36 CFR 1.5 and 1.7). (*NPS Management Policies, Chapter 4.1*)

The second level of NPS guidance documents (under *NPS Management Policies*) are Director's Orders. Director's Orders provide operational policies and procedures that support and supplement Management Policies. Director's Orders are often further supported with a third level of guidance consisting of reference manuals or handbooks. Specific guidance to the NPS on wildland fire is contained in Directors Orders (DO-18) and attendant Reference Manual (RM-18), and "The Wildland and Prescribed Fire Management Policy: Implementation and Reference Guide" (1998).

*Director's Order 18 – Wildland Fire Management* and *Reference Manual 18 – Wildland Fire Management* are the documents that provide National Park Service units with specific guidance on the preparation of wildland fire management plans and on wildland fire and prescribed fire management. DO-18 states:

> *Wildland fire may contribute to or hinder the achievement of park management objectives. Therefore, park fire management programs will be designed to meet resource management objectives prescribed for the various areas of the park and to ensure that firefighter and public safety are not compromised. Each park with vegetation capable of burning will prepare a fire management plan to guide a fire management program that is responsive to the park's natural and cultural resource objectives and to safety considerations for park visitors, employees, and developed facilities.*
>
> *The NPS is committed to protecting park resources and natural ecological processes; but firefighter and public safety must be first priority in all fire management activities.*

RM-18 states that the paramount considerations of each park fire management program will be:

1. Protection of life, resident, employee and public
2. Protection of facilities and cultural resources
3. Perpetuation of natural resources and their associated processes
4. Perpetuation of cultural and historic scenes Cultural landscapes, farmsteads)

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

> *Safety is the responsibility of everyone assigned to a wildland or prescribed fire incident. The safety of employees and visitors alike must be of prime concern during fires. Agency administrators at all levels need to stress that firefighter and visitor safety always takes precedence over property and resource loss.*

## III. Wildland Fire Management Strategies

Wildland fires are those fires that have not been ignited for a specific CACH goal or goals. Wildland fires will be managed primarily with the goal of immediate suppression. The choice of a particular method of suppression will take into account the safety of firefighters and the public, the values to be protected, the weather, current and predicted fire behavior, topography and fuels. These suppression methods are thought of as a list of choices or "appropriate management responses."

### A. General Management Considerations

The wildland fire management program at CACH has specific goals in order to protect human health and safety, protect property, reduce wildland fire risk and protect cultural and natural resources.

All wildland fires will be suppressed using the appropriate management response in a safe and cost-effective manner with minimum damage to resources. The BIA will serve as the first response for fires that occur in the Monument. This is because CACH does not currently have staff that is qualified to perform initial attack on wildland fires.

CACH staff recognizes that collaboration with other agencies is essential to effectively and efficiently manage wildland fire. The NPS is a signatory of the Annual Operating Plan for Fire Management between the U.S. Forest Service, Bureau of Land Management, NPS, Bureau of Indian Affairs, the Navajo Nation and the State of Arizona for fire management activities in northeastern Arizona. This plan documents the agencies' agreement and commitment to fire protection assistance and cooperation.

CACH is also a signatory in an intra-Service agreement with Mesa Verde National Park. In the agreement, Mesa Verde assumes a leadership role and provides management support for fire-related issues. The above partners, interested and affected groups and agencies, and the public have been involved in the collaborative process used to develop this FMP.

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

B. Wildland Fire Management Goals

The NPS is committed to protecting park resources and natural ecological processes, but firefighter and public safety must be the first priority in all fire management activities. The overall goals for FMP are to promote a fire prevention program and to ensure a suppression response that is capable of meeting expected wildland fire complexity. Specific park fire management goals are:

- Make firefighter and public safety the highest priority of every fire management activity.
  Objective: 100 percent of wildland fire operations are conducted so that they cause no injuries to the public and no serious injuries to firefighters.
- Manage wildland fires so that resources (natural, cultural, and improvements) are protected from damage by suppression actions and fire.
  Objective: Protection of Park resources is actively considered in 100 percent of all wildland fire planning and fire management activities. Consideration of resource protection will be described in 100 percent of all wildland fire planning and management documents (FMP, WFIP WFSA, BAER Plan, etc.).
- Prevent wildland fires from spreading onto adjacent lands.
  Objective: Incidents will be managed so that 100% of fires on the Monument will be prevented from spreading to adjacent land.
- To maintain an active fire prevention program to reduce the incidence and threat of wildfire.
- To rehabilitate areas disturbed by wildland fire and suppression actions.

- To maintain fire management agreements with adjacent land management agencies and local fire departments.
- Reduce fuel hazards around cultural and historic sites as well as along the unit boundary.

C. Wildland Fire Management Options

The following wildland fire management options are available for use at CACH:

1. Wildland Fire Suppression:

Historically, all wildland fires have been suppressed at CACH. Under this plan, the Monument will continue to suppress all wildland fires using the most appropriate management action. Determination of the most appropriate management action will consider human safety, threat and potential damage to property, resources, and cost effectiveness. Suppression may not be used to accomplish resource objectives.

2. Wildland Fire Use: Wildland fire use will not be used at CACH at this time.

3. Prescribed Fire (with and without mechanical pre-treatment):

Prescribed fire is a viable and essential fire management option at CACH. Ignition of treated fuels such as piles following mechanical manipulation (mostly hand cutting with chainsaws) is the preferred burning complexity level. However, more complex burning levels may increase, provided sufficient planning and resource mitigation are in place. Refer to Section IV - Fuels Management.

4. Mechanical Treatments (hand and/or machine):

Opportunities exist for mechanical treatments in support of the exotic plant removal programs and WUI efforts to protect farmsteads and homesteads of canyon residents. Mechanical treatment includes activities undertaken using equipment or hand tools. Dead and downed woody debris removal is used to reduce ground fuel. Stumps of invasive species such as tamarisk and Russian olive are extracted, piled and burned following approved herbicide application. Mechanical chipping of created slash piles is also a viable treatment in some areas. Residual chips may be lightly broadcast or hauled off and utilized for a variety of products. Biomass disposal via firewood dispersal and consumption is expected to total approximately 150 cords annually to the occupants in the WUI areas.

Hand piling and burning activities will be classified as debris removal if the slash is hauled and burned at a designated burn pit. A burn plan is to be prepared in the customary cases of pile burning occurring on vegetated lands of CACH. Refer to Section IV - Fuels Management.

D. Description of Fire Management Units (FMU)

The Monument will be divided into the following units based on Draft General Management Plan:
- Backcountry Travel Corridor
- Traditional Community Use
- Sensitive Resources

- Scenic Protection and Motorized Scenic
- Developed and Monument Operations

Refer to the Fire Management Units map in the appendices for specific locations of these units.

A management strategy of suppression activities for each of these zones will be developed in a comprehensive manner in conjunction with the Joint Fire Management Planning process with BIA.

1. Wildlife

All species listed as threatened, endangered, or proposed for listing as determined by the U.S. Fish and Wildlife Service (USFWS) and those species listed by the Navajo Nation will receive the full protection of the federal Endangered Species Act of 1973 (ESA), as amended, and may not be harmed under penalty of law.

Bald Eagle (*Haliaeetus leucocephalus*)

The bald eagle was listed as endangered in 1967. The species was reclassified from endangered to threatened in July 1995.

Bald eagles occur in Arizona as either breeding populations or winter migrants. Arizona bald eagles occur at elevations between 460 and 7,390 feet. Nests occur in tall trees, cliff faces, ledges, and pinnacles near open water for foraging. Perches for shelter, roosting, foraging and guarding are important habitat components. The diet of eagles is comprised mainly of fish, with small mammals, carrion, birds and reptiles eaten to a lesser extent. Nesting occurs along central Arizona rivers including the Salt and Verde Rivers. New nest sites along the Gila, Bill Williams, Agua Fria, and San Pedro drainages indicate that the Arizona population is increasing. Since 1992, nearly 250 winter bald eagles have been observed each year in Arizona, with most occurring close to water in coniferous forests near Flagstaff and the White Mountains (AGFD 1996). Bald eagle nesting does not occur within CACH, but wintering eagles have been observed within the Park boundaries.

The winter population of bald eagles in CACH has not been formally monitored. However, opportunistic monitoring has taken place starting in the winter of 2004-05. Data on wintering bald eagles in CACH in 2004/2005, while not thorough surveys, found eagles at several locations along the rims.

California Condor (*Gymnogyps californianus*)

The California condor was listed as an endangered species in March 1967 and remains classified as endangered today. In 1996, the U.S. Fish and Wildlife Service established a nonessential, experimental population of condors in northern Arizona. In December 1996, the first condors were released in the Vermillion Cliffs area of Coconino County, Arizona, approximately 48 kilometers (30 miles) north of GRCA. By declaring the population “experimental, nonessential”, the U.S. Fish and Wildlife Service can treat this population as “threatened” and develop regulations for management of the population that are less restrictive than mandatory prohibitions covering endangered species. This facilitates efforts to return the condor to the wild by providing increased opportunities to minimize conflict between the

management of the condors with other activities. Within CACH, the condor has the full protection of a threatened species.

California condors are strict scavengers and rely on finding their food visually, often by investigating the activity of ravens, coyotes, eagles, and other scavengers. Without the guidance of their parents, young, inexperienced juveniles may also investigate human activity. As young condors learn and mature, this human-directed curiosity diminishes. Nesting habitat for California condors includes various types of rock formations such as crevices, overhung ledges, and potholes. Roost sites include cliffs and tall trees, including snags. California condors typically forage in open terrain, although recent records are indicating that foraging is occurring in close proximity to clusters of trees. Typical foraging behavior includes long-distance reconnaissance flights, lengthy circling flights over a carcass, and hours of waiting at a roost or on the ground near a carcass.

