

FIRE MANAGEMENT PLAN

For

WESTERN ARCTIC NATIONAL PARKLANDS, ALASKA

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I. INTRODUCTION

The following Fire Management Plan (FMP) is a specific action plan for the implementation of agency-wide and park-specific policies. As stated in Director's Order 18 (DO-18), the National Park Service specifies that "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." Accordingly, this plan is intended to facilitate the achievement of the goals and objectives identified in the General Management Plans (GMP) and Resource Management Plans for Western Arctic National Parklands (WEAR). At present there is only one operational Resource Management Plan among the four units that comprise WEAR. Due to this circumstance, fire managers have no alternative but to work under direct guidance of the GMPs, coupled with the Alaska Interagency Wildland Fire Management Plan (AIWFMP) to delineate how fire will be managed in WEAR. Stated slightly differently but with the same objective in mind, the GMPs clearly outline how the NPS will deal with fire management in the Western Arctic National Parklands. The NPS will "Manage natural resources to perpetuate ecological processes and systems." (CAKR GMP: 196) (KOVA GMP: 179) Units within WEAR will "allow fire to fulfill its natural role in vegetation succession." (NOAT GMP: 79) In addition the GMPs realized that "fire is an integral part in vegetation management, through the periodic removal of certain types of vegetation, the recycling of nutrients and the returning of areas to earlier stages of succession." (BELA GMP: 80).

Since 1983, guidance for fire management activities within WEAR has come from a series of statewide interagency plans developed cooperatively by the National Park Service, the Bureau of Land Management, the Alaska Department of Natural Resources, the Alaska Department of Fish and Game, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the Bureau of Indian Affairs, and Native Regional and Village Corporations. This Fire Management Plan, in turn, comprises a park-specific action plan; as such, it will be used in conjunction with the current Alaska Interagency Wildland Fire Management Plan (AIWFMP) to direct all personnel engaged in fire management actions within WEAR toward the fulfillment of the goals and objectives specified by the WEAR General Management Plans.

Authority for the implementation of this Fire Management Plan originates with the Organic Act of the National Park System, August 25, 1916. The act states that the primary goal of the National Park Service is to preserve and protect the natural and cultural resources found on lands under its management in such a manner as will leave them unimpaired for future generations. Current service-wide fire management policy is specifically expressed in Director's Order 18 (DO-18) and the attendant Reference Manual (RM-18). Additional authority is articulated in the Department of Interior, Departmental Manual, Series: Public Lands, Part 620: Wildland Fire Management, Chapter 1: General Policy and Procedures and specifically Chapter 2, General Policy and Procedures – Alaska. As stated in the Departmental Manual: "Nothing herein relieves agency administrators in the Interior bureaus of the management responsibility and accountability," and "Each Bureau will continue to use its delegated authority for application of wildland fire management activities such as planning, education and prevention, use of prescribed fire, establishing emergency suppression strategies, and setting emergency suppression priorities for the wildland fire suppression organization on respective Bureau lands."

The Fire Management Plan for Western Arctic National Parklands (WEAR) complies fully with these directives.

The actions described within this plan also meet the requirements of the National Environmental Planning Act (NEPA), the National Historic Preservation Act (NHPA), and the Alaska National Interest Lands Conservation Act (ANILCA). Compliance with these acts will be demonstrated as follows:

- The WEAR Fire Management Plan is accompanied by an Environmental Assessment (Appendix C.1), a substantive discussion of the effects upon Western Arctic Parklands natural and cultural resources by several alternative actions, including the proposed course of action that is explained throughout the FMP.
- The Environmental Assessment, in turn, is accompanied by an ANILCA 810(a) Summary Evaluation and Findings document (Appendix C.2), an assessment of the impacts of the proposed actions upon subsistence activities within WEAR.
- The Fire Management Plan, Environmental Assessment, and 810(a) Summary Evaluation and Findings will be submitted to National Park Service staff members at Western Arctic National Parklands and to the Alaska Regional Support Office for review of operational soundness and compliance with federal policy.
- The Fire Management Plan, Environmental Assessment, and 810(a) Summary Evaluation and Findings will be submitted for review to local communities, local native corporations, and to all state and federal agencies holding or administering lands adjacent to or in the proximity of the Parklands.
- A Programmatic Agreement (pending) among Western Arctic National Parklands, Denali National Park, Lake Clark National Park and Preserve, Katmai National Park, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Office specifies the actions to be taken by all park units in conjunction with their Fire Management Plans for compliance with the National Historic Preservation Act.
- The State Historic Preservation Officer (SHPO) will review the Fire Management Plan and Environmental Assessment; in addition the SHPO will review all individual prescribed fire burn plans prior to their approval by the Superintendent.
- Notice of availability of the FMP and accompanying Environmental Assessment and 810(a) Summary will be made locally, with public comments accepted by the NPS for a period of thirty days thereafter.

As delineated by these statewide interagency plans, the State of Alaska, Bureau of Land Management – Alaska Fire Service and the Forest Service, provides primary suppression response. In addition to the fact that primary suppression services are provided by other organizations, five factors are the primary drivers that shape the NPS Alaska Wildland Fire Management program and aspects of its planning rationale:

- The fire-funded park units encompass large fire-dependent ecosystems with fire regimes that have not been significantly altered by a relative short-period (~50 years) of fire suppression.
- The predominate fuel types present are tundra shrub and boreal forest with a long return interval (80-150 years), therefore it is classified as Fire Regime 4. With the possible exception of areas immediately adjacent to town and villages, all fuel types found in NPS units are classified as Condition Class 1. (For definitions of Fire Regimes and Condition Classes: <http://www.fire.org/frcc/FrccDefinitions.pdf>)
- Low-population density with the majority of population concentrated in a few major cities and towns, villages and isolated individual inholdings (e.g., allotments and cabin sites).
- Due to the aforementioned factors, 91% of all lands managed by the NPS in Alaska are within the Limited Fire Management Option (primarily Wildland Fire Use on NPS lands) with the remaining <1% in Critical, 5% Full and 7% in Modified Fire Management Options.
- Most of the Critical, Full and Modified Options areas within NPS unit boundaries are the result of inholdings and other landowner selections.

The implications of these factors on the NPS Alaska Wildland Fire Management Program are:

- NPS fire personnel provide surveillance and fire effects monitoring of ongoing fires, often for long-duration, to the NPS management and park staffs. All surveillance activities are coordinated with the suppression organizations.
- During critical resource shortages NPS personnel, in coordination with suppression organization, may provide initial structure protection, usually for significant cultural resources.
- During resource shortages or if they are the closest resource NPS personnel, in coordination with suppression organization, may provide initial attack (2002 Western Area Fire Management staff initial attacked three fires in DENA).
- NPS fire personnel in conjunction with park management/staffs continue to evaluate and determine the appropriate protection levels of isolated, remote structures (cultural resources) within NPS units.
- Since fire behavior in the boreal forest results in high intensity stand-replacement fires with long spotting distances, fuels management opportunities are limited to mechanical thinning/removal adjacent to structures – not large landscape scale reduction.
- By allowing wildland fire to fulfill its natural role in fire-dependent ecosystems, Fire Condition Class 1 is maintained in the most efficient, cost-effective and safe manner

Therefore, the NPS organization is not large, but meets the NPS needs for Wildland fire management in Alaska in a cost-efficient and effective manner.

II. NPS POLICY AND RELATION TO OTHER PLANS

A. NPS Policy

In 1995, an interagency review of the risks and expenses associated with wildland fire management culminated in the Final Report of the Federal Wildland Fire Management Policy and Program Review. This review contained several principles, policy changes, and recommendations that were accepted and endorsed by the Secretary of the Interior. In response to these changes and recommendations, the director of the National Park Service (NPS) issued *Director's Order #18: Wildland Fire Management* (DO-18) in 1998. The provisions of DO-18 supersede all previous requirements and statements of policy with regard to wildland fire management.

Foremost, DO-18 recognizes the need of the NPS to foster healthy and natural fire dependent ecosystems within individual parks, through the development of fire management programs designed around resource management objectives. Tailoring the FMP to park resource management objectives while still following national guidelines is central to the development of individual fire management plans for each park unit. To this end, each unit of the NPS is directed to prepare a fire management plan that supports cultural and natural resource management objectives while emphasizing safety for park visitors, employees, and developed facilities.

All fires burning in wildland fuels within parks will be classified as either wildland fires or prescribed fires. A prescribed fire is one that is intentionally ignited by park managers to achieve resource objectives. Every prescribed fire must have a detailed prescribed burn plan, approved by the superintendent that describes all aspects of the operation, including need and objectives, environmental parameters, monitoring, and contingency actions. Wildland fires are all other fires, whether ignited by natural or human causes. All wildland fires will be effectively managed by applying the guidelines specified in the park's fire management plan, which take into consideration firefighter safety, resource values to be protected, the effects of suppression, and numerous other criteria specific to the park unit.

B. Establishment and Purpose of WEAR

In 1980, with the passage of the Alaska National Interest Lands Conservation Act (ANILCA), the National Park Service in Alaska attained management responsibility for millions of acres of new Monuments, Parks and Preserves. In return the NPS became responsible for the care, proper management and longevity of resources that existed on these lands.

In the northwest corner of Alaska four management units were designated for preservation. These units were the Bering Land Bridge National Preserve, Cape Krusenstern National Monument, Kobuk Valley National Park and Noatak National Preserve. Not long after their inception, the NPS realized that the management of these four separate units was challenging geographically, logistically, financially and managerially. Due to this unique situation the NPS

has over the years sampled various management regimes for the four units. These four units are known collectively as the Western Arctic Parklands (WEAR). These lands together encompass 11.6 million acres of arctic and sub-arctic wildlands.

This grouping together of the individual units was incorporated to increase management efficiency by combining human and organizational resources. The National Park Service, however, recognized that each unit contained individualized resource goals and objectives based on each unit's fundamental legislative purpose. It was therefore decided that separate general management plans and resource management plans (RMP) would be created for each of the four units. Currently only Bering Land Bridge has a functioning RMP. For the other three units, the GMP has been the sole provider of guidance needed for management decisions.

Although subtle differences occur in the wording, the fire management goal remains the same in each of the four general management plans. This collaborative goal states, "Park units in northwest Alaska are to allow natural forest and tundra fires to fulfill their ecological role." (KOVA GMP 1986:63) This goal coupled with ecological factors that promote treating the entire region as arctic/sub-arctic fire management zone, has led to the decision that the Western Arctic Parklands although different with respect to Resource Management purpose, goals, and objectives, are very similar with respect to resources warranting protection, fuels and fire behavior. Therefore one fire management plan will be written for the Western Arctic Parklands.

Each of the four management units will be described individually as necessary. However, where appropriate these units will be referred to as the Western Arctic Parklands (WEAR) and managed as a single fire management area.

Bering Land Bridge National Preserve

Comprising 2,690,993 acres, the Bering Land Bridge is located at the northern tip of the Seward Peninsula in northwestern Alaska. This Monument was set aside for the following purposes as directed by ANILCA. "To protect and interpret examples of arctic plant communities, volcanic lava flows, ash explosions, coastal formations and other geological processes; to protect habitat for internationally significant populations of migratory birds; to provide for archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America and the Asian Continent, to protect habitat for, and populations of, fish and wildlife including, but not limited to, marine mammals, brown/grizzly bears, moose and wolves;...to continue reindeer grazing use...in accordance with sound range management practices; to protect the viability of subsistence resources; and in a manner consistent with the foregoing, to provide for the outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area."

Cape Krusenstern National Monument

Located on Alaska's Northwestern Coast, Cape Krusenstern encompasses 646,484 acres of coastal arctic ecosystem. The Monument was established, "To protect and interpret a series of archeological sites depicting every known cultural period in arctic Alaska; to provide for scientific study of the process of human population of the area from the Asian Continent, in

cooperation with Native Alaskans, to preserve and interpret evidence of prehistoric and historic Native cultures, to protect habitat for seals and other marine mammals; to protect habitat for and populations of birds, and other wildlife, and fish resources; and to protect the viability of subsistence resources...”

Kobuk Valley National Park

The Kobuk Valley National Park protects a 1,751,149 acre parcel surrounding the central section of the Kobuk River. Enclosed by the Baird and Waring mountains this area was designated as a National Park, “ To maintain the environmental integrity of the natural features of the Kobuk River Valley, including the Kobuk, Salmon and other rivers, the boreal forest, and the Great Kobuk Sand Dunes, in an undeveloped state, to protect and interpret, in cooperation with Native Alaskans, archeological sites associated with Native cultures; to protect migration routes for the Arctic caribou herd; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, moose, black and grizzly bears, wolves, and waterfowl and to protect the viability of subsistence resources.”

Noatak National Preserve

The largest of the four units at 6,563,709 acres the Noatak River basin is one of the largest undisturbed watersheds in North America. This area was set aside, “To maintain the environmental integrity of the Noatak River and adjacent uplands within the Preserve in such a manner as to assure the continuation of geological and biological processes unimpaired by adverse human activity; to protect habitat for, and populations of, fish and wildlife, including but not limited to caribou, grizzly bears, Dall sheep, moose, wolves, and for waterfowl, raptors, and other species of birds; to protect archeological resources; and in a manner consistent with the foregoing, to provide opportunities for scientific research.”

Recognized as a National Biosphere Reserve, the Noatak possesses internationally significant scientific value with regard to vegetative communities and fish and wildlife populations. Wildlife biology, ecology, botany, and numerous other disciplines acknowledge the unique opportunity for scholarship that is possible in the preserve. As a result, maintaining the natural ecosystem within Noatak National Preserve is a primary priority in all management decisions.

C. WEAR General Management Policy and Fire Management

Each of the General Management Plans (GMP) for units within WEAR were approved in 1986, and contain management actions intended to address potential issues and problems within WEAR. Fire management is treated only cursorily in the GMPs, all of which state in some form or another that “park units in northwest Alaska are to allow natural forest and tundra fires to fulfill their ecological role in vegetation succession.” (KOVA GMP 1986:63) However, wildfire was also recognized as a threat to private property. Consequently, the National Park Service selected the limited fire suppression option identified in the Alaska Interagency Wildland Fire Management Plan (AIWFMP), in which only fires that threaten human life, significant cultural sites or private property are suppressed only to the degree necessary to provide protection. This policy follows interagency fire planning policy and direction, and complies with provisions in the Alaska Native Claims Settlement Act [ANCSA 21(e)] that afford native lands wildland fire

protection services from the United States. Additionally, all GMPs allow for the use of prescribed fire as a tool to manage vegetation to protect property at risk and maintain fuel conditions.

Each of the general management plans maintains a consistent view on fire and how it will be managed within the specified administrative unit. Below are some of the natural resource management objectives that relate to fire. Verbatim objectives have been referenced. However, general themes throughout all the GMPs pertaining to fire management have been paraphrased and not referenced.

GMP management objectives that relate to fire management for all Western Arctic Parklands include:

- Protect and interpret natural ecosystems and their individual components, based on an understanding of the role played by natural processes, including fire. (BELA 1986:6)
- Manage natural resources to perpetuate ecological processes and systems. (KOVA 1986:179, CAKR 1986:196)
- Emphasize the continuation of the natural process that have shaped the landscape and sustained the plant and animal populations found on NPS lands and waters. (NOAT 1986:75)
- Allow wildfire as a natural process while protecting private property, [ANSCA 21(e)] significant historic resources, and human life.
- Maintain clean air and unimpaired viewsheds.
- Protect significant cultural resources on parklands with methods that are compatible with the wilderness purposes of the area.
- Continue research to better understand fire behavior, effects, and fire history so that fires become more predictable and management goals and objectives can be safely and efficiently accomplished.
- Maintain natural features, environmental integrity, and the dynamics of natural processes operating within the park.

D. WEAR Resource Management Policy and Fire Management

There is currently only one resource management plan for Bering Land Bridge in effect in the Western Arctic Parklands. The RMPs for the remaining three parks have not been completed for numerous reasons including changing requirements. Without an existing RMP, resource managers have had no alternative but to use the direction of the GMPs (1986) to guide them in resource management decisions. See above: WEAR General Management Policy and Fire Management. The accomplishment of the general management objectives will occasionally demand the prioritization of wildland fire management activities by the WEAR staff. Large or complex wildland fire incidents may demand the involvement of many WEAR personnel, in some cases for extended periods of time.

E. Relation of WEAR Fire Management Program to Interagency Fire Management Policy

In Alaska, primary responsibility for wildland fire suppression is divided between the Alaska Department of Natural Resources (DNR), the US Forest Service (USFS), and the Bureau of Land Management Alaska Fire Service (BLM-AFS). The BLM-AFS carries the primary responsibility

for suppression actions on lands within Western Arctic National Parklands. Although BLM-AFS has primary responsibility for suppression, 620 Departmental Manual 2.4 states that “nothing herein relieves agency administrators in the Interior bureaus of the management responsibility and accountability of activities occurring on their respective lands.” Section 2.4 goes on to state that “each bureau will continue to use its delegated authority for applications of wildland fire management activities such as planning, education, and prevention, use of prescribed fire, establishing emergency suppression strategies, and setting emergency suppression priorities for the wildland fire suppression organization on respective bureau lands.”

The NPS, as well as the US Fish and Wildlife Service (USFWS), the Bureau of Indian Affairs (BIA), and Alaska Native Regional Corporations and villages participate in wildland fire management training and provide suppression resources during periods of increased fire activity in WEAR, Alaska and the contiguous United States. Although the use of NPS personnel for initial attack and structure protection is not common, qualified NPS personnel may provide initial attack if they are the closest resources or if no other initial attack resources are available.

In 1984, the NPS cooperated with the Alaska Department of Fish and Game (ADF&G), BLM, DNR, USFS, USFWS, BIA, and Regional and Village Native Corporations to produce Interagency Fire Management Plans for the Kobuk and Seward/Koyukuk Planning Areas. These plans provided direction for fire management activity for WEAR until 1998. In 1998, under the Alaska Wildland Fire Coordinating Group, the common elements of the area-specific fire management plans were incorporated into a single reference document: the Alaska Interagency Wildland Fire Management Plan. Copies of the 13 original area-specific plans and the AIWFMP can be found at the NPS regional office and the Alaska Resource Library both located in Anchorage, Alaska. Under the AIWFMP, fire protection needs were determined by the land manager/owner and reviewed annually. Lands are placed in Critical, Full, Modified, or Limited protection categories. The protection categories establish priorities for allocating fire-fighting resources with the Critical category being the highest priority and Limited the lowest. These categories are based on values to be protected, as well as the managing agency’s resource management objectives, policies and mandates. These categories are discussed in detail in the AIWFMP.

This Fire Management Plan integrates the policies set forth in both DO-18 and the AIWFMP. Specifically, it is a detailed program of action to implement the fire management policies and objectives of the National Park Service. Additionally, this FMP will help to meet the objectives set forth in the WEAR General Management Plans.

III. SCOPE OF WILDLAND FIRE MANAGEMENT PROGRAM

A. Fire Management Goals at WEAR

Whenever safely possible, Western Arctic National Parklands will utilize the role of fire in the natural environment in the fulfillment of NPS natural resource management directives. Accordingly, WEAR will direct all fire management activities toward the accomplishment of the following goals:

- The protection of human life, property, and irreplaceable natural and cultural resources.
- The preservation of fire in its natural role and as a natural process to the fullest extent possible.
- The maintenance of dynamic natural processes occurring within the WEAR.
- The use of selected wildland fires for the accomplishment of resource management objectives and for the reduction of hazardous fuels.
- The minimization of adverse effects of fire and/or fire suppression activities.
- The coordination and scientific management of wildland fire based upon natural resource management program, park and NPS goals and objectives.
- The education of employees and public about the scope and effect of wildland fire management.
- The management of wildland fire incidents in accordance with accepted interagency standards and the achievement of maximum efficiency through interagency coordination and cooperation.
- The development of on-site protection capabilities at Kotzebue and Nome through the training of WEAR personnel and acquisition of wildland fire fighting equipment.
- The presentation of timely and accurate fire situation, fire behavior and fire effects information to the WEAR Superintendent, park staff, regional fire management staff or Incident Management Team and to appropriate Alaska Fire Service personnel.

B. Fire Management Options

The NPS policy DO-18 specifies the various fire management options available for use by the fire management program. These options are described below, and are summarized in Table 1.

1. Wildland Fire

Wildland fire is defined as any ignition or fire occurring in wildland fuels within WEAR that was not planned and ignited by management. Following both DO-18 and the AIWFMP, wildland fires may be managed for the accomplishment of resource management objectives. One of two alternatives may be implemented upon detection of a wildland fire: Wildland Fire Use, or wildland fire suppression.

a. Wildland Fire Use

Wildland Fire Use is a specific management action implemented primarily for the accomplishment of resource objectives, including the preservation of fire in its natural role in the ecosystem which maintains the natural fire regime and maintains Fire Regime Condition Class 1.

Fire Regime Condition Class 1 includes areas that are within the natural (historical) range of variability of vegetation characteristics; fuel composition; fire frequency; severity and pattern; and other associated disturbances. Fire Regime Condition Class 1 is the desired condition for all NPS managed lands in Alaska. Specific elements must be in place before Wildland Fire Use can be implemented, including an approved fire management plan, appropriate environmental and subsistence compliance, the establishment of fire management units, a prescription for implementation, and management oversight. These elements will be discussed further in the wildland fire management section below.

b. Wildland Fire Suppression

Wildland Fire Suppression is any fire management action that is based on protection goals rather than resource management concerns. All unplanned ignitions failing to meet predetermined conditions for Wildland Fire Use will be suppressed in accordance with the fire protection category defined in the AIWFMP for the ignition location. In selecting suppression strategies, the Incident Commander and/or the suppression agency Fire Management Officer (FMO) and/or the Agency Administrator must consider firefighter and public safety, cost effectiveness, and impact of suppression activities, as well as protection of resources and values to be protected. Accordingly, suppression strategies may range from aggressive initial attack to surveillance including indirect containment. The Superintendent may request a higher level of suppression response (AIWFMP page 34)

2. Fuels Management

In wildland fire management, fuel is defined as live or dead organic matter. Managing the amount of fuel at any given site is one of the primary tasks of the fire management program. Wildland Fire Use usually assists with managing fuels on a larger scale using natural ignitions. If Wildland Fire Use is not appropriate for an area, the two primary management options for fuel management/reduction are described below.

a. Prescribed Fire

Prescribed Fire is defined as the planned implementation of fire within a predetermined area and under predetermined conditions, for the accomplishment of resource management objectives and/or hazard fuel reduction. Each implementation of prescribed fire must follow a Prescribed Fire Plan prepared by the Western Area FMO (or delegate) and approved by the Superintendent. Currently WEAR has no plans to implement prescribed fire in the immediate future. Prescribed fire may, however, be an appropriate tool at WEAR for the purposes of hazard fuel reduction, protection of significant cultural features, scientific research, or the restoration of historical landscapes/conditions at culturally significant sites.

b. Mechanical Fuel Reduction

Mechanical Fuel Reduction is defined as the use of power saws, crosscut saws, mowers, handtools, or similar devices to mitigate hazard fuel buildup or recreate historical landscape conditions in areas where fire would pose an unacceptable threat to property or resources. Each mechanical fuel reduction action at WEAR must follow a written plan prepared by the Western Area FMO (or delegate) and be approved by the Superintendent. In areas designated as wilderness, a minimum requirement/minimum tools analysis will be completed and integrated into the plan, following the conditions set forth in the Organic Act.

Table 1: DO-18 Fire Management Options

Management Option	Intent	Policy
<p>Prescribed Fire Prescribed Fire Plan → management-implemented ignition</p>	<ul style="list-style-type: none"> • Ecosystem sustainability • Achieve Resource Management goals and objectives 	<ul style="list-style-type: none"> • May only be implemented within FMUs designated for such use. • Context and circumstances of the fire dictate the appropriate response, based on the approved FMP. • Management strategy or prescribed fire plan should be based on resource management objectives.
<p>Wildland Fire Use Natural ignition → managed based on resource management objectives</p>	<ul style="list-style-type: none"> • Long-term protection of life, property, and/or fire sensitive resources. • Restoration of historic conditions. • Cost effectiveness. 	<ul style="list-style-type: none"> • Suppression actions triggered automatically in certain FMUs. • Agency Administrator may select suppression actions in any FMU. • Context and circumstances of the fire dictate the appropriate response, based on the approved FMP • Suppression actions should comply with resource management objectives whenever possible. • Minimum Impact Suppression Tactics (MIST) will be used
<p>Wildland Fire Suppression Any ignition where there are no alternative appropriate responses → suppression response</p>	<ul style="list-style-type: none"> • Immediate protection of life, property, and/or fire-sensitive resources. • Cost effectiveness. 	<ul style="list-style-type: none"> • Suppression actions triggered automatically in certain FMUs. • Agency Administrator may select suppression actions in any FMU. • Context and circumstances of the fire dictate the appropriate response, based on the approved FMP • Suppression actions should comply with resource management objectives whenever possible. • Minimum Impact Suppression Tactics (MIST) will be used

C. Fire Management Units (FMUs)

The fire management program at Western Arctic National Parklands complies with the policies resulting from the Federal Wildland Fire Management Policy Review of 1995, as well as those established by the Alaska Interagency Wildland Fire Management Plan. All human-caused fires will be suppressed using the appropriate operational suppression response delineated in the AIWFMP. In accordance with DO-18, the Parklands have been sub-divided into four Fire Management Units (FMUs), each indexed to an appropriate AIWFMP category. It should be noted that the areas contained within individual Fire Management Units at WEAR are not contiguous (e.g., In Bering Land Bridge, the modified protection FMU includes acreage in both the far west, central and southeast sections of the preserve). Map 1 in Appendix G shows the general location of the Parkland’s FMU boundaries within the park as well as the AIWFMP protection categories for adjacent lands

According to the AIWFMP, each FMU has specific, predetermined management strategies (or combinations thereof) that consist of the various management options described above. For example, Wildland Fire Use will be the pre-planned response for ignitions detected within the WEAR Limited Protection FMU and in the Modified Protection FMU after the conversion date. These management strategies are summarized by FMU in Table 2.

Table 2: AIWFMP Management Options

PROTECTION CATEGORY	POLICY/RESPONSE	INTENT
CRITICAL	<ul style="list-style-type: none"> • Aggressive suppression of fires within or threatening designated areas. • Highest priority for available resources. 	<ul style="list-style-type: none"> • Prioritization of suppression actions for wildland fires threatening human life, inhabited property, and/or other designated structures. • Complete protection of designated sites
FULL	<ul style="list-style-type: none"> • Aggressive suppression of fires within or threatening designated areas, depending upon availability of resources. 	<ul style="list-style-type: none"> • Protection of uninhabited cultural and historical sites, private property, and high-value natural resources.
MODIFIED	<ul style="list-style-type: none"> • Fires in designated areas receive initial attack depending on availability of resources, unless land manager chooses otherwise and documents with WFSA. • After designated conversion date, operational response to Modified protection zones is identical to that of Limited zones. 	<ul style="list-style-type: none"> • Greater flexibility in selection of suppression strategies when chance of spread is high (e.g., indirect attack). • Reduced commitment of resources when risk is low. • Balancing of acres burned with suppression costs and with accomplishment of resource management objectives.
LIMITED	<ul style="list-style-type: none"> • Wildland fires allowed to burn within predetermined areas. • Continued protection of human life and site-specific values. • Surveillance. 	<ul style="list-style-type: none"> • Reduction of long-term costs and risks through reduced frequency of large fires. • Reduction of immediate suppression costs. • Facilitation of bio-diversity and ecological health

Determination of WEAR Fire Management Units and their respective management strategies is based on the proximity of values at risk, the role of fire within the WEAR vegetative communities, and overall management objectives, as specified in DO-18. Variables such as fuel type, loading, and moisture level will be considered in the decision-making process for specific incidents, as well as in the writing of individual prescribed fire plans. Table 3 below summarizes the WEAR FMUs and rationale for FMU determination.

A statewide Multi-Agency Coordination (MAC) group will be convened when the Alaska Preparedness Level reaches Level 4 to establish priorities for suppression resource allocation and to determine if the need exists for a temporary change in the selected fire management option identified in the AIWFMP for a specific geographic area(s). Such temporary changes may be implemented during periods of unusual fire conditions (e.g., numerous or unusually large fires, predicted drying trends, problematic smoke dispersal, shortages of suppression resources, etc.). The duration and geographical extent of any such changes will be determined by the MAC group and will be reflected in WEAR FMU boundaries, which will be managed accordingly. The regional FMO represents the NPS on the MAC group.

Table 3: Integration of AIWFMP and DO-18 Policy at WEAR

WEAR Fire Management Units (Derived from AIWFMP Protection Categories)	POSSIBLE RATIONALES for FMU Determination	APPLICABLE Management Strategies
Critical	<ul style="list-style-type: none"> • Presence of permanent residences and valuable cultural resources, including National Historical Landmarks. 	<ul style="list-style-type: none"> • Suppression • Prescribed Fire Use • Mechanical
Full	<ul style="list-style-type: none"> • Presence of private structures and of structures included on the National Register of Historical Places. • Proximity to Critical FMU. 	<ul style="list-style-type: none"> • Suppression • Prescribed Fire Use • Wildland Fire Use • Mechanical
Modified	<ul style="list-style-type: none"> • Proximity to Critical and Full FMUs. • Presence of fire-dependent ecosystems. • Appropriate balance of cost and control. 	<ul style="list-style-type: none"> • Wildland Fire Use • Prescribed Fire Use • Suppression • Mechanical
Limited	<ul style="list-style-type: none"> • Presence of fire-dependent ecosystems. • Relative lack of significant fire-sensitive resources. 	<ul style="list-style-type: none"> • Wildland Fire Use • Prescribed Fire Use • Suppression • Mechanical

D. Description of WEAR Fire Management Units

Due to the vast acreage covered by this fire management plan coupled with the geographically large and politically complex boundaries that define each management option, detailed written descriptions of each fire management option are not included. Instead a general description of where the fire management option occurs within the unit boundary will follow accompanied by a detailed map (See Appendix G).

With the implementation of the Alaska Interagency Wildland Fire Management Plan, selection of given fire management protection categories were based upon laws, enabling legislation, mandates, and policies applicable to publicly managed lands, values/resources to be protected, fire behavior and ecology, and human use patterns. If land manager/owners selected different options for adjacent lands, attempts were made to negotiate an agreement on the selected option or determine reasonable boundaries if options differed. Every effort was made **not** to use administrative boundaries (e.g. park boundaries) but to select option area boundaries that were identifiable from the air and were feasible considering operational and fire behavior concerns. Selection of areas also depended upon the values to be protected. Due to the aforementioned selective factors, 83% of the 11.6 million acres lands managed by WEAR fall in the Limited Fire Management Option (default Wildland Fire Use on NPS lands) [9,726,598 acres]. The balance of management option acreage is delineated 4% Full [523,545 acres] and 12% Modified [1,404,830 acres] 0% is identified as Critical. Most classified Critical, Full and Modified Options areas within NPS unit boundaries are the result of inholdings and other land owners’ selections.