All individual condors in northern Arizona are fitted with radio transmitters allowing field biologists to monitor their movements. The condors have been observed as far west as the Virgin Mountains near Mesquite, Nevada; south to the San Francisco Peaks outside of Flagstaff, Arizona; north to Zion and Bryce National Parks and beyond to Minersville, Utah; and east to Mesa Verde, Colorado and the Four Corners region. One observation of a condor flying over the park is available in the park natural resource data files. The bird did not land or roost and was flying in a west to easterly direction in 2003.

Mexican Spotted Owl (*Strix occidentalis lucida*)

Mexican spotted owls (MSO) occur in Arizona, New Mexico, southern Utah, and portions of Colorado and in Mexico. The MSO was listed as a threatened species in March 1993. Critical habitat was removed from critical habitat designation. The MSO Recovery Plan (USFWS 1995a) identifies six recovery units; CACH is located within the Colorado Plateau Recovery Unit.

MSO are typically associated with late seral forests and are generally found in habitat that includes mixed conifer or pine-oak forests, riparian madrean woodland, and sandstone canyonlands. However, MSO have been found in relatively open shrub and woodland vegetation in arid canyonland habitat. MSO do not build nests, but use naturally occurring sites, often in large diameter trees, cliff cavities, and abandoned hawk or raven nests. MSO prey mainly on small mammals, particularly arboreal or semi-arboreal species, although birds, insects, reptiles, and other types of small mammals are taken as well. Prey species composition varies by cover type. MSO are known to occur in the canyon habitat of CACH and multiple territories (Protected Activity Centers) have been designated.

Canyon habitat for the MSO is scattered throughout CACH below the rims. The size and extent of the MSO population at CACH is currently unknown but recent surveys are detecting owls and mapping habitat. A MSO radio telemetry study has been proposed for funding to begin in 2007. A traditional survey along the north and south rim roads in the park will begin in late May 2005.

MSO and their habitat may be affected directly and indirectly by recreation or construction activities: directly through disturbances to the nest, roost, or foraging sites, and indirectly through alteration of habitat caused by trampling. These activities may cause nest or territory abandonment, reduced productivity (through increased mortality of young by reduced ability to provide food to nestlings, increased predation, or increased nestling exposure), egg loss, and/or disrupted nesting, roosting, or foraging behavior. Disturbances at foraging sites may influence MSO's ability to capture food and this

in turn may lead to reduced fitness of adults, which in turn may lead to lessened egg production, and lower nestling and/or adult survival. Although MSO are predominantly nocturnal hunters, they have been observed hunting during the day during the breeding season. Both adult and fledged young are known to drink from small seeps and creeks, and abnormal activity in side canyons during the crepuscular time may impact access to the small pools of water that may be present in the side canyons within CACH.

Flushing of MSO from roost or nest sites can cause the expenditure of energy and can create increased exposure of birds to predators. The potential for park activity to disturb owls is probably greatest where hiking or noise impact is concentrated in narrow canyon bottoms occupied by nesting or roosting owls. Raptors are generally most sensitive to disturbances near the nest site during the breeding season. Disturbance effects will vary depending on the type of and the time of year and nesting status of the birds.

While no comprehensive studies have been undertaken in CACH to measure the disturbance effects on MSO or other avian species in the canyon environment, Swarthout and Steidl conducted research in the slickrock canyons of the Colorado Plateau on responses of MSO to a single hiker and associated activity. They found that 95% of both adult and juvenile MSO became alert to an approaching hiker at distances of $\leq$ 55 meters. In addition, they found that 95% of adult MSO flushed at $\leq$ 9 meters from the hiker. Ninety-five percent of juveniles flushed at $\leq$ 6 meters from the hiker. Perch height was an important factor in determining flush response and flushing decreased with increasing perch height. However, females in nests highest above hiking trails showed the strongest response in decreasing their handling of prey, suggesting that a higher vantage point may expose these owls to disturbance from hikers for a longer period of time.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

The southwestern willow flycatcher was listed as endangered in 1995. This small migratory bird occurs in dense riparian habitats along streams, rivers, and other wetlands where cottonwood, willow, box elder, tamarisk, Russian olive, buttonbush, and arrowweed are present. This species nests in dense thickets of trees and shrubs at elevations below 8,500 feet.

The historical breeding range of the southwestern willow flycatcher included southern California, southern Nevada, southern Utah, Arizona, New Mexico, west Texas, and extreme northwestern Mexico. The flycatcher's current range is similar to its historic range, but the quantity of suitable habitat within that range is much reduced from historic levels (USFWS 2002a). Southwestern willow flycatcher populations are present in Arizona on the upper Gila River, Little Colorado River, the middle Salt River, the lower San Pedro River, Colorado River, San Francisco River, Hassayampa River, the upper Verde River, Big Sandy River, Santa Maria River, Tonto Creek, and the Bill Williams River. The southwestern willow flycatcher was listed primarily due to riparian habitat reduction, degradation and elimination as a result of agricultural and urban development.

In 1997, 599 river miles of flycatcher critical habitat were designated in southwestern New Mexico, southern California, and Arizona. In 2001, the 10th Circuit Court of Appeals set aside designated critical habitat in those states under the Circuit's jurisdiction (New Mexico). The FWS set aside critical habitat designated in California and Arizona until a reassessment of the economic effects of designation

could be completed. The FWS is currently under a Court order to again designate critical habitat; a draft analysis and proposed critical habitat must be completed by September 2004 and a final critical habitat determination must be made by September 2005.

In August 2002, the FWS released the Final Recovery Plan for the Southwestern Willow Flycatcher. The Recovery Plan establishes six recovery units that are further subdivided into management units. These Recovery and Management Units are based on watershed and hydrologic units within the breeding range of the flycatcher.

The Recovery Plan defines two commonly used habitat terms: "Currently suitable habitat" (or "suitable habitat") refers to a riparian area with all of the components needed to provide conditions suitable for breeding flycatchers. These conditions are generally dense, mesic riparian shrub and tree communities 0.1 ha (0.25 acres) or greater in size within floodplains large enough to accommodate riparian patches of at least 10 meters (33 feet) wide (measured perpendicular to the channel). Suitable habitat may be occupied or unoccupied. "Potentially suitable habitat" (or "potential habitat") is defined as a riparian system that does not currently have all of the components needed to provide conditions suitable for nesting flycatchers, but which could – if managed appropriately – develop these components over time (USFWS 2002a).

Southwestern willow flycatchers generally arrive at breeding grounds between early May and early June, although a few individuals may establish territories in late April. Sogge *et al.* (1997) report the earliest record of a male on breeding territory as May 8, with most nesting activity noted from early June through mid-July, but starting as early as May 22.

The potential for activity to produce negative impacts depends on the frequency, intensity, location, and type of use. In addition to affecting flycatchers by causing disturbance during critical flycatcher nesting periods, activity may also impact suitable habitat. Changes in the structure, density and composition of vegetation can occur from recreation induced soil compaction and erosion. Current recreational activity in closely associated areas impacted by exotic vegetation may be preventing suitable flycatcher habitat from developing where trampling and soil compaction are impeding regeneration.

A formal survey for flycatchers was conducted beginning May 24, 2004 and completed in July 2004. One male flycatcher responded to tape-recorded calls during the first survey period at 0600 hrs. The bird did not exhibit territorial behaviors other than one vocal response to the tape playback. No other flycatchers were observed during any of the survey periods. It is likely the bird was a single male migrant.

Other:
Navajo sedge (*Carex specuicola*) is typically found in hanging gardens on sandstone cliffs, but may occur at the base of cliffs if suitably moist soil conditions (e.g., a seep) are present. The action will take place a significant distance from any cliffs where sedge could be impacted.

Chiricahua leopard frog (*Rana chiricahuensis*) habitat includes livestock tanks and earthen ponds, which may be present in the action area. However, the current distribution for this species is about 130 miles from the Monument. Further inventories will be conducted.

Zuni fleabane inventories will also continue particularly in and adjacent to the project area.

2. Soils, Hydrology and Geology

A detailed soil survey is lacking for the monument and is scheduled to begin in FY ’06 as part of the Inventory and Monitoring effort for the southern Colorado Plateau. The soils located on the canyon’s rim are shallow (10 to 20 inches), coarse textured and overlay the geologic Shinarump member of the Chinle Formation. The soils have low water holding capacities, and formed in eolian (wind-deposited) and residual materials.

In the canyon floodplains and on stream terraces, the soils are generally nearly level to gently sloping and very deep (greater than 60 inches). They are composed of stratified sands with layers of fine and medium gravel over sandy clay, gravelly clay or silty clay. These soils have medium to high water holding capacities.

Soils above and near del Muerto formed in eolian and residual materials. They are sloping, shallow and very shallow (4 to 20 inches) to sedimentary bedrock, and coarse textured, with low water holding capacities. Below Tsaile Lake and in the canyon, soils are generally, nearly level to gently sloping stratified sands with layers of fine and medium gravel over sandy clay, gravelly clay or silty clays, forming in mixed alluvium. Water holding capacities are medium to high. Sloping areas along the canyon walls are deep and very deep (40 to greater than 60 inches) sands or sandy loams. Water holding capacities are medium to high. These soils developed predominately in eolian material.

3. Surface Water Quality and Quantity

The headwaters of CACH originate in the Chuska Mountains. Two primary drainages pass through the monument, Canyon de Chelly and Canyon del Muerto. de Chelly is fed by several streams, including Wheatfields and Whiskey Creeks, while del Muerto is primarily fed by Tsaile Creek. The two drainages join about four river miles upstream of the monument headquarters forming Chinle Wash, which drains the monument. About 40 miles (65 km) of perennial streams occur in the upper canyons of the Monument.

Quantitative records of stream flows in the canyons are sparse. Peak flows occur during the spring and late summer. Summer thunderstorms typically account for about 40% of the rainfall. Flows in the spring are fed by snowmelt runoff from the watershed above the canyons and from groundwater inflow in the upper canyons, while late summer flows are the result of thunderstorms. High peak flows are the result of intense rainfalls, shallow soils, extensive rock outcrops, and short distances to the mainstem channels.