Finally, the historic role of fire in WEAR, weather analysis, fire regime and season, and fuel characteristics are discussed not by fire management unit, but for the entire management area as a whole since they apply to all of the fire management units.

1. Critical Protection Fire Management Unit

a. Physical Descriptors

There are currently no areas within any of the four management units of the Western Arctic National Parklands that fall within the critical fire Management option. Future WEAR fire management reviews have the flexibility to grant critical protection status to any area within their jurisdiction that falls within the Critical protection criteria.

b. Management objectives

In accordance with the AIWFMP, the highest priority for the aggressive suppression of ignitions occurs within Critical Protection zones and/or sites. Prescribed fire and/or mechanical fuel reduction is appropriate in critical protection FMUs based upon land manager/owner's land and fire management objectives.

c. Management constraints

- Firefighter and public safety will be the number one concern in all fire management activities.
- Western area fire staff will make every reasonable effort to communicate to the public and NPS employees during an incident in WEAR. Ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU will be addressed.
- Retardant will not be used without the approval of the Superintendent (or delegate), except when fire imminently threatens life or values to be protected. Any use of retardant will comply with standards identified in the Interagency Standard for Fire and Fire Aviation Operations (published annually).
- Heavy equipment (including bulldozers) will not be used without the approval of the Superintendent (or delegate), except in life-threatening situations.
- Prior to the set-up of any remote extended fire camp in any of the WEAR management units, fire managers will make every attempt to notify cultural resource staff. Fire staff will actively work with Cultural Resource staff to select an appropriate camp location. This consultation will ensure campsite locations are chosen in order to minimize impacts to resources at risk. The establishment of extended fire camps is essential to respond to threats to life or property by wildland fire.

d. Special concerns

Western area fire staff involved in fire management activities in WEAR will make every effort to understand current sensitive issues in each of the four management areas. This includes but is not limited to; current political issues, subsistence seasons/areas; critical migration paths/timing, reindeer grazing allotment susceptibility, wilderness policy, private land issues and susceptible

cultural resources. Park managers will reciprocate by providing timely and accurate information that will aid fire managers in determining appropriate responses to current fire situations without jeopardizing valuable park resources and park/community relations.

The use of motorized equipment or mechanized transport that is generally prohibited by the Wilderness Act (helicopter landings, use of chainsaws, use of bulldozers, etc.) will not be permitted on lands that are designated as Wilderness or suitable for Wilderness prior to the preparation of a Minimum Requirement/Minimum Tool Analysis. 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 resources and to minimize the lasting impacts of the suppression actions.

2. Full Protection Fire Management Unit

a. Physical descriptors:

- 1) BELA contains 216,748 acres of full protection land. This land is concentrated in the northwest corner of the Preserve around the Shismaref Inlet and (See Map 1: Appendix G)
- 2) CAKR possesses full protection areas of land in its southeast most corner and a small area along its eastern boundary. The full protection landmass covers 63,034 acres. (See Map 1: Appendix G)
- 3) KOVA contains no designated zone for full land protection status (See Maps: Appendix G)
- 4) NOAT has 244,651 acres of full protection designated along the western boundary of the Preserve near Noatak Village. (See Map 1: Appendix G)

b. Management objectives

The primary objective in the Full Protection FMU is to protect valued resources by minimizing the presence of uncontrolled fire. AFS and/or the NPS will respond whenever possible to ignitions within this FMU with an appropriate suppression response. Wildland Fire Use may occur within this FMU if circumstances preclude initial attack within 24 hours of discovery or suppression response is not feasible. Wildland Fire Use may be implemented with Agency Administrator's approval and concurrence from the Western Area FMO and Galena Zone FMO. The decision to implement Wildland Fire Use will be documented through the WFIP Stage I, including the Decision Criteria Record. Prescribed fire may also be implemented in this FMU, with the Superintendent's approval of a formal prescribed fire plan, for the purpose of preserving and/or restoring fire in its natural role, reducing hazardous fuel accumulations, or restoring historic conditions. Mechanical fuel reduction is appropriate based on land manager/owner's land and fire management objectives.

In all cases, fire management strategies for incidents within the Full Protection FMU and/or sites will be aimed primarily at the protection of structures and other valued resources. Mitigation of immediate threats will take precedence, but implementation of alternative strategies aimed at long-term fuels management and/or other management goals will also be allowed when deemed appropriate by the Agency Administrator.

c. Management constraints

- Firefighter and public safety will be the number one concern in all fire management activities.
- The Parklands will make every reasonable effort to communicate to the public and NPS employees' ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.
- Retardant will not be used without the approval of the Superintendent (or delegate), except when fire imminently threatens life or values to be protected. Any use of retardant will comply with standards identified in the Interagency Standard for Fire and Fire Aviation Operations (published annually).
- Heavy equipment (including bulldozers) will not be used without the approval of the Superintendent (or delegate), except in life-threatening situations.
- Prior to the set-up of any remote extended fire camp in any of the WEAR management units, fire managers will make every attempt to notify cultural resource staff. Fire staff will actively work with Cultural Resource staff to select an appropriate camp location. This consultation will ensure campsite locations are chosen in order to minimize impacts to resources at risk. The establishment of extended fire camps is essential and immediate responses to an emergency and/or immediate threat to life or property by wildland fire.
- Establishment of helispots and helibases will be minimized.
- Minimize establishment of remote fuel caches, attempt to use pre-existing fuel caches.

d. Special concerns

Western area fire staff involved in fire management activities in WEAR will make every effort to understand current sensitive issues in each of the four management areas. This includes but is not limited to; current political issues, subsistence seasons/areas; critical migration paths/timing, reindeer grazing allotment susceptibility, wilderness policy, private land issues and susceptible cultural resources. Park managers will reciprocate by providing timely and accurate information that will aid fire managers in determining appropriate responses to current fire situations without jeopardizing valuable park resources and park/community relations.

The use of motorized equipment or mechanized transport that is generally prohibited by the Wilderness Act (helicopter landings, use of chainsaws, use of bulldozers, etc.) will not be permitted on lands that are designated as Wilderness or suitable for Wilderness prior to the preparation of a Minimum Requirement/Minimum Tool Analysis. 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 resources and to minimize the lasting impacts of the suppression actions.

3. Modified Protection Fire Management Unit

a. Physical descriptors

- 1) **BELA** contains three separate modified fire management option zones within the boundary of the preserve. These three units comprise all 804,464 acres of modified within the NPS jurisdiction and are located in the southeast, central and western most tip of the unit. (See Map1: Appendix G)
- 2) **CAKR** contains no modified fire management zones within its boundaries.
- 3) **KOVA** encompasses 543,739 acres of modified fire management option status land. This land is concentrated along the Kobuk River subsistence corridor in the southern half of the park. See Map 1: Appendix G)
- 4) **NOAT** contains no modified fire management zones within its boundaries.

b. Management objectives

The primary objective in the Modified Protection FMU is to achieve an appropriate balance between protection of life and property and cost effectiveness through the implementation of alternative suppression strategies. AFS will provide initial attack for ignitions detected within the Modified Protection FMU, if adequate fire fighting resources are available and conversion has not occurred. However, minimizing acreage burned is less of a priority in Modified FMUs than it is in Critical or Full FMUs. Accordingly, Incident Managers will consider a wide range of suppression strategies within the Modified FMU, including containment by natural barrier or indirect use of retardant or handline. Wildland Fire Use is allowed within this FMU if circumstances preclude initial attack within 24 hours of discovery or suppression response is not feasible. Wildland Fire Use may be implemented with Agency Administrator's approval and concurrence from the Western Area FMO and Galena Zone FMO. The decision to implement Wildland Fire Use will be documented through the WFIP Stage I. Once the Modified Protection FMU has converted, management objectives are identical to those established for the Limited Protection FMU and Wildland Fire Use becomes an appropriate management action. Wildland Fire Use will be initiated using the WFIP Stage I. Prescribed fire may be implemented in this FMU for the purpose of reducing hazardous fuel accumulations or restoring historical conditions, with the Superintendent's approval of a formal prescribed fire plan. Mechanical fuel reduction is appropriate based upon land manager/owner's land and fire management objectives.

c. Management constraints

- Firefighter and public safety will be the number one concern in all fire management activities.
- The WEAR fire staff will make every reasonable effort to communicate to the public and NPS employees ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.
- Retardant will not be used without the approval of the Superintendent (or delegate), except when fire imminently threatens life or values to be protected. Any use of retardant will comply with standards identified in the Interagency Standard for Fire and Fire Aviation Operations (published annually).

- Heavy equipment (including bulldozers) will not be used without the approval of the Superintendent (or delegate), except in life-threatening situations.
- Prior to the set-up of any remote extended fire camp in any of the WEAR management units, fire managers will make every attempt to notify cultural resource staff. Fire staff will actively work with Cultural Resource staff to select an appropriate camp location. This consultation will ensure campsite locations are chosen in order to minimize impacts to resources at risk. The establishment of extended fire camps is essential and immediate responses to an emergency and/or immediate threat to life or property by wildland fire.
- Establishment of helispots and helibases will be minimized.
- Minimize establishment of remote fuel caches, attempt to use pre-existing fuel caches.

d. Special concerns

Western area fire staff involved in fire management activities in WEAR will make every effort to understand current sensitive issues in each of the four management areas. This includes but is not limited to; current political issues, subsistence seasons/areas; critical migration paths/timing, reindeer grazing allotment susceptibility, wilderness policy, private land issues and susceptible cultural resources. Park managers will reciprocate by providing timely and accurate information that will aid fire managers in determining appropriate responses to current fire situations without jeopardizing valuable park resources and park/community relations.

The use of motorized equipment or mechanized transport that is generally prohibited by the Wilderness Act (helicopter landings, use of chainsaws, use of bulldozers, etc.) will not be permitted on lands that are designated as Wilderness or suitable for Wilderness prior to the preparation of a Minimum Requirement/Minimum Tool Analysis. 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 resources and to minimize the lasting impacts of the suppression actions.

4. Limited Protection Fire Management Unit

a. Physical descriptors

The Limited Protection FMU (approximately 9,725,208 acres) includes all WEAR holdings (lands under NPS management) not contained within the Critical, Full or Modified FMUs.

b. Management objectives

Due to the near absence of values at risk within this unit, most ignitions occurring within the Limited Protection FMU will be managed for the purpose of preserving fire in its natural role within the ecosystem and accomplishing fire and land management objectives. Wildland Fire Use may be implemented with Agency Administrator's approval and concurrence from the Western Area FMO and Galena Zone FMO. The decision to implement Wildland Fire Use will be documented through the WFIP Stage I. Prescribed fire may also be implemented in this FMU, with the Superintendent's approval of a formal prescribed fire plan, for the purpose of preserving and/or restoring fire in its natural role, reducing hazardous fuel accumulations, or

restoring historic conditions. Mechanical fuel reduction is appropriate based upon land manager/owner's land and fire management objectives.

c. Management constraints

- Firefighter and public safety will be the number one concern in all fire management activities.
- The WEAR fire staff will make every reasonable effort to communicate to the public and NPS employees ongoing fire management efforts, fire situation, and socio-political and economic impacts of any fire management activities conducted within this FMU.
- Retardant will not be used without the approval of the Superintendent (or delegate), except when fire imminently threatens life or values to be protected. Any use of retardant will comply with standards identified in the Interagency Standard for Fire and Fire Aviation Operations (published annually).
- Heavy equipment (including bulldozers) will not be used without the approval of the Superintendent (or delegate), except in life-threatening situations.
- Prior to the set-up of any remote extended fire camp in any of the WEAR management units, fire managers will make every attempt to notify cultural resource staff. Fire staff will actively work with cultural resource staff to select an appropriate camp location. This consultation will ensure campsite locations are chosen in order to minimize impacts to resources at risk. The establishment of extended fire camps is essential and immediate responses to an emergency and/or immediate threat to life or property by wildland fire.
- Establishment of helispots and helibases will be minimized.
- Minimize establishment of remote fuel caches, attempt to use pre-existing fuel caches.

d. Special concerns

Western area fire staff involved in fire management activities in WEAR will make every effort to understand current sensitive issues in each of the four management areas. This includes but is not limited to; current political issues, subsistence seasons/areas; critical migration paths/timing, reindeer grazing allotment susceptibility, wilderness policy, private land issues and susceptible cultural resources. Park managers will reciprocate by providing timely and accurate information that will aid fire managers in determining appropriate responses to current fire situations without jeopardizing valuable park resources and park/community relations.

The use of motorized equipment or mechanized transport that is generally prohibited by the Wilderness Act (helicopter landings, use of chainsaws, use of bulldozers, etc.) will not be permitted on lands that are designated as Wilderness or suitable for Wilderness prior to the preparation of a Minimum Requirement/Minimum Tool Analysis. 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 resources and to minimize the lasting impacts of the suppression actions.

E. WEAR Ecology and Fire.

Vast and remote, WEAR contains examples of a variety of ecotypes of Northwest Alaska. From the coastal plains and plateaus of the west, boreal forest transitional zones of the Kobuk valley, to the treeless arctic tundra of the Noatak, fire has visited every ecotype. Due to climatic and vegetative conditions, the interior management units (NOAT, KOVA) generally see considerably higher fire occurrences than their coastal counterparts (CAKR, BELA.) See Appendix F for fire history graphs.

WEAR geographically is broken up into four units. To the north Noatak National Preserve provides the northernmost WEAR boundary. Delineated by the DeLong Mountains to the north and east and the Baird Mountains to the south, the Noatak is the largest mountain-ringed river basin in America. Within Noatak, the majority of the landscape is characterized by immense sweeps of tundra, strewn with ponds and marshes. These low boggy marshlands, better known as wet tundra, lead to drier alpine tundra at higher elevations. Northernmost reaches of spruce forests exist in the far west region of the preserve totaling just one half of 1% of the total vegetative cover of the preserve.

Just south of the Noatak National Preserve sharing its southern boundary is the Kobuk Valley National Park. Encircled by the Baird Mountains to the North and the Waring Mountains to the south, this Park encompasses the middle section of the Kobuk River and exemplifies the northernmost boreal forest in Interior Alaska. Because the Kobuk Valley is in the transition zone between the more Interior Alaska forested areas and the more northern and western tundra areas, both forest and tundra are widely distributed in the Park. Forests occur on better-drained soils along stream courses and on higher ground, while tundra occupies the more mesic lowlands and valleys. The alternating tundra and forest patterns form a mosaic of vegetation across the valley floor.

Due west of Kobuk Valley and Noatak along the coast is Cape Krusenstern. Coastal plains dotted with sizeable lagoons and backed by gently rolling limestone hills characterize this National Monument. The majority of the monument is typified by moist tundra with a single strip of wet tundra along the southern boundary. Alpine tundra is found in upland areas above 750 ft. Communities of salt-tolerant plant species inhabit the coastal region and isolated patches of white spruce are found in the southeast portion of the management area.

The southernmost management unit included in WEAR is the Bering Land Bridge National Preserve. Occupying about one-third of the Seward Peninsula, Bering Land Bridge is a mixture of coastal plain and plateau with relatively few mountains and uplands. Plant life on the preserve is an extremely rich assortment of arctic tundra species. The continuums of tundra types are differentiated based on soil moisture and degree of drainage ranging from the driest alpine tundra to more moist tundra and finally wet tundra. Grasslands occur along the coast and in estuaries while shrub thickets are found locally in patches with moist or alpine tundra and along floodplains on new alluvial soils. Spruce as observed in interior Alaska does not exist in the Preserve. Its westernmost limit lies just south and east of the boundary. Only a few select drainages near Bering Land Bridge support white spruce in a scattered woodland growth form at their headwaters.

1. Historic Role of Fire in WEAR

Fires are infrequent occurrences in the coastal management units of WEAR. Although according to fire history records, during severe drought and active fire years; fires have burned in and around both Bering Land Bridge and Cape Krusenstern. However, the two more continental units (Noatak, Kobuk Valley) see more significant fire activity most years. Major portions of the Noatak and Kobuk Valley lie within the northernmost belt of Interior Alaska, where fire has played a critical role in ecosystem sustainability.

Fire has been a driving force in the Alaskan interior and arctic for thousands of years. It is a key environmental factor in these cold-dominated ecosystems. Periodic fires have served to select plants and animals that are adapted to fire-caused change. Without fire, organic matter accumulates, the permafrost table rises, and ecosystem productivity declines. Vegetation communities become much less diverse, and their value as wildlife habitat decreases. Fire rejuvenates these systems. It removes some of the insulating organic matter and elicits warming of the soil. Nutrients are added both as a result of combustion and by increased decomposition rates. Vegetative re-growth quickly occurs, and the cycle begins again.

The impact of aggressive suppression in Interior Alaska and WEAR is difficult to assess. Organized suppression has occurred in Alaska since 1939, when the Alaska Fire Control Service (predecessor to the AFS) was established. The effects of this activity are not clear, however, the reduction of total fire acreage has been unmistakable in some areas. A past study of the Tanana/Minchumina Planning Area has shown that annual burned acreage hovered around 900,000 acres between 1957 and 1981, down from the estimated 1.5 to 2.5 million acres prior to 1940. The Tanana/Minchumina Planning Area received greater fire suppression emphasis than the area encompassed by WEAR. Yet despite this reduction, large, high-intensity fires remain a frequent occurrence. Detection of interior fires remains difficult especially during periods of high fire activity and smoke concentration. Alaska fire management personnel feel that the fire ecology of WEAR is relatively unchanged from the condition prior to the development of organized suppression efforts. This opinion is based upon the recognition that large fires continue to occur and the fact that the length of time that suppression activities have occurred is less than the predicted return interval for fires in WEAR. The probability exists that an area where a fire was suppressed will burn within the return interval

Graphs in Appendix F show the fire history of each WEAR unit for the years that data exists. As is evident, fire is a relatively infrequent occurrence in Cape Krusenstern, and Bering Land Bridge, with most years seeing no wildland fires at all. However, as years like 1977 indicate, fire is a significant ecological process and albeit infrequently, has the potential to impact large areas.

2. Weather Analysis

Two major climate zones can be found within the Western Arctic Parklands. The Noatak National Preserve and the Kobuk Valley National Park lie within the continental climate category while the Bering Land Bridge and Cape Krusenstern exist within the coastal climate zones.

The continental areas experience long cold winters and short warm summers. Winter temperatures reach –60F or lower and can endure for long periods of time, while summer months bring temperatures that are usually mild but have reached as high as 90 F. Freezing temperatures have been recorded every month of the year in these areas. Sunlight in the northern portion of Noatak reaches 24 hours/day in June and July and just slightly less in the southern half and the Kobuk Valley, thus providing no variation in burning conditions between day and night during the peak of fire season. Annual precipitation in these eastern more continental units averages approximately 20 inches, 50% of which is from snow pack. Thunderstorms provide the majority of the other half of the precipitation during the months of June and July. Prevailing winds are driven by topography in these interior management units.

The coastal climate areas in WEAR experience quite different weather than that of their eastern counterparts. With significant maritime influence these areas experience lower fluctuations in diurnal temperatures than are witnessed in more interior areas. Temperature, humidity and winds are largely dependent on whether the surrounding ocean waters are ice covered or ice-free. When offshore waters are frozen, the coastal climate's low temperatures range from 0 to –40F (not accounting for wind chill) and summer temperatures average in the mid 50F, with record highs reaching the mid 80s in June and July. Breakup usually occurs in late May or early June and freeze-up generally in mid to late October. Although maritime geographically, these coastal areas reflect their arctic influence, remaining relatively cool and dry compared to other coastal areas to the south. Snowfall accumulation averages between 50-60 inches annually. This snowfall however accounts for only a fraction of the 10 inches (or less) of precipitation this area receives every year. Cape Krusenstern and Bering Land Bridge alike receive most of their annual moisture during the warmer and moister summer months.

The NPS, FWS, and BLM maintain Remote Automated Weather Stations (RAWS) at various sites in and around WEAR unit boundaries. The following locations have RAWS stations that may provide helpful weather information to the WEAR fire managers: Kotzebue (PAOT), Ambler (PAFM), Nome (PAOM), Selawik NWR (SWK), and Hoodoo Hill (HDO), Noatak River (NOA), Kiana (IAN), Quartz Creek (QRZ), Kavet Creek (KAV), Kelly River (KEL), Koyukuk NWR (KOY) and Haycock (HAY). Data from all RAWS sites are available on the Internet through the Alaska Fire Service homepage (go to <http://fire.ak.blm.gov/> ; next click **weather**, then **AFS Fire Weather Database**). Information collected from the RAWS sites contributes to interagency efforts to monitor weather and generate fire weather indices. All RAWS records are archived at the Western Region Climatological Center.

3. Fire Season

The seasonal fire cycle in Northwest Alaska consists of four micro-seasons or phases, each varying with changing weather patterns, seasonal variability, and the stage of vegetation development for the growing season.

The first phase begins in early May with the loss of snow cover and ends in mid June when green-up (the budding of trees and shrubs) begins. During the transition from 100% winter-cured fuels to green-up, human-caused fires may occur; these fires are usually relatively easy to suppress due to high relative humidity recovery at night, cool day and night temperatures, and typical close proximity to roads, airstrips, and/or navigable water. Spring fires that are not

suppressed, however, often grow later in the season as fuels become dryer. This phase constitutes approximately 6.2 percent of the fires in the park/preserve (See Appendix F).

The second phase is primarily lightning caused. Suppression of these fires is harder, because of their occurrence in remote areas where detection and access are more difficult and because more time typically passes between detection and initial attack. Fires occurring in the second half of June, the second period, usually do not develop the intensity of later summer fires. However, during hot, dry, and windy conditions, June wildland ignitions can result in extreme fire behavior. This phase constitutes approximately 71.1 percent of the fires in the Park/Preserve.

The third phase begins in early July and runs through the first part of August. Fires in this phase also are primarily lightning caused. This is the period of maximum fire activity. The usual problems of accessibility and detection are compounded by increased rates of spread and higher fire intensities due to lower fuel moisture levels. Even with prompt initial attack, fires are often beyond immediate control by the time fire fighting forces arrive, and indirect attack is often the only viable suppression strategy. This phase constitutes approximately 13.9 percent of the fires in the Park/Preserve.

The final phase occurs from early to late August, with few occasional starts into September on dry warm years. Hunters and fishermen usually cause ignitions during this period. These fires are generally easy to control, except during particularly dry autumn weather. This phase constitutes approximately 8.8 percent of the fires in the Park/Preserve.

4. Fuel Characteristics and Fire Behavior

Fire behavior is essentially a function of fuel type, fuel loading, fuel moisture content, topography, and local weather conditions. WEAR exhibits several major fire behavior systems of vegetation that can be described as fuel types: grass/tundra, deciduous forest/shrublands, mixed forests, and conifers. A breakdown of these major fuel types follows. This breakdown facilitates a more representative depiction of fire behavior in each of the sub-types. The fuel types are described below.

a. Grass/Tundra

Continuous grass cover, with occasional trees or shrubs that do not appreciably affect fire behavior characterizes this fuel type. Three subtypes are found in this system: matted grass, common after snowmelt in the spring; standing dead grass, common in late summer to early fall; and tussock/tundra. The live to dead ratio and wind speed in grasslands has a pronounced effect on fire spread.

Matted/Standing Dead Grass: Fire behavior in these two grass subtypes is relatively easy to suppress. These fuel type burns during the spring and fall. The burning period is shorter due to less solar radiation and high humidity recovery at night; a condition referred to as diurnal effect. The rate of spread can be high in this fuel type but there is limited smoldering and mop-up (post-suppression maintenance accomplished to ensure that all ground fire is extinguished) is relatively easy.

Tussock/Tundra: Fire behavior in the tussock/tundra type is substantially different than other grass models. Tussocks form an extensive layer of dead leaves at the base of the plant creating grassy knobs. The dense thatches of dead leaves that make up the tussock mound are small in diameter and loosely compacted. The fuel wets and dries very rapidly, burns quickly, and, because there is typically a substantial amount of fuel, the fires can be remarkably intense when burning under dry, windy conditions. This fuel situation presents a set of control problems unique to the fuel type, as extinguishing can be extremely difficult due to thick mats of dry mosses, lichens and other organic matter. Travel on the ground is also difficult in tussock tundra. Elevations above 3,000 feet form effective barriers to fire spread since they generally do not support enough vegetation to carry fire.

b. Deciduous Forest/Shrublands

Pure Deciduous Forest: This fuel type is represented by pure stands of deciduous forest species including but not limited to Alder, Willow, Aspen and Birch. Stages in leaf development (leafless, green-up, leaf fall) drastically effect fire behavior and fuels present in this system. Fires in this type usually occur in spring before leaf-out or in fall after leaves have fallen. During this time, leaf litter is the primary carrier of the fire and usually results in low to moderate fire intensities except under the most severe weather conditions. Fires can burn in this fuel type post green-up (leaf-on) but fire behavior is greatly reduced due to shading of fuel by the forest canopy thus increasing relative humidity, decreasing fuel temperatures and reducing surface windspeeds. Fires that do occur during the leaf-on stage carry in grasses, dry herbaceous, and various understory shrubs.

Shrublands

Alder/Willow Shrublands: This fuel type is represented by pure stands of deciduous shrub of alder and willow, but also includes deciduous forest types of balsam poplar, aspen or paper birch. Stages in leaf development (leafless, green-up, leaf fall) drastically effect fire behavior and fuels present in this system. Fires in this type usually occur in spring before leaf-out or in fall after leaves have fallen. During this time, leaf litter is the primary carrier of the fire and usually results in low to moderate fire intensities except under the most severe weather conditions. Fires can burn in this fuel type post green-up (leaf-on) but fire behavior is greatly reduced due to shading of fuel by the canopy cover thus increasing relative humidity and decreasing fuel temperatures. Fires that do occur during the leaf-on stage carry in grasses, dry herbaceous, and various understory shrubs.

Birch/Ericaceous Shrublands: Dwarf birch and ericaceous genera comprise this fuel type. These shrub species grow in mosaic like patterns with all varieties of tundra communities. The shrub layer forms a continuous fuel bed that often burns mid summer with green leaves intact unlike the pure deciduous forest fuel type above. Dwarf birch particularly has an elevated resin content that leads to an increase in fire behavior intensity. Although common throughout Alaska, this fuel type is not clearly defined nor it's fire behavior well-documented in literature currently available.

c. Mixed forests

Aspen, willow, cottonwood, birch, black and white spruce characterize the mixed forests fuel type. On any specific site, individual species can be present or absent from the mixture, however spruce must be present in order for the fuel to fall into this classification. Stand mixtures exhibit

wide variability in age and stand structure. Two phases associated with the seasonal variation in the flammability of the hardwoods are recognized—the leafless stage occurring during the spring and fall, and the green stage during summer. Rate of spread in both fuel types is weighted according to the proportion of softwood and hardwood components. In areas where the proportion of hardwoods is greater than softwoods and when the deciduous overstory and understory are in leaf, fire spread is greatly reduced with maximum spread rates only 1/5 that of spring or fall fires under similar burning conditions. During spring and fall when the deciduous overstory and understory are leafless, the leaf litter can burn similar to the grass models because the diurnal effect shortens the burning period and there is little smoldering. In areas where the proportion of softwoods is greater than hardwoods, the dryness of the organic mat will dictate the difficulty of extinguishing fire. The rate of spread will be relatively slow in these areas unless there is a very large grass component and conditions are extremely dry.

d. Needleleaf Forest

Spruce-Lichen Woodland. This fuel type is characterized by open, white spruce. Stands occupy well-drained upland sites. Forest cover occurs as widely spaced individuals and dense clumps. Tree heights vary considerably, but bole branches that emanate from the trunk of the tree (both live and dead) uniformly extend to the forest floor and layer development is extensive. Woody surface fuel accumulation is usually very light and scattered, and shrub cover is exceedingly sparse. The ground surface is fully exposed to the sun and commonly covered by a nearly continuous mat of reindeer lichens, averaging 3-4 cm in depth.

The spruce-lichen woodland fuel type may support a high rate of spread, but may or may not support a continuous crown fire. Mop-up may be difficult if the organic mat is deep and dry. For the most part, fires occurring in this fuel type are relatively easy to control because they are primarily surface fires, which can be extinguished by firefighters on the ground.

Boreal Spruce. This fuel type is characterized by pure, moderately well stocked black spruce stands on poorly drained sites. Tree crowns occur near the ground and dead branches are typically draped with bearded lichens. The flaky nature of the bark on the lower portion of the trunk is pronounced. Low to moderate volumes of woody material is present on the ground. Labrador tea is often the major shrub component, and a carpet of feather mosses and/or ground-dwelling lichens dominates the forest floor. Sphagnum mosses may occasionally be present. A compacted organic layer commonly exceeds a depth of 20-30 cm below ground surface.

Stand replacement and crown fires dominate the fire behavior of this fuel type. A crown fire may commence when the fire reaches a rate of spread of 10 chains (660 feet) per hour or flame height over 1 ft. Typically crowning occurs just behind the flaming front. Independent crown fires are rare. It is also common to have spotting by aerial firebrands in a crowning spruce fire. Wind is the crucial factor, with spotting frequently occurring between ½ to two miles ahead of the fire. The carrier fuel consists of the organic mat, which has a tremendous surface-to-volume ratio with immediate responses to changes in relative humidity, solar radiation, and wind. Rate of spread is relatively slow and predictable, while intensity is high in surface fuels. Mop-up may be difficult if the organic mat is dry.

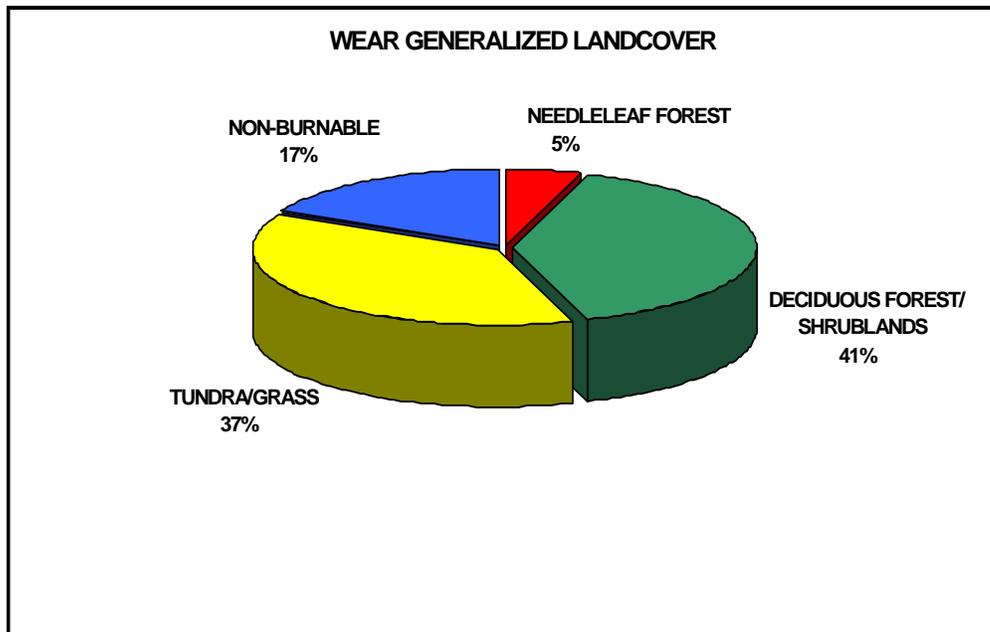


Figure 1: Generalized Landcover for WEAR, Unburnable is defined as water, area barren of vegetation or sparse vegetation that cannot sustain continuous fire-growth.