Stream flow in both canyons is also supported by numerous ephemeral streams, seeps, washes, pour-offs, and springs. At least 12 springs and a number of seeps are present in the Monument. The springs and seeps emanate from cliff faces at geologic contacts and are perennial in some cases.

Although the streams flow year round in the upper canyons, they are intermittent in the lower reaches. A United States Geological Survey (USGS) stream gauge on the Chinle Wash, near the visitor center, which recorded flows from 1999 to 2002, indicated that base flows begin around the end of the calendar year and continue until April or May. The rest of the year there is no measurable flow in the wash, except for short durations (2-8 days) after thunderstorms. Intermittent mean daily flows derived from thunderstorms are usually less than a few cubic feet per second (cfs), but may approach 100 cfs. Annual

peak flows varied substantially, from 164 cfs in April 2000 to 1,000 cfs in August 2001. Peak flows in the watersheds around CACH commonly occur in late July through early September.

For the last several years the Canyon de Chelly region has been experiencing a severe drought, resulting in lower to no surface flows in the lower parts of the canyons in the summer. The lack of water in the summer due to the drought has resulted in little if any stream water being available for irrigation of the agricultural fields in the canyons. The drought also has increased the depth to groundwater.

Two moderate sized earthen water storage dams above the monument affect flows in the canyons. Tsaile Dam – constructed as an in-line dam with spillway above Canyon del Muerto - was built in 1963, and impounds about of 3,000 acre-feet of water. Wheatfields Dam - an off-line dam situated on Wheatfields Creek above Canyon de Chelly - was built in 1993 and has a storage capacity of 5,700 acre-feet. Both dams are designed to capture early season runoff and provide irrigation water during the latter growing season. In addition to Tsaile and Wheatfield dams, numerous small impoundments exist in the upper drainages and along the rims of the canyons. Many of these were constructed from the 1950s forward to capture water for livestock use both on the rims and in the canyons. The cumulative hydrologic effect of these impoundments is to reduce peak flows or alter the timing of peak flows to some degree.

4. Vegetation

CACH is considered to be part of the Great Basin Desert and is also considered part of the Upper Sonoran life zone. Vegetation varies both from the canyon rims to the canyon bottoms and as the elevation climbs over 1500 feet from the lower canyons to the upper canyons. Vegetation changes from desert scrub and grasslands in the Chinle Wash area to stands of evergreen trees at the upper ends of the monument, where the canyons join the Defiance Plateau. Douglas fir and aspen trees also are found on north-facing slopes within the canyons at elevations as low as 6000 feet. Dense stands of big sagebrush are found at the monument's upper elevations. Short grasses, rabbitbrush, sagebrush, yucca, low-growing prickly pear, cholla cactus, juniper, and piñon are found on rim tops and mesas. Canyon bottoms support cottonwoods, willow, tamarisk, Russian olive, oak, box elder, wild grape, cactus, yucca, and annual and perennial flowers such as evening primrose and asters.

CACH supports a variety of plant species, due largely to changes in environmental factors (e.g., topographic features, elevation, water, soil, temperature). Seven major vegetative communities have been identified in the monument: canyon bottom communities; talus communities; springs, seeps, and other wet places; piñon-juniper continuum; lower shrub grassland communities; sagebrushland community; and canyon rim, cliffs and ledge communities. These communities form a complex mosaic and often grade into each other. Thus, the boundaries of these communities are not always necessarily distinct, particularly in the heads of the canyons where several communities (wet places, canyon bottoms, talus and canyon rims) form a continuum.

Springs, seeps, and other wet places (riparian/streamside vegetation, hanging gardens, wetlands) are scattered through the monument and cover only a small proportion of the area (about 0.5% of the monument). These communities intermesh and overlap with canyon bottom communities and talus communities in the moist upper canyons, making their boundaries hard to distinguish. The wet communities support a number of plants that do not occur elsewhere in the monument.

The largest vegetative community in the Monument, covering an estimated 57% of the area, is the piñon-juniper continuum. The tree cover in this group is only 10%, with Utah juniper being dominant. The understory includes rabbitbrush, snakeweed (*Gutierrezia sarothrae*), and grasses such as blue grama (*Bouteloua gracilis*) and galleta (*Hilaria jamesii*). In the "medium" piñon-juniper group, the tree cover increases to 30% and there is a relative increase in piñon pine over juniper. Big sagebrush (*Artemisia tridentate*) becomes more common in the understory. In the "dense" piñon-juniper areas the tree cover increases to 60%, with piñon pine continuing to increase relative to juniper and big sagebrush becoming still more common in the understory.

Pecan trees, black walnut, apple, peach, pear, cherry, and apricot trees all have been planted in the canyons. Although farming is not as prevalent as it once was in the past, this activity still occur in parts of the lower canyons and continues to affect the types, location and distribution of native plants in these areas. It is estimated that approximately 1,500 to 2,000 acres are still farmed in the canyons.

Nonnative Species

Nonnative trees, shrubs, and grasses are spread throughout much of CACH. Thirty nonnative invasive species have been identified as growing in the park, while the Southern Colorado Plateau Network listed 18 nonnative species of concern for their aggressive ability to colonize natural areas. Species that are on the state of Arizona's noxious weed list and/or are regulated and restricted by the state include: Russian knapweed (*Acroptilon repens*), field sandbur (*Cenchrus spinifex*), field bindweed (*Convolvulus arvensis*), Russian olive, burclover (*Medicago polymorpha*), common purslane (*Portulaca oleraceae*), and puncturevine (*Tribulus terrestris*). Other nonnative invasive species of particular concern are tamarisk, cheat grass (*Bromus tectorum*), musk thistle (*Carduus nutans*), bull thistle (*Cirsium vulgare*), herb Sophia (*Descurainia sophia*), *Kochia scoparia*, horehound (*Marrubium vulgare*), yellow sweet clover (*Melilotus officinalis*), Kentucky bluegrass (*Poa pratensis*), curly dock (*Rumex crispus*), Russian thistle (*Salsola* spp.), common mullein (*Verbascum thapsus*), common dandelion (*Taraxacum officinale*), and Siberian elm (*Ulmus pumila*).

Riparian areas have the largest cover of nonnative plants in the monument, as well the largest number of non-native species per vegetation community. The watershed habitats have been invaded by numerous alien herbaceous species (e.g. cheatgrass, Russian knapweed, yellow sweetclover, kochia, Russian thistle, Kentucky bluegrass, Russian olive and tamarisk), all of which are threatening sensitive cultural resources and the farming/grazing landscape of the canyon floor.

5. Air Quality

CACH is designated as a Class II air shed under the Prevention of Significant Deterioration (PSD) provisions of the Clean Air Act. The Clean Air Act does not provide strict protection of Class II areas that it affords Class I areas. However, NPS guidance recommends that park leadership and resource staff engage in decisions that may affect park air quality to minimize these effects, and to invoke the NPS Organic Act when necessary as a stronger legal tool for air quality protection. Overall, CACH and the northeast Arizona region do not experience any consistently poor air quality. Air quality impacts currently come from the burning of fuels and particulate matter from dirt roads prevalent throughout the Navajo Reservation and the Monument.

6. Cultural Resources

The cultural resources of Canyon de Chelly National Monument exhibit a complex mosaic composed of archeological sites and associated landscapes; prehistoric/historic structures; painted, pecked, and engraved rock art; the historic Navajo settlement landscape; and traditional cultural properties (TCPs). In addition, the canyons and upland rim country provide a remarkable setting for origin accounts and traditional histories of diverse American Indian communities including Navajo, Hopi, Zuni, Jicarilla Apache, Jemez, and Western Keresan Puebloan groups. Collectively these resources reflect an occupational history roughly 4,000 to 5,000 years in duration: a core ancestral American landscape that continues to be home to a vibrant Navajo community.

In terms of the overall number or frequency of cultural resources, CACH presently has full to partial documentation covering 1485 archeological sites with estimates in the range of 3,000 to 4,000 sites for the entire park. Equally significant, there are 164 prehistoric/historic structures included in the List of Classified Structures (again with estimates in the range of 400 additional structures yet to be added) along with roughly 1500 to 2000 rock art panels that potentially contain as many as 30,000+ individual elements. Of more recent origin, there are eight distinguishable Navajo cultural landscapes that include upwards of 150 distinct farmsteads, fields, orchards, trackways, irrigation systems, and so forth; and literally hundreds of TCPs, reflecting both Navajo and other affiliated American Indian communities, situated both on the canyon floor and rim.

In general, the geographical distribution of cultural resources is fairly uniform throughout the park with somewhat lesser frequencies seen near the canyon mouth, upper reaches of both canyons del Muerto and de Chelly, inaccessible portions of smaller tributary canyons, and rim areas located on the eastern side of the park. These patterns - reflecting thousands of years of use and modification - reveal a historical landscape that has certainly varied (in terms of overall landscape signatures) through time, but still retains significant continuity. Throughout much of the park an observer may note large cliff face alcoves containing structural remains hundreds if not thousands of years old juxtaposed to a “modern” Navajo farmstead on the canyon floor below– both ‘artifacts’ of the same community through time. In short, the historical landscape of CACH is filled with tangible remains of the past embedded with layer upon layer of cultural meaning.

Viewing the scale and complexity of CACH’s cultural resources provides further insight. Regardless of resource type, size ranges from small artifact scatters, features, or landscape modifications to some of the largest prehistoric alcove sites – containing dozens of structures and rock art panels - in the American southwest. This variation in size is mirrored by similar differences in resource complexity. Measured by duration of occupation, structural and depositional character, functional variability, and a host of unique attributes (e.g. depositional catchments that may contain valuable palaeoecological data), the complexity of CACH resources is impressive. By way of example, the prehistoric archeological record exhibits both single-component sites – small alcove houses and associated features inhabited for as little as 30 years – and massive sheltered or open sites occupied for thousands of years. Archeological resources of this sort may contain architecture spanning thousands of years, rock art panels painted by generation after generation of artists, and cultural deposits as much as 10 meters in thickness. In a similar manner, the late 19$^{th}$ through 20$^{th}$ c. historical landscape on the canyon floor continues to reveal a complex fusion of Navajo traditional ecological knowledge and land use with ‘scientifically inspired’ land management principles. Both examples reveal extraordinary potential for examining the relationship between community and landscape, the physical and cultural processes that

play a fundamental role in site and landscape formation, and the meaning of specific places through time.