5. Historical Alterations of Fuel Regimes

There is little information to be found regarding the historical alteration of the fuel regimes in WEAR. Although fire suppression has occurred since the establishment of the AIWFMP within WEAR, and continues on a relatively few fires, the overall effect of wildland fires appears to be negligible. The large-scale alterations to the fuel regimes in WEAR that have occurred are the result of fire, although climate change has likely changed fuel matrices in the form of increased tree/shrub and resulting encroachment on tundra. Human alterations have occurred on a relatively minute scale throughout the area.

6. Control Problems

Control and suppression problems are dependent on fuel type, fuel loading, weather, and time of year. Alaska has four distinct periods of fire activity with different control and suppression problems associated with each.

a. Spring Green-up

Ignitions during spring green-up are usually wind-driven, surface fires that are relatively easy to control and extinguish. High winds can cause high rates of spread and control may be more difficult. These fires are mostly limited to fine fuels (i.e. grass) that are directly exposed to solar radiation, humidity, wind, and precipitation. This period is typically from early to mid June.

b. Transitional

Ignitions that occur during the transitional time are typically more difficult to control, as hand-constructed firebreaks are less effective. Water under pressure from fire pumps with hose lays

and aerial support, such as a medium helicopter and bucket, may be required for effective action at the fire's head. This period is typically mid June to early July.

c. Cumulative Drought

Initial ignitions during the time of cumulative drought, as well as carryover fires from the previous period, are the most difficult types to control and extinguish, and may require indirect attack, aerial back firing, and/or the use of natural barriers. Direct attack is rarely possible because of the fire's intensity, and should only be attempted with the utmost caution.

Suppression actions must be restricted to the flanks and back of the fire. Indirect attack in the form of aerial ignition, if available, may be effective depending on the fire's forward rate of spread. Fire extinguishing may be particularly difficult in the conifers and mixed forests due to the deep, dry organic matter present. This period is typically from early July to early August.

d. Diurnal Effect

This period is typically from early to late August when the days become shorter. Ignitions during this period of diurnal effect are easier to suppress because the reduced amount of daylight allows for the relative humidity to recover, resulting in increased moisture content in fuels. These fires are limited to fine fuels, such as grass, that are directly exposed to the drying effects of solar radiation. Smoldering and creeping fires from the previous periods may still be evident.

7. Non-Federal Land Ownership within WEAR

Certain lands within Western Arctic National Parklands were available for selection under the Alaska Native Claims Settlement Act (ANCSA 1981). Regional and village corporations were established and allowed to select large tracts of lands. Individuals eligible under ANCSA were allowed to select small tract allotments. The majority of the corporate lands and small-tract allotments that were selected within the boundaries of WEAR have been conveyed, providing fee title to the selecting entities. Conveyed and selected lands in Kobuk Valley National Park and Noatak National Preserve are concentrated along the river corridors. The majority of conveyed lands exist along the coastline and other large bodies of water in Bering Land Bridge and Cape Krusenstern. Other non-federal holdings within WEAR include small mining claims, state-owned submerged lands and tidelands, and small private tracts. Land status and ownership continually changes. The Western Area fire management and park staff relies upon the NPS GIS system for updated ownership information during fire management incidents.

8. Ownership of Adjacent Lands

The Alaska Fire Service – Bureau of Land Management Fire Management Program is responsible for the primary suppression response on the lands adjacent to WEAR. Lands adjacent to WEAR fall under the following categories of ownership:

- Bureau of Land Management
- State of Alaska (owned and selected lands)
- Gates of the Arctic National Park (NPS)
- Arctic Slope Regional Corporation
- N.A.N.A. Regional Corporation
- Bering Strait Regional Corporation

- Other Native-owned land
- Other Native-selected land

IV. WILDLAND FIRE MANAGEMENT

New guidance for the Implementation of Federal Wildland Fire Policy is in effect for the 2009 fire season. This guidance will allow wildland fires to be managed for one or more objectives (ie Suppression and/or Resources Benefits). Decision support processes and analysis that help determine and document decisions regarding the management of individual ignitions will follow current national direction. They may include processes such as the Wildland Fire Decision Support System (WFDSS) and analysis tools such as Farsite, RERAP, and FSPro.

A. Wildland Fire Use

1. Rationale

Federal and NPS policy requires that the following elements be in place before Wildland Fire Use is implemented: 1) an approved Fire Management Plan; 2) appropriate environmental/subsistence compliance; 3) pre-established Fire Management Units; 4) prescription for implementation; and 5) management oversight. As defined in the Department of the Interior’s Department Manual, Part 620, Chapter 1, Section 1.3K, the above-mentioned prescriptions will be based on “safety, public health, environmental, geographic, administrative, social or legal considerations.” Geography comprises the primary prescriptive variable at WEAR; FMUs consist of extensive tracts of fire-dependent ecosystems, with relatively low numbers of resources to be protected.

As specified in all of the WEAR unit’s GMPs, a key resource management objective is the preservation of the dynamics of natural processes. The GMPs state that NPS management will, whenever safely possible, allow fire to fulfill its ecological role within the wilds of northwest Alaska. Wildland fires that do not threaten life or property offer an opportunity for the accomplishment of this objective. Accordingly, Wildland Fire Use for resource benefit may occur in each of the WEAR FMUs when pre-specified conditions are met. Within the Limited Protection FMU, fire often poses little threat to sensitive or valued resources. Consequently, the detection of natural ignitions within this FMU may trigger Wildland Fire Use unless the Agency Administrator specifies otherwise. Ignitions within the Modified (prior to the conversion date) and Full Protection FMUs will trigger suppression actions; fire use, however, will remain available in these FMUs as an alternative response upon the request of the Agency Administrator. There are no lands classified in the Critical Protection category.

Wildland fires that meet the criteria for Wildland Fire Use will be documented through the **Wildland Fire Implementation Plan (WFIP)**, described in Sections 4 through 9 below. Suppression responses are predetermined by the AIWFMP. The Superintendent may request additional suppression actions. The Superintendent with concurrence from the Western Area FMO and the Galena Zone FMO may select a reduced suppression response.

2. Objectives

The primary objective for Wildland Fire Use at WEAR is to maintain the area's bio-diversity through the use of fire (including the naturally occurring spectrum of fire intensities and effects) while also ensuring the safety of life, property, and sensitive resources. Another important objective for fire use is the cost-effective maintenance of fuel loads within the natural range of variation for the fire regimes and maintenance of Condition Class 1 within WEAR park units.

3. General Plan

Wildland Fire Use at WEAR occurs by default in Limited and Modified (after conversion) protection categories identified in the AIWFMP. Wildland Fire Use may occur in Modified (prior to conversion) and Full protection categories if suppression actions have not been initiated and the criteria for Wildland Fire Use have been met (AIWFMP). The extent of Wildland Fire Use in WEAR may be altered based upon adjustments of the appropriate boundaries and management options for FMUs. Each winter the Western Area FMO meets with WEAR staff members and fire management personnel from the AFS Galena Zone to re-evaluate the categorization and boundary locations of these units. Other land manager/owners will be consulted and concurrence will be sought for unit location or categorization changes that affect their lands. Final authority for the adjustment of FMUs and/or fire protection categories within the Parklands rests with the WEAR Superintendent.

The FMU descriptions contained within this plan specify preplanned management actions, to be enacted automatically by Galena Zone dispatch. Alternative actions, however, may be considered and/or selected by the Agency Administrator with concurrence with the suppression FMO on a case-by-case basis, as determined by current fuel, weather, and fire management conditions and as dictated by NPS policy and the WEAR FMP.

4. Responsibility for Initiation of Decision Process

In WEAR, Wildland Fire Use is the preplanned action in the Limited and Modified (after conversion) Protection FMUs and will be implemented automatically by Galena Zone dispatch unless the Agency Administrator directs otherwise. Wildland Fire Use is an alternative action within the Modified (prior to conversion) and Full Protection FMUs. Wildland Fire Use is available in these units based upon previously described conditions and on the approval and documentation by the Agency Administrator. Implementation of Wildland Fire Use actions will be initiated through the preparation of the WFIP Stage 1 in consultation with the Western Area FMO and Galena Zone FMO.

Responsibility for completion of initial WFIP components is summarized in Table 4.

Table 4: Responsibility for Initial WFIP Components at WEAR

FMU	Management Response (* = pre-planned response)	Required Component	Completion Timeframe	Responsible Party
Full Protection	Suppression*	Recording of detection & Determination of FMU	ASAP	Suppression Organization FMO
	Fire Use for Resource Benefit	WFIP Stage 1	2 hours after detection	Suppression Organization FMO & Agency Administrator
Modified Protection	Suppression *pre-planned prior to conversion date	Recording of detection & Determination of FMU	ASAP	Suppression Organization FMO
	Fire Use for Resource Benefit	WFIP Stage 1	2 hours after detection	Suppression Organization FMO & Agency Administrator
Limited Protection	Suppression (human ignition)	Recording of detection & Determination of FMU	ASAP	Suppression Organization FMO
	Fire Use for Resource Benefit *	WFIP Stage 1	2 hours after detection	Suppression Organization FMO & Agency Administrator

5. Staffing Requirements for Implementation of Wildland Fire

Western Area FMO in consultation with WEAR management and Galena Zone FMO will determine staffing and monitoring requirements for Wildland Fire Use incidents. All personnel involved with fire management activities will be appropriately qualified to meet National Wildfire Coordinating Group (NWCG) standards. Because of the remote nature, relative scarcity of structures or other sensitive values within portions of WEAR, fire use incidents may often be adequately managed through aerial surveillance every few days. Other incidents may demand the continuous presence of monitors or fire behavior analysts. Based upon the needs of the fire organization, WEAR needs and personal interest, the Superintendent and Western Area FMO will determine what WEAR staff will be available to assist with the Wildland Fire Use incident.

6. Monitoring for Fire Use Incidents

Monitoring procedures at WEAR will follow guidelines established by the Regional Fire Ecologist, Western Area Fire Management fire, and WEAR resource management staff, as well as the Alaska Fire Effects Task Group. Monitoring actions conducted at WEAR specifically in support of fire use incidents will, whenever possible, include measurement of fuel moisture levels for forest floor duff layers (as represented by the Canadian Forest Fire Danger Rating System) as well as for traditional fine and heavy fuel models. (See Chapter VIII for a description of the WEAR short and long-term fire monitoring program.)

7. Fire Use and Step-up Staffing

See Chapter IV Part 13 Section B Unit 3 for step-up staffing.

8. Predetermined Implementation Procedures for Wildland Fire Use at WEAR

The FMU parameters described within this plan (and adjusted annually) comprise the only predetermined implementation procedures for Wildland Fire Use at WEAR. Fire use implementation outputs such as Stage 2 Short Term Implementation Plans and Maximum Manageable Area maps will be produced by the Western Area Fire Management Officer as needed, and provided to the Agency Administrator.

9. Incident-Specific Implementation Procedures for Wildland Fire Use at WEAR

a. Wildland Fire Implementation Plan

Completion of the Wildland Fire Implementation Plan (WFIP) may entail as many as three distinct stages, depending on the nature and complexity of the incident. **Stage I** of the **WFIP** is triggered by any wildland fire detection within WEAR within fire management categories designated for Wildland Fire Use. For simple pre-planned responses, Stage I satisfies the WFIP process (Appendix E.1).

Implementation of Wildland Fire Use at WEAR, either as a preplanned action or through selection by the Agency Administrator, may trigger **WFIP Stage II**. This stage provides managers with the information needed to continue managing an incident for resource benefit. Stage II entails the prediction of direction, intensity, and rate of fire spread, as well as the specification of necessary short-term actions. Stage II also requires periodic reassessment of the incident's suitability for fire use and of the possible need for long-term management actions (Appendix E.2).

The Stage II periodic reassessment may prompt the Agency Administrator to initiate **WFIP Stage III**. This stage provides the information and planning needed to manage more complex Wildland Fire Use incidents. Stage III requires the definition of a Maximum Manageable Area and the identification, planning and documentation of the actions needed to strengthen and defend the MMA (Appendix E.3).

The general implementation process for Wildland Fire Use at WEAR is shown in Figure 3. Specific responsibilities for components of WFIP Stages II and III are outlined in Tables 5 and 6.

Figure 2: Implementation Paths for Wildland Fire Use

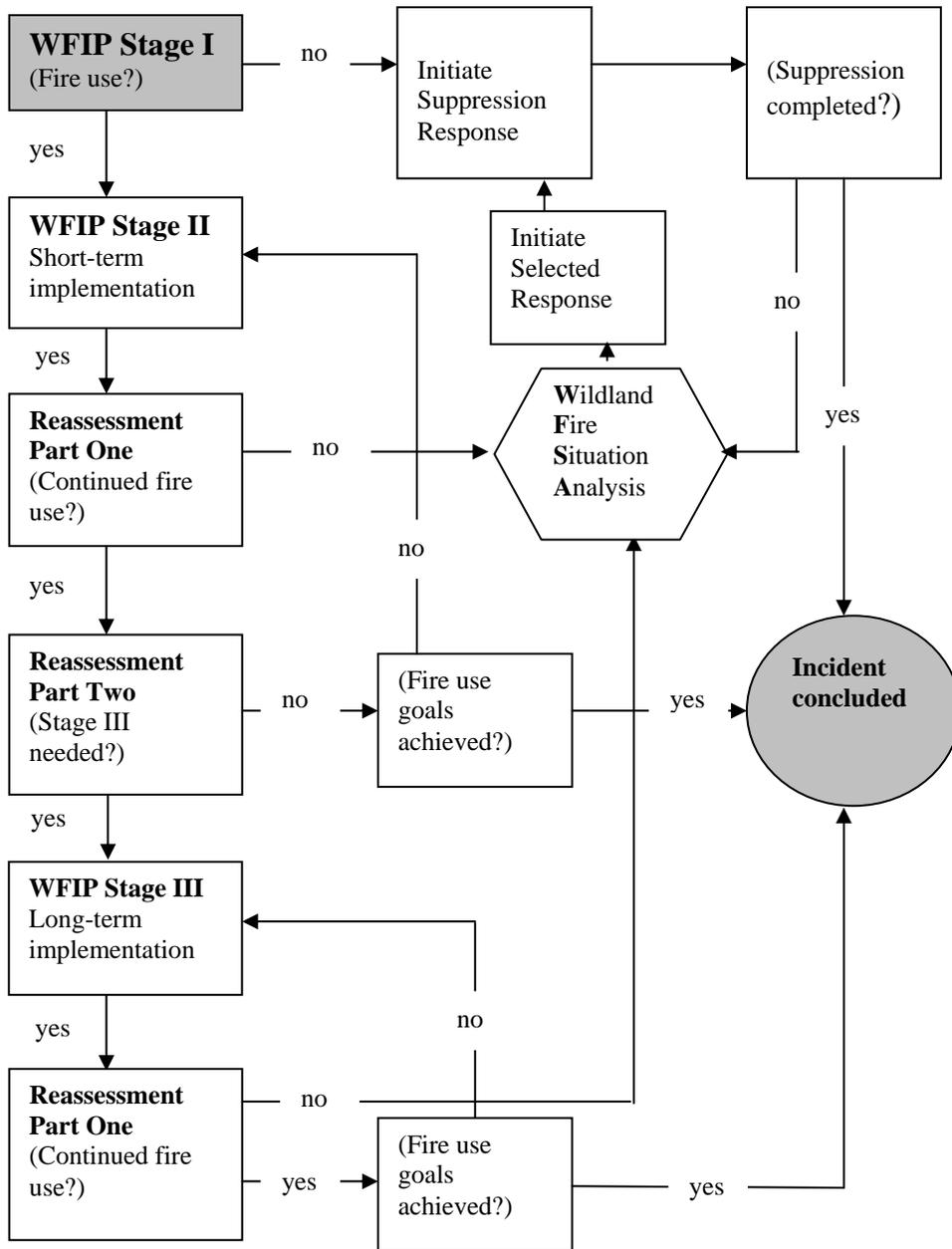


Table 5: Stage II WFIP Components for Wildland Fire Use

Component	Input	Minimum Required Output
Short-Term Fire Behavior Prediction	BEHAVE/FBP system	BEHAVE/FBP runs
Risk Assessment	Relative Risk chart, FARSITE (if available)	Relative Risk chart output
Short-Term Implementation Actions	Staff input, behavior predictions, risk assessments, overall objectives, etc.	Short-term Implementation Action sheet signed by Agency Administrator and Suppression Organization FMO.
Complexity Analysis	Staff input	Completed Wildland and Prescribed Fire Complexity Worksheet
Periodic Assessment Part One: Revalidation	Stage I and II documents, Staff input	Completed Revalidation sheet(s) (initial sheet plus any additional sheets triggered by “yes” responses)
Periodic Assessment Part Two: Stage III Need Assessment Chart	Stage I and II documents, Staff input	Stage III Needs Assessment chart output
Periodic Assessment signature page	Revalidation sheet; Stage III Need Assessment chart	Periodic Assessment signature page signed by Agency Administrator and Suppression Organization FMO.

Table 6: Stage III WFIP Components for Wildland Fire Use

Component	Input	Minimum Required Output
MMA Definition	Staff negotiated; developed through consideration of objectives, maps, on-the-ground evaluation, aerial observation, monitoring, etc.	MMA component of Long-term Implementation Action sheet (map and acreage)
Fire Behavior Predictions	BEHAVE/FBP, RERAP, and/or FARSITE	Behavior prediction program runs
Long-Term Risk Assessment	BEHAVE/FBP, RERAP, and/or FARSITE.	Risk Assessment component of Long-term Implementation Action sheet
Long-Term Implementation Actions	Staff input, behavior predictions, risk assessments, overall objectives, etc.	Long-term Implementation Action sheet signed by Agency Administrator and Suppression Organization FMO.
Periodic Assessment: Re-Validation	Stage I, II, & III documents, staff input	Completed Revalidation sheet(s) (initial sheet plus any additional sheets triggered by “yes” responses)
Periodic Assessment signature page	Revalidation sheet; Stage III Need Assessment chart	Periodic Assessment signature page signed by Agency Administrator and Suppression Organization FMO.

b. Wildland Fire Situation Analysis

The Wildland Fire Situation Analysis (WFSA) is the decision-making process used by the Agency Administrator, in consultation with the suppression FMO, to analyze an escalating wildland fire management situation, to select the appropriate suppression strategy and to

document decisions. The Agency Administrator uses the WFSA to describe the current fire situation, list management objectives and constraints, compare multiple wildland fire suppression strategies, evaluate expected effects of alternative strategies, select the preferred strategy, and document the resulting decision. Preparation of the WFSA is triggered in several ways, including the occurrence of fire behavior beyond the capabilities of suppression actions or of prescribed fire operations. In the case of Wildland Fire Use, the WFSA is produced when the Agency Administrator determines through periodic reassessment that resources are inadequate to accomplish fire use objectives (see Figure 3).

The WFSA consists of seven sections, including a daily assessment sheet. Various sections require the signature of the Agency Administrator or the Incident Commander. The Agency Administrator, however, is ultimately responsible for completion of the WFSA. For fires that occur on or threaten NPS managed lands the Superintendent of the unit will sign the WFSA before the selected strategy is initiated on NPS lands.

10. Funding/Fiscal Tracking

The Western Area FMO will work with the Regional FMO to ensure that appropriate funding is available for the wildland fire management program/activities and that the appropriate accounts are utilized for the wildland fire management program and wildland fire incidents in WEAR. Guidelines for funding and financial tracking of fire management programs and activities for individual parks are contained within Reference Manual-18, Chapters 17 and 18.

11. Permanent Project Records for Wildland Fire Use

The Western Area Fire Management Officer will ensure that a complete project record will be produced and retained for each Wildland Fire Use incident at WEAR. Each record will contain the following items:

- All approved planning documents guiding management actions (e.g. WFIP and WFSa components).
- Summary of surveillance and fire effects monitoring activities, including schedule; individual reports and findings.
- Funding codes and cost accounting.
- Project maps.
- DI-1202
- Other information as appropriate (e.g. photo points).

12. Information and Interpretation for Wildland Fire Use

The information and interpretation requirements of the WEAR fire management program are specifically addressed in Chapter X. The following objectives, however, pertain directly to Wildland Fire Use:

- When extended Wildland Fire Use incidents are likely to be visible to visitors, NPS personnel will prepare and distribute handouts explaining the WEAR fire management program, the nature of the specific incident, and the desirability of preserving the area's natural fire regime. This information will be available at visitor contact station(s) and available to park staff that may encounter park visitors.
- An attempt will be made to educate all WEAR employees about local fire ecology, the WEAR fire management objectives, and fire-use incidents that are in progress.
- When fire use incidents occur near frequently used locations, interpreters or other NPS employees will make periodic visits to the location to answer questions.

13. Potential Impact of Wildland Fire Use Implementation

In managing the use of wildland fire, WEAR administrators will take into account both the short and long-term impacts of any such activity upon all facets of Park, Preserve, and Monument use, including backcountry wilderness users and subsistence activities. Although some local residents have expressed concern over the impact of wildland fire upon subsistence hunting and/or trapping operations in WEAR, the preservation of the area's fire regime is necessary for the long-term viability of wildlife populations and vegetation communities that support the wildlife populations and subsistence activities. The Agency Administrator will in all cases assess the short-term impact of fire-use actions on subsistence activities.

B. Wildland Fire Suppression

1. Range of Potential Fire Behavior

Fire behavior in WEAR can range from creeping subterranean fire in tundra to fast moving ground or canopy fire in surface fuels or spruce stands. For more detailed discussion refer to Fuel Characteristics and Fire Behavior (Chapter III Section E.3).

2. Preparedness Actions

a. Fire prevention activities

- Fire prevention, Wildland Fire Use and fire suppression will be discussed at selected staff safety meetings in the early spring to ensure that all personnel are aware of concerns and familiar with procedures for wildland fire, and fire use. If prescribed fire is to be used in WEAR, it will be included in the discussion.

- NPS personnel will participate in fire prevention and safety fairs at local schools/communities so that the general public is aware of the importance of fire prevention.
- During periods of high danger, the general public and park visitors will be informed of conditions through press releases, interpretive media and, if necessary, the posting of signs at field stations, public-use cabins, etc.

b. Staff readiness:

The Western Area FMO will oversee the annual certification, training, and evaluation of WEAR personnel involved in fire management activities, in accordance with the timetable shown in Table 7.

c. Program readiness

The Western Area FMO will ensure the accomplishment of the following objectives each winter:

- Inventory fire equipment; order needed supplies and update inventory list.
- Review and confirm WEAR and/or Regional fire-related account procedures.
- Review and adjust FMU parameters (i.e. AIWFMP protection categories).
- Review and revise WEAR Fire Management Plan.

Table 7: Staff Readiness Schedule

<p>January-June</p> <ul style="list-style-type: none"> • Physical exams for firefighters will be completed in accordance with Interagency Medical Standards.
<p>March-May; September-November</p> <ul style="list-style-type: none"> • Fire qualifications updated and entered into IQCS
<p>May-June</p> <ul style="list-style-type: none"> • Annual wildland fire refresher training for all red-carded personnel. • Annual Work Capacity Tests administered, as per RM-18 and Interagency Medical Standards. • NWCG courses in Alaska for firecrew members.
<p>September</p> <ul style="list-style-type: none"> • Critique fire season (all fire management activities). • Evaluate individual performance of WEAR staff and correct deficiencies and.
<p>November-June</p> <ul style="list-style-type: none"> • Nominate personnel for specific training courses based on fire program and individual development needs. • Coordinate/facilitate training detail opportunities with other NPS units and agencies.

3. Step-up Staffing and Pre-Attack Plan

The Western Area FMO and associated fire staff is responsible for Western Arctic Parklands, Lake Clark National Park/Preserve, and Denali National Park/Preserve. The matrices outlined in Tables 8 and 9 below will be used to assist in the pre-positioning of these personnel and fire management resources.

Table 8: Complexity Level

Fire Indices	0-3 fires	3-6 fires	6+ fires
FFMC=<85	LOW COMPLEXITY LEVEL	LOW COMPLEXITY LEVEL	MODERATE COMPLEXITY LEVEL
FFMC=86-89	LOW COMPLEXITY LEVEL	MODERATE COMPLEXITY LEVEL	HIGH COMPLEXITY LEVEL
FFMC=90+	MODERATE COMPLEXITY LEVEL	HIGH COMPLEXITY LEVEL	HIGH COMPLEXITY LEVEL

Number of Current Fires—A measure of complexity due to the number of fires within or threatening the park regardless of the FMU that is burning. This is also an indication of potential suppression or monitoring resource shortages.

FFMC—the Fine Fuel Moisture Content (FFMC) is a numerical rating of the moisture content of litter and other cured fine fuels (needles, mosses, and twigs). The FFMC is representative of the top litter layer 1-2 cm deep. FFMC fuels are affected by temperature, wind speed, relative humidity, and precipitation. FFMC values change rapidly and reflect the weather conditions that have occurred over the past three days. The FFMC is used to indicate ease of ignition, or ignition probability with the scale ranging from 0-99. Of importance is the fact that fire starts increase exponentially with an increase in FFMC values at the high end of the scale.

Complexity Level

Low: Few fires within or threatening the WEAR park units and relatively abundant resources available. May be early or late in the year, hence fire behavior is reduced and relatively easy to control and extinguish.

Moderate: Several fires within or threatening WEAR park units and resources becoming scarce within the AFS Zone. Fires are difficult to extinguish - carryover fires are occurring.

High: Many fires within or threatening WEAR park units and resources becoming scarce within the state. Fires are difficult to control and extinguish – multiple carryover fires occurring.

Table 9: Preparedness Levels

Complexity	Values at Risk		
	Low	Moderate	High
Low	Low Preparedness Level	Low Preparedness Level	Moderate Preparedness Level
Moderate	Low Preparedness Level	Moderate Preparedness Level	High Preparedness Level
High	Moderate Preparedness Level	High Preparedness Level	High Preparedness Level

Values at Risk
 These values are life and property including historically significant sites. The low values at risk are those under limited protection. The medium values at risk are those under full protection. The high values at risk include sites that are under critical protection (see Chapter XVI Section A. Protection of Sensitive Resources for criteria for protection levels).

Preparedness Levels

Low: The weather and fire danger indices will be monitored daily.

Moderate: Fire staff will be available within the state. The weather and fire danger indices will be monitored daily. AFS will be contacted daily for tactical and resource updates.

High: The contract helicopter and two fire staff will be available within the park, dependent upon availability due to fire activity. The weather, fire and danger indices will be monitored daily. AFS will be contacted daily for tactical and resource updates. The Western Area FMO will contact the WEAR Interpretive Specialist and/or the Regional Fire Communication/Education/Prevention Specialist daily to provide information updates.

4. Minimum Impact Suppression Tactics (MIST)

It is the policy of the National Park Service that all fire management activities will be executed using minimum impact suppression guidelines. Accordingly, the following constraints apply to all fire management activity in Western Arctic National Parklands:

- Use water rather than retardant whenever possible; when retardant is necessary, use fugitives if available and avoid as much as possible the use of any retardant in or around lakes or marshes.
- Use cold-trailing or wet-lining techniques when feasible.

- Utilize weeping hoses or foggers in mop-up; avoid “boring” or other scarring hydraulic actions.
- Dozers and other heavy equipment will be used only with the approval of the Superintendent (or delegate), except in life-threatening circumstances.
- Minimize the falling of trees and the cutting of shrubs; limb vegetation adjacent to fireline only as needed to prevent additional fire spread.
- Minimize the use of helispots/ helibases that require clearing.
- Emphasize appropriate Leave No Trace practices by personnel on the fireline and/or in spike camps, particularly with regard to human waste disposal, selection of durable campsites, and food storage in bear country.

Minimum impact suppression tactics and Leave No Trace ethics will be identified as an objective on all fire suppression incidents occurring in WEAR.

5. Rehabilitation

Firelines may require rehabilitation in order to stabilize the burn area and to mitigate the effects of suppression activities. The Agency Administrator will ensure that the Incident Commander consults with natural resource managers as needed, regarding any specific rehabilitation needs. When possible, burned areas will be allowed to regenerate naturally. Any emergency rehabilitation or restoration will be in accordance with the Department of Interior Interagency Emergency Rehabilitation and Restoration Policy and Guidelines.

6. Completion of Records and Reports

The general pathway for documentation of wildland suppression incidents is shown in Chapter IV, Section A. For each suppression incident the Western Area Fire Management Officer or delegate will be responsible for the completion of some or all of the following items, as indicated.

a. Wildland Fire Implementation Plan

The Western Area FMO will ensure that a Wildland Fire Implementation Plan is enacted for every wildland fire classified as Wildland Fire Use at WEAR. For default Wildland Fire Use responses within the WEAR, the WFIP is satisfied by the Galena Zone dispatch office through their recording of initial detection and determination of the incident location. The Western Area FMO is responsible for preparing additional WFIP documentation for the Agency Administrator's approval as needed.

b. Wildland Fire Situation Analysis

A Wildland Fire Situation Analysis is required whenever an initial suppression response is unsuccessful or a fire-use response is found to be insufficient for the accomplishment of management objectives or a prescribed fire has escaped the planned prescription. The Agency Administrator is responsible for ensuring that all WFSAs are completed prior to their

approval (See Chapter IV, Section A, Wildland Fire Use for further discussion of the WFSA).

c. DI-1202

The DI-1202 is the standard format for submission of fire data into the Department of Interior Shared Applications Computing System (SACS). On WEAR wildland fire incidents an initial DI-1202 will be prepared by the Incident Commander and submitted to the Alaska Fire Service. The Area Fire Management Officer, however, will ensure the preparation and entry of an additional DI-1202 on behalf of WEAR into the NPS fire occurrence database. The following items are pertinent to the production of the DI-1202; the Western Area FMO will ensure that these items are retained and filed at the Western Area Fire administrative office located in Denali Park, Alaska. **Copies will be provided to WEAR if desired.**

- Fire number (obtained from Alaska Interagency Coordination Center)
- Copy of WFIP (all stages)
- Copy of WFSA (for unsuccessful initial attack or fire use operations)
- Resource order forms (NFES 1470)
- Equipment rental or purchase receipts
- Accident and/or injury reports
- Personnel lists (including Emergency Time slips)
- All weather, fire danger and fire behavior data reports and records
- Situation maps
- Rehabilitation plan
- Limited Delegation of Authority if an Incident Management Team is dispatched

V. PRESCRIBED FIRE MANAGEMENT

A. Long-term Scope

Though Western Arctic National Parklands presently has no plans to use prescribed fire, it may be implemented in the future for the accomplishment of specific resource management goals. Because of the relatively undisturbed nature of WEAR landscapes, the Western Area FMO does not anticipate implementing landscape-scale burning for the purpose of restoring or preserving the area's ecosystems. WEAR park management may, however, use prescribed fire for the purposes of restoring historical conditions at selected sites or for reducing hazard fuel loads in the vicinity of resources requiring protection.

B. Prescribed Fire Planning

1. Annual planning

Any implementation of prescribed fire within WEAR will be predicated upon a planning session attended by the Western Area FMO, the Local Park Fire Contact, Superintendent or delegate and any other key players or interested parties. Topics covered in this meeting may include the determination of prescribed burn units, the establishment of prescribed fire objectives, the presence and protection of sensitive resources, the mitigation of smoke management problems,

determination of prescriptions and/or burning windows, fire effects monitoring protocols and the impact of the proposed action on the full spectrum of WEAR uses, including wilderness values, and subsistence hunting and trapping

2. Individual plans

Each implementation of prescribed fire will follow a specific plan prepared by the Western Area FMO, or designee, in accordance with the parameters outlined in RM-18, Chapter 10, Fuels Management. The State Historical Preservation Officer will review the written plan for compliance with the National Historic Preservation Act. It will then be reviewed and approved by the Superintendent, in consultation with the Chief of Resource Management. Final authority for the implementation of the prescribed fire plan resides with the designated Burn Boss.

3. Staffing

An appropriately certified Prescribed Fire Burn Boss (RXB2, RXB1) will supervise all prescribed fires at WEAR for the corresponding fuel types and complexity levels of the burns. Burn bosses for WEAR prescribed fires may be obtained from other agencies, provided that designated individuals are appropriately certified. Prescribed fires at WEAR will be staffed exclusively by certified wildland firefighters. The Western Area FMO will determine the amount and specific nature of resources required for prescribed fire operations through the preparation of the prescribed fire plan. The designated burn boss, however, is responsible for the tactical implementation of the plan and as such must confirm the adequacy of planned staffing levels prior to ignition.

4. Monitoring

All prescribed fires will be monitored on both a short and long term basis, in order to provide the following types of information: 1) anticipated fire conditions including rate of spread, predicted weather, potential threats to resources and/or safety, fuel load, etc.; 2) observed ambient conditions including topographic influences, current weather conditions, drought index, fire and smoke behavior, etc.; and 3) assessment of post-fire effects including fuel reduction, vegetative change, etc. Collection of all three types of information is required to help ensure adherence to prescription, accomplishment of management objectives, and establishment of baseline data. Complexity, frequency, and duration of monitoring activity will be dictated by burn objectives and will be specified in the prescribed fire plan. Objectives and guidelines for monitoring procedures at WEAR are further specified in Chapter VIII.

5. Documentation

The Western Area Fire Management Officer will ensure that each prescribed fire is documented with the following items:

- Approved prescribed fire plan.
- Compliance and planning documents.
- Map of project and surrounding area.

- Monitoring data (including weather, fire behavior, and fire effects observations).
- Smoke dispersal information.
- DI-1202

6. Reporting Requirements

The Western Area FMO will report the intent to conduct a prescribed fire via SACS and/or phone to the Regional Fire Management Office by 3:00 p.m. the day before a prescribed fire. The Western Area FMO will also notify the Galena zone dispatch, specific individuals/organizations/agencies identified in the burn plan, and the Alaska Interagency Coordination Center (AICC) the day prior to the burn and again immediately upon its completion. AICC will submit the information to the daily situation report.

7. Prescribed Fire Critiques

Immediately following the prescribed burn the Burn Boss will conduct a review of the prescribed burn operation. The overhead staff, crewmembers, local park Fire Contact, resource specialist(s), park management and the Western Area Fire Management Officer will attend the review. Items for discussion will include safety, accomplishment of objectives, fire behavior and effects, and effectiveness of operations.

8. Air Quality/Smoke Management

All fire management actions at Western Arctic National Parklands will be conducted in full compliance with local, state, and interstate air pollution control regulations as required by the Clean Air Act, 42 U.S.C. 7418. The Alaska Department of Environmental Conservation issues open burning permits. The National Park Service has been an active participant with the Alaska Department of Environmental Conservation in the development of the Alaska Smoke Management Plan. The optimal goal of a smoke management plan and program is to protect public health and the environment while allowing for reasonable resource management (e.g. Wildland Fire Use and Prescribed Fire). Addressing smoke management concerns is a critical component of a Prescribed Burn Plan and Wildland Fire Implementation Plan.

VI. FIRE MANAGEMENT ORGANIZATION AND RESPONSIBILITIES

A. Organizational Structure

1. Cooperation with Alaska Fire Service

In order to ensure safe and efficient operations, a basic understanding of the cooperative relationship between the WEAR fire management program and the BLM-Alaska Fire Service (AFS) is imperative for all personnel. As specified in the Alaska Interagency Wildland Fire Management Plan, the Alaska Fire Service is responsible for providing fire suppression services on all wildland fires occurring within WEAR. The management and staff of Western Arctic Parklands, in turn, will ensure that all suppression services contribute to the achievement of the

management goals of the Park/Preserve/Monument and the National Park Service, and to the greatest extent possible support suppression efforts as required.

2. Additional Resources

Western Arctic may use personnel to assist in information collection above and beyond the information provided by the AFS. These personnel may work directly for the NPS Western Area Fire Management Officer or, when an Incident Commander is assigned, directly for the IC. The NPS Western Area Fire Management Officer and the suppression organization FMO will work together to determine the chain of command for these individuals and the dispersal of the information.

3. Agency Administrator

An Agency Administrator will be designated for each incident at any Western Arctic Park, Preserve or Monument. The Agency Administrator will function as the direct representative of the WEAR Superintendent and as such will be responsible for the identification and accomplishment of WEAR and NPS resource management goals and suppression constraints. The Agency Administrator will prepare, in consultation with the Western Area FMO and suppression FMO, and sign key decision-making and validation documents (e.g. Wildland Fire Implementation Plan and/or Wildland Fire Situation Analysis). The Agency Administrator may also request that additional personnel be ordered to assist specifically with the accomplishment of WEAR and/or NPS goals (e.g., resource advisors, monitors, fire behavior analysts, etc.).

4. Incident Command Structure

For incidents at WEAR, resource advisors will report to the Planning Section Chief as per NWCG specifications for Incident Command structure. Other personnel requested specifically to assist with the accomplishment of agency or WEAR resource management goals (e.g. monitors, fire behavior analysts, fire-use module personnel, etc.) will normally report to the Western Area FMO. Affected personnel will be briefed on contingent procedures and alternative chain of command for situations in which the Western Area FMO departs the incident or is out of regular contact. Depending upon the complexity of the incident these individuals may be assigned to the appropriate Incident Command element.

In summary, NPS personnel may participate in fire management operations within the Parklands in two distinct ways:

1. NPS employees may work to help ensure the achievement of WEAR management goals under the supervision of the Western Area Fire Management Officer (or the Planning Section Chief, in the case of NPS personnel serving as resource advisors). For example, an NPS employee working as a monitor in support of the fire use validation process would typically report to the Western Area FMO; a WEAR staff member advising an incident command team on the presence of sensitive resources would report to the Planning Section Chief.
2. NPS employees may serve directly with operational forces (or other branches of command), under the supervision of the IC provided by AFS or ordered through the

interagency mobilization system. For instance, a WEAR employee assigned to assist smokejumpers during line construction on a small wildland fire would report directly to a jumper-in-charge dispatched from Fairbanks.

WEAR employees dispatched directly by the NPS may occasionally serve as interim Incident Commanders, as qualified, on WEAR incidents. These rare instances will be in consultation with the suppression FMO. In most cases, however, operations will be conducted from the outset by the AFS, with WEAR managers focusing on the identification and achievement of resource management goals, the conduction of monitoring efforts when necessary and ensuring compliance with AIWFMP by suppression forces.

5. Fire Management Responsibilities for WEAR Personnel

In light of the interagency nature of fire management at WEAR as well as the shared nature of the Western Area FMO and fire crew, fire management responsibilities for individual employees are best explained in two steps. All personnel at WEAR have predetermined responsibilities within the fire management program; these fixed responsibilities are shown in Table 10 below. For specific incidents, however, any one of several appropriate personnel will fill specific functions. These incident specific functions, their organizational structure, and lists of personnel who may perform them are shown in Figure 4.

B. Relation of Fire Management Program to WEAR Organization

The Western Area Fire Management officer coordinates the WEAR Fire Management Program. Although administratively based in Denali National Park, the Area FMO also provides fire planning and support to WEAR, and Lake Clark. This is a shared position between all parks and no single park maintains ownership or priority over another. The Western Area FMO should be considered park fire staff in each of the units he/she is responsible for. General duties for the Western Area Fire Staff are as follows.

Area Fire Management Officer – Oversight of all aspects of the fire programs for the area parklands, coordination of fire management strategies between the Area Parklands, Superintendent and the Suppression Organization, coordinate and prepare wildland fire decision documents, keep Area parkland Superintendents informed and engaged in the fire organization.

Assistant Fire Management Officer (Wildland Fire Operations Specialist) – Supervises the daily operations of the area fire program. Assists the Area FMO in oversight and coordination responsibilities. In the absence of the Area FMO will assume all responsibilities of the Area FMO in an acting capacity. Assists as directed in all aspects of the area fire program.

Fire Program Management Assistant – Provide administrative and budgetary expertise to the fire program. Assists in the administrative duties in planning and reporting for the program and works to minimize the administrative burden on the rest of the area fire program staff.

Helicopter Manager – Provides leadership to the aviation portion of the area fire program. Leads, manages and administers the Fire Exclusive Use helicopter contract for the area fire program. Assists in the staffing of the NPS National Contract Helicopter, based at Great

Smokey National Park, between January through March. The helicopter manager will assume the AFMO responsibilities in the absence of the AFMO. Assists as directed in all aspects of the area fire program.

Assistant Helicopter Manager – Assists the Helicopter Manager in all duties as stated above. Assists the Supervisory Forestry Technician with hazard fuels projects. In the absence of the Helicopter Manager assumes the Helicopter Managers responsibilities. Assists as directed in all aspects of the area fire program.

Supervisory Forestry Technician – Hires and supervises the five person fuels/Helitack/engine crew. Responsible for hazard fuels project planning and implementation. Oversees the readiness of the Type 6 engine. Assists as directed in all aspects of the area fire program.

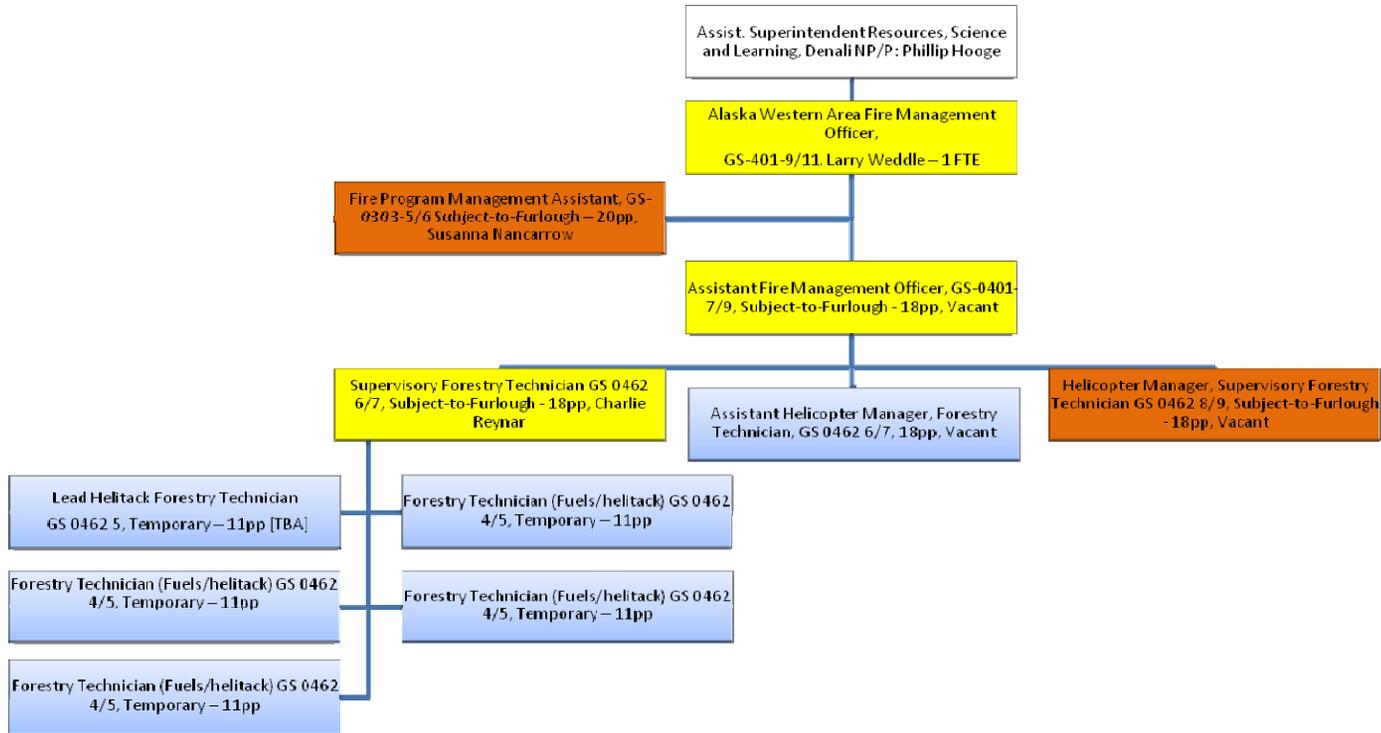
Lead Helitack (Forestry Technician) – Qualified helicopter crewmember that assists with all aspects of the fuels program and works with the fire crew. Assists as directed in all aspects of the area fire program as qualified.

Forestry Technician (Fuels/Helitack) – Qualified or trainee helicopter crewmember that assists with the implementation of hazard fuels, fire ecology, Comm/Ed and Wildland Fire programs. Assists as directed in all aspects of the area fire program as qualified.

Figure 3: Alaska Western Area Fire Management Organization

ALASKA NPS WESTERN AREA FIRE MANAGEMENT

Denali National Park and Preserve
 Lake Clark National Park
 Noatak National Preserve
 Kobuk Valley National Park
 Bering Land Bridge National Preserve
 Cape Krusenstern



Preparedness/Fuels Funded

Preparedness Funded

Fuels Funded

Table 10: Predetermined Fire Management Responsibilities

Position:	Superintendent
Fire management role:	The Superintendent of Western Arctic National Parklands is responsible for the planning and direction of all activities and programs and as such is ultimately responsible for any wildland fire operation at WEAR. The Superintendent may, however, choose to delegate any or all fire management responsibilities to appropriate personnel (e.g., Fire Management Officer, etc.).
Specific responsibilities:	<ul style="list-style-type: none"> • Approves Limited Delegation of Authority and in conjunction with the suppression organization FMO provides briefing and evaluation of Incident Management Teams. • Serves as Agency Administrator unless delegated. • Approves Wildland Fire Use implementation. • Approves prescribed fire plans. • Approves mechanical hazard fuel reduction plans. • Approves use of retardant and/or heavy equipment in non life-threatening wildland fire situations. • Participates in all official fire reviews. • Participates in NWCG functions as qualified.
Position:	Area Fire Management Officer
Fire management role:	The Western Area FMO oversees and coordinates the WEAR fire management program. Responsibilities listed below may be delegated to appropriate personnel (including, typically, the Chief of Resources, area fire staff, and the Eastern Area FMO).
Specific responsibilities:	<ul style="list-style-type: none"> • Works with Incident Commander, Zone FMOs, and suppression organization personnel. • May serve as Agency Administrator for WEAR incidents when feasible. • Ensures that WEAR Superintendent/staff and key AFS personnel are informed of pertinent fire conditions and/or situations. • Works with WEAR staff and AFS zone managers to determine and adjust boundaries and strategies for WEAR FMUs. • Prepares Prescribed Fire Plans. • Prepares Mechanical Fuel Reduction Plans. • Represents Region and WEAR on NPS or interagency task

	<p>groups/committees and in agency and interagency training.</p> <ul style="list-style-type: none"> • Ensures the education of WEAR staff on fire management issues. • Participates in all official fire reviews. • Prepares and maintains fire records and reports. • Prepares funding proposals and manages the WEAR fire accounts. • Manages the WEAR fire cache and coordinates acquisition of supplies. • Ensures qualifications of staff. • Serves as liaison with regional office staff. • Ensures Federal Fire Policy is followed. • Participates in NWCG functions as qualified. • Coordinates with Regional FMO to ensure that WEAR fire management needs are identified and accounted for in budget preparation/allocation and are considered in regional fire management program.
Position	Division Chiefs and Supervisors
Fire Management Role:	The Division Chiefs and Supervisors provide their assistance and assistance of qualified employees as needed in the event of a large fire incident in WEAR or adjacent areas. This may include serving as resource advisors (natural, cultural, subsistence, etc). They also need to recognize and assist with national and regional fire response efforts when circumstance dictate and provide assistance with the preparing fire management related environmental compliance documents. These leaders also provide support to employees interested in maintaining or obtaining fire management qualifications.
Specific Responsibilities:	<ul style="list-style-type: none"> • Make qualified employees available for local, regional and national incidents. • Provide additional surveillance if needed on local /WEAR incidents • Assist with communication to local communities during incidents • Backfill local positions assigned to fire incidents • Work as Firefighter or other NWCG position as qualified. • Provide employee training needed to keep qualifications current or for the advancement of qualifications.
Position	Local Park Fire Contact
Fire management role:	<p>The Local Park Fire Contact (LPFC) acts as the liaison between the Western Area FMO and the local park superintendent and staff. A close and open working relationship with the park superintendent is mandatory for this position.</p> <p>The WEAR LPFC functions as the conduit between Western Area FMO, Zone FMO, Superintendent and other key players of fire management program particularly if the Western Area FMO is not available.</p> <p>In the absence of on scene fire management staff, the LPFC may supervise</p>

	WEAR fire operations as qualified.
Specific responsibilities:	<ul style="list-style-type: none"> • Provides guidance to the Western Area FMO in fire management issues pertaining to WEAR. • Advises WEAR Superintendent on approval of prescribed fire and mechanical reduction plans. • Advises Agency Administrator on Wildland Fire Use for resource benefit. • Advises Agency Administrator and Incident Commander/overhead team of location and sensitivity of significant resources during wildland fire incidents. • Participates in all official fire reviews. • Assists with the development of fire management objectives. • Participates in NWCG functions as qualified.
Position	Regional Communication/Information/Prevention Specialist
Fire management role:	The Regional Fire Communication/Information/Prevention Specialist is responsible for informing and educating media, visitors, park staff and residents within and around WEAR about all fire management goals, objectives, and actions.
Specific responsibilities:	<ul style="list-style-type: none"> • Develops and coordinates on-going programs for educating the park staff and public about the area's fire ecology and the WEAR fire management program. • Develops and coordinates a plan fore disseminating information during large or complex incidents. • Informs public of current fire situation. • Participates in NWCG functions as qualified. • Coordinates with AFS on prevention efforts. • Coordinates with AFS on information distribution.
Position	Regional Fire Ecologist
Fire management role:	The Regional Fire Ecologist is responsible for coordinating fire effects monitoring and fire related research within WEAR with other agencies.
Specific responsibilities:	<ul style="list-style-type: none"> • Coordinates all fire monitoring activities. • Develops fire research program for WEAR. • Coordinates with other agencies on research/monitoring. • Member of the Fire Effects Task Group. • Provides ecological expertise on vegetation communities and fire effects. • Represents WEAR and Alaska region on NPS and interagency fire ecology/effects taskgroups/committees.
Position	Western Area Fire Staff
Fire management role:	Western area fire staff is based in Denali Park and work at WEAR to help plan and implement fire management activities within WEAR administrative units. This fire management staff is shared between

	WEAR, LACL, and DENA.
Specific responsibilities:	<ul style="list-style-type: none"> • May serve as Agency Administrator or Acting Western Area FMO in the absence of the Western Area FMO, as qualified. • Serves as helicopter manager and/or crewmember during fire management and other resource management activities. • Serves as crew boss, etc. as qualified. • Supervises and assists with gathering and processing of data for use in long-term and incident-specific fire management planning. • Plans and implements hazard fuel reduction projects. • Assists with planning and supervision of prescribed fires. • Supervises and/or performs various resource management projects throughout WEAR • Participates in NWCG functions as qualified. • Represent WEAR and NPS on NPS and interagency fire related task group/committees
Position	Other WEAR Employees
Fire management role:	Any WEAR employee may be assigned to assist with fire management activities as environmental and/or cultural specialists, logistical advisors, firefighters, support personnel, law enforcement officers, etc., depending on qualifications, skills, and regular duties.
Specific responsibilities:	<ul style="list-style-type: none"> • Advising Western Area FMO or Agency Administrator during planning of fire management activities. • Gathering and processing of data for use in long-term and incident-specific fire management planning • Reports ignitions (specific Lat./Long) in WEAR. • Law enforcement. • Participate in NWCG functions as qualified.
Position	Regional Fire Management Officer
Fire Management role:	Supports the Area Fire Management Officers for the NPS Alaska Region.

<p>Specific responsibilities:</p>	<p>Makes final determinations on behalf of the NPS on fire management planning, strategy and tactics in the event the Western Area FMO, Local Park Fire Contact, or Superintendent are not available.</p> <p>May sign WFSA or WFIP if Superintendent or designee is not available</p> <p>Represents the Regional Director and Superintendents through Delegation of Authority on the Alaska Wildland Fire Coordination Group and the Alaska Multi-Agency Coordination Group.</p> <p>Ensures that WEAR and Alaska fire management needs and perspectives are addressed in regional, national and interagency policies, programs and procedures.</p>
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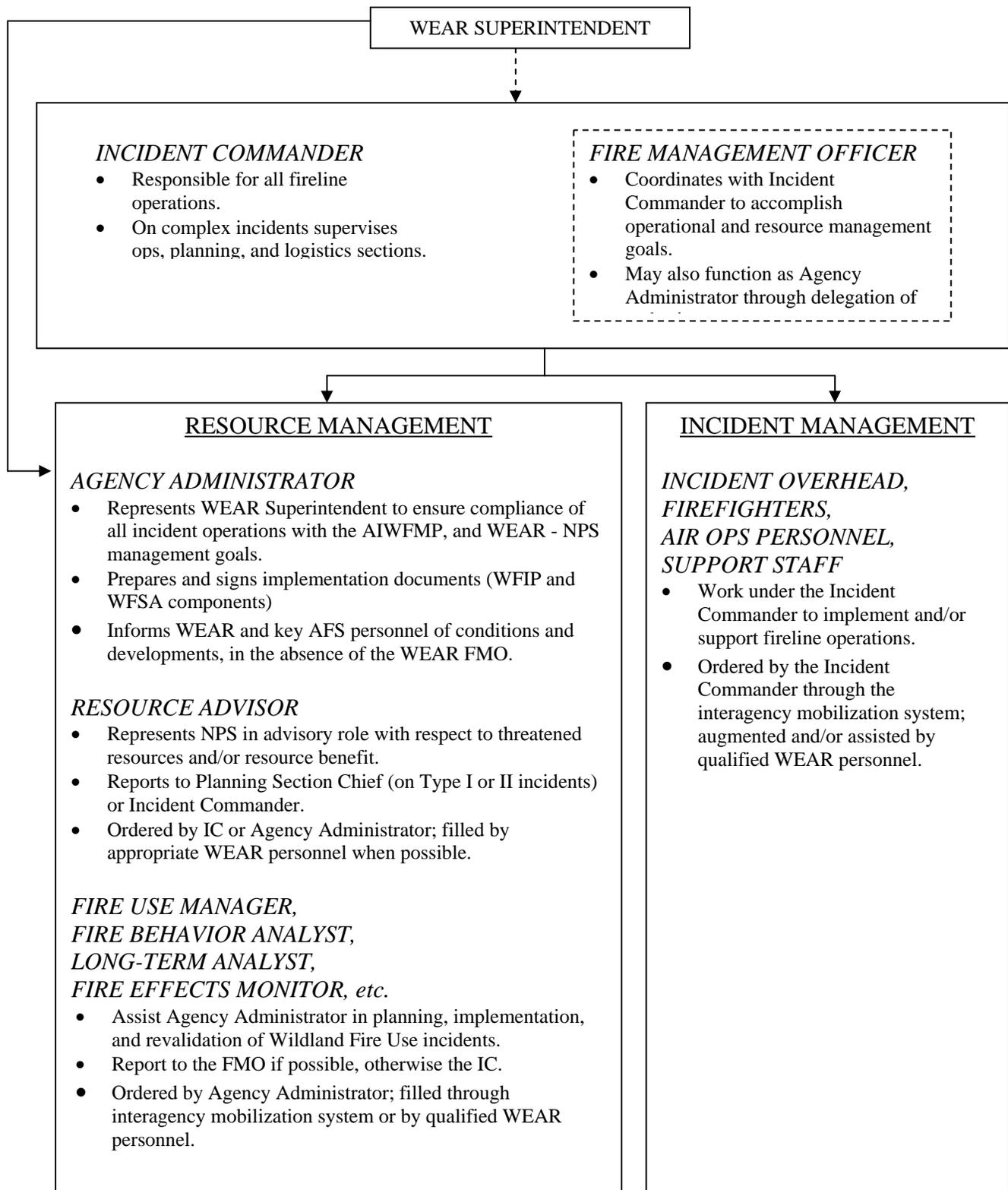


Figure 4: Incident-Specific Fire Management Functions at WEAR

C. Assessment of Wildland Fire Use

The WEAR Superintendent, or delegate, is responsible for the re-certification of Wildland Fire Use incidents through daily written or verbal evaluation. This is to ensure that fire strategies and tactics meet fire and resource management goals at WEAR.

D. Interagency Coordination

(See Chapter VI Section A)

E. Interagency Contacts

Pertinent interagency contacts include dispatch personnel at the Alaska Interagency Coordination Center as well as operational and dispatch personnel at the AFS Galena fire management zone offices. Current phone numbers for these positions are listed in Appendix D.1.

F. Fire-Related Agreements

An Interagency Fire Protection Agreement is in effect between the National Park Service, Alaska Region and BLM Alaska Fire Service to delineate purpose, authorities and responsibilities of both entities related to wildland fire suppression.

G. Reporting of New Ignitions

If NPS personnel, visitors, or local residents detect a new ignition they should notify the Galena Zone Dispatch as soon as possible. Information needed is: an accurate location of the fire (lat., long), approximate size, resources threatened, and any other pertinent information (nearby lakes or rivers, cardinal direction from these features, color of smoke, fuels (vegetation) present, size of column, etc...). Once Galena Zone Dispatch has this information then, contact the Western Area FMO responsible for the park wildland fire management program. If the appropriate Area FMO is not available contact the Regional FMO. If the Regional FMO is not available contact the Duty Officer identified on the Wildland Fire AKR Website (<http://165.83.62.205/epf/fire/fire.htm/>). The Area FMO or Regional FMO will contact the Superintendent if he has not been informed about the fire.

H. Limited Delegation of Authority for Incident Management Teams

Type I and II Incident Management Teams ordered for and/or assigned to incidents at Western Arctic Parklands will operate under a written Limited Delegation of Authority, prepared, in consultation with the suppression FMO, and signed by the WEAR Superintendent or delegate. The Limited Delegation of Authority will specify pertinent priorities, concerns, and constraints for the incident and will be treated as WEAR policy until the conclusion of the incident or the Superintendent's amendment of the original Delegation statement through a subsequent signed statement.

VII. FIRE RESEARCH

The implementation of the WEAR Fire Management Plan will not be dependent upon the prior completion of fire research. Whenever possible, however, WEAR fire management actions will incorporate and facilitate research activities designed to increase understanding of local fire ecology, behavior and effects.

VIII. MONITORING

As previously indicated, wildland fire is an integral ecological process that substantially affects WEAR wildlife and plant communities. Accordingly, WEAR fire managers seek to develop a monitoring program that will help managers to better understand the relationship between fire and other components of the area's ecosystem. Goals for present and future monitoring practices include but are not limited to the following:

- To understand the natural variability of fire occurrence, extent, and burn severity.
- To understand fire effects on vegetation, fuel, soil and wildlife habitat in order to project changes over time.
- To develop predictive tools in terms of fire occurrence, fire behavior, fire severity and consumption for Fire Management.

Specific objectives and criteria for monitoring activities are discussed within the context of Prescribed Fire Use in Chapter V, Section B.4. These objectives and criteria will generally apply to the monitoring of Wildland Fire Use incidents, as well.

Guidelines for monitoring wildland fires, prescribed fires and mechanical treatments within WEAR were developed in consultation with the Interagency Alaska Fire Effects Task Group (FETG), NPS Fire Monitoring Handbook (FMH 2001), and NPS Alaska Regional Fire Ecologist. These guidelines provide recommendations for minimum variables to monitor fire or treatment effects within a framework of three monitoring intensities (Level I – III). A brief description of the three monitoring levels is provided below:

Level I, Reconnaissance - This level provides a basic overview of the baseline data that is required to be collected for all wildland or prescribed fires. Specific variables are required for mechanical treatments and will be determined by the Regional Fire Ecologist in conjunction with WEAR natural resource management staff. Information at this level includes such items as RAWS weather data, general description of the fire environment (i.e. topography and fuel types), and fire location or perimeter. Information collected at this level precludes the necessity for on the ground measurements and can be done via remote sensing or an aerial platform.

Level II, Fire and Fuel Observations - This level documents fire behavior observation, fuels, and general effects of wildland fires, prescribed fires or mechanical treatments on vegetation. Information at this level includes characteristics of fire, such as rate of spread, fire behavior, and burn severity, as well as current weather and fuel conditions. Information to assess pre and post

fire or treatment includes duff depth and moisture measurements, photo points, vegetation cover, and tree parameters. This level of monitoring is recommended for all wildland and prescribed fires, but is dependent on the objectives of the burn and the resources of concern. Variables monitored at this level would require on the ground measurements of specific sites.