Of more immediate concern, the material composition of a cultural resource will, in large part, determine its relative susceptibility to fire and fire management activities. Simply put, what are the major building blocks of the archeological and historical record and how might they be damaged by fire? It should come as no surprise that soil, stone, wood, vegetal materials (including pollen, seeds, foodstuffs, etc.), faunal bone and hides, fur and feathers, shell, and organic/mineral pigments in large part comprise the prehistoric archeological record. These materials were used to create tools, clothing, weapons, items of personal use or adornment, small to large buildings, household items, plastered and painted surfaces, food, medicine, etc. After Euroamerican contact this assemblage grew through the addition of metal, glass, paper, rubber, plastic and so forth. Depending on the vagaries of preservation and material – ranging from optimal preservation of a given artifact (e.g. a basket, painted wood object, or rock art image) to fragmentary remains incorporated into rubble or trash deposits – fire and/or fire management activities may have relatively minimal to severe effects as discussed in two appended documents.

As shown above, the cultural resources of CACH are extensive, inherently complex, and an invaluable record documenting the nature of landscape and community on the Colorado Plateau. Equally, these resources – including architecture, rock art, and exceptionally well-preserved perishable artifacts – are highly susceptible to the effects of fire and fire suppression efforts. Therefore, every practicable effort in keeping with safety and overall fire management principles should be expended to protect cultural these remarkable cultural resources from the devastating effects of fire.

Ethnographic Resources

CACH contains numerous individual ethnographic resources which are all interrelated and tied closely to the landscape and resources of the canyon. These resources include areas visited by holy people in Navajo legends, areas where traditional ceremonies take place, traditional agricultural areas, locations where natural herbs or other medicinal materials are collected by medicine men, and domestic areas which have been continually inhabited for several generations. Currently, these ethnographic resources are exceedingly endangered by the encroachment of exotic vegetation. Additional threats to ethnographic material stem from the erosion of the canyon floor, on which a majority of these resources are located, and from the increased risk of fire due to excessive fuel build-up. Decreased accessibility has prevented the Navajo People from practicing these established life ways, and hence, knowledge of these areas and their resources are becoming lost, and would eventually disappear. The loss of this ethnographic information would be extremely detrimental to the Navajo, as CACH is considered to be one of the most important religious centers of the Navajo Culture. The area figures prominently in many of their origin stories and ceremonies. The loss of the continually occupied landscape of the canyon would moreover eliminate an experience that most visitors find to be one of the most endearing qualities of their canyon experience.

Further, Navajo historic use of fire (late 17$^{th}$ through early 20$^{th}$ c.) may have altered the park's fire regime in terms of fire size, intensity, and landscape patterns. In particular, Navajo traditional histories emphasize the use of fire to modify the landscape for agricultural, livestock grazing, or settlement purposes. One story relates how upon entering Canyon de Chelly (presumably in the late 17$^{th}$ to mid

18th c.) the Navajo encountered dense, impenetrable woodland throughout the extent of Canyon del Muerto. Inhabited by dangerous animals and frightening beings, this "wilderness" impeded Navajo settlement and use of the canyon. After lengthy discussion it was decided to set fire to the thickets. The fire raged for over three weeks, with smoke so thick no one could tell for certain what was happening. When the haze cleared, however, Canyon del Muerto was free of vegetation and available for Navajo use. While possibly allegorical, traditional historical accounts of this sort certainly indicate the potential scale of historic fire use and its long-range landscape implications.

## IV. Fuels Management

A. Long-term Fuels Management Program.

The objective of fuels treatment is to increase the defensibility of structures-hogons, barns, fences, shade structures and outbuildings, culturally significant sites and sensitive habitats-adjacent to and intermixed with heavily vegetated areas. The secondary objective is to remove the biomass of exotic vegetation to favor the protection and recovery of native vegetative species.

B. Prescribed Burning

Department of Interior, National Park Service policy and guidelines will be followed in the planning, implementation and review of all prescribed fires conducted on all lands administered by CACH. The use of any fire ignited by NPS, or NPS designated personnel, is considered a prescribed fire, with the exception of debris burning, and is subject to the requirements outlined in RM-18; Chapters 4 and 10. Plans shall be peer reviewed by a qualified Burn Boss. A Burn Boss will be in charge of prescribed fires empowered with a Delegation of Authority signed by the Superintendent.

1. Annual Prescribed Fire Activities

The CACH prescribed burns (and WUI) will be conducted along the floors of the two main canyons of the Monument; Canyon de Chelly and Canyon del Muerto. Recurring burns will occur on a cyclic basis in support of the exotic plant removal program and the restoration of native vegetative associations. These burns will also be conducted to protect the homes and structures of the residents residing within the canyon bottoms.

2. Long-Term Prescribed Fire Strategy

Prescribed fire is necessary to remove vegetation from approximately 40 miles and 10,000 infested acres of canyon bottoms that exist within the Monument. The annual burning shall occur in the fall, winter and early spring of the year or if conditions are suitable during summer months. Various ignition devices would be used to start and maintain prescribed fires intended to consume all cut and piled vegetative fuel along the canyons. Prescribed Burn Plans will be developed for each project according to RM-18, Chapter 4 and Chapter 10. The plans shall specify the predetermined ranges of environmental conditions such that fire behavior shall be expected to meet project objectives.

Opportunities for prescribed fire (and WUI) use are also on the mesa tops in the Pinyon-Juniper and mixed conifer vegetation. Objectives would include protection of resident's structures within the Monument, forest health, and habitat restoration and maintenance. This FMP may need to be amended and updated with monitoring expanded in proportion with wider uses of prescribed burning.

3. Prescribed Burn Organization

Normally, agency personnel from Mesa Verde NP conducts prescribed fires on CACH with assistance from Park personnel (until such time as CACH develops in-house and stand-alone capabilities). A designated Burn Boss shall be on scene and known to all CACH and other participating personnel. All Park and non-Park fire personnel assigned to prescribed fires will meet the requirements of the National Interagency Wildland and Prescribed Fire Qualifications Guide (PMS 310-1). The fire staff at MEVE and cooperating entities will be responsible for qualification documentation of personnel assigned to fire duties at CACH, and will be updated annually until such time as the park has expanded capabilities. The Burn Boss will also be the Incident Commander of an escaped fire until relieved. An adequate number of contingency resources shall need to be identified in the Burn Plan and available for the prescribed burn.

4. Weather and Fire Behavior

A representative RAWS station is located at Piney Hill. This is the closest representative site to be used as a guide for CACH preparedness activities.

Specific weather prescription parameters will be developed as a part of each individual Prescribed Burn Plan. The Prescribed Burn Plan weather parameters will be measured on site, before, during and after a prescribed fire to ensure the fire is within prescription (Level 1 and 2 monitoring).

The National Weather Service will distribute morning fire weather forecasts, afternoon updates, fire weather watches, and red flag warnings as specified in their annual operating plan. All dispatch/coordination centers and unit dispatchers will be responsible for distributing fire weather information to firefighters and incident management personnel at initial attack bases, staging areas, field locations, and committed to initial attack/extended attack incidents. Weather information is available via the internet on the SW Area webpage and at: http://nimbo.wrh.noaa.gov/

Requests for spot forecasts may be submitted at any time. The new internet spot weather forecast process is to be used, accessed at the addresses above, or through the Glen Canyon or the Flagstaff Dispatch Zone (CACH is soon to be connected to the GLCA Dispatch system as their primary contact)

5. Prescribed Fire Project Review

Each prescribed fire will have a Prescribed Burn Plan. After completion of a prescribed fire, participating personnel will review the fire, elements contained in the Prescribed Burn Plan, complete any monitoring and evaluation requirements, then critique the fire. The objective will be to understand and improve prescribed fire techniques, operations, prescriptions and the fire effects.

6. Reporting and Documentation Requirements

A Prescribed Burn Plan is necessary for conducting any prescribed fire and is to be kept on file both at CACH and a copy at MEVE. Reporting will be accomplished according to RM-18 guidelines.

7. Historic Fuel Treatment

Historic fuel treatment practices at CACH have been restricted to limited agricultural burning around farmsteads by the residents. Unreported wildland fires have occurred at CACH but due to the lack of adequate staffing and report infrastructure (and reliability upon the Navajo Nation dispatch systems),

wildland fires (suppression) have not been annually reported, filed or documented. With park improvements in this area in 2005, approximately 8 fires were reported to the Flagstaff Zone Dispatch. CACH employees, Navajo Nation PD and the Chinle Volunteer Fire Department responded to these fires and suppressed them.

C. Prescribed Burn Plan

Prescribed fires planned and implemented within the boundaries of CACH will have a Prescribed Burn Plan prepared by a qualified Prescribed Burn Boss, reviewed by the CACH Resource Advisor, reviewed by a non-MEVE Burn Boss, then approved by the Park Superintendent or his designee prior to ignition. The Prescribed Burn Plan will follow the RM-18, Chapters 4 and 10 policy and guidelines. The plan peer review process is required in advance of the final approval by the Superintendent and subsequent prescribed burn implementation.

D. Exceeding Existing Prescribed Burn Plan

If a prescribed fire exceeds the parameters set forth in the Prescribed Burn Plan, the fire will be considered out of prescription. If the fire can be brought back into prescription that same operational period with existing resources and funding, the fire can continue until all objectives are met. If the fire cannot be brought back into prescription with existing resources and/or funding, it will be designated as a wildland fire. An appropriate management response will be taken on the newly designated wildland fire. Full control of the escape fire is the appropriate management response. If the fire cannot be controlled and becomes an extended attack wildland fire, a WFSA will be initiated and approved by the Park Superintendent. The Burn Boss shall be become the Incident Commander until relieved.