Level III, Short or Long-term Fire Effects – This level would be used to monitor the effects of prescribed or wildland fires in greater depth, it may also be used for mechanical treatments. Level III monitoring requires collecting information on fuel reduction, vegetative changes, and soil parameter changes; the number of variables monitored increases and the techniques are more rigorous. Information collected at this level is based upon management objectives and the resources of concern. Variables monitored at this level would require the establishment of plots.

Monitoring variables for Level II and I are specified in Table 11. These levels are cumulative, for instance all variables monitored in Level I would be included in Level II monitoring. Level I variables are minimums for all fires. The implementation of variables at Level II and Level III (not shown) would depend on the objectives of the fire and the resources of concern, and would remain up to the discretion of the Western Area Area FMO, WEAR Resource Staff, and Regional Fire Ecologist.

Table 11: Recommended Monitoring Variables

Level	Variable	Wildland Fire	Prescribed Fire	Mechanical Treatment
I	Fire Perimeter Map (> 100 acre fire) or Point Location	X	X	X
I	Weather (RAWS)	X	X	O
I	Fuel Types	X	X	X
I	Topographic characteristics	X	X	O
II	Burn Severity Map (> 300 acre fire)	O	O	NA
II	Burn severity assessment (i.e. CBI)	O	O	NA
II	Fire Behavior Parameters	O	X	NA
II	Fire Weather Observations	O	X	NA
II	Photo points*	O	O	O
II	Duff Moisture/Depth	O	O	O
II	Vegetation/Ground Cover	O	O	O
II	Tree density	O	O	O
II	Tree canopy heights (average)	O	O	O
II	Ground to live crown/ladder fuel heights	O	O	O

* Photo points were recommended as Level I monitoring variable from the FETG, however this was for monitoring individually selected fires only. List of recommended variables to be monitored under the three fire management options, where X's are required, O's are recommended.

IX. PUBLIC SAFETY

A. Safety Issues at WEAR

Fire management safety concerns at Western Arctic Parklands include threats posed by fire and smoke to visitors, local residents, employees and wildland firefighters. Due to the remote nature of the Park/Preserve transportation of fire personnel by fixed and rotor-winged aircraft and boats represent additional safety concerns. Risks are reduced by following existing policies and procedures established for aircraft and boat travels and following firefighting operational safety procedures described below.

B. Mitigation of Safety Issues

1. Operational safety

All personnel engaged in fire management activities within WEAR will meet NWCG standards and be certified (possess a Red Card) to perform the task they are ordered to do. Every employee will work to ensure constant implementation of the 10 Standard Fire Orders and LCES (effective use of lookouts, communication, escape routes, and safety zones) and the 18 Watch Out Situations.

2. Visitor safety

Visitor use will not be allowed near fire perimeters. An attempt will be made to inform all visitors of any known wildland fire activity within WEAR, and signs will be posted on nearby roads, villages and departure points if smoke produced during wildland and prescribed fire creates a safety concern. The Superintendent may initiate a temporary closure of the hazardous area if large or erratic fire behavior endangers visitor and employee safety to a significant degree. Closures may also apply to airspace.

3. Burn Restriction and Bans

The Code of Federal Regulations, Title 36 – Parks, Forests and Public Property Chapter 1 (7-1-02), Section 2.13 (c) states; “During periods of high fire danger, the superintendent may close all or a portion of a park to the lighting or maintaining of a fire.” Section (d) states: “The regulations contained in this section apply, regardless of land ownership, on all lands and waters within the park area that are under the legislative jurisdiction of the United States.”

The Alaska Wildland Fire Coordinating Group (AWFCG) established procedures for implementing statewide or regional burn restrictions/bans at Preparedness Levels IV and V. Either fire suppression organizations or land managers can recommend a burn restriction/ban based upon fire indices, risk factors, air quality, forecasted weather and the regional or statewide fire situation. If the AWFCG concurs, the recommendation is forwarded to the Deputy Director of Fire and Aviation (DNR) for implementation by the State Forester. The areas affected by the burn restriction/ban will be delineated using Alaska Department of Fish & Game (ADF&G) management units along with a text description of the area. If the NPS units or a portion of NPS units are included in the burn restriction/ban area the Superintendent has the option to implement

a burn restriction/ban using the legislated authority described above. The NPS will support the regional or statewide burn restriction/ban, unless extenuating circumstances exist. Public Orders and new releases will announce the burn restriction/ban and will be posted on the AFS-BLM (<http://fire.ak.blm.gov/>) and DNR-DOF (<http://www.dnr.state.ak.us/forestry/fire/>) Internet websites. The NPS will prepare press releases as needed and will use NPS communication systems to inform NPS employees of the burn restriction/ban. A copy of the State of Alaska Burning Restrictions and Burn Ban Procedure, 1997 are on file in the Western Area and Regional Wildland Fire Management offices.

At Preparedness Levels I, II, and III, local suppression agency FMO after contacting local land managers or local land managers may recommend to the local suppression agency FMO a burn restriction/ban. The appropriate Area/Zone FMO will determine if the burn restriction/ban is necessary. Public Orders and press releases will be prepared by the suppression organization. The Superintendent of affected NPS units will determine if the burn restriction/ban is appropriate. If it is appropriate, the Superintendent will implement the burn restriction/ban using his legislative authority.

Burn restrictions/bans will be rescinded after sufficient recovery of fire indices, improvement of air quality, reduction of risk factors and the regional/statewide fire situation. The burn restriction/ban may be rescinded for a portion of the affected geographic areas, if the exempted area can be clearly delineated and articulated to the general public. Press releases will be prepared by the suppression agencies to announce the rescission of burn restrictions/bans. The Superintendent will rescind the NPS burn restriction/ban and announce the rescission through press releases if necessary and NPS communication channels.

4. Evacuation procedures

The Alaska Division of Emergency Services has developed standard procedures for the evacuation of personnel and/or public due to risks posed by fire and/or smoke. Either the WEAR Superintendent or the WEAR Agency Administrator may request the Alaska Division of Emergency Services (ADES) to implement evacuation procedures for WEAR or for adjacent communities. This could range from the evacuation of an individual adversely affected by smoke to community evacuation due to the threat of fire. Any fire related evacuation effort will be coordinated with the suppression organization FMO or Incident Commander.

X. PUBLIC INFORMATION AND EDUCATION

The National Park Service Fire Management Staff will coordinate with AFS in all aspects of public information and education. The following steps will be taken to facilitate the awareness of WEAR fire management policies, objectives, and actions:

- Western Area Fire Management Officer, Fire Management Staff, and Regional Fire Communications, Education and Prevention Specialist will work together to effectively inform and educate National Park Service employees and the public about the fire

management program, the role of fire in the environment and the Firewise prevention concepts.

- The Regional Fire Communications, Education and Prevention Specialist will work with Fire Management Staff, Interpreters, Education Specialists, Prevention Specialists and other interested parties, to feature the fire management plan, the role of fire in the environment and Firewise concepts in park brochures, exhibits, bulletin boards, interpretive presentations and off-site programs.
- The Regional Fire Communications, Education and Prevention Specialist will create a specific outreach/public information plan for WEAR.
- During ongoing fires, the fire management staff will be responsible for fire information dissemination. The fire management staff will communicate orally and in writing the current fire situation to NPS employees, interagency partners and the media. Press releases and articles will be written by either the Regional Fire Communications, Education and Prevention Specialist or the Public Information Officer and released to local, and when necessary, national media. If an Incident Management Team is deployed to manage a fire that affects WEAR, NPS information personnel will interact with and support the team's Public Information Officer.
- When fires are visible and likely to continue, the Fire Information Officer may choose to establish a fire information center near the incident. All requests for incident information will be channeled to the center. Accurate and timely information will be compiled, organized and disseminated to the public and news media.

XI. PROTECTION OF SENSITIVE RESOURCES

A. Archeological/Cultural/Historic Resources

If historic fire activity is any indication, one may presume that wildland fire has, at some point, affected many of the prehistoric sites within WEAR, and perhaps some of the historic sites. Wildland fire effects on the types of materials commonly found in prehistoric sites will tend to be minor. Thus, the Fire Management Plan will have no immediate impact on the majority of archeological and non-structural historical resources within WEAR.

Known historic and prehistoric properties that have the potential to be impacted by wildland fire or wildland fire management activities, such as fire suppression activities, will be identified and assessed by qualified cultural resource personnel. Wildland fire management staff in coordination with park cultural resource staff will make every reasonable effort to protect historic properties from fire suppression activities that may adversely affect these properties. Each threatened site will be assigned a fire protection category (see below) so that the Western Area FMO will be able to identify those cultural resources that may warrant special attention in the event of a wildland fire. Each site will be assigned to one of the four fire protection categories using a variety of criteria, including National Register of Historic Places status and eligibility, WEAR management objectives, and site or structure integrity, among others.

Assigning protection categories will expedite the planning of, and subsequent response to, wildland fire incidents. The cultural resource staff will continue to update the Western Area FMO on changes to integrity and condition of these resources that may change their protection status.

In addition, where wildland fire activity threatens cultural sites that have been designated Full or Critical protection status, the Western Area FMO will immediately contact the park Cultural Resource Specialist for consultation, particularly if ground disturbing activities are required for protection or fire suppression. The Western Area FMO will also contact the Cultural Resource Specialist if fire suppression activities for the protection of inholdings/allotments might affect sites on surrounding parklands.

Some sites, due to special circumstances, may not fall into an appropriate protection category. For example some sites, particularly archeological sites that are eligible for critical protection may be more susceptible to damage from fire suppression activities than from a fire burning the area. Park managers can lower or elevate the protection level of such sites as necessary. Final protection level designation requires consultation with the Western Area FMO, Cultural Resource Specialist, and approval by the Superintendent. The Cultural Resources specialist will ensure that changed protection status will be updated on the appropriate NPS GIS layer and communicated to Western Area FMO and Galena Zone FMO for correction on the Map Atlas.

1. Fire Protection Categories for Cultural Resource Sites

Because the protection of every known site within WEAR unit boundaries is not feasible, criteria have been established to provide cultural resource specialists and park management with a consistent methodology for determining which key sites will be afforded special protections from wildland fire. The criteria are as follows and may be updated or improved upon should new information come to light. Please note that although this section focuses on cultural resources that are not currently occupied, the following protection categories apply to all buildings and structures located within the park boundary. It is for this reason that “year-round residence” or “trespass structures” are listed as criteria.

CRITICAL:

Definition: Fires immediately threatening this designation will receive highest priority for protection from wildland fires by immediate and continuing aggressive actions dependent upon the availability of suppression resources.

Objectives: Protect human life, inhabited property and designated physical developments without compromising fire fighter safety. Protection of the aforementioned elements is the primary objective, not control of the wildland fire.

Recommended criteria:

1. Any historic property designated as a National Historic Landmark.
2. Any cabin or building that has been specified as actively occupied on a resident use permit granted to the user by the NPS.
3. Any property that is essential to the WEAR management and resource operations; examples include: ranger stations, remote base camps, etc.

FULL:

Definition: Fires immediately threatening this designation will receive aggressive initial attack dependent upon the availability of suppression resources.

Objectives: Protect sites designated as Full management from the spread of wildland fires burning in a lower priority fire management option. Minimize damage from wildland fires to the resources identified for protection commensurate with values at risk.

Recommended criteria:

1. Any historic property designated, or determined eligible for, inclusion on the National Register that retains structural integrity (i.e., standing with a roof).
2. Any property that has received NPS funds for stabilization or rehabilitation, or is designated to receive funds in the future.
3. Administrative sites (i.e., public use cabins, actively used airstrips, etc.).
4. Cultural resources that are representative of historical themes established by the park unit and retain a high degree of structural integrity.

NON-SENSITIVE:

Definition: Fires immediately threatening this designation will be allowed to burn under the influence of natural forces within predetermined areas while continuing protection of human life.

Objectives: Within land manager policy constraints, accomplish land and resource management objectives through the use of wildland fire. Reduce overall suppression costs through minimum resource commitment without compromising firefighter safety. Typical suppression response is a confinement strategy.

Recommended criteria:

1. Trespass structures that do not meet any of the criteria listed above.
2. Cultural resources that are not eligible for the National Register.
3. Historic properties that lack significant structural integrity:
 - a. Stand-alone log buildings/structures that consist of four courses of logs or less
 - b. Stand-alone frame buildings with one or more collapsed wall(s)
 - c. Stand-alone tent frames and other camp features (meat racks, fish wheels, etc.) that are less than 50% intact
 - d. Stand-alone mining features (adit, penstock, flume, dam, etc.) that are less than 50% intact
 - e. Multi-component properties in which the majority of the contributing structures are less than 50% intact
 - f. Bridges, trestles, aerial tramways, or other transportation-related features that are less than 50% intact
 - g. Machinery, vehicles, or other equipment that has degraded to the extent that function and/or interpretive value has been compromised

NON-SENSITIVE/DEFENSIBLE SPACE:

Definition: Fires immediately threatening this designation will be allowed to burn under the influence of natural forces within predetermined areas while continuing protection of human life. Defensible space will be built prior to any fire starts.

Objectives: Within land manager policy constraints, accomplish land and resource management objectives through the use of wildland fire. Allow protection of structural resources using minimum tool and ensuring firefighter safety.

Recommended criteria:

1. Cultural resources that are not eligible for the National Register, but that are representative of historical themes established by the park unit and have a decrease in structural integrity.
2. Cultural resources that are in the process of assessment for the National Register.
3. Historic properties that have a decrease in structural integrity:
 - a. Stand-alone log buildings/structures with a collapsed roof
 - b. Stand-alone frame buildings with a collapsed roof
 - c. Stand-alone tent frames and other camp features (meat racks, fish wheels, sheds, outhouses, etc.) that are less than 75% intact
 - d. Stand-alone mining features (adit, penstock, flume, dam, etc.) that are less than 75% intact
 - e. Multi-component properties in which the majority of the contributing structures are less than 75% intact
 - f. Bridges, trestles, aerial tramways, or other transportation-related features that are less than 75% intact

2. National Register Eligible Sites

Three properties in the Western Arctic National Parklands are listed in the National Register of Historic Places. These are the Fairhaven Ditch (BELA), Onion Portage National Historic Landmark Archaeological District (KOVA), and Cape Krusenstern National Historic Landmark Archaeological District (CAKR). The Cape Krusenstern district includes several hundred archaeological sites, the majority of which are subsurface sites or surface sites lacking combustible structural remains. The Fairhaven Ditch is a historic property that includes a number of combustible surface structures, including three cabins and two ruins. Protection status of these eligible cabins and sites are determined using the guidelines described above. As the condition of these sites change, their fire protection status will be reassessed.

In addition to the National Register of Historic Places, data on historic properties are maintained in a number of NPS lists and databases. These include, but are not limited to, the Archeological Site Management Information System (ASMIS), Cultural Landscapes Inventory (CLI), Cultural Sites Inventory (CSI), and List of Classified Structures (LCS). Protection status of *eligible* cabins and sites within these inventories and the National Register are determined using the guidelines described above. As the condition of these sites change, their fire protection status will be reassessed.

3. Undetermined National Register Status Sites

According to the current WEAR cabin database (a database maintained by fire management to track protection requirements for historic and modern structures), there are 186 sites containing structural components. Twenty-eight of these are on National Park Service land. This number is currently being updated; the data is being compared with data from the List of Classified Structures (LCS), and the AHRS databases. Once the sites with structural elements are tallied, cultural resource staff will determine which known sites have not yet been evaluated using National Register criteria. This information along with information on wildland fire activity will be used to formulate a prioritized plan for systematic inventory and documentation of the poorly documented sites, with the sites most at risk from wildland fire as top priority.

Approximately 1% of the total area of WEAR has undergone systematic archaeological survey. The WEAR cultural resource staff is currently conducting an archaeological survey. As sites are identified, documented, and management strategies determined surface structural sites that may be adversely affected by wildland fire will be evaluated using National Register criteria. Cultural resource specialists, park management, and fire management will work together using the fire protection criteria to determine protection status for newly discovered sites.

B. Sensitive Natural Resources

Due to the immensity and remoteness of WEAR, knowledge of threatened, endangered, or candidate plant and animal species is minimal. Two species of Eider, *Somateria fischeri* (Spectacled eider), and *Polysticta stelleri* (Steller's eider) are currently listed as threatened on the Federal Threatened and Endangered Species list. Although not scientifically documented by the NPS in any of the WEAR management units, the coastline of both Bering Land Bridge and Cape Krusenstern lay within the historic breeding range for these species. Eiders are sea ducks that live in marine waters. During breeding however, they use proximate inland waters where they nest on tundra near small ponds. Due to their habitat needs, site selection and site occupation - fire and fire suppression activities have little potential to impact these species.

Further federally threatened and endangered species include the endangered *Balaena mysticeus* (Bowhead whale). According to the National Marine Fisheries Service, the range of these marine mammals and their occupation of distant offshore habitats leave these species non-threatened by fire and fire suppression activities.

Although not listed as threatened or endangered, there are a number of plant species that are listed on the Alaska Rare Plant List. Of current species included on the list, five are believed to occur in WEAR. These species are; [*Oxytropis kobukensis*](#) (Kobuk locoweed), [*Oxytropis arctica* var. *barnebyana*](#) (Barneby's locoweed), [*Artemisia senjavinensis*](#) (Bering Sea wormwood), [*Douglasia beringensis*](#) (Bering Sea douglasia), and [*Rumex krausei*](#) (Cape Krause sorrel). All of the species mentioned above occupy specific micro-sites in mostly rocky or sandy soils, gravel bars, scree slopes or rock outcrops. It is believed that fire in most years will not burn in these types of environments, thus posing little threat to the aforementioned species except under the most severe drought circumstances when fire behavior exceeds normal activity. Moreover, WEAR is home to 33 additional species included in the globally rare NP Species database. Designated Incident Commanders and Agency Administrators will make every effort to consult with appropriate resource advisors on the possible presence of any of these species and/or communities and appropriately adjust fire management strategy and tactics to minimize potential impacts. Further impacts and details on all the above species can be reviewed in the Environmental Assessment.

Ground disturbing suppression tactics pose a threat to fragile soil layers and to other ecosystem components. If ground disturbing suppression tactics are necessary the impact to sensitive natural resources will be mitigated through the use of minimum impact suppression tactics, as specified by NPS policy (see Chapter IV, Section B.4).

C. Developments and Inholdings

State of Alaska, Department of Natural Resources, will assign private property protection within WEAR unit boundaries to an appropriate AIWFMP protection category.

XII. FIRE CRITIQUES AND ANNUAL PLAN REVIEW

A. Park-level Incident Reviews

All Wildland Fire incidents requiring suppression actions within WEAR will be reviewed. Prescribed fires will be reviewed as appropriate. The nature and scope of such reviews will vary in accordance with the complexity of the incident at hand, as follows.

1. Single-shift incidents

For incidents within the Preserve lasting no more than one operational period, a critique will be conducted as quickly as practical upon completion of control and mop-up. As many personnel involved in the incident as possible will participate in the critique. The Incident Commander or Burn Boss will relay any special concerns or problems identified during the critique to the Local Park Fire Contact. The Local Park Fire Contact will inform the Area Fire Management Officer of any concerns or problems.

2. Low-complexity multi-shift incidents

For simple incidents lasting longer than one operational period, a critique will be conducted within three days of completion of mop-up. Key personnel involved in the critique include, the Area Fire Management Officer, Local Park Fire Contact, and any others with special knowledge of or interest in the incident in question. The objective of the critique will be to determine the effectiveness of the WEAR Fire Management Program and procedures; procedures for such critiques are outlined in NPS-18, Chapter 13, Exhibit 2.

3. Higher-complexity multi-shift incidents

AFS and WEAR staff will conduct a closeout meeting with the Incident Management Team at the conclusion of each Type I or II incident to ensure the successful transition of the incident back to lower complexity fire management organization or the WEAR staff. The closeout will also evaluate the Incident Management Team's performance Wildland Fire Use and suppression activities are emergency actions. evaluate WEAR response and participation in incident and to identify any incomplete fire business. Refer to Chapter 13, Exhibit 1 of Reference Manual 18 for a sample.

4. All ongoing incidents

“Hotline” reviews will be used to examine the progress of ongoing fire incidents, regardless of duration, size, or complexity. This type of review will provide confirmation of the decisions being made daily in the WFS/WFIP and/or help determine where the decision process has been

faulty. The Incident Commander in conjunction with the Western Area FMO or the Agency Administrator will conduct hotline reviews of WEAR incidents. Hotline reviews don't follow pre-established procedures; results, however, will be recorded in fire reports.

B. Regional and National-level Incident Reviews

A regional or national-level incident review may be conducted under any of the following circumstances:

- Fire crosses WEAR boundaries into another jurisdiction without the approval of the landowner or agency.
- An incident results in adverse media attention.
- An incident involves death, serious injury or significant property damage, or exhibits potential to do so.
- An incident results in controversy involving another agency.

Refer to Chapter 13, Reference Manual 18 for distinction between regional and national-level reviews and for examples of each.

C. Entrapment and Fire Shelter Deployment Reviews

Fire shelter deployment is defined as the use of a fire shelter for its intended purpose in any situation other than training. All entrapments and fire shelter deployments will be reported to the Regional Fire Management Officer, who will in turn create a review team in cooperation with the Fire Management Program Center. The team leader will obtain reporting information from the WEAR Superintendent, and the review will be conducted in accordance with the guidelines presented in Chapter 3 of Reference Manual 18 (Exhibits 4 and 5).

D. Program and Plan Reviews

An informal fire management review will be conducted annually to evaluate current procedures and to identify any needed changes to the Western Arctic National Parklands Fire Management Plan. A formal internal fire management review will be conducted every five years.

Minor changes to the WEAR Fire Management Plan (including minor procedural changes, deletions, corrections, additions to appendices, etc.) may be made with the authority of the Western Area FMO. The Superintendent, however, must approve significant changes to the body of the Fire Management Plan.

XIII. CONSULTATION AND COORDINATION

The following individuals were consulted in the preparation of this plan:

Ken Adkisson, Chief of Subsistence, National Park Service, Western Arctic National Parklands

Jennifer Allen, Regional Fire Ecologist, National Park Service, Alaska Region

Brad Cella, Fire Management Officer, National Park Service, Alaska Region

Lois Dalle-Molle, Assistant Superintendent, Western Arctic National Parklands.

Terry DeBruyn Ph.D., Regional Wildlife Biologist, National Park Service, Alaska

Eileen Devinney, Cultural Resource Specialist, National Park Service, Western Arctic National Parklands

Bruce Greenwood, Environmental Protection Specialist, National Park Service, Alaska Support Office

Thomas Heinlein, Chief of Resources Management, Western Arctic National Parklands.

Marsha Henderson, Eastern Area Fire Management Officer, National Park Service, Fairbanks, Alaska

Julie Hopkins, Superintendent, National Park Service, Western Arctic National Parklands

Steve Klingler, Archeologist, National Park Service, Western Arctic National Parklands

Joe Rebar, Fire Staff Officer, Alaska Fire Service, Fairbanks, Alaska

Brad Shults, Biologist, National Park Service, Western Arctic National Parklands

Brad Smith, Protected Resources Management Biologist, NOAA Fisheries, Anchorage Alaska

Brian Sorbel, Fire Geographic Information Specialist, National Park Service, Alaska Region.

Jennifer Tobey, Archeologist, Western Arctic National Parklands.

Dave Whitmer, Fuels Management Specialist, Alaska Fire Service

APPENDIX A - REFERENCES

The following sources are cited within the Fire Management Plan, were consulted during its preparation, or are otherwise pertinent to the management concerns outlined within the plan.

Alaska Interagency Fire Management Council. 1984. Alaska Interagency Fire Management Plan, Kobuk Planning Area.

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National Park Service. 2001. Management Policies: Chapter 6, Wilderness Preservation and Management.

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National Park Service. 1994. Resource Management Plan, Bering Land Bridge National Preserve.

National Park Service. 1990. NPS-18 Guideline: Wildland Fire Management.

National Park Service. 2000. Yukon-Charley Rivers National Preserve Fire Management Plan.

National Park Service. 2000. Gates of the Arctic National Park and Preserve Fire Management Plan.

U.S. Forest Service, Department of Agriculture. 1999. Ogden, Utah. Fire Effects Information System.

APPENDIX B - DEFINITIONS

Agency Administrator: An incident-specific position filled by any qualified WEAR staff member as designated by the Superintendent. The Agency Administrator represents the WEAR Superintendent and works with the incident command team to ensure the compliance of wildland fire operations with WEAR and NPS resource management policy and AIWFMP.

Appropriate Management Response (AMR): Any wildland fire action selected and developed through either the implementation of the AIWFMP, initial decision-making process (i.e. WFIP stage I) or a WFSA. AMRs may be directed toward suppression or resource benefit, depending on predetermined parameters and incident-specific conditions.

BEHAVE: A system of interactive computer programs used for formulating fuel models based and predicting fire behavior.

Condition Class 1: Fire regimes are within an historical range, and the risk of losing key ecosystem components is low. Vegetation attributes (species composition and structure) are intact and functioning within an historical range.

Director's Order 18 (DO-18): A comprehensive statement of National Park Service wildland fire management policy.

Extended Attack: Any wildland fire suppression action lasting beyond one operational period.

Fire Management Officer (FMO): A permanent position with responsibility for the planning and coordination of fire management programs on NPS lands in western Alaska. A Western Area FMO based administratively in Denali provides fire management direction for WEAR as well as LACL, and DENA.

Fuel Loading: Amount of live and dead organic matter present at a particular site.

Fuel Model: A mathematically simulated fuel complex based on representative descriptors; used to estimate rate of spread and other fire behavior indices.

Initial Attack: A wildland fire suppression action lasting no more than one operational period.

Operational Period:

Prescribed Fire: Planned implementation of fire within a predetermined area and under predetermined conditions, for the accomplishment of resource management objectives and/or hazard fuel mitigation.

Reference Manual 18 (RM-18): A detailed set of guidelines for the operational implementation of the wildland fire management policies specified in DO-18. RM-18 consists of a continuously evolving on-line document.

Maximum Manageable Area (MMA): A geographical parameter established during the WFIP process and indicating the size that a fire use incident may grow to before triggering a WFSA.

Wildland Fire: Any occurrence of fire in wildland fuels not planned and ignited by management.

Wildland Fire Implementation Process (WFIP): A multi-stage decision-making process triggered by the detection of a wildland fire. Initial WFIP components help managers determine initial strategies (e.g. fire use or suppression) for areas without preplanned responses; subsequent components document continued viability of fire use.

Wildland Fire Situation Analysis (WFSA): A standardized decision-making process triggered when a fire renders present management actions inadequate. WFSA components provide a means of evaluating alternative strategies and serve to document decisions, actions, and results.

Wildland Fire Suppression: Any management action based on protection goals rather than resource management concerns.

Wildland Fire Use: Any management action, related to a naturally occurring fire, implemented primarily for the accomplishment of resource objectives (including the preservation of fire in its natural role and/or the reduction of hazardous fuel loads). Also referred to as Wildland Fire Use for resource benefit (WFURB).

ACRONYMS

AICC	Alaska Interagency Coordination Center
AIWFMP	Alaska Interagency Wildland Fire Management Plan
ANILCA	Alaska National Interest Lands Conservation Act
AKSO	Alaska Support Office
AWFCG	Alaska Wildland Fire Coordination Group
BLM-AFS	Bureau of Land Management – Alaska Fire Service
DENA	Denali National Park
DNR	State of Alaska, Department of Natural Resources
DO-18	Director’s Orders 18 – Wildland Fire Management
DOF	State of Alaska, DNR, Division of Forestry
FFMC	Fine Fuel Moisture Content
FMO	Fire Management Officer
FMP	Fire Management Plan
FMU	Fire Management Units
WEAR	Western Arctic National Parklands
GMP	General Management Plan
IC	Incident Commander
LCES	Lookouts, Communication, Escape Routes, Safety Zones
LCS	List of Classified Structures
MAC	Multi-Agency Coordination Group
NEPA	National Environmental Planning Act
NHPA	National historical Preservation Act

NPS	National Park Service
NWCG	National Wildfire Coordinating Group
RAWS	Remote Automated Weather Station
RM-18	Reference Manual 18 – Wildland Fire Management
RMP	Resource Management Plan
SACS	Shared Applications Computing System
SHPO	State Historic Preservation Officer
USFS	United States Forest Service
WFSA	Wildland Fire Situation Analysis
WFIP	Wildland Fire Implementation Plan

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APPENDIX C.1 - ENVIRONMENTAL ASSESSMENT

ENVIRONMENTAL ASSESSMENT

FIRE MANAGEMENT PLAN

FOR

WESTERN ARCTIC NATIONAL PARKLANDS

NATIONAL PARK SERVICE

WESTERN ARCTIC NATIONAL PARKLANDS

August 24, 2004

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ENVIRONMENTAL ASSESSMENT

Fire Management Plan for Western Arctic National Parklands

I. INTRODUCTION

A. Purpose and Need

The National Park Service proposes implementing National Park Service Director's Order 18 (DO-18) (2002) by establishing a Fire Management Plan for Western Arctic National Parklands (WEAR). This fire management plan is a comprehensive document that outlines the WEAR fire management goals and describes the policies and actions by which these goals will be realized. The plan formalizes park-specific responsibilities for implementing the Alaska Interagency Wildland Fire Management Plan and formalizes park-specific fire management decision making process and procedures, redefines fire management strategies, articulates the park's fire management organization and responsibilities, and establishes the direct linkage between the resource management goals and fire management strategies. With the implementation of the proposed action, fire management within WEAR will remain status quo.

The Fire Management Plan is necessary to comply with DO-18, and codifies the way fire will be managed within WEAR. Although fire protection needs may arise and remain the first priority, managers need to consider that fire has long been an integral component of the area's ecosystems and is critical for the maintenance of virtually all indigenous conditions, from plant and animal populations to soil and permafrost layers. Accordingly, the scope of the preferred alternative and other considered alternative entail the planning and implementation of policies and practices flexible enough to allow the simultaneous pursuit of protection and resource management goals.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act of 1969 and the regulations of the Council of Environmental Quality (40 CFR 1508.9). It evaluates the potential impacts to cultural and natural resource values that could result from implementing the Western Arctic National Parklands Fire Management Plan. The environmental assessment is intended to facilitate decision-making, based on an understanding of the environmental consequences of the proposal, and to determine whether preparation of an environmental impact statement is required.