E. Air Quality & Smoke Management

CACH reports prescribed fire and smoke locations to the Flagstaff Zone Dispatch Office. The State of Arizona requires the NPS to comply with its permit and reporting requirements. CACH routinely communicates burn plans to the Navajo Nation. CACH is a member of the Arizona Airshed Group through the National Park Service representation on the Board of Directors.

F. Non-Fire Applications

Non-fire treatments at CACH, including mechanized equipment and manual labor, are used to protect natural and cultural resources in addition to exotic flora and park infrastructure. A variety of treatments are available such as cutting and piling, cutting, lopping and scattering, mowing, mastication, chipping, etc. These treatments are often used as a pre-treatment to prescribed fire. Also, application of approved herbicides to reduce fine fuel loads may be utilized where most feasible, and cost effective.

## V. Wildland Fire Management Program Components

A. General Implementation Procedure

Implementation of the components of the wildland fire management plan is consistent with the park's fire management capabilities and will consider the current and predicted conditions affecting fire

behavior. The Initial Fire Assessment documents the current and predicted situation, documents all appropriate administrative information, and aids managers by serving as a fire size-up form. This action will allow the incident commander to select an appropriate management response.

## B. Wildland Fire Suppression

### Historical Fire Regimes and Current Condition Classes

Fire regime is used to characterize the traits of a fire in a given vegetation type; namely how often it recurs on the landscape, the type of pattern created, and the ecological effects. CACH can best be described in fire regime types I, II, and III. These regimes have a fire frequency from 1 – 100 years generally. These are typically surface fires, with high severity. The introduction of exotic species such as Russian olive and tamarisk has greatly changed the fire regime. The condition class is described best as a Condition Class 3, where the fire regime has been altered from the historical range. The risk of losing key ecosystem components is moderate to high because of this change in condition class. Fire frequencies have departed from historical frequencies by one or more return intervals. This results in moderate changes to one or more of the following; fire size, intensity, severity, and landscape patterns.

### Range of Potential Behavior

Fire behavior varies by time of season and current weather conditions. Some fuels at CACH are characterized by brush/grass models. Under hot and dry conditions, these fuels can result in flashy, fast moving fires. This situation presents serious safety concerns for initial attack forces, canyon residents, Monument staff and visitors. All tactics must consider this potential behavior. For the most part these fires are short lived and generally result in total consumption of all vegetation. Because of this behavior, there are a number of issues related to rehabilitation and resource impacts.

Fire behavior can vary widely throughout such a large land base as the CACH. Variation in behavior will have to do with differences in fuel types, fuel loading, elevation, topography and by seasons. We can generalize to give a range of behavior by plant community/fuel type and seasons.

#### Desert shrub

Fuels in this type are mostly light and discontinuous. Fire behavior would mostly be low intensity. Flashy, fast burning fires could be expected especially on days with high winds, high temperature and low humidity. Most of the desert shrub communities contain areas without vegetation which can act as a natural fuel break. Generally, fires will burn quickly and consume all of the fuel in an area, but will be small in size. Suppression of fires in this fuel type can be accomplished by using these natural barriers and using limited suppression tactics. Fire behavior modeling of this fuel type is difficult because it does not fit well with any of the 13 models. The closest models would be the three grass models.

#### Pinyon-Juniper

The makeup of this plant community varies throughout the Colorado and Defiance Plateaus because of variations in elevation, precipitation, soil type and history of disturbance. Lower elevations of this fuel type contain sparse fuels that consist mainly of individual trees and very little ground fuels. Fires are

mainly restricted to one or two trees due to the lack of fuel continuity. Higher elevation pinyon-juniper stands consist of heavier fuel loads and a greater potential for problem fire behavior such as crowning, torching, spotting. Fuel Model 6 is the closest model for this type.

Tamarisk and Russian Olive

Tamarisk and Russian olive are non-native plant species that have been established in riparian areas throughout the western United States including CACH. They are aggressive invaders and tamarisk responds well to fire by sprouting within days of a fire. Mature tamarisk and Russian olive stands can have high fuel loads along with a natural volatility that causes these fuels to burn hot. Tamarisk/ Russian olive stands tend to grow in highly dense patches with understories of thick dead fine fuels. All of these characteristics can make these fires flashy with high fire intensity. These exotic species provide the greatest fire suppression challenge for CACH managers. Brush models similar to chaparral (Fuel Model 4) are the best predictors for fire behavior. Where cottonwood stands provide a closed canopy and are well represented within the tamarisk and Russian olive, a hardwood litter fuel model such as NFFL model 9 or NFDRS model E would be appropriate.

Mixed Conifer Community

Upper Montane coniferous forests appear on north-facing slopes and isolated upper parts of canyons at CACH. These mixed conifer stands consist of white fir (Abies concolor), Douglas-fir (Pseudotsuga mensezeii), Blue spruce (Picea pungens), southwestern white pine (Pinus strobiformis). Sporadic stands of Ponderosa pine and Quaking aspen (Populus tremuloides) exist in the many reaches of the side the canyons. In steeper canyons where the canopy is closed, Douglas fir is the dominate vegetation type. Gambel's oak (quercus gambellii) is present throughout side canyons and occurs in dense stands throughout Monument Canyon.

There are two fuel model types used in fire management at this time. The 13 NFFL (National Forest fire Laboratory) models were designed to predict surface fire spread and behavior. The 21 NFDRS (National fire Danger Rating System) is used to communicate relative fire danger.
Mixed conifer at CACH is best classified as NFDRS Model U and NFFL Model # 9 (western long-needle pine). In stands with more of a closed canopy NFDRS G and NFFL model 10 (short-needle closed canopy) would be appropriate (see Table).

| IRE BEHAVIOR FUEL MODEL | NORMAL YEAR FIRE BEHAVIOR | EXTREME YEAR FIRE BEHAVIOR | REPRESENTATIVE RATES OF SPREAD AND FLAME LENGTH |
|---|---|---|---|
| **G/10** | **Fire creeping through surface fuels; isolated torching.** | **Active burning of surface fuels contributing to torching and spotting. Potential wind driven crown fire, resulting in short and long range spotting. Possible stand replacing fire.** | **Rate of spread = 7.9 chains/hr<br>Flame length = 4.8 feet** |

| | | | |
|---|---|---|---|
| **U/9** | **Active surface fire burning forest litter; isolated torching.** | **Very active surface fire with more rapid combustion and rates of spread. Torching with short range spotting.** | **Rate of spread = 7.5 chains/hr<br>Flame length = 2.6 feet** |

## VI. Resource Protection and Monitoring Guidelines

All fire management tactics will have a minimum impact to resources while maintaining the safety of firefighters, personnel, and the public as the highest priority. The following is a list of activities that should guide suppression forces:

- Keep firelines to the minimum width necessary to contain fires. Use natural and existing human-made barriers whenever possible.
- Use of dozers and other heavy equipment is limited to specific approval by the superintendent.
- Limbing along the fireline will be done only if it is essential for the suppression effort and safety.
- Under appropriate conditions, unburned material may be left within the final line.
- Clearing and scraping will be minimized and overseen by park archeologists.
- Fell snags or trees only when essential for fire control or for safety and ensure containment measures are in place.
- Cold trail the fire edge when practical.
- Use water instead of foam or retardants.
- If water and pumps are available, use wetlines or natural fuel breaks wherever possible in lieu of handline construction.
- Use fog spray in mop-up. Avoid boring and hydraulic action.
- Decisions on suppression actions will be made by the Incident Commander within the scope of the delegation of authority in conjunction with the Park Superintendent.
- As much as possible, archeological sites and sensitive species will be identified during suppression actions and protected and avoided wherever possible. Minimizing ground disturbance and tree felling is a goal. Fireline qualified archeologists will accompany crews to assist in these activities.

All firelines, helispots, spike camps, and other disturbed areas will be rehabilitated to return the site to the way it appeared before the incident.

### A. Preparedness Actions

Preparedness refers to activities that lead to a safe, efficient, and cost-effective fire management program in support of land and resource management objectives through appropriate planning and coordination. Preparedness includes planned activities for the development and implementation of the wildland fire management program. These activities include staffing, training, fire prevention activities,

education, provision and maintenance of support facilities, purchase of and contracting for equipment, supplies, support, planning and coordination, policy development and oversight, research, and interagency coordination.

Departmental policy requires that all personnel engaged in wildland fire suppression and prescribed fire duties meet the standards set by the National Wildfire Coordinating Group (NWCG, *PMS-310-1*). CACH will conform strictly to the requirements of the NPS wildland fire management qualification and certification system.

Although CACH has no specific wildland firefighter positions, employees are encouraged to become qualified as wildland firefighters in order to support CACH's fire management program. The CACH Fire Coordinator will be responsible for obtaining the training required to meet Park needs for qualified wildland firefighters. When advanced or specialized training is necessary, the Fire Coordinator will work through the Mesa Verde Fire Management Officer to obtain funding and enrollment. The Fire Coordinator will coordinate the monument's fire training needs with those of other nearby parks, cooperating agencies, and the region.

CACH personnel may also directly support the Park's fire program, as well as other area park's programs, by participating as line qualified resource advisors. This would ensure timely and direct input to tactics being employed on the ground during suppression or other fire management activities. These actions could prevent unnecessary damage or disturbance to critical resource values. All CACH wildland firefighters will attend an annual wildland firefighter safety refresher.

1. Planning with the BIA and the Navajo Nation

Prior to the wildland fire season, CACH and MEVE staff will meet with BIA staff and other appropriate partners to discuss planning and actions for the upcoming fire season. This will be coordinated by the MEVE FMO. Safety, staffing, training, equipment and communications and notification will be an essential part of this meeting. A review of weather, fuels and fire danger for the fire season will predicate much of the seasonal planning. Training will include a review of CACH's unique resources and the preferred methods of protecting these resources in fire suppression actions. Fire detection and reporting procedures will be reviewed with an updated phone and radio frequency list.

2. Planning with Flagstaff Interagency Fire Zone

An NPS staff member from CACH will take part in annual planning meetings with other Interagency Partners through the Flagstaff Zone. These partners include local representatives of the US Forest Service, Bureau of Land Management, Bureau of Indian Affairs, and the State of Arizona. A key element of this planning is reviewing, updating and approval of the Annual Operating Plan. This Operating Plan details fire suppression activities for Northeast Arizona.

3. Fire Prevention, Education, and Community Assistance

Fire prevention and education program may be implemented in conjunction with other fire management and public safety agencies to increase awareness of fire prevention, develop understanding of the dangers and benefits of fire, protect human life and property, and prevent damage to cultural resources,

real property, and natural resources. The program of public education regarding wildland fire prevention, potential fire benefits and dangers will be conducted as appropriate to help support plan goals. Visitor contacts, bulletin board materials, handouts, and interpretive programs may be used to increase visitor and park neighbor awareness of fire hazards and benefits.

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

Staff will work with the local fire departments and other agencies with fire management and public safety responsibilities to establish common protocols and procedures, identify training needs, conduct joint training, and develop strategies for safer and more efficient fire management operations.

4. Fire Danger

A specific daily fire danger rating is not generated for CACH. The monument's actual adjective fire danger rating (i.e. Extreme, Very High, High, Moderate, Low) will utilize the fire danger rating generated by the BIA Navajo and the Flagstaff Interagency Dispatch. Communicating specific fire danger to the public is accomplished as needed through existing programs. Daily fire planning is divided into five staffing classes according to the intensity of danger factors indicated by the Energy Release Component, Burning Index and/or other indices. Daily indices are available from the BIA or Flagstaff. The greatest value of this system is to alert staff, visitors and neighboring landowners to fire potential and address cautions needed in fire prevention.

5. Fire Weather

CACH does not maintain a fire weather station. The BIA maintains several RAWS stations in the area. Fire danger can be estimated for CACH by analyzing nearby RAWS stations in Arizona and New Mexico

*6.* Step-Up Staffing Plan (see Four Corners Park Group Step-up Staffing Plan in the attachments)

Pre-Attack Plan and Initial Attack Plan:

a. Priority setting during multiple fire occurrences

b. Criteria for appropriate initial attack response consistent with GMP objectives:

   Public and firefighter safety.

   Protection of cultural, historic, and natural resources.

   Protection of improvements and private property.

Minimum fire-line construction and use of Minimum Impact Suppression Tactics (MIST).

Available suppression resources and response times.

Fire behavior as determined by fuels, weather, and topography.

Use aircraft and mechanized equipment only where necessary to support above-listed criteria.

c. Confinement as a Strategy

Confinement may be used to minimize resource damage and to provide for firefighter safety.

A confinement strategy may be selected for initial attack as long as it is not being used solely to meet resource management objectives.

Resource benefits may be a by-product, but the strategy must be based upon the criteria listed above.

A confinement strategy may also be selected in the WFSA process when initial attack has failed to contain a wildland fire. This strategy may also be used to minimize resource damage and to provide for firefighter safety.

d. Response Times

Response time for initial attack ground resources is approximately depending on proximity, accessibility, and other such variables.

7. Extended attack and large fire suppression

a. Extended Attack Needs:

Extended attack needs will be determined by considering the following:

- Threats to life, property, and Park resources
- Availability of suppression forces

b. Implementation plan requirements – Wildland Fire Situation Analysis (WFSA) development:

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

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

c. Incident Management Transition:

Transition to an incident management team requires a briefing by the Superintendent and a limited delegation of authority for the suppression of the fire(s). The briefing should address agency specific concerns, priorities, firefighter and public safety, economic and resource concerns, and other topics or issues of importance and relevance to the suppression effort. In addition to the delegation of authority and briefing packet, a draft Wildland Fire Situation Analysis (WFSA) needs to be completed and presented to the incoming incident management team.

8. Minimum Impact Suppression Tactics

- All fire management activities will rely on tactics, which do a minimum amount of resource damage while maintaining the safety of firefighters, personnel, and the public as the highest priority.
- Fireline construction will be minimized by taking advantage of natural barriers, rock outcrops, trails, roads, streams, and other existing fuel breaks.
- Limbing along the fireline will be done only as essential for the suppression effort and for safety.
- Unburned material may be left within the final line if not a risk to cultural resources...
- Clearing and scraping will be minimized and overseen by park archeologist.
- Snags or trees will be felled only when essential for control of the fire or for safety of personnel.

9. Rehabilitation Guidelines

When a suppression action is taken, rehabilitation may be necessary. The most effective rehabilitation measure is prevention of impacts through careful planning and the use of minimum impact suppression tactics. The Incident Commander will initiate immediate rehabilitation actions. Rehabilitation will be directed toward minimizing or eliminating the effects of the suppression effort and reducing the potential damage and hazards caused by the fire.

These actions may include:

- Construct waterbars to prevent erosion.
- Place "boneyards" of cut vegetation in a natural or random arrangement.
- Position cut ends of logs so as to be inconspicuous to visitors and camouflage where possible.
- Flush cut stumps, camouflage with soil and moss if appropriate.
- Restoration of natural ground contours.
- Remove handline berms.

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

If extensive emergency rehabilitation is needed or if rehabilitation is needed to reduce the effects of a wildland fire then the Park can request appropriate funding through the Burned Area Emergency Rehabilitation (BAER) fund. The BAER fund is administered through the NPS Branch of Fire and Aviation Management at the National Interagency Fire Center. The specifics of the policy can be found in 620 DM 3 DOI BAER Policy (2004). BAER project requests totaling $300,000 or less can be approved by the Regional BAER Coordinator. Submissions over this amount are reviewed at the regional level, and forwarded to the Fire Management Program Center for approval. Requests for BAER funding must be made to the Area Fire Management Officer within 72 hours of control of the fire.

10. Records and Reports

The CACH Fire Coordinator is responsible for all fire related records and reports except the WFIP. This responsibility may be delegated to an incoming Incident Commander for any fire escaping initial attack.

11. Wildland Fire Use (WFU)

This option has been rejected by CACH for several reasons. Not enough is known about the natural role of fire in the ecosystems at CACH to develop a WFU program at this time. There are also no qualified individuals at CACH to initiate wildland fire use. This may be an option at a later date.

## VII. FIRE MANAGEMENT ORGANIZATION & RESPONSIBILITIES

A. Organization, Authority and Responsibility

At CACH, the Superintendent and Assistant Superintendent (Resources Advisor) shall rely on the Chief Ranger to supervise wildland fire management activities. The Superintendent shall request the FMO at MEVE to develop adequate fire plans and training procedures which will include such personnel from the staff and employees at CACH as may be necessary for organization of suppression crews that will function in time of emergency and the conduct of prescribed burning.

The Chief Ranger shall ensure suppression actions are taken on all wildland fires and shall endeavor to assure control within the first burning period or day. The Park Superintendent and Assistant

Superintendent (Resources Advisor) shall rely on BIA and tribal fire based at Fort Defiance along with other cooperating agencies for assistance needed for the suppression of any wildland fire.

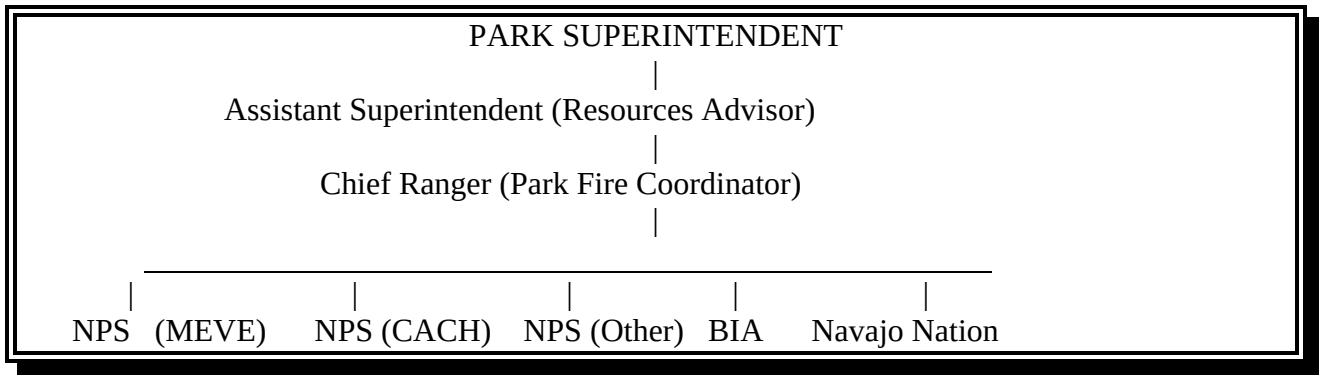
As necessary, the Park Superintendent and/or Chief Ranger shall request the assistance of cooperators. This assistance will come through a formal request through the Flagstaff Zone Dispatch. MEVE fire shall be advised of the situation.

SUPERINTENDENT: The Superintendent has the primary responsibility for the protection of CACH from loss by fire and will designate the NPS personnel responsible for the preparation of plans covering, prevention, pre-suppression, discovery and suppression of wildland fires. This position is presently the Chief Ranger. The Superintendent shall delegate any changes to this in writing during the fire season. The Superintendent shall delegate authority for fire command duty via a signed Delegation of Authority to either Incident Commanders (extended attack), or Burn Bosses (Prescribed Burns), as well as acting designations covering absences during the fire season.

ASSISTANT SUPERINTENDENT: The Assistant Superintendent acts for the Superintendent when he is unavailable. This position also is formally designated as the Park Resources Advisor. This position supervises the Park Fire Coordinator (the Chief Ranger) or until another fully trained and designated position exists.

CHIEF RANGER: The Chief Ranger is directly responsible to the Park Superintendent and Assistant Superintendent for all fire management activities on the Park. He will assist NPS personnel or other fire management personnel or take charge of larger fires, as qualified to do so. He will monitor and oversee actions on all fires occurring on CACH. During complex, multi-incident situations, the Chief Ranger may represent the NPS as the Agency Representative if so designated by the Superintendent. These responsibilities shall require written delegations to the Chief Ranger, and provisions for instances when the officials may be absent during the main fire, or prescribed burning seasons.