B. Background

Two federal legislative acts, the Organic Act and the General Authorities Act, prohibit impairment of park resources and values. NPS Management Policies and Director's Order 12 use the terms "resources and values" to mean the full spectrum and intangible attributes for which the park is established and are managed, including the Organic Act's fundamental purpose and any additional purposes as stated in the park's establishing legislation. The impairment of park resources and values are not allowed unless directly and specifically provided by statute. The primary responsibility of the National Park Service is to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunity for enjoyment of them. The evaluation of whether impacts of a proposed action would lead to an impairment of park resources and values is included in this

environmental assessment. Impairment may occur when there are potential impacts to a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

In 1980, Congress created numerous new Parks, Preserves and Monuments through the passing of the Alaska National Interest Lands Conservation Act (ANILCA). This legislation provided a comprehensive statement of purpose for all recently designated Alaskan Park, Preserve and Monument areas. Section 201[4] of ANILCA specifically establishes the four units that now comprise the Western Arctic National Parklands and ascribes them to the following missions, among others:

Bering Land Bridge National Preserve: “To protect and interpret examples of arctic plant communities, volcanic lava flows, ash explosions, coastal formations and other geological processes; to protect habitat for internationally significant populations of migratory birds; to provide for archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America and the Asian Continent, to protect habitat for, and populations of, fish and wildlife including, but not limited to, marine mammals, brown/grizzly bears, moose and wolves;...to continue reindeer grazing use...in accordance with sound range management practices; to protect the viability of subsistence resources; and in a manner consistent with the foregoing, to provide for the outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area.”

Cape Krusenstern National Monument: “ To protect and interpret a series of archeological sites depicting every known cultural period in arctic Alaska; to provide for scientific study of the process of human population of the area from the Asian Continent, in cooperation with Native Alaskans, to preserve and interpret evidence of prehistoric and historic Native cultures, to protect habitat for seals and other marine mammals; to protect habitat for and populations of birds, and other wildlife, and fish resources; and to protect the viability of subsistence resources...”

Kobuk Valley National Park: “ To maintain the environmental integrity of the natural features of the Kobuk River Valley, including the Kobuk, Salmon and other rivers, the boreal forest, and the Great Kobuk Sand Dunes, in an undeveloped state, to protect and interpret, in cooperation with Native Alaskans, archeological sites associated with Native cultures; to protect migration routes for the Arctic caribou herd; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, moose, black and grizzly bears, wolves, and waterfowl and to protect the viability of subsistence resources.”

Noatak National Preserve: “To maintain the environmental integrity of the Noatak River and adjacent uplands within the Preserve in such a manner se to assure the continuation of geological

and biological processes unimpaired by adverse human activity; to protect habitat for, and populations of, fish and wildlife, including but not limited to caribou, grizzly bears, Dall sheep, moose, wolves, and for waterfowl, raptors, and other species of birds; to protect archeological resources; and in a manner consistent with the foregoing, to provide opportunities for scientific research.”

The Western Arctic Parks General Management Plans (Four separate plans: BELA, CAKR, KOVA, NOAT) (1986) specifies these objectives directly relevant to the WEAR fire management program: 1) To protect and interpret natural ecosystems and their individual components, based on an understanding of the role played by natural processes, including fire. (BELA, GMP: 6) 2) To manage natural resources to perpetuate ecological processes and systems. (CAKR, GMP: 196) (KOVA, GMP: 179) 3) To allow natural forest and tundra fires to fulfill their ecological role in vegetation succession. (KOVA, GMP: 63) (NOAT, GMP: 79)

In 1984 the National Park Service cooperated with Bureau of Land Management, Alaska Department of Natural Resources, Alaska Department of Fish and Game, US Fish and Wildlife Service, Bureau of Indian Affairs, and Alaska Native regional and local village corporations to produce an Interagency Fire Management Plan for the Kobuk and Seward/Koyukuk Planning Areas. This plan provided direction for fire management activity in Western Arctic National Parklands until 1998, when a variety of documents were consolidated and approved as the Alaska Interagency Wildland Fire Management Plan (AIWFMP). During the development of the original interagency fire management plan, the land owners/managers determined the protection needs for the lands they manage/own. The lands were placed under critical, full, modified or limited protection categories; with categorization based on presence and/or proximity of values to be protected, as well as the resource management objectives of the pertinent land management agency (see Table 1 for description of categories). Under the AIWFMP, the fire protection needs are reviewed annually by the land owners/managers. Each reported wildland fire is managed in accordance with the categorization of the sub-unit in which it occurs, with responses ranging from rapid and aggressive attack by all available forces in the case of fires detected in Critical Protection areas, to periodic surveillance for fires detected in Limited Protection areas (See Map1: Appendix G for vicinity map of WEAR units).

Table 1: Alaska Interagency Wildland Fire Management Plan Options

Protection Category	Policy	Intent
Critical	<ul style="list-style-type: none"> • Aggressive suppression of fires within or threatening designated areas. • Highest priority for available resources. 	<ul style="list-style-type: none"> • Prioritization of suppression actions for wildland fires threatening human life, inhabited property, and/or other designated structures. • Complete protection of designated sites.
Full	<ul style="list-style-type: none"> • Aggressive suppression of fires within or threatening designated areas, depending upon availability of resources. 	<ul style="list-style-type: none"> • Protection of uninhabited cultural and historical sites, private property, and high-value natural resources.
Modified	<ul style="list-style-type: none"> • Fires in designated areas receive initial attack depending on availability of resources, unless land manager chooses otherwise and documents with WFSA. • After designated conversion date, operational response to Modified protection zones is identical to that of Limited zones. 	<ul style="list-style-type: none"> • Greater flexibility in selection of suppression strategies when chance of spread is high (e.g., indirect attack). • Reduced commitment of resources when risk is low. <ul style="list-style-type: none"> • Balancing of acres burned with suppression costs and with accomplishment of resource management objectives.
Limited	<ul style="list-style-type: none"> • Wildland fires allowed to burn within predetermined areas. • Continued protection of human life and site-specific values. • Surveillance. 	<ul style="list-style-type: none"> • Reduction of long-term costs and risks through reduced frequency of large fires. • Reduction of immediate suppression costs. <ul style="list-style-type: none"> • Facilitation of bio-diversity and ecological health

This EA presents two alternatives for the application and use of wildland fire as a management tool for resource benefits. All of the alternatives discussed here, including the preferred alternative described throughout the proposed WEAR fire management plan, would entail continued compliance with the AIWFMP, while at the same time bringing the WEAR fire management program into compliance with recently developed National Park Service directives. **NPS Director’s Order 18** (2002) mandates a distinction between **prescribed fire**, defined as any fire planned and implemented by management, and **wildland fire**, defined as any unplanned ignition, whether human or natural. Wildland fire incidents, in turn, fall into two categories:

Wildland Fire Use entails the management of certain unplanned ignitions for the achievement of management goals, including the reduction of dangerous and unnatural accumulations of burnable vegetation and the preservation of fire in its natural role; **wildland fire suppression** entails a broad spectrum of actions aimed at protecting life, property, and sensitive resources while also ensuring firefighter safety, cost effectiveness, and minor disturbance from suppression activities.

Each of the alternatives presented in this Environmental Assessment comprises of a particular combination of the various management strategies permitted under NPS Director's Order 18. These alternatives have been evaluated for their ability to contribute to the accomplishment of the resource management objectives described above.

C. Impact Topics Addressed and Analyzed

Impact topics were identified to focus the analysis of alternatives on the most relevant subject matter and resources of concern. A brief rationale for each impact topic follows, as well as the reasons for dismissing specific topics from further analysis.

Vegetation and Biodiversity

The National Environmental Policy Act (1969) requires analysis of impacts on all affected components of the ecosystem, including biotic communities of plants and animals. NPS Management Policies (2001) requires maintenance of these communities, including their natural abundance, diversity and ecological integrity. Fire plays an important role in changes to vegetative cover which in turn affects habitat and overall ecological health.

Cultural Resources

Cultural resources can be significantly affected by fire and play a critical role in determining fire management units and specific fire responses.

Aesthetics and Recreation

The mission of the NPS, as stated in the Organic Act of 1916, is to "conserve the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same." Within WEAR, Bering Land Bridge was given direction from ANILCA specifically for the management of recreation. ANILCA stated that Bering Land Bridge was "to provide for the outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area." Scenic values, recreational activities, and general visitation within and around fire prone areas may be temporarily impacted by fire-related actions.

Local Economy

The National Environmental Policy Act (NEPA) regards impacts to the human environment to include any effects of federal actions on the social and economic well being of communities and individuals. Fires may limit economic opportunities and fire management may provide increased opportunities around bases of operation and for material suppliers.

Wetlands and Floodplains

Executive Orders 11988 and 11900 require the consideration of impacts to floodplains and wetlands. Fires in the interior of Alaska often burn the vegetation of wetlands, which may be the sites of management actions.

Subsistence Use and Wildlife Habitat

Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA) states “in determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands...the head of the federal agency...over such lands...shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs.” Subsistence use may be temporarily impacted, by fire management decisions.

Air Quality

The 1963 federal Clean Air Act (42 U.S.C. 7401 *et seq.* as amended) stipulates that federal land managers have an affirmative responsibility to protect a park’s air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse air pollution impacts. Specifically all four management units are classified as Class II airsheds, minimizing acceptable levels of pollutants to these areas by very specific parameters and forcing the NPS to hold Air quality to a high standard. Air quality would potentially be affected in the short-term during any type of ignition event.

Water Quality and Fisheries

National Park Service policies require the protection of water resources consistent with the Clean Water Act. Increased erosion following a fire may affect water quality.

Wilderness Resource Values

National Park Service Director’s Orders 41, on Wilderness Preservation and Management, states that “Fire management activities conducted in wilderness areas will conform to the basic purposes of wilderness”. Western Arctic National Parklands contains large areas of designated and suitable wilderness which would be affected by any likely ignition event.

D. Impact Topics Considered and Dismissed

Threatened and/or Endangered Species

The Endangered Species Act (1973) requires disclosure of impacts on all federally threatened or endangered species. NPS policy also requires the analysis of effects on federal species, as well as state-listed threatened, endangered, candidate, rare, declining and sensitive species.

Two species of Eider, *Somateria fischeri* (Spectacled eider), and *Polysticta stelleri* (Steller’s eider) are currently listed as threatened on the Federal Threatened and Endangered Species list. Although not scientifically documented in any of the WEAR management units, the coastline of both Bering Land Bridge and Cape Krusenstern lay within the historic breeding range for these species. Eiders are Sea ducks that live primarily in ocean waters. During breeding however they use inland waters where they nest on tundra near small ponds. Fire likely has little effect on these species and in fact USFWS personnel have little concern of direct impacts of fire suppression activities on the species. FWS does hold concerns for suppression activities that occur in the terrestrial environment that have the potential to effect the marine environment (i.e.

retardant use). National fire policy states clearly that, “Fire retardant will not be dropped within 300 feet of waterways.”(Interagency Standards for Fire and Fire Aviation Operations 2004) This policy combined with the Limited fire management option strategy employed by the NPS and the limited fire occurrence of the area provides triplicate protection measures to this species to ensure fire management actions do not adversely affect the species. The USFWS concurs with the NPS on this subject and has granted dismissal of these species from the EA. Funding has been requested to further study these species and survey for their presence within WEAR.

Further federally threatened and endangered species include the endangered *Balaena mysticeus* (Bowhead whale). According to the NOAA fisheries service, the range of these marine mammals and their occupation of distant offshore habitats leave these species unthreatened by fire and fire suppression activities.

Although not federally threatened or endangered, there are a number of plant species that are considered rare to land managers (see National Heritage Program AK Rare Plant List) within Alaska. Of current species listed five are believed to occur in WEAR. These species are; *Oxytropis kobukensis* (Kobuk locoweed), *Oxytropis arctica var. barnebyana* (Barneby’s locoweed), *Artemisia senjavinensis* (Bering Sea wormwood), *Douglasia beringensis* (Bering Sea douglasia), and *Rumex krausei* (Cape Krause sorrel). All of the species mentioned above occupy specific micro-sites in mostly rocky or sandy soils, gravel bars, scree slopes or rock outcrops. Because of site occupation it is believed that fire in most years will not burn in these types of environments, thus posing little threat to the aforementioned species except under the most severe drought circumstances when fire behavior supercedes normal activity. Moreover, WEAR is home to 33 additional species included in the globally rare NP Species database.

Environmental Justice. Executive Order 12898,

Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations requires all federal agencies identify and address disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. This project would not be expected to result in significant changes in the socioeconomic environment of the project area, and, therefore, would not be expected to have any direct or indirect impacts to minority or low-income populations or communities.

II. RANGE OF ALTERNATIVES

A. Introduction.

Each alternative consists of a different combination of the fire management strategies as mandated by NPS Director’s Order 18 (DO-18), with each alternative representing a different application of fire as a management tool. The considered alternatives differ in their respective approaches to the management of wildland ignitions and in their allowance or preclusion of prescribed fire.

B. Actions Common to all Alternatives

Under each alternative, mechanical fuel reduction may be used to mitigate hazard fuel buildup or recreate historical landscapes/conditions in areas where prescribed fire or wildland fire would pose an unreasonable threat to the property or resources.

All fire management actions at Western Arctic National Parklands will be conducted in full compliance with local, state, and interstate air pollution control regulations as required by the Clean Air Act, 42 U.S.C. 7418. Currently, no local or interstate air pollution control regulations exist in Alaska.

WEAR will employ three primary strategies in order to protect archeological, cultural, and historic sites from damage by fire or fire suppression activities. First, culturally significant structures will be assigned Critical or Full Protection status, as dictated by the recommended criteria for fire protection of structural resources within WEAR. Second, personnel conducting detection and/or reconnaissance flights within WEAR will be directed to remain alert for the presence of any undiscovered cultural sites or structures and to report their presence to the Western Area FMO. Third, designated Incident Commanders will consult with appropriate resource advisors regarding the identification and sensitivity of previously unknown sites, and will cooperate with the Agency Advisor to mitigate any damage to such sites.

Certain fire suppression activities could pose a threat to fragile soil layers and to other ecosystem components. This type of risk will be mitigated through the use of minimum impact suppression tactics as specified by NPS policy.

C. Alternatives

Alternative 1: Wildland Fire Suppression

Natural ignitions occurring in certain areas and under predetermined conditions would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role and the reduction of hazardous accumulations of burnable vegetation. Any fire posing a threat to life or property would be immediately suppressed. The suppression response is described in the Alaska Interagency Wildland Fire Management Plan. Prescribed fires would not be implemented.

Alternative 2: Combination of Prescribed Fire Use, Wildland Fire Use, and Wildland Fire Suppression (NPS Preferred Alternative and No Action Alternative)

All three of the major management actions (Wildland Fire Suppression, Wildland Fire Use and Prescribed Fire) described under DO-18 would be allowed, as determined by a combination of pre-established and incident-specific decision making criteria. This alternative represents no change in the on-the-ground implementation of fire management activities; however, it does define the strategy for Wildland Fire Use. Wildland fires that do not pose a threat to life, property, or significant resources would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role and the reduction of hazardous accumulations of burnable vegetation. Prescribed fire would be implemented, in certain cases, under the direction of National Park Service personnel for the purpose of reducing hazardous fuel loads. Suppression would continue in or near developed areas and near WEAR

boundaries when neighboring administrative units with different fire management objectives adjoin NPS land. In areas known to contain fire sensitive cultural and/or archeological resources that warrant protection, or whenever insufficient resources are available to ensure the effective, long-term management of wildland fire to meet resource management objectives, suppression action would continue.

D. Alternatives Considered but Rejected.

Full Wildland Fire Suppression

All ignitions, including those of natural origin, would be suppressed and no prescribed fire would be implemented. Reduction of flammable vegetation would be accomplished strictly by mechanical means (e.g. through the use of chain saws, cross cut saws or other tools). Mechanical reduction would be limited primarily to the protection of historic and/or archeological sites and Park/Preserve boundary areas. In some cases, however, mechanical reduction could be used to restore selected landscapes to historic conditions.

This alternative is rejected for the following reasons: 1) the increased risk of catastrophic wildland fire which would result from the exclusion of the area's natural burn cycle; 2) the prohibitively high cost of large-scale mechanical fuel reduction; 3) non-conformance with the existing interagency management scheme and a potential to cause an impairment of park resources and values.

Full Wildland Fire Suppression and Prescribed Fire

All ignitions, including those of natural origin, would be suppressed. The effects of natural wildland fire would be simulated through the use of planned ignitions conducted by park personnel in defined zones. Such fires would be ignited under predetermined fuel and weather conditions; control problems would thereby be minor.

This alternative is rejected for the following reasons: 1) the inability to maintain a natural burn cycle through only prescribed burns; 2) the increased risk of catastrophic wildland fire which would result from the exclusion of the area's natural burn cycle; 3) the prohibitively high cost of large-scale mechanical fuel reduction and prescribed burns; 4) non-conformance with the existing interagency management scheme and a potential to cause an impairment of park resources and values.

E. Environmentally Preferred Alternative.

Alternative 2 is the environmentally preferred alternative because it provides the full spectrum of fire management strategies and practices to accomplish WEAR fire and resource management objectives while protecting human life and identified resources/values. The potential use of prescribed fire would permit managers to reduce the risk of catastrophic fires around important cultural resource sites as well as limiting the severity of fire in natural resource areas such as floodplain forests.

III. AFFECTED ENVIRONMENT

A. Introduction.

Western Arctic National Parklands encompasses 11.8 million acres. Within its boundary, the land exhibits complex ownership patterns with native and regional village corporations' land, allotments, and various mining claims. Located in the Northwest corner of Alaska, this management area is remote even by Alaska standards. Access ranges from private and chartered aircraft year round to motorized and non-motorized boats and ATVs in the summer to snow machine and sled dogs during ice and snow covered months. Numerous native villages surround the Western Arctic Parklands along major river corridors and coastlines where transportation options are not limited to aircraft travel. WEAR administrative offices are in the town of Kotzebue, located on the tip of the Baldwin Peninsula that protrudes into Kotzebue Sound and Nome on the southwestern coast of the Seward Peninsula. With regular air service to Anchorage, Kotzebue and Nome serve as the major transportation hub for travel from all villages in Northwest Alaska.

B. Natural Environment

WEAR covers a vast expanse of ecotypes and terrain features within its boundaries. The interior units (Noatak and Kobuk Valley) both encompass vast portions of watersheds of two of the largest rivers systems in Northwest Alaska. Rugged mountains, rolling hills and even sand dunes are found within these interior units. Displays of various tundra communities, healthy riparian areas and the northernmost extent of boreal spruce forest in Alaska typify vegetation. The coastal units within WEAR (Bering Land Bridge and Cape Krusenstern) display quite different terrain and vegetative features. Comprised mostly of coastal plains and plateaus these areas support large expanses of wet and moist tundra types. Areas with some elevation support a drier alpine form of tundra and trees of any type are virtually non-existent (with the exception of localized pockets of white spruce in the southeast corner of Cape Krusenstern).

Much of WEAR is underlain by permafrost that can average several hundred feet thick, with the top of the permafrost layer often occurring as little as 2 to 3 feet below the ground surface at the peak of summer. Permafrost hinders subsurface drainage, causing unstable soil conditions on sloping surfaces. Consequently, when surfaces are disturbed and permafrost is allowed to melt, soils often collapse.

The climate in WEAR consists of four distinct seasons with relatively short cool summers and long severe winters. Spring and autumn come and go rapidly with the quick increase and decrease in sunlight and temperature. Major portions of the management area receive continuous sunlight during the summer for approximately 30 days.

Numerous species of large and small mammals occur within WEAR. Large mammals include various marine life, Dall sheep, moose, muskoxen, caribou, wolves and black, brown, and polar bear. Smaller mammals, such as arctic hare, wolverine, porcupine, weasel, land otter, ground squirrel, muskrat, vole, lemming, and many others are abundant throughout the park area. In addition, over 25 species of fish and 140 species of bird are also present in WEAR on a seasonal basis.

C. Cultural Environment

Radiocarbon dating has revealed that Western Arctic National Parklands (WEAR) contains at least an 11,000-year record of human occupation, from the time of the Paleo-Indian big game hunters to the present. The modern day Iñupiat Eskimo of the region harvests subsistence within the Parks, as nine Iñupiat Nations did at the time of Euro American contact.

Although less than 1% of the 11.8 million-acre area has been surveyed by archeologists, over 1600 sites have been identified. The majority of these sites are prehistoric, varying from small lithic scatters to large villages with semi-subterranean houses. Only a small number of combustible structures are present.

D. Historical Role of Fire

Fires are infrequent occurrences in the coastal management units of WEAR. Although according to fire history records, on severe drought and active fire years fires have burned in and around both Bering Land Bridge and Cape Krusenstern. However, the two more continental units (Noatak, Kobuk Valley) see more significant fire activity most years. Major portions of the Noatak and Kobuk Valley lie within the northernmost belt of Interior Alaska, where fire has played a critical role in ecosystem sustainability. (See Appendix F: Fire Statistics & Graphs)

Fire has been a driving force in the Alaskan interior and arctic for thousands of years. It is a key environmental factor in these cold-dominated ecosystems. Periodic fires have served to select plants and animals that are adapted to fire-caused change. Without fire, organic matter accumulates, the permafrost table rises, and ecosystem productivity declines. Vegetation communities become much less diverse, and their value as wildlife habitat decreases. Fire rejuvenates these systems. It removes some of the insulating organic matter and elicits warming of the soil. Nutrients are added both as a result of combustion and by increased decomposition rates. Vegetative re-growth quickly occurs, and the cycle begins again.

The impact of aggressive suppression on the Alaskan interior at large and WEAR in particular is, difficult to assess. Organized suppression has occurred on a large scale in Alaska since 1939; however, effects of suppression efforts are not clear. Alaska fire management personnel postulate that the fire ecology of the area may be relatively unchanged from its condition prior to the development of organized suppression efforts.

E. Wildland Fire Management Situation

The seasonal fire cycle in the Alaskan interior consists of four “micro” seasons or phases, each varying with the changing weather patterns and the stages of vegetation development for the growing season. The first begins in mid-May with the loss of snow cover, and ends in late May or early June when green-up begins. During the transition from 100% winter-cured fuels to green-up, human-caused fires occur frequently. These fires are usually relatively easy to suppress. Spring fires that are not suppressed, however, often grow later in the season as fuels become dryer. The second and third fire-cycle phases are primarily lightning driven. Suppression of such fires is harder. Fires occurring in June, the second period, usually do not develop the intensity of later summer fires; during hot, dry, and windy conditions, however, June

wildland ignitions can result in extreme fire behavior. The third period of fire activity begins in mid-July and runs through the first part of August. This is the period of maximum fire activity. The final micro-season runs from late August into early September. These fires are generally easy to control except during particularly dry autumn weather.

IV. ENVIRONMENTAL CONSEQUENCES

A. Impacts of Alternatives

Alternative 1. Wildland Fire Use and Wildland Fire Suppression

Vegetation and Biodiversity

Certain wildland fires would be managed for the accomplishment of resource management goals, including the preservation of fire as a natural process and the reduction of burnable vegetation therefore maintaining a naturally functioning ecosystem. However, in the Full Protection Units the exclusion of prescribed fire may result in an unacceptable increase in vegetation thereby increasing the threat to the resources found within these units.

A purpose of WEAR is to “protect and interpret examples of arctic plant communities... study, the process of plant and animal migration, including man, between North America and the Asian Continent and... to assure the continuation of geological and biological processes unimpaired by adverse human activity.” Fire is an inextricable component of the fire dependant ecosystem of this area and is known to maintain a balanced, naturally functioning ecosystem. This alternative would manage ignitions within established resource objectives to maintain the natural function of the ecosystem in the WEAR.

Conclusion: Minor impacts are expected with the use of this alternative due to an increase in vegetation resulting from no prescribed fire. The level of impacts to vegetation and biodiversity anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Cultural Resources

The prohibition of prescribed fire could hamper the protection of historic and/or archeological resources and the restoration and/or protection of historic landscapes and conditions. Mechanical techniques employed in place of prescribed fire would tend to be more expensive, possibly more destructive, and may not sufficiently mimic the effects of fire. However, certain wildland fires would be managed for the accomplishment of resource management goals including the role of natural processes thereby better protecting the cultural resources from catastrophic fire.

A purpose of WEAR is “to protect and interpret archeological sites associated with Native cultures... to provide for scientific study of the process of ancient human populations of the area ... to provide for archeological and paleontological study, ...and in cooperation with Native Alaskans, to preserve and interpret evidence of prehistoric and historic Native cultures.”

Conclusion: Minor impact would occur due to an increase in vegetation resulting from no prescribed fire. The level of impacts to cultural resources anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Aesthetics and Recreation

Under this alternative, impacts would include the occasional closure of specific areas due to fire activity or smoke concentrations for the safety of visitors resulting in an inconvenience for the visitors or cause them to alter their plans. Smoke will for short time periods degrade visibility which also may inconvenience visitors or cause them to alter their plans. Fire naturally occurs within WEAR ecosystems and degradation in air quality as the result of smoke is part of the function of a fire dependent ecosystem.

Through careful application of mechanical clearing to reduce hazardous fuels minor aesthetic impact may occur in the form of thinning vegetation.

Conclusion: This alternative may result in a minor impact by closing certain areas temporarily and more vegetation may be burned decreasing aesthetics in limited areas. The level of impacts to aesthetics and recreation anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Local Economy

There would be a slight influx of revenue for businesses in communities near an incident resulting from occasional suppression operations. Conversely, closures of areas due to wildfire activity may affect recreational oriented businesses.

Conclusion: Fire management in WEAR under this alternative is expected to have a minor beneficial impact to the local economy.

Wetlands and Floodplains

There would be a minor impact to these areas due if fire suppression operations occur (handline construction). There may be impacts due to erosion after fire has burned through a wetlands or floodplain. Once vegetation in these areas re-establishes erosion is expected to return to normal levels.

Fire is an inextricable component of the fire dependent ecosystem of this area and is known to maintain a balanced, naturally functioning ecosystem. Managing wildland fire within established resource objectives would encourage the natural function of the ecosystem in WEAR.

Conclusion: There would be temporary minor impacts due to a loss of vegetation and temporarily increased erosion. The level of impacts to wetlands and floodplains anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or is critical to the natural or cultural integrity of the park.

Subsistence Use and Wildlife Habitat

A short-term impact on game species and plants in specific areas could occur due to the decrease of vegetation within burned areas. However, this alternative would more adequately facilitate the long-term preservation of the area's natural processes by allowing fire to play its natural role in the ecosystem. Suppression actions may adversely affect subsistence activities during the life of the incident by the increase of human activity and air traffic in the immediate area.

Conclusion: There is no critical and a relatively low percentage of full protection lands within WEAR, thus limiting negative impacts as a result of suppression actions. This would not disrupt the natural function of the ecosystem in WEAR, therefore maintaining wildlife habitat and subsistence use within the management area. There would be a negligible short-term impact resulting from a displacement of wildlife in the burned area. This, however, would replicate a naturally functioning ecosystem and subsistence regime. The level of impacts to subsistence and wildlife habitat anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Air Quality

Under this alternative, smoke would be monitored for trajectory, mixing height, and impact to overall air quality. Certain wildland fires would be managed for the accomplishment of resource management goals, including the preservation of fire in its natural role. This would reduce the possibility of catastrophic fire thereby reducing the chance for long-term, intense decrease of air quality.

Conclusion: No long term impacts to air quality are expected. The level of impacts to air quality anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are critical to the natural or cultural integrity of the park.

Water Quality and Fisheries

Under this alternative certain wildland fires would be managed for the accomplishment of resource management goals including the preservation of fire in its natural role and the reduction of burnable vegetation. This would result in a greater number of low-intensity wildland fires thereby reducing the potential for erosion along streams.

Selection of this alternative would not disrupt the natural function of the ecosystems within WEAR. A fire is a common occurrence in this ecosystem and does result in some erosion, affecting water quality and fisheries habitat. Under this alternative, the amount of erosion is expected to continue at the same natural level and will not result in an impairment of the stated park purpose.

Conclusion: Long term impacts to water quality and fisheries are not expected. Short-term negligible impacts of increased sedimentation may occur initially after the fire and prior to reestablishment of vegetation. The level of impacts to water quality and fisheries anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Wilderness Resource Values

Under this alternative certain wildland fires would be managed for the accomplishment of resource management goals including the preservation of fire as a natural process.

Vast amounts of WEAR are designated wilderness or are suitable for such designation. The wilderness character of the area reflects natural conditions and a vast undeveloped sub-arctic landscape without permanent human residence. A sense of solitude and distance from modern civilization and its modifications of the natural world dominate the recreational experience. Under this alternative natural fire would be allowed to continue and would continue as an integral part of the wilderness experience.

Conclusion: Long-term impacts to wilderness resource values are not expected. Short-term impacts during fire suppression activities may occur but will be mitigated by adhering to special concerns outlined in the WEAR FMP and by the use of minimum tool/minimum requirement analysis. The level of impacts to wilderness character anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are critical to the natural integrity of the park.

Alternative 1, Cumulative Impacts: The on-going and future activity that would have a cumulative effect on resources of concern within and outside of WEAR unit boundaries analyzed in this Environmental Assessment is the adjacent landowners' fire management option selection. All public land management agencies in Alaska are signatories of the Alaska Interagency Fire Management Plan, which allows for fire to burn on the landscape in limited suppression units. Much of the public lands surrounding WEAR is in a limited suppression unit and may result in multiple large fires in the area, especially with an increase in vegetation due to no prescribed burns. The results of these multiple fires may be greater than fires managed just within WEAR boundaries.

Alternative 2. Prescribed Fire Use, Wildland Fire Use, and Wildland Fire Suppression (NPS Preferred Alternative)

Vegetation and Biodiversity

Alternative 2 would have the least impact on vegetation with the maximum potential for maintaining diversity, by way of careful implementation of prescribed fire in areas ill suited to Wildland Fire Use. Wildland fire that poses a potential threat to life, property, or sensitive resources would be suppressed, while continued implementation of Wildland Fire Use in remote portions of WEAR would ensure the cost-effective preservation of the area's natural fire ecology as well as the reduction of potentially dangerous fuel loads.

A purpose of WEAR is to “protect and interpret examples of arctic plant communities... study, the process of plant and animal migration between North America and the Asian Continent and... to assure the continuation of geological and biological processes unimpaired by adverse human activity” Fire is an inextricable component of the environment of this area and is necessary to maintain a balanced, naturally functioning ecosystem. Selection of this alternative to use prescribed fire; Wildland Fire Use within established resource objectives, and wildland fire suppression would result in a natural functioning ecosystem within WEAR.

Conclusion: A balanced and naturally functioning ecosystem would be maintained with the use of this alternative. The level of impacts to vegetation and biodiversity anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Cultural Resources

There would be improved long-term protection of registered and unregistered cultural resources with the use of prescribed fire near and surrounding cultural resources. The occasional use of prescribed fire would allow a relatively cost-effective means of reducing fuel loads and preserving historic landscapes and conditions where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

Conclusion: Long-term protection of registered and unregistered cultural resources would result from this alternative. This is anticipated to not result in an impairment of park resources, fulfilling specific purposes identified in the establishing legislation, or is key to the natural or cultural integrity of the park.