Table 11. CACH Fire Organization Chart.




ALL OTHER PERSONNEL: All other NPS employees are expected to perform fire duty and assignments to which they are qualified. Consideration must also be given to the priority of other jobs

in CACH. Consistent with efficient emergency suppression actions, first call will be made to personnel whose jobs will cause the least disruption to the Park.

PRESCRIBED BURN BOSS: This would normally be from the NPS, or a cooperating agency outside CACH. The person performing these duties would be working under a Delegation of Authority signed by the Superintendent outlining the responsibility for implementing the Prescribed Burn Plan for that specific prescribed fire within a defined period of time. The park maintains the authority to designate a qualified Burn Boss.

EMERGENCY FIREFIGHTER PERSONNEL: A contingent of emergency wildland firefighters and fire camp personnel may be trained and certified for assignments within the Navajo Nation which would include CACH lands for wildland fire incidents or other emergency assistance as requested.

B. FIREPRO and FPA Funding

FIREPRO is the current mechanism for funding requests and resource allocations for the NPS fire management program. The FMO currently manages all FIREPRO funding for the park. FIREPRO funds are provided through the Department of Interior firefighting account, and are no-year, non-ONPS funds distributed to each Park by the Fire Program Management Center, through the WASO budget office. All FIREPRO funding activities must comply with instructions prescribed in RM-18, the FIREPRO User's Guide, and current NPS Business Rules. Future planning and budgeting will be done on an interagency basis through Fire Program Analysis (FPA). FPA is in its beginning stages. CACH is within the Colorado Plateau Fire planning Unit (FPU) for FPA implementation. As CACH develops in-house capabilities, or if CACH uses other park's fire program assistance, this may change.

C. Fire Management Organization vs. Canyon de Chelly National Monument Organization

Due to the limited number of personnel that work at CACH, most personnel have fire management duties (directly or indirectly). Some personnel will need to be responsible for more than one position and the responsibilities of those positions. Refer to Table 4 that shows the organization. The interagency "Red Book" and PMS 310-1 outline fire qualification requirements for fire duties. Non-Red-Carded individuals will not participate in operational duties of emergency fire suppression or prescribed burn ignition and holding. Support activities shall be at the orders of the Superintendent or designated representative, the Resources Advisor.

CACH will be working towards developing stand-alone capabilities in the establishment and implementation of a fire program.

D. Park Superintendent Fire Reporting Responsibilities

The Superintendent has the primary responsibility for the protection of CACH from loss by fire and will designate the NPS personnel responsible for the preparation of plans covering, prevention, pre-suppression, discovery, reporting and suppression of wildland fires. The MEVE fire program assistant is responsible for submittal of official fire reports (DI-1202). These reports are to be submitted to www.blm.nifc.gov within 10 days of a fire being declared out. The MEVE fuels specialist is responsible for CACH fuels accomplishment reporting including prescribed fire. Accomplishments are to be reported to the National Fire Plan Operations Reporting System (NFPORS) within 10 days of project accomplishment or by the 23rd of a given calendar month. The Chief Ranger is the designated CACH fire program lead. Close coordination will be required between the Chief Ranger and MEVE fire staff to

ensure accurate and timely fire program reporting. In addition, regular coordination with the MEVE fire staff by the Superintendent or Assistant shall occur based upon workload requirements.

D. Interagency Coordination

Interagency coordination and cooperation with the Navajo Nation, BIA and others is integral to successful implementation of the fire management program at the park. All wildland and prescribed fires will require external support by interagency cooperators and/or other NPS units. Cooperative agreements will be written to formalize this arrangement. Neighboring agencies, upon request, will provide assistance with emergency fire suppression while adhering to the suppression and mop-up standards outlined in the agreement. Dispatch and coordination will be through Flagstaff, Glen Canyon, and Navajo Dispatch.

Needed Agency and Interagency Coordination to implement FMP:

Flagstaff Zone Dispatch – Wildland Fire Suppression, Prescribed Fire, Smoke Management

Mesa Verde National Park – Fire Management Leadership and Prescribed Fire

E. Key Interagency Contacts

Flagstaff Zone Dispatch

BIA

Navajo Police Department

Southwest Area Coordinating Group

F. Fire Related Agreements

Joint Powers Agreement for the State of Arizona

Southwest Area Coordinating Group Agreement

## VIII. Fire Research

Information regarding primary and secondary fire effects in most ecosystems is incomplete. This absence of information should not constrain fire program implementation. Rather, as new information becomes available fire related resource management objectives can be refined in an adaptive management style. MEVE and the ZION Fire Ecology Program will work closely with CACH to complete a fire history of CACH and to conduct post fire monitoring. MEVE will provide CACH with follow-up reports inclusive of GIS maps of the burn perimeter and other specified data.

A. Previous and Ongoing Fire Research

There are no previous fire research projects noted at CACH. The recently initiated research project that includes fire as a small component of fuels reduction is to determine exotic treatment effectiveness at CACH.

B. Fire Research Needs and Opportunities

Fire research has limited funding within the NPS. However, if it is determined that significant information is needed concerning the effects of fire or fire exclusion Park Managers may submit requests through the annual FIREPRO budget call. Additionally, requests for research funding may be made through the Interagency Joint Fire Science Group.

As research opportunities become available, studies may be undertaken to determine effects of fire use within CACH on cultural resources, exotic weeds, water quality and flow rates, livestock nutrition, riparian vegetation, soil erosion rates, and wildlife habitat.

## IX. Monitoring

A. Monitoring Requirements

All NPS units applying wildland fire use and/or prescribed fire to accomplish resource benefits must prepare a Fire Monitoring Plan (RM-18). There are four monitoring levels, Level 1 and 2 are appropriate at the fire program level proposed by this plan and supported by the EA. CACH will rely upon the MEVE Program to establish an appropriate and effective monitoring program in 2006.

B. CACH Wildland Fire and Prescribed Monitoring Plan

The CACH *Wildland and Prescribed Fire Monitoring Plan* is consistent with protocols derived from the National Park Service Fire Monitoring Handbook (2003). Other monitoring methods may be used as Resources Advisor may deem necessary. The minimum monitoring for the purposes of documenting each prescribed burn are: Level 1-Environmental Conditions, and Level 2-Fire Observations. These are outlined below.

Level 1-Fire Conditions:

- Fire Monitoring Period – to be determined by the fire or resource manager,
- Topographic Variables,
- Predicted and Observed Fire Behavior,
- Smoke Characteristics and Observed Impacts,
- Fuel & Vegetation Types,
- Current and Forecasted Fire Weather.

Level 2-Fire Observations:

- Fire Cause (ignition system),
- Fire Location (origin) and time,
- Fire Size,
- Fuel and Vegetation Description,
- Relative Fire Activity,
- Potential for Further Spread,
- Current and Forecasted Weather,
- Resource or Safety Threats and Constraints,
- Smoke Volume and Movement.

There are additional prescribed elements specified in the Prescribed Burn Plan. The fuel moisture components require sampling, measurement, weighing, drying, and calculation. Specific protocols for these procedures have been developed and can be adapted to the CACH circumstances. Specialized equipment and supplies for this function are to be obtained. A program of determining fuel moisture levels (dead and live) in the primary fuel/vegetation complexes of tamarisk, Russian olive, and the P-J and mixed conifer forests is to be initiated and maintained on a periodic schedule. This will be performed by trained MEVE staff.

## X. Public Safety

A. Public Safety Issues and Concerns

CACH is dedicated to ensuring the safety of each visitor and to all residents and property adjacent to and within the monument boundary. The Superintendent may close all or a portion of the Park (including roads and trails) when elevated fire danger, wildland fire or a prescribed fire pose an imminent threat to public safety.

B. Mitigation Safety Procedures

CACH will implement a notification system to inform visitors, residents, neighbors, and the Chinle community of all fire activity through normal communication channels. CACH will also prepare a formal evacuation plan outlining the process, and the responsibilities of park law enforcement personnel along with various local law enforcement agencies. A fire activity report will be updated, as significant changes occur to inform Monument personnel of potential fire threats. Areas of fire activity will be clearly signed at the visitor center. If any fire poses a threat outside the Park's boundaries, law enforcement agencies will be notified.

## XI. Public Information and Education

Information and education are important processes in public acceptance of the managed fire program at CACH. The Fire Coordinator will provide the Superintendent with accurate information regarding current fire situations and management activities. The public information program will be developed as follows:

- The fire management program will be incorporated into visitor contacts, interpretive talks, walks, and tour programs. Particular attention will be given when fires are conspicuous from roads or visitor use areas.

- The public information outlets of cooperating agencies, the area fire management office and the regional office will be provided with all fire management information.

- The fire management program will be discussed in informal talks with employees of

all divisions, contractors, volunteers, the community, residents, and adjacent land management agencies.

Emergency closures or restrictions may become necessary during periods of elevated or extended fire danger. Such closures will necessitate additional coordination and communication with the public and the media.

**XII. Protection of Sensitive Resources**

Virtually all of the area within the Monument contains sensitive cultural resources. Within the limits of firefighter and public safety, every effort will be made to prevent and minimize disturbances from suppression actions. Where possible, MIST tactics will be employed to avoid or mitigate these impacts. The park will provide expertise in cultural and natural resources and serve as Resource Advisor or as discipline experts.

A. Cultural Resources

Protection of these resources is focused on prohibiting any activity that causes damage to the structures or to the artifacts that are housed by these structures. Damage from fire can include burning of wooden features, spalling of sandstone, destruction of rock art and perishable artifacts, exposure of human remains, and smoke damage. Other possible problems include erosion of surrounding soils due to loss of ground cover and damage from suppression operations.

B. Natural Resources

There are threatened and endangered species within the Monument. Emergency consultation will take place as appropriate.

C. Developments, Infrastructure, and Improvements

As funding allows, defensible space will be maintained around buildings, structure, and other improvements in the Monument.