Aesthetics and Recreation

The impacts would be similar to Alternative 1 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

Conclusion: This alternative may result in minor impacts by closing certain areas and some vegetation may be burned decreasing aesthetics in limited areas. The level of impacts to aesthetics and recreation anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Local Economy

The impacts would be similar to Alternative 1 with the addition that the occasional use of prescribed fire would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

Conclusion: The increase in revenue to communities supporting fire management operations would result in a minor beneficial impact.

Wetlands and Floodplains

The impacts would be similar to Alternative 1 with the addition that the occasional use of prescribed fire would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

Conclusion: There would be temporary minor impacts due to a loss of vegetation. The level of impacts to wetlands and floodplains anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Subsistence Use and Wildlife Habitat

The impacts would be similar to Alternative 1 with the addition of the occasional use of prescribed fire would also allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

Conclusion: The natural function of the ecosystems within WEAR would not be disturbed, therefore maintaining wildlife habitat and subsistence use within the Park/Preserve. There would be a minor short-term impacts resulting from a displacement of wildlife in the burned area. This, however, would replicate a naturally functioning ecosystem and subsistence regime. Additional impacts may result from suppression actions; however, limited acreage of critical and full protection designation minimizes suppression needs. The level of impacts to subsistence and wildlife habitat anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Air Quality

The impacts would be similar to Alternative 1 with the addition of the occasional use of prescribed fire would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use. Fire is a naturally occurring event in the WEAR ecosystem. Degradation in air quality at the levels expected would be similar to a natural occurrence.

Conclusion: No long-term impacts to air quality are expected. The level of impacts to air quality anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the park.

Water Quality and Fisheries

The impacts would be similar to Alternative 1 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

Selection of this alternative would not disrupt the natural function of the ecosystem within WEAR. Fire is a common occurrence in this ecosystem and does result in some erosion, affecting water quality and fisheries habitat. The erosion is expected to continue at the same natural levels.

Conclusion: Long term impacts to water quality and fisheries are not expected. Short-term negligible impacts of increased sedimentation may occur initially after the fire and prior to reestablishment of vegetation. The level of impacts to water quality and fisheries anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are key to the natural or cultural integrity of the management area.

Wilderness Resource Values

The impacts would be similar to Alternative 1 with the addition of the occasional use of prescribed fire that would allow a relatively cost-effective means of reducing fuel loads where the presence of values to be protected prohibits the implementation of Wildland Fire Use.

The wilderness character of the area reflects natural conditions and a vast undeveloped sub-arctic landscape without permanent human residence. A sense of solitude and distance from modern civilization and its modifications of the natural world dominate the recreational experience. Under this alternative natural fire would be allowed to continue and will not result in an impairment of the stated park purpose.

Conclusion: Long-term impacts to wilderness character are not expected. Short-term impacts during fire suppression activities (e.g. surface disturbance by handline construction) may occur but will be mitigated by adhering to special concerns outlined in the WEAR FMP and by the use of minimum tool/minimum requirement analysis. The level of impacts to wilderness character anticipated from this alternative would not result in an impairment of park resources that fulfill specific purposes identified in the establishing legislation or are critical to the natural integrity of the park. key

Alternative 2 Cumulative Impacts: The on-going and future activity that would have a cumulative effect on resources of concern within and outside of WEAR boundaries analyzed in this Environmental Assessment is the adjacent landowners’ fire management option selection. All public land management agencies in Alaska are signatories of the Alaska Interagency Fire Management Plan, which allows for fire to burn on the landscape in the limited suppression option. Much of the public lands surrounding WEAR are in a limited suppression option, which has the potential to result in multiple large fires in the area. The results of these multiple fires may be greater than fires managed just within WEAR boundaries.

B. Cumulative Impact Mitigation

The convening of a Multi-Agency Coordinating (MAC) group can mitigate potential cumulative impacts. As directed in the Alaska Interagency Fire Management Plan, “A statewide Multi-Agency Coordinating (MAC) group may be convened to implement a temporary change from the selected management options for a specific geographic area(s) during periods of unusual fire conditions (e.g., numerous fires, predicted drying trends, smoke problems, unusually wet conditions or suppression resource shortages).”

C. IMPACTS OF ALTERNATIVES SUMMARY

	Alternative 1: Wildland Fire Use and Wildland Fire Suppression	Alternative 2 (Preferred): Prescribed Fire Use, Wildland Fire Use, and Wildland Fire Suppression
Vegetation and Bio- diversity	Minor impact: continued potential for minimal loss of diversity through fire exclusion in or near Critical and Full Protection Units and sites.	Least impact: maximum potential for diversity through careful implementation of prescribed fire in areas ill-suited to Wildland Fire Use.
Cultural Resources	Minor impact:	Improved long-term protection

Aesthetics and Recreation	Increased potential for uncontrolled fire due to increased fuels through fire exclusion in or near Critical and Full Protection Units and sites. Minor impact: occasional closures of specific areas; vegetation burned may decrease aesthetics.	of registered and unregistered historic and/or archeological sites; improved maintenance of historical landscapes and conditions. Minor impact: occasional closures of specific areas; vegetation burned may decrease aesthetics.
Local Economy	Minor impact	Minor impact
Wetlands and Floodplains	Minor impact: may be some erosion until vegetation returns.	Minor impact; may be some erosion until vegetation returns.
Subsistence Use and Wildlife Habitat	No long-term impact; some potential for short-term displacement of game from specific areas.	No long-term impact; some potential for short-term displacement of game from specific areas.
Water Quality and Fisheries	No long-term impact; some short-term erosion.	No long-term impact; some short-term erosion.
Air Quality	Minor impact.	Minor impact.
Wilderness Character	No long-term impact; some short-term impact from fire suppression activities.	No long-term impact; some short-term impact from fire suppression activities.

V. COORDINATION AND CONSULTATION

Jennifer Allen, National Park Service, Fire Ecologist, Alaska Region.

Brad Cella, National Park Service, Fire Management Officer, Alaska Region

Bruce Greenwood, Environmental Protection Specialist, National Park Service, Alaska Support Office

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Dan Warthin, National Park Service, Western Area Fire Management Officer.

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Department of Interior. 2003. Interagency Standards for Fire and Fire Aviation Operations.

National Park Service. 2002. Director's Order 18: Fire Management.

PREPARER

Janet Hatfield, Forestry Technician, National Park Service, Yukon-Charley Rivers National Preserve, Gates of the Arctic National Park/Preserve, Wrangell-St. Elias National Park/Preserve

APPENDIX C.2 - ANILCA 810

ANILCA Title VIII Section 810 (a) Summary Evaluation and Findings

I. INTRODUCTION

This section was prepared to comply with Title VIII, Section 810 of the Alaska National Interest Lands Conservation Act (ANILCA). It summarizes the evaluations of potential restrictions to subsistence activities that could result from the implementation of the proposed fire management plan in Western Arctic National Park Lands (WEAR).

II. EVALUATION PROCESS

Section 810(a) of ANILCA states:

In determining whether to withdraw, reserve, lease, or otherwise permit the use, occupancy, or disposition of public lands...the head of the federal agency...over such lands...shall evaluate the effect of such use, occupancy, or disposition on subsistence uses and needs, the availability of other lands for the purposes sought to be achieved, and other alternatives which would reduce or eliminate the use, occupancy, or disposition of public lands needed for subsistence purposes. No such withdrawal, reservation, lease, permit, or other use, occupancy or disposition of such lands, which would significantly restrict subsistence uses shall be affected until the head of such Federal agency—

- (1) gives notice to the appropriate State agency and the appropriate local committees and regional councils established pursuant to section 805;
- (2) gives notice of, and holds, a hearing in the vicinity of the area involved;
and
- (3) determines that (A) such a significant restriction of subsistence uses is necessary, consistent with sound management principles for the utilization of the public lands, (B) the proposed activity will involve the minor amount of public lands necessary to accomplish the purposes of such use, occupancy, or other disposition, and (C) reasonable steps will be taken to minimize adverse impacts upon subsistence uses and resources resulting from such actions.

In 1980, ANILCA created new units and additions to existing units of the national park system in Alaska. Four units that now comprise WEAR were created by ANILCA:

Bering Land Bridge National Preserve: Section 201[2] “To protect and interpret examples of arctic plant communities, volcanic lava flows, ash explosions, coastal formations and other geological processes; to protect habitat for internationally significant populations of migratory birds; to provide for archeological and paleontological study, in cooperation with Native Alaskans, of the process of plant and animal migration, including man, between North America

and the Asian Continent, to protect habitat for, and populations of, fish and wildlife including, but not limited to, marine mammals, brown/grizzly bears, moose and wolves;...to continue reindeer grazing use...in accordance with sound range management practices; to protect the viability of subsistence resources; and in a manner consistent with the foregoing, to provide for the outdoor recreation and environmental education activities including public access for recreational purposes to the Serpentine Hot Springs area.”

Cape Krusenstern National Monument: SECTION 201[3] “ To protect and interpret a series of archeological sites depicting every known cultural period in arctic Alaska; to provide for scientific study of the process of human population of the area from the Asian Continent, in cooperation with Native Alaskans, to preserve and interpret evidence of prehistoric and historic Native cultures, to protect habitat for seals and other marine mammals; to protect habitat for and populations of birds, and other wildlife, and fish resources; and to protect the viability of subsistence resources...”

Kobuk Valley National Park: SECTION 201[6]“ To maintain the environmental integrity of the natural features of the Kobuk River Valley, including the Kobuk, Salmon and other rivers, the boreal forest, and the Great Kobuk Sand Dunes, in an undeveloped state, to protect and interpret, in cooperation with Native Alaskans, archeological sites associated with Native cultures; to protect migration routes for the Arctic caribou herd; to protect habitat for, and populations of, fish and wildlife including but not limited to caribou, moose, black and grizzly bears, wolves, and waterfowl and to protect the viability of subsistence resources.”

Noatak National Preserve: SECTION 201[8a] “To maintain the environmental integrity of the Noatak River and adjacent uplands within the Preserve in such a manner as to assure the continuation of geological and biological processes unimpaired by adverse human activity; to protect habitat for, and populations of, fish and wildlife, including but not limited to caribou, grizzly bears, Dall sheep, moose, wolves, and for waterfowl, raptors, and other species of birds; to protect archeological resources; and in a manner consistent with the foregoing, to provide opportunities for scientific research.”

The potential for significant restriction to subsistence resources must be evaluated for the proposed action’s effect upon subsistence uses and needs, the availability of other lands for the purposes sought to be achieved and other alternatives which would reduce or eliminate them.

III. PROPOSED ACTION ON FEDERAL LANDS

The National Park Service requires every administrative unit with burnable vegetation to develop a fire management plan—a unit-specific document outlining fire management goals and describing the policies and actions by which these goals will be realized (Director’s Order 18). Since 1983, the WEAR fire management program has operated under the jurisdiction of various statewide interagency documents, including the Alaska Interagency Wildland Fire Management Plan, or AIWFMP (1998). Under the AIWFMP, fire protection needs at Western Arctic Parklands are determined by NPS and Bureau of Land Management (BLM) managers; lands within WEAR are categorized as **critical**, **full**, **modified**, or **limited** protection, depending on the proximity of values to be protected and on overall resource management objectives.

The proposed action consists of the establishment of a Fire Management Plan for Western Arctic National Parklands. The preferred alternative and the other considered alternatives (see Appendix C1, Environmental Assessment, this document) specify continued adherence to the AIWFMP as well as compliance with recently developed National Park Service directives. Specifically, NPS Director's Order 18 mandates a distinction between **prescribed fire** (planned and implemented by management) and **wildland fire** (unplanned ignitions), with wildland fire incidents further categorized, in turn, as either Wildland Fire Use or wildland fire **suppression**. Each of the considered alternatives mandates a specific configuration of DO-18 management options and relates these options to the policies and procedures outlined in the AIWFMP.

The preferred alternative allows for the continued management of wildland fire at Western Arctic National Parklands through a combination of wildland fire suppression, Wildland Fire Use, and prescribed fire use. This statement of Summary Evaluations and Findings addresses the impact of these fire management policies and actions on subsistence activities within the management area.

IV. AFFECTED ENVIRONMENT

A summary of the affected environment pertinent to subsistence uses is presented here.

WEAR is a management unit which includes Noatak National Preserve, Cape Krusenstern National Monument and Kobuk Valley National Park near Kotzebue, AK and Bering Land Bridge National Preserve located on the Seward Peninsula near Nome, AK. WEAR lies within the boundaries of wildlife management units 22, 23, and 26 where subsistence uses are allowed in accordance with Title VIII of ANILCA. Subsistence activities occur throughout the year and are usually concentrated along the coastlines and in major river corridors in WEAR. Subsistence pursuits occur often without regard to political boundaries.

In Cape Krusenstern National Monument and Kobuk Valley National Park to be eligible for subsistence uses you must be a local rural resident living in the NPS designated resident zone (community/area within the park or monument); or have a special subsistence use permit (36 CFR 13.44) issued by the Superintendent. The communities of Kivalina, Kotzebue and Noatak are included in the resident zone at Cape Krusenstern National Monument. The communities of Ambler, Kiana, Kobuk, Kotzebue, Noorvik, Selawik and Shungnak are included in the park's resident zone at Kobuk Valley National Park. Individuals residing outside of the NPS designated resident zone who have a personal or family history of using the park/monument for subsistence purposes at the time ANILCA was passed, may obtain a special subsistence use permit (36 CFR 13.44) from the Superintendent.

Bering Land Bridge National Preserve and Noatak National Preserve are also open to non-subsistence (sport) hunting, fishing and trapping. ANILCA protects subsistence uses by local rural residents as a priority consumptive use over other non-subsistence consumptive.

Cape Krusenstern National Monument is located on the western shore of northwest Alaska just north of Kotzebue and contains approximately 659,807 acres. It is characterized by a low-lying, coastal plain dotted with sizable lagoons and backed by gently rolling, limestone hills. The Monument's bluffs and series of 114 beach ridges contain a chronological record of an estimated 6,000 years of prehistoric and historic uses by the region's residents. Shifting sea ice, ocean currents, and waves shape the dynamic coastline and annual openings and closing of lagoon outlets. The broad plain between the cape and the hills is tundra covered and contains such features as pingos, eskers, frost polygons, thermokarst lakes, and

ice lenses. Five complete, though small, arctic river systems are important resources that influence the dynamics of the Monument's ecosystem. The entire monument is open to subsistence uses in accordance with Title VIII of ANILCA. Caribou are hunted in the Mulgrave Hills and in the Kakagrak Hills south of Kilikmak Creek and north of Krusenstern Lagoon. Dolly Varden fishing occurs in lower Rabbit Creek.

Kobuk Valley National Park is located in northwest Alaska and contains approximately 1,726,500 acres. It encompasses a nearly enclosed mountain basin on the middle section of the Kobuk River. Trees approach their northern limit in the park, where forest and tundra meet, creating a mosaic of forest and open tundra. Thousands of caribou funnel through mountain passes and cross the Kobuk River on their spring and fall migrations. Salmon and arctic char migrate to spawning grounds within the park. These and other seasonally abundant plant and animal resources have made the middle section of the Kobuk River favorable for human occupation and use. Native people have hunted, fished, and lived along the Kobuk River for at least 12,500 years, and subsistence use of the resources in the Kobuk Valley continues into the present. The entire park is open to subsistence uses in accordance with Title VIII of ANILCA.

Noatak National Preserve covers 6,574,481 acres in northwestern Alaska. The Noatak River originates in Gates of the Arctic National Park and Preserve to the east, and flows westward through the Noatak River basin that makes up the central portion of the preserve. Major subsistence resources found in the preserve include caribou, moose, Dall sheep, grizzly bear, wolf, fox, lynx, marten, beaver and muskrat. Small mammals such as the hoary marmot, arctic ground squirrels, lemmings and porcupine also exist within the preserve. A variety of bird life inhabits the preserve, particularly during the summer migratory season, when thousands of birds congregate in the arctic for breeding. The Canada goose, white-fronted goose, tundra swan, and all four species of loon are common in the preserve.

The Noatak River is considered key in the subsistence and commercial fisheries harvest for Northwest Alaska. The most common fish, Arctic grayling and Arctic char, are found in the Noatak River and its tributaries. Salmon occur throughout the Noatak drainage system, with Chum being the most abundant, and sockeye, pinks and king found in the lower reaches of the river. Sheefish inhabit the Kobuk and Selawik Rivers in the preserve and are considered a preferred subsistence item. Trout are found in the deeper lakes within the preserve, as are burbot and freshwater cod.

Vegetation within the preserve is predominately low mat tundra. The lower Noatak drainage contains a boreal forest cover. At higher elevations, an alpine tundra community can be found, with willow, heather and combinations of grasses, sedges, wildflowers and mosses. Drier areas support lichens and saxifrages. Moist tundra community occurs along the foothills of the Noatak Valley. This is the predominant vegetation of the preserve and consists of cottongrass, willow, dwarf birch, labrador tea, Lapland rosebay, mountain alder and avens. Bog rosemary and cranberry are found in wetter areas as are salmonberry and a variety of mosses. A spruce forest community, consisting of white spruce, paper birch, aspen, poplar and black spruce, occur sporadically throughout the preserve and are generally located along the south-facing foothills and valley bottoms.

The Bering Land Bridge National Preserve contains 2.7 million acres on the Seward Peninsula. Subsistence uses are an essential part of the lifestyle of most residents of the Seward Peninsula. Subsistence hunting, fishing, and gathering activities are important not only for food, but as a foundation for native traditions, values and cultural identity. Local residents harvest marine mammals, whitefish, sheefish, Dolly Varden; a variety of edible berries, roots and other vegetation; migratory waterfowl, furbearers; and large mammals such as caribou and moose in the preserve. There is extensive subsistence use in the preserve by residents of Shishmarref, with selected areas being used by residents of Kotzebue, Deering, Wales and Nome.

More comprehensive descriptions of the affected environment within can be found in the following NPS documents.

- *General Management Plan, Land Protection Plan, Wilderness Suitability Recommendation, Cape Krusenstern National Monument, 1986.*
- *General Management Plan, Land Protection Plan, Wilderness Suitability Recommendation, Kobuk Valley National Park, 1986.*
- *General Management Plan, Land Protection Plan, Wilderness Suitability Recommendation, Bering Land Bridge National Preserve, 1986.*

The majority of WEAR lies within the Limited Protection Fire Management Unit. Under the proposed action, wildland fire ignitions occurring within this unit would be managed for the accomplishment of resource management goals, including the preservation of the natural fire regime, and the perpetuation, in turn, of healthy and biologically diverse plant communities and fish and game habitat.

V. SUBSISTENCE USES AND NEEDS EVALUATION

To determine the potential impact on existing subsistence activities, three evaluation criteria were analyzed relative to existing subsistence resources that could be impacted.

The evaluation criteria are:

- The potential to reduce important subsistence fish and wildlife populations by (a) reductions in numbers, (b) redistribution of subsistence resources, or (c) habitat losses;
- The effect the action might have on subsistence fisherman or hunter access; and
- The potential for the action to increase fisherman or hunter competition for subsistence resources.

1) Potential to Reduce Populations:

The National Park Service has generally found populations of plants and animals important to subsistence activities to be healthy. However, site-specific information on populations, distribution, and harvest is lacking for many of these species, therefore, recognition of declining populations has been difficult.

The actions that would be implemented under the preferred alternative would be aimed directly at the safe and cost-effective preservation of the area's natural fire ecology. As such, WEAR enactment of the preferred alternative would have a beneficial effect on the long-term viability of plant and animal populations pertinent to subsistence use within WEAR. The occasional displacement of plant and animal populations from specific locales by wildland fire is a natural and inevitable occurrence within the fire-dependent ecosystems of WEAR. Although current populations may experience some adverse effects, usually those effects are greatly offset by the benefits accrued to future generations of populations.

Under the proposed action, land managers could mitigate potential losses to subsistence users through the consideration of hunting and trapping activities in the planning and implementation of Wildland Fire Use and prescribed fire incidents. There are a few users who have permits for the use of public structures within the management area. These structures are protected under Critical Suppression as noted in the accompanying Fire Management Plan (FMP, Section XVI Protection of Sensitive Resources). In the event of loss of or damage to this structure, the Superintendent of the Preserve may permit reconstruction of this structure. However, subsistence use is an important factor in the determination of prescribed fire within WEAR.

2) Restriction of Access:

NPS lands are managed according to legislative mandates, NPS management policies, and guidelines. The proposed action is not anticipated to significantly restrict access of subsistence users to natural resources on NPS lands. Under the proposed action, such restrictions would be minimized by the continual reduction of hazardous fuels on the landscape by allowing fire to fulfill its natural role. This in turn would reduce possibility of widespread, catastrophic fire due to heavy fuel build up, in the future.

3) Increase in Competition:

NPS regulations and provisions of ANILCA provide the tools for adequate protection for fish and wildlife populations on Federal Public lands while ensuring subsistence priority for local rural residents. The enactment of the preferred alternative would not significantly increase competition for the use of subsistence resources. Displacement of plant and animal populations from specific sites would be short-term, and, in fact, in most cases the long-term viability of the populations in question depends directly on the natural processes that the proposed plan is intended to safely perpetuate.

VI. AVAILABILITY OF OTHER LANDS

As stated earlier, wildland fire is an inevitable component of the plant and animal communities of Western Arctic Parklands. Consequently, the availability of other lands is not a pertinent consideration in this particular case.

With respect to the question of subsistence use, the scope and intensity of wildland fire incidents managed for resource benefit (i.e., fire use incidents) will generally be of small significance when considered within the context of overall available acreage. Prescribed fires will be planned and managed so as to avoid any significant hardship to subsistence users.

VII. ALTERNATIVES CONSIDERED

This section discusses the considered alternatives with respect to their respective reduction or elimination of the need to use public lands necessary for subsistence purposes.

Alternative 1 (a combination of prescribed fire use and wildland fire suppression) would perhaps result in the least short-term disruption of subsistence activities, with suppression responses preventing the spread of multiple wildland fire ignitions. The long-term impacts of this alternative, however, would be negative, with the exclusion of wildland fire leading to the gradual decline of biodiversity and viable habitat throughout all areas within WEAR utilized by subsistence hunters and trappers.

Preferred alternative (a combination of Wildland Fire Use, wildland fire suppression, and prescribed fire use) would yield the same favorable long-term effects on lands used for subsistence activities as alternative two, while allowing more effective protection and restoration of significant fire-sensitive sites and/or landscapes.

Alternative 2 (a combination of Wildland Fire Use and wildland fire suppression) would not significantly differ from the preferred alternative with respect to the reduction or elimination of the need to use public lands for the accomplishment of fire management goals.

VIII. FINDINGS

This analysis concludes that the proposed action will not result in a significant restriction of subsistence uses.



**National Park Service
U.S. Department of the Interior**

**Western Arctic National Parklands
WEAR**

Alaska



Finding of No Significant Impact

Fire Management Plan Environmental Assessment

September 2004

Recommended: Julie D. Hopkins
Superintendent, Cape Krusenstern
National Monument, Kobuk Valley
National Park, Noatak National
Preserve, Bering Land Bridge National
Preserve

9-29-04
Date

Approved: Marcia Blazak
Regional Director, Alaska

9/30/04
Date

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APPENDIX D - INTERAGENCY CONTACTS

Alaska Interagency Coordination Center (AICC):

Center Manager	Dave Curry	356-5677
Tactical Resources Coordinator	Jon Gregg	356-5690

Galena Fire Management Zone: All Galena Station Employees 656-1222

Fire Management Officer	Marlene Eno-Hendren	356-5626(FBK)
Assistant FMO	Doug Gibbs	356-5623
Fuels Management Spec.	Ben Pratt	356-5617
Galena Zone Dispatch		656-1222

National Park Service:

Superintendent, CAKR, NOAT, KOVA	George Helfrich	442-8301 (Office)
Superintendent, BELA	Jeanette Promenke	441-2522 (Office)
Fire Management Officer, Alaska Region	Dan Warthin	644-3409 (Office) (907) 444-8788 (Mobile)
Fire Management Officer, Denali National Park	Larry Weddle	683-9548 (Office) (907) 460-1688 (Cell)
Acting Assistant Fire Management Officer, Denali National Park	Charlie Reynar	683-9549 (Office) (907) 978-9477 (Cell)
Fire Program Management Assistant, Denali National Park	Susanna Nancarrow	683-6215(Office) (509) 280-7179 (Cell)

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APPENDIX E - WILDLAND FIRE IMPLEMENTATION PLAN

Fire Name	
Fire Number	

<i>Documentation Product</i>	<i>Product Needed</i>	<i>Product Completed</i>
WFIP - Stage I: Initial Fire Assessment		
Fire Situation	<input type="checkbox"/>	<input type="checkbox"/>
Initial GO/NO-GO Decision	<input type="checkbox"/>	<input type="checkbox"/>
WFIP - Stage II: Short-Term Implementation Actions		
Short-Term Fire Behavior Predictions and Risk Assessment	<input type="checkbox"/>	<input type="checkbox"/>
Short-term Implementation Actions	<input type="checkbox"/>	<input type="checkbox"/>
Complexity Analysis	<input type="checkbox"/>	<input type="checkbox"/>
Stage III Need Assessment Chart	<input type="checkbox"/>	<input type="checkbox"/>
WFIP - Stage III: Long-Term Implementation Actions		
Periodic Fire Assessment		
Part 1, Re-validation	<input type="checkbox"/>	<input type="checkbox"/>
Part 2, Stage III Need Assessment	<input type="checkbox"/>	<input type="checkbox"/>
Wildland Fire Situation Analysis	<input type="checkbox"/>	<input type="checkbox"/>

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APPENDIX E.1 – STAGE I

FIRE SITUATION

Fire Name	
Fire Number	
Jurisdiction(s)	
Administrative Unit(s)	
FMP Unit(s)	
Geographic Area	
Management Code	
Start Date/Time	
Discovery Date/Time	
Current Date/Time	
Current Size	
Location: Legal Description(s)	T. R. Sec. Sub.
Latitude	
Longitude	
UTM:	
County:	
Local Description	
Cause	

**Fuel Model/
Conditions**

Weather:

Current

Predicted

Fire Behavior:

Current

Predicted

**Availability of
Resources**

DECISION CRITERIA CHECKLIST

Decision Element:

Is there a threat to life, property, or resources that cannot be mitigated?

Are potential effects on cultural and natural resources outside the range of acceptable effects?

Are relative risk indicators and/or risk assessment results unacceptable to the appropriate Agency Administrator?

Is there other proximate fire activity that limits or precludes successful management of this fire?

Are there other Agency Administrator issues that preclude Wildland Fire Use?

<i>Yes</i>	<i>No</i>

The Decision Criteria Checklist is a process to assess whether or not the situation warrants continued Wildland Fire Use implementation. A “Yes” response to any element on the checklist indicates that the appropriate management response should be suppression-oriented.

Recommended Response Action (check appropriate box)	NO-GO (Initial attack/suppression action)	
	GO (Other appropriate management response)	

Signature _____ Date _____

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APPENDIX E.2 – STAGE II

Short-Term Implementation Action

Attach Stage I information.

Action Items

Objectives and Desired

Effects

Information specific to this fire

--

Safety Considerations

--

External Concerns

--

Environmental Concerns

--

Threats

--

Short-Term Actions
(describe)

--

Estimated Costs

--

Signature

--

Title/date

--

Wildland and Prescribed Fire Complexity Rating Worksheet Numeric Rating Guide

Complexity Element	GUIDE TO NUMERIC RATING		
	1	3	5
Safety	Safety issues are easily identifiable and mitigated	<ul style="list-style-type: none"> • Number of significant issues have been identified • All safety hazards have been identified on the LCES worksheet and mitigated 	<ul style="list-style-type: none"> • SOF1 or SOF2 required • Complex safety issues exist
Threats to Boundaries	<ul style="list-style-type: none"> • Low threat to boundaries • POI<50% • Boundaries naturally defensible 	<ul style="list-style-type: none"> • Moderate threat to boundaries • 50<POI<70% • Moderate risk of slopover or spot fires • Boundaries need mitigation actions for support to strengthen fuel breaks, lines, etc. 	<ul style="list-style-type: none"> • High threat to boundaries • POI>70% • High risk of slopover or spot fires • Mitigation actions necessary to compensate for continuous fuels
Fuels/Fire Behavior	<p>Low variability in slope & aspect Weather uniform and predictable Surface fuels (grass, needles) only Grass/shrub, or early seral forest communities Short duration fire No drought indicated</p>	<p>Moderate variability in slope & aspect Weather variable but predictable Ladder fuels and torching Fuel types/loads variable Dense, tall shrub or mid-seral forest communities Moderate duration fire Drought index indicates normal conditions to moderate drought; expected to worsen</p>	<p>High variability in slope & aspect Weather variable and difficult to predict Extreme fire behavior Fuel types/loads highly variable Late seral forest communities or long-return interval fire regimes Altered fire regime, hazardous fuel /stand density conditions Potentially long duration fire Drought index indicates severe drought; expected to continue</p>

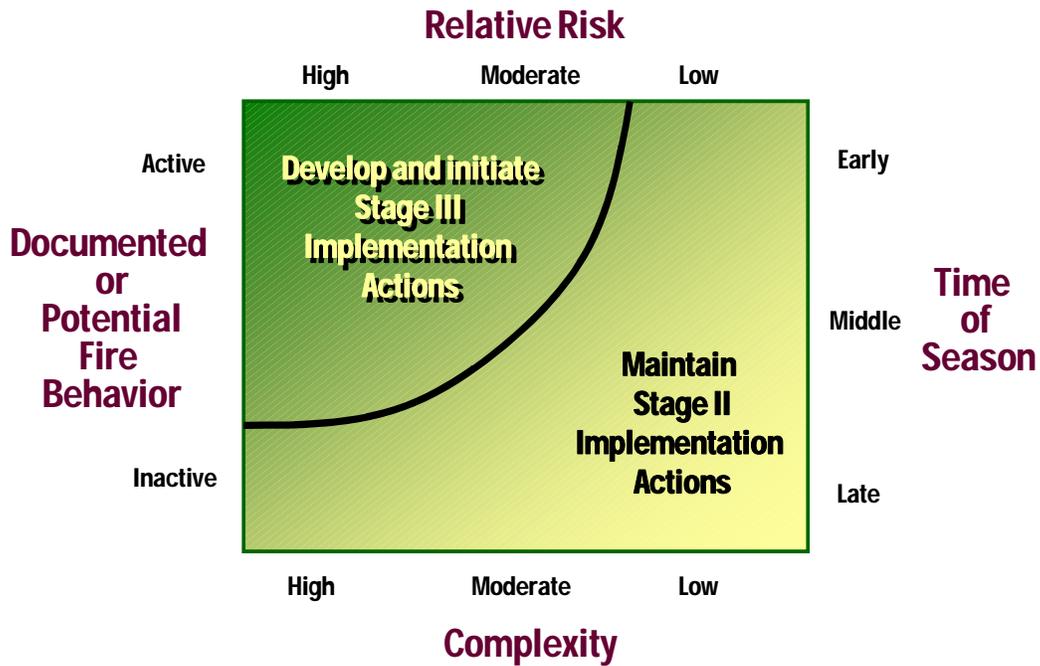
Complexity Element	GUIDE TO NUMERIC RATING		
	1	3	5
Objectives	Maintenance objectives Prescriptions broad Easily achieved objectives	Restoration objectives Reduction of both live and dead fuels Moderate to substantial changes in two or more strata of vegetation Objectives judged to be moderately hard to achieve Objectives may require moderately intense fire behavior	Restoration objectives in altered fuel situations Precise treatment of fuels and multiple ecological objectives Major change in the structure of 2 or more vegetative strata Conflicts between objectives and constraints Requires a high intensity fire or a combination of fire intensities that is difficult to achieve
Management Organization	Span of control held to 3 Single resource incident or project	Span of control held to 4 Multiple resource incident or project Short-term commitment of specialized resources	Span of control greater than 4 Multiple branch, divisions or groups Specialized resources needed to accomplish objectives Organized management team (FUMT, IMT)
Improvements to be Protected	No risk to people or property within or adjacent to fire	Several values to be protected Mitigation through planning and/or preparations is adequate May require some commitment of specialized resources	Numerous values and/or high values to be protected Severe damage likely without significant commitment of specialized resources with appropriate skill levels
Natural, Cultural, and Social Values to be Protected	No risk to natural, cultural, and/or social resources within or adjacent to fire	Several values to be protected Mitigation through planning and/or preparations is adequate May require some commitment of specialized resources	Numerous values and/or high values to be protected Severe damage likely without significant commitment of specialized resources with appropriate skill levels

Complexity Element	GUIDE TO NUMERIC RATING		
	1	3	5
Air Quality Values to be Protected	Few smoke sensitive areas near fire Smoke produced for less than 1 burning period Air quality agencies generally require only initial notification and/or permitting No potential for scheduling conflicts with cooperators	Multiple smoke sensitive areas, but smoke impact mitigated in plan Smoke produced for 2-4 burning periods Daily burning bans are sometimes enacted during the burn season Infrequent consultation with air quality agencies is needed Low potential for scheduling conflicts with cooperators	Multiple smoke sensitive areas with complex mitigation actions required Health or visibility complaints likely Smoke produced for greater than 4 burning periods Multi-day burning bans are often enacted during the burn season Smoke sensitive class 1 airsheds Violation of state and federal health standards possible Frequent consultation with air quality agencies is needed High potential for scheduling conflicts with cooperators
Logistics	Easy access Duration of fire support is less than 4 days	Difficult access Duration of fire support between 4 and 10 days Logistical position assigned Anticipated difficulty in obtaining resources	No vehicle access Duration of support is greater than 10 days Multiple logistical positions assigned Remote camps and support necessary
Political Concerns	No impact on neighbors or visitors No controversy No media interest	Some impact on neighbors or visitors Some controversy, but mitigated Press release issued, but no media activity during operations	High impact on neighbors or visitors High internal or external interest and concern Media present during operations

Complexity Element	GUIDE TO NUMERIC RATING		
	1	3	5
Tactical Operations	No ignition or simple ignition patterns Single ignition method used Holding requirements minimal	Multiple firing methods and/or sequences Use of specialized ignition methods (i.e. terra-torch, Premo Mark III) Resources required for up to one week Holding actions to check, direct, or delay fire spread	Complex firing patterns highly dependent upon local conditions Simultaneous use of multiple firing methods and/or sequences Simultaneous ground and aerial ignition Use of heli-torch Resources required for over 1 week Multiple mitigation actions at variable temporal and spatial points identified. Success of actions critical to accomplishment of objectives Aerial support for mitigation actions desirable/necessary
Interagency Coordination	Cooperators not involved in operations No concerns	Simple joint-jurisdiction fires Some competition for resources Some concerns	Complex multi-jurisdictional fires High competition for resources High concerns

Stage III Need Assessment Chart

Stage III Need Assessment Chart



To obtain the need indication, connect the top and bottom variables with a single line and then connect the left and right variables with a single line. Where the line crosses indicates the need for WFIP Stage III. The appropriate need is read directly off the chart.

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APPENDIX E.3 – STAGE III

Long-Term Implementation Actions

Attach Stage I and Stage II information. Update and/or revise Stage I and II as necessary.

Objectives and Risk Assessment Considerations

Natural and Cultural
Resource Objectives and
Constraints/ Considerations

--

Maximum Manageable Area (MMA)

Acres in MMA:

--

Attach Map of MMA

Fire Projections, Weather, and Map

Projected Fire Area Under Expected Weather Conditions

For date:

Area:

--

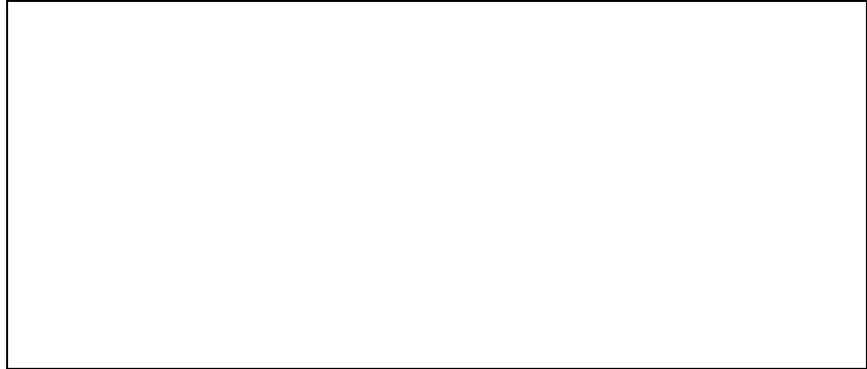
Projected Fire Area Under Experienced Severe Weather
Conditions

For date:

Area:

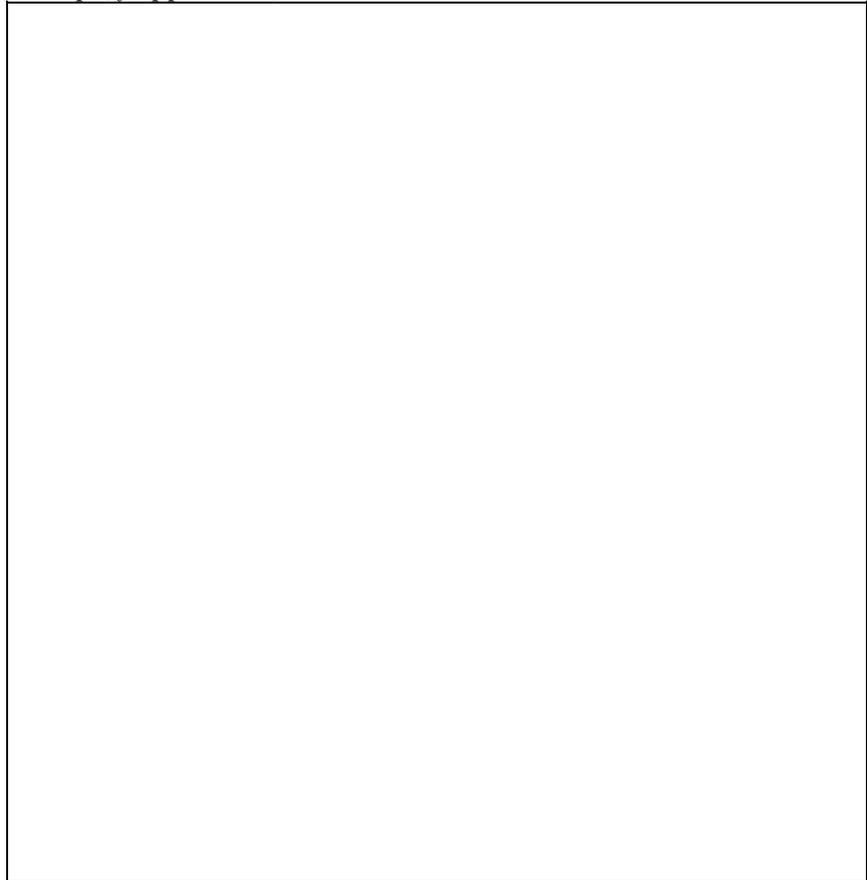
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Weather Season/Drought:
Discussion and Prognosis

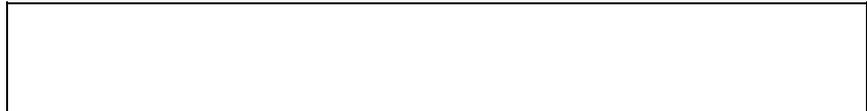


Long-Term Risk Assessment and Map (if applicable)

Risk Assessment (Describe
techniques utilized and
outputs, include maps as
appropriate)



Probability of Success
Describe Probability of
Success



Threats

Threats to MMA

--

Threats to Public Use and
Firefighter Safety

--

Smoke Dispersion and
Effects

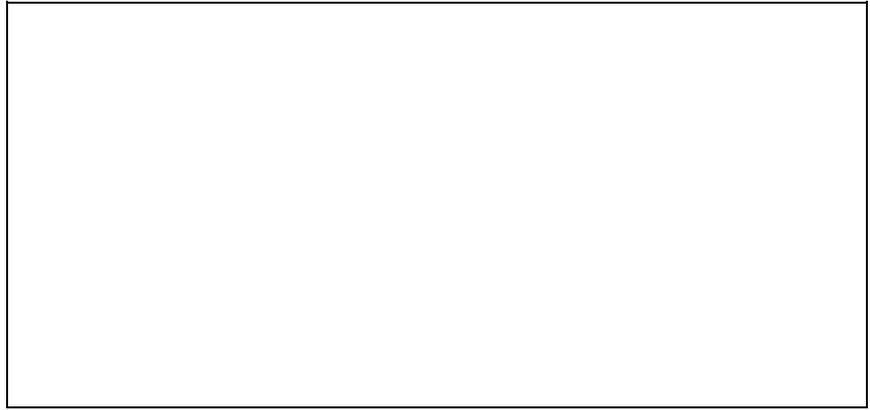
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Other

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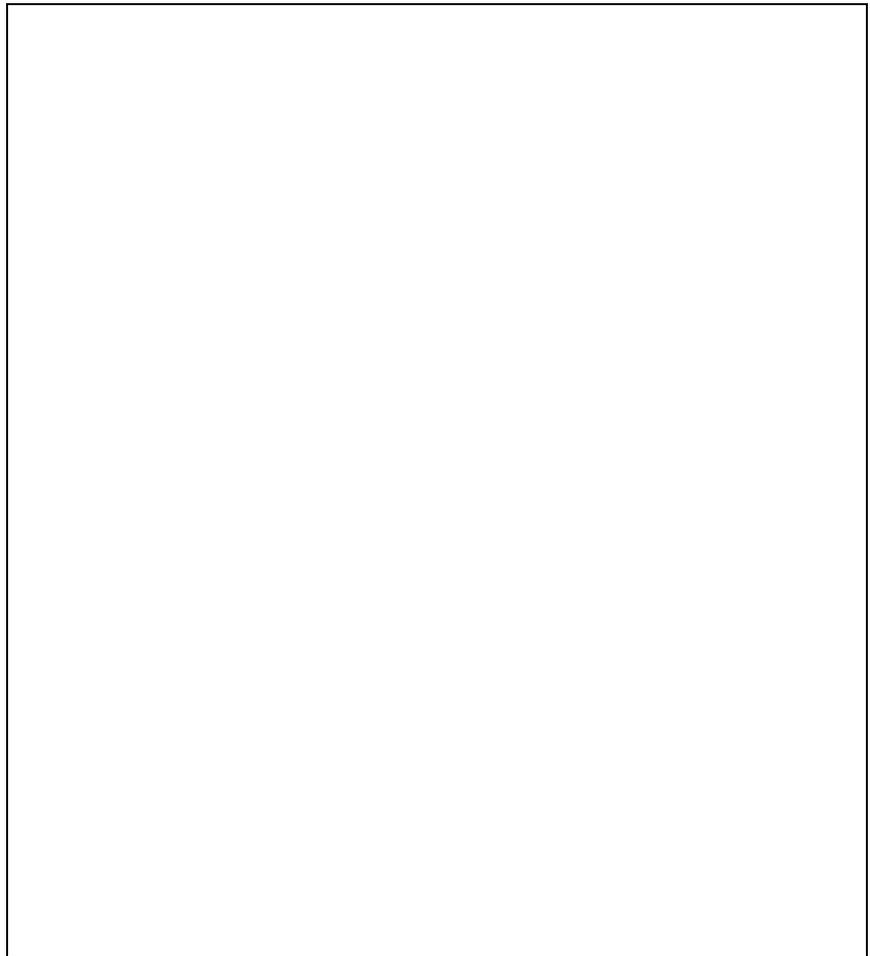
Monitoring Actions

Describe Monitoring
Actions, Frequency, Duration

A large, empty rectangular box with a black border, intended for describing monitoring actions, frequency, and duration.

Holding Actions

Describe Holding Actions,
Management Action Points
that initiate these actions, and
Key to Map if necessary

A large, empty rectangular box with a black border, intended for describing holding actions, management action points, and key to map.

Resources Needed to Manage the Fire

Describe resources necessary to accomplish ignition, holding, and monitoring actions

--

Estimated Costs of Managing the Fire

Describes costs in terms of resources needed, projected duration, etc.

--

Contingency Actions

Describe Contingency actions, management action points that initiate them, resources needed, etc.

--

Information Plan

Describe Information Plan, Contacts, Responsibilities, etc.

--

Post-burn Evaluation

Describe post-burn evaluation procedures, resource requirements, costs, duration, etc.

--

Signatures

Include signatures/titles/ dates for preparing, approving, and any concurring individuals

PERIODIC FIRE ASSESSMENT, INSTRUCTIONS

The Periodic Fire Assessment is a process to prevent the unchecked escalation of an individual fire situation or the total fire management situation without evaluation and adequate planning. Part 1 evaluates the capability to continue implementation of the appropriate management response to this fire for achieving resource benefits for a specified period following the assessment i.e., the next 24 hour period or longer, depending upon fire weather and fire behavior forecasts or other anticipated conditions. This assessment will be completed and periodically reviewed for validity. The "assessment frequency" box on page 1 specifies the frequency of assessing the particular fire. Assessment frequencies will be set by the local unit but are recommended to range from every day to every ten (10) days depending on the fuel type and geographic location of the fire. Recommendations for minimum assessment frequency include the following: Grass fuel types = daily; shrub and timber fuel types = every 1 – 5 days; Alaska = every 1 – 10 days.

The "valid date(s)" box is inclusive of those dates where the assessment remains valid, as indicated by the dated signature. When any decision elements change from "No" to "Yes", a new checklist must be completed for documentation purposes. A "Yes" response to any element on the Part 1 checklist indicates that the selected appropriate management response is not accomplishing or will not accomplish desired objectives and that a new strategic alternative should be developed immediately through the use of a Wildland Fire Situation Analysis (WFSA).

The Periodic Fire Assessment, Part 2 is a process that must be completed periodically for all wildland fires managed for resource benefits that do not have a completed WFIP Stage III. For isolated ignitions in fuel-limited situations, Part 2 does not have to be completed. When completing Part 2 of this checklist, if the chart indicates that WFIP Stage III is needed, it must be prepared within 24 hours.

When units establish monitoring and assessment frequency, it may be appropriate to develop a "step-up" system based on fire size or levels of fire activity. Then, as an individual fire gets larger or becomes more active, the monitoring and assessment frequency can correspondingly increase. Conversely, as fire activity lessens and fire size increases become less common, monitoring and assessment can "step-down" and become less frequent. Units must identify standards and rationale for establishing assessment frequency, especially "step-up" and "step-down" actions. If fire size is used as a determinant, then past burning rates should be used to formulate standards. If fire activity is used, then levels of burning (acres per day, etc.) must be definable and justifiable.

The Agency Administrator or delegated individual must sign the Signature Page on the specified assessment frequency.

**PERIODIC FIRE ASSESSMENT
PART 1: RE-VALIDATION CHECKLIST**

Decision Element

Is there a threat to life, property, or resources that cannot be mitigated?

Are potential effects on cultural and natural resources outside the range of acceptable effects?

Are relative risk indicators and/or risk assessment results unacceptable to the appropriate Agency Administrator?

Is there other proximate fire activity that limits or precludes successful management of this fire?

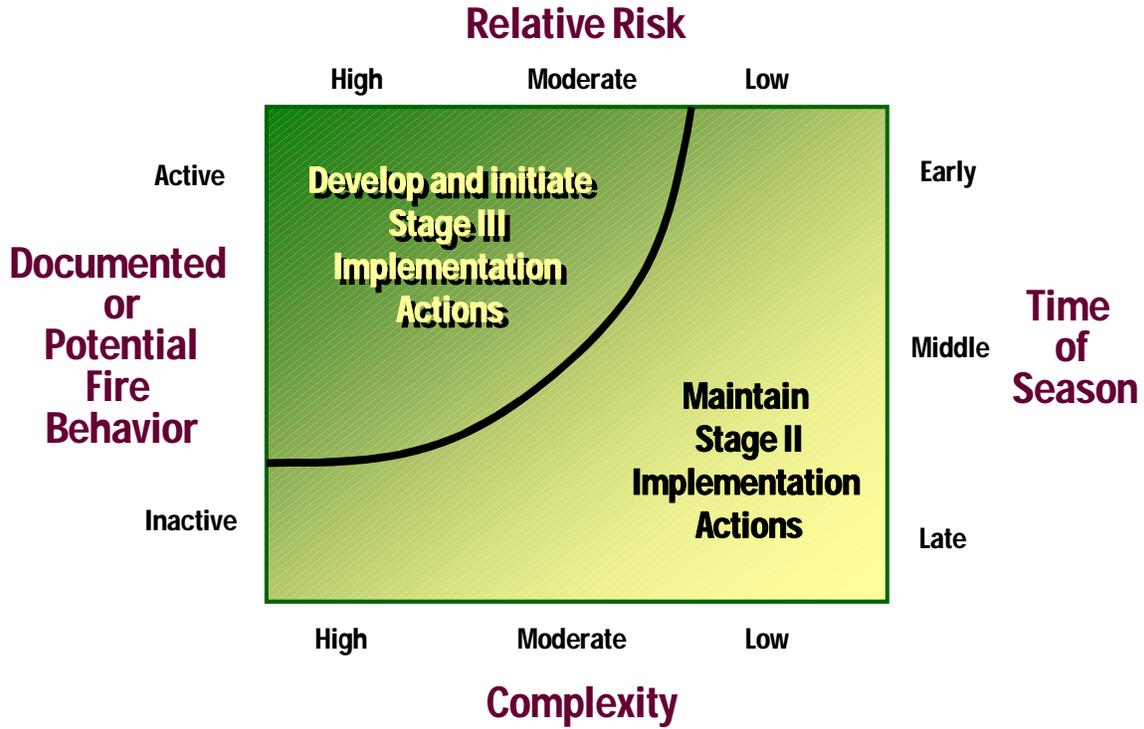
Are there other Agency Administrator issues that preclude Wildland Fire Use?

Do expected management needs for this fire exceed known capabilities?

<i>Yes</i>	<i>No</i>

PERIODIC FIRE ASSESSMENT
PART 2: STAGE III NEED ASSESSMENT CHART

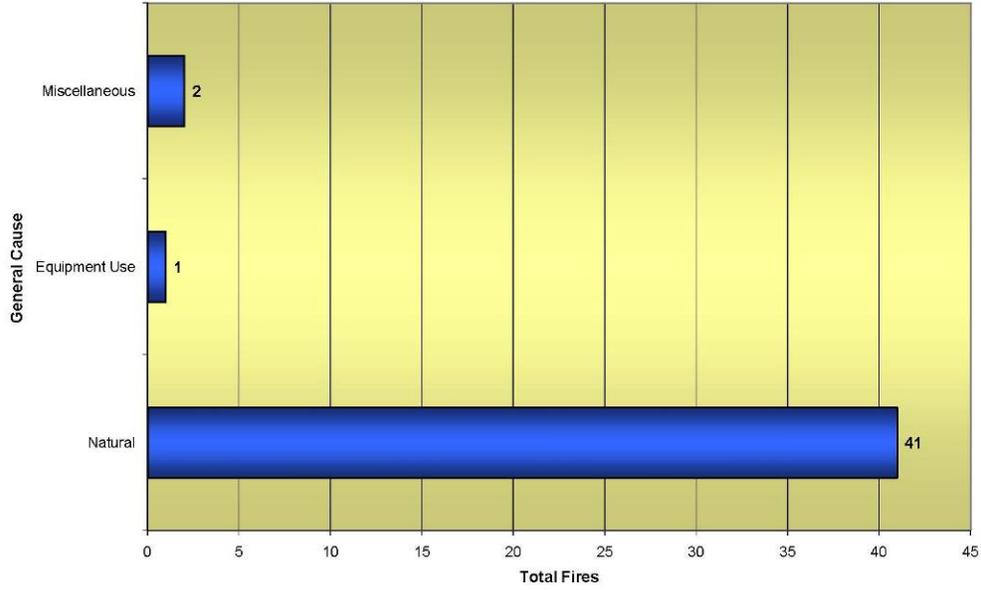
Stage III Need Assessment Chart



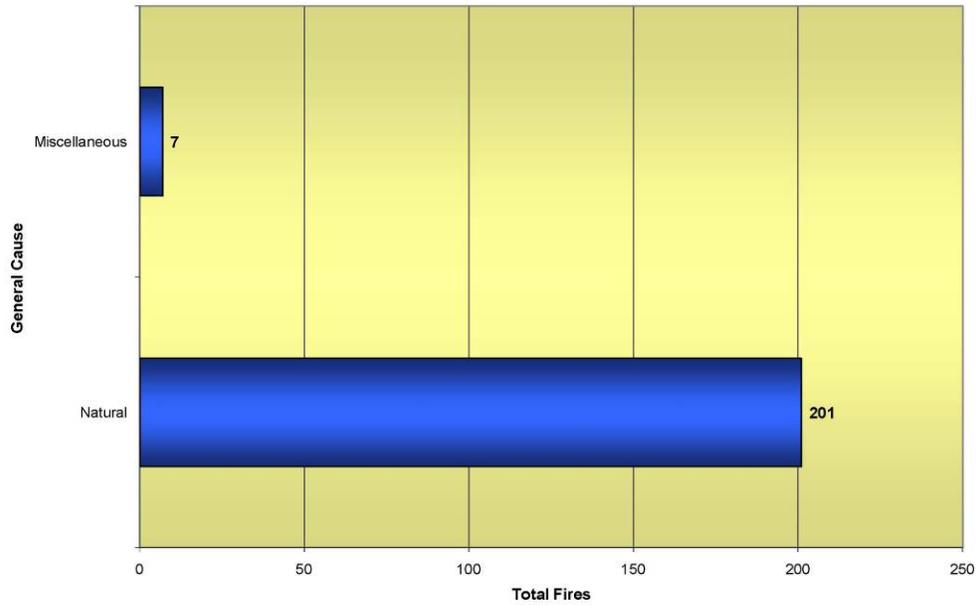
APPENDIX F – FIRE STATISTICS & GRAPHS

Fire Statistics and Graph 1: General Cause of Fires

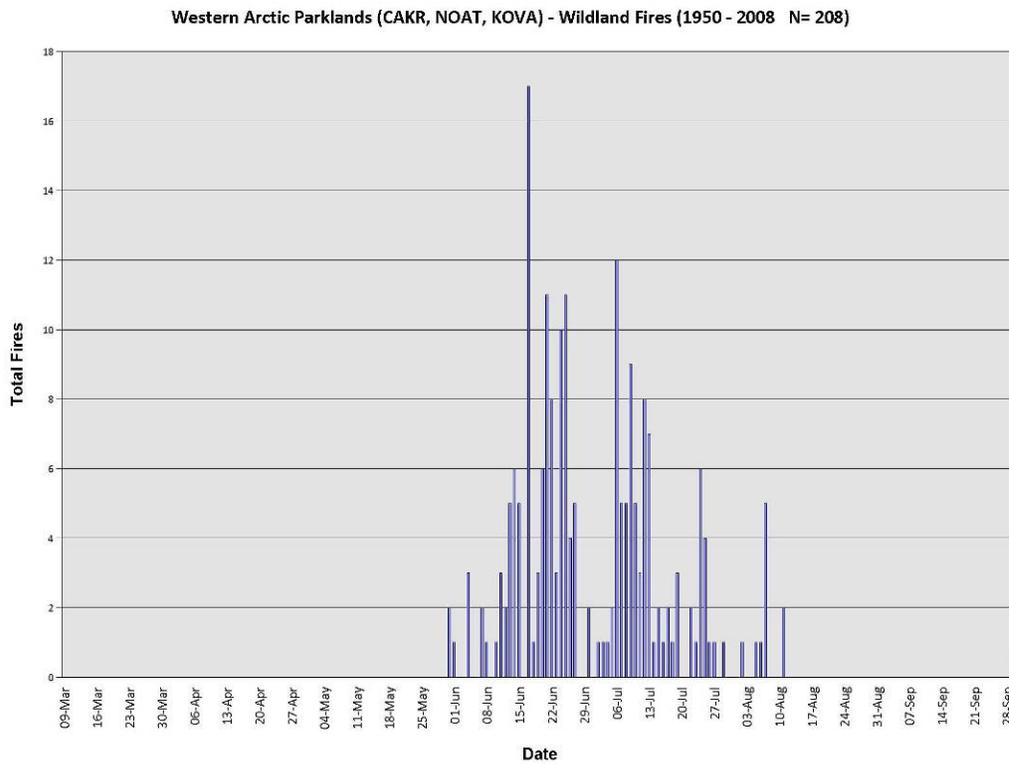
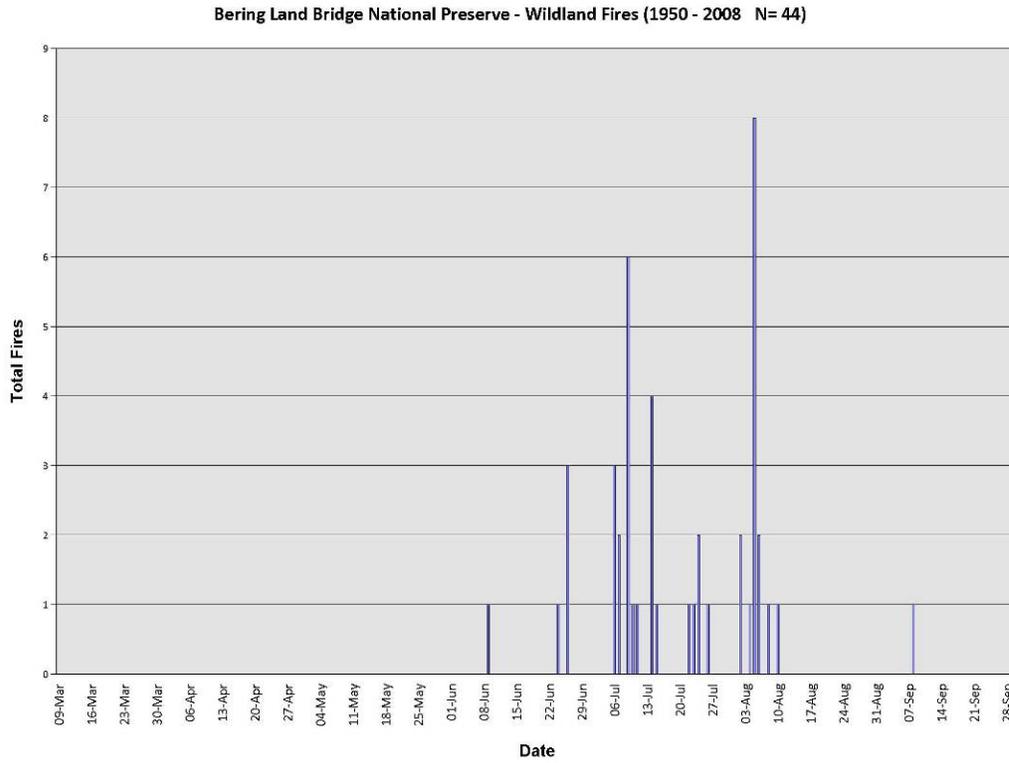
Bering Land Bridge - Wildland Fires
1950-2008 N = 44



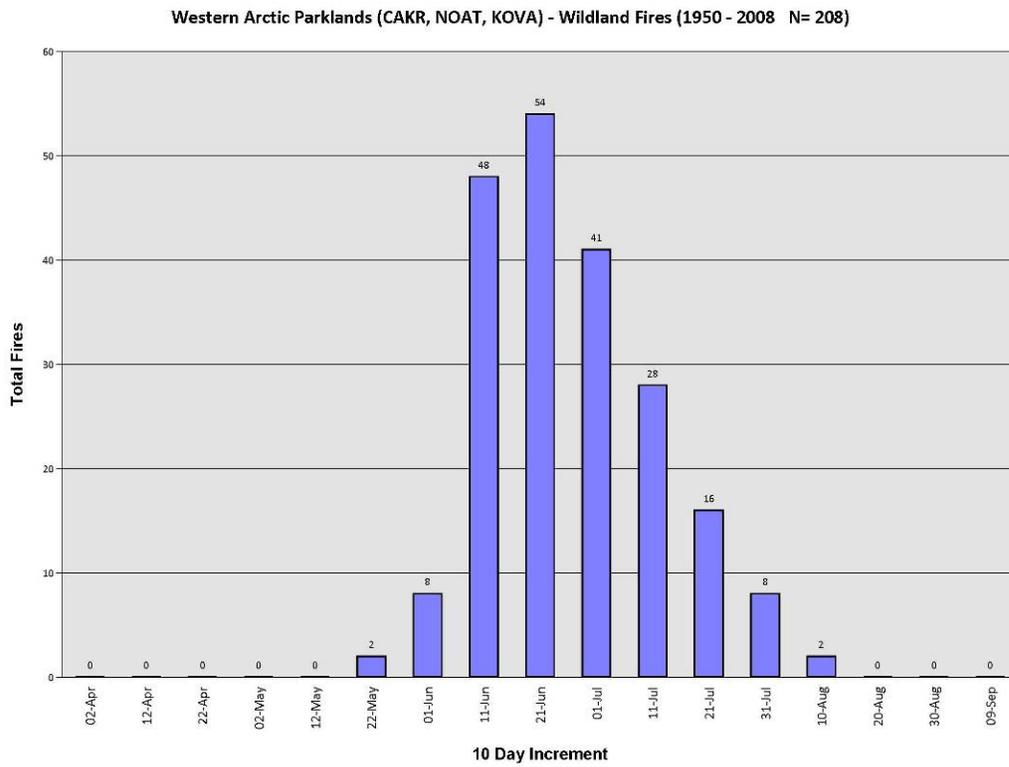