**XIII Fire Critiques and Annual Plan Review**

All wildland fires will involve review depending upon the size and complexity. The purpose of such review is to recognize and document actions that were successful, and to identify and rectify actions that were unsafe or ineffective. On smaller incidents, an informal After Action Review will take place with the resources on the fire. On larger, more complex fires review and critique will be performed by the Fire Management Officer, the Incident Commander/Burn Boss and a representative of the Monument (i.e. Superintendent, Natural and Cultural Resource Specialists, and the Chief Ranger). Wildland fires involving an Incident Management Team or significant political, safety, or public issues should be reviewed by the Area Fire Management Officer. If a fire generates a major political or public concern, involves multiple serious injuries or a fatality, the Regional Fire Management Officer and the NPS Fire Management Program Center should participate in the review. The Fire Management Officer will

review the Fire Management Plan annually for currency and incorporate changes into the appendix. The fire management plan is subject to formal review every five years.

## XIV. Consultation and Coordination

A. Wildland Fire Management Plan-Agencies consulted

Intermountain Regional Office, National Park Service
Mesa Verde National Park
Navajo Nation
Bureau of Indian Affairs

B. FMP contacts/consultation:

Mark Mullinex, MEVE
Brad Harris, MEVE
Tess Johnstone, MEVE
Dean Clark, IMR
Len Dems, IMR
John Nysted, USFWS
David Mikesic, NN Fish and Wildlife Department

## XV. Appendices and Attachments

Glossary

Four Corners Park Group Step-up Staffing Plan

Canyon de Chelly National Monument Map

Canyon de Chelly Fire Management Units Map

Emergency Contact Information for Wildland Fire Suppression Activities

Cultural Resource Protection Measures:

BARE BONES GUIDE TO FIRE EFFECTS ON CULTURAL RESOURCES
FOR CULTURAL RESOURCE SPECIALISTS

FIELD GUIDE FOR BLM ARCHAEOLOGISTS ASSIGNED TO WILDFIRES

SHORT AND LONG TERM EFFECTS
ON SITE PRESERVATION DUE TO WILDFIRES

FIELD GUIDE FOR RECORDING FIRE INTENSITY, FIRE SEVERITY, AND FIRE EFFECTS ON PREHISTORIC SITES

**Glossary**

Control Line: A comprehensive term for all the constructed and natural fire barriers and treated fire edges used to control a fire.

Direct Method: A method of suppression that treats the fire as a whole, or all its burning edges, by wetting, cooling, smothering, or chemically quenching the fire, or by mechanically separating the fire from unburned fuel.

Fire Weather: Weather conditions which influence fire ignition, behavior, and suppression.

Fire Management Plan: A strategic plan that defines a program to manage wildland fires. This plan is supplemented by operational procedures such as preparedness, preplanned dispatch burn plans and prevention.

Flame Length (FL): The length of a flame measured from the base of the flame to its tip and parallel to the length of the flame. Flame length is measured on a slant when the flame is tilted due to the effects of wind and slope.

Fuel Model: A simulated fuel complex for which all fuel descriptions required by the mathematical fire spread model have been specified.

Fuel Type: An identifiable vegetative association of fuel elements of distinctive species, form, size, arrangement, or other characteristics.

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

Indirect Attack: A method of suppression in which the control line is located along natural firebreaks, favorable breaks in topography, or at considerable distance from the fire.

Initial Action: Action taken by the first resources to arrive at a wildland fire to meet protection and fire use objectives.

Minimum Impact Suppression Tactics (MIST): The application of techniques that effectively accomplish wildland fire management objectives while minimizing the impacts to cultural and natural resources commensurate with ensuring public and firefighter safety and effective wildland fire control.

National Fire Danger Rating System (NFDRS): A multiple index scheme designed to provide fire control and land management personnel with a systematic means of assessing various aspects of fire danger on a day-to-day basis.

Planned Ignition: A fire ignited by management actions to meet specific objectives.

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

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

Prescription: Measurable criteria that guide selection of appropriate management strategies and actions. Prescription criteria may include economic, public health, environmental, geographic, administrative, social or legal considerations.

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

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

Unplanned Ignition: A wildland fire not ignited by management actions.

Wildland: Any area under fire management jurisdiction of a land management agency.

Wildland Fire: Any fire, other than prescribed fire that occurs in the wildland.

Wildland Fire Situation Analysis (WFSA): A decision-making process that evaluates alternative management strategies against selected environmental, social, political, and economic criteria.
Wildland Fire Use: A natural (lightning) ignited fire that is managed to meet resource benefits.

Weather Information Management System (WIMS): An interactive computer system designed to accommodate the weather information needs of all federal and state natural resource agencies.

## Arizona/New Mexico (Four Corners Park Group Step-up Staffing Plan)

| **Aztec Ruins/Chaco Canyon/Navajo Monument/Canyon De Chelly/Hubble Trading Post** | |
|---|---|
| | |
| **ERC Model G (numerical value from Weather Information Management System – WIMS (Piney Hill, 20402) The "G" Model may not be representative of the above members of the FCPG, but provides appropriate data for Parks with fire occurrence.** | |
| **Staffing Level** | |
| **I**<br><br>**0-45** | **1. Normal duty responsibilities.**<br>**2. Confirm and verify all Red Carded personnel/Check all PPE/fire equipment**<br>**3. Consider resource availability for local/regional/national assignments.**<br>**4. Prescribed fire and fire use viable.** |
| **II** | **1. Normal duty responsibilities.**<br>**2. Consider resource availability for local/regional/national assignments.** |

| | |
|---|---|
| **46-55** | **3. Prescribed fire and fire use viable.** |
| **III**<br><br>**56-74** | **1. Normal duty responsibilities.**<br>**2. Contact Fire Management at MEVE.**<br>**3. LAL of 3 or above, move to Staffing Level IV.** Step-up account<br>**4. Limitation of resources for out of zone assignments.**<br>**5. Consider assistance/advisement from MEVE.**<br>**6. Evaluate the viability of prescribed fire and fire use.** |
| **IV**<br><br>**75-90** | **1. Personnel available for management of fires within the park.**<br>**2. Off days may be canceled or tours of duty extended. Possibility of Implementation of 7 day staffing.**<br>**3. Type IV Incident Commander available from MEVE or check with Zone.**<br>**4. One Type VI engine available from MEVE or within Zone. Consider ordering from Zone.**<br>**5. LAL of 3, establish** Step-up account.<br>**6. Aerial reconnaissance - if indicated by lightning activity.**<br>**7. Fire Restrictions may be established.**<br>**8. Prescribed fire and fire use applications not allowed.** |
| **V**<br><br>**91+** | **All management actions in Staffing Level IV with the following amendments:**<br>**1. Closure of backcountry/wilderness areas to visitors may be imposed.**<br>**2. Fire Restrictions in place.**<br>**3. Consider ordering Type III Incident Commander from MEVE or check with Zone.**<br>**4. Prescribed fire and fire use applications not allowed.**<br>**5. LAL of 2 and above, establish** Step-up account |
| **Severity Augmentation-**<br><br>**97% ERC + Five Consecutive Days (Extended Forecast)** | **Confer with MEVE Fire Management and consider: Handcrew, Type VI Engines, Type III Incident Commander, Logistical Support (emergency funding will be requested through MEVE)** |

***Multiple fires in zone or confirmed arson, Step-up under V**


**Canyon de Chelly National Monument – Area Map.**

## Canyon de Chelly Fire Management Units Map

# Emergency Contact Information for Wildland Fire Suppression Activities at Canyon De Chelly

| | |
|---|---|
| LOCAL | |
| NPD Chinle | 674 2111/2112 |
| NPD Window Rock | 928-871-6112 |
| PHS/Ambulance | 928-674-7001 |
| Fire | 674-522-2105 |
| DPS | 1-800-723-3600 |
| Sheriff | 1-800-352-1850 |
| AZ MVD Chinle | 928-674-5655 |
| Road Dept Ganado | 928-755-3579 |
| Road Conditions | 1-800-411-7623 |
| | |
| WEATHER | |
| Flagstaff | 928-774-3401 |
| | |
| NAVAJO NATION | |
| NN BIA Ft. Defiance | 928-729-7230 |
| Fax | 928-729-5029 |
| Cal Becenti | 928-729-7230 |
| John Dover NNHP | 928-871-6701 |
| Ron Maldonado | 928-871-7139 |
| NN-EPA (A.Harvey) | 928-871-7839 |
| NN Rangers | 928-871-6701 |
| NN Rangers Chinle | 928-674-2109 |
| Navajo FshWlf | 928-871-7062 |
| Monument Valley VC | 435-727-3353 |
| Navajo Parks/Rec | 928-871-6636 |
| | |
| LEGAL | |
| US Magistrate-Flag | 928-774-2566 |
| AUSA Flag Joe Lodge | 928-556-3115 |
| US Marshalls | 928-556-7064 |
| NPS FIRE | |
| MEVE-FIRE | 970-529-5049 |
| MEVE-FIRE Fax | 970-529-5046 |
| (Mark Mullinex, Doug Paul) | |
| FLAGSTAFF FIRE DISPATCH | 928-526-0600 |
| Fax | 928-527-3517 |
| RADIOS | |
| Electronic Center | 505-863-5384 |
| Jerry (cell ph) | 505-979-1323 |
| SR Repeater Comb | 505-9794265 |
| Dale Sorrels | 453-719-2323 |
| | |
| CACH NPS STAFF | |

| | |
|---|---|
| Scott Travis, Superintendent | 928-674-8111 |
| Elaine Leslie, Asst. Superintendent | 928-674-2788 |
| William Yazzie, Chief Ranger | 928-674-5523 |
| Chris Blacksheep, LE Ranger | 928-674-5752 |
| Melissa Bergman, LE Ranger | 928-674-5711 |

RESOURCE ADVISORS

| | |
|---|---|
| Scott Travis, Cultural | 928-674-8111 |
| Elaine Leslie, Natural | 928-674-2788 |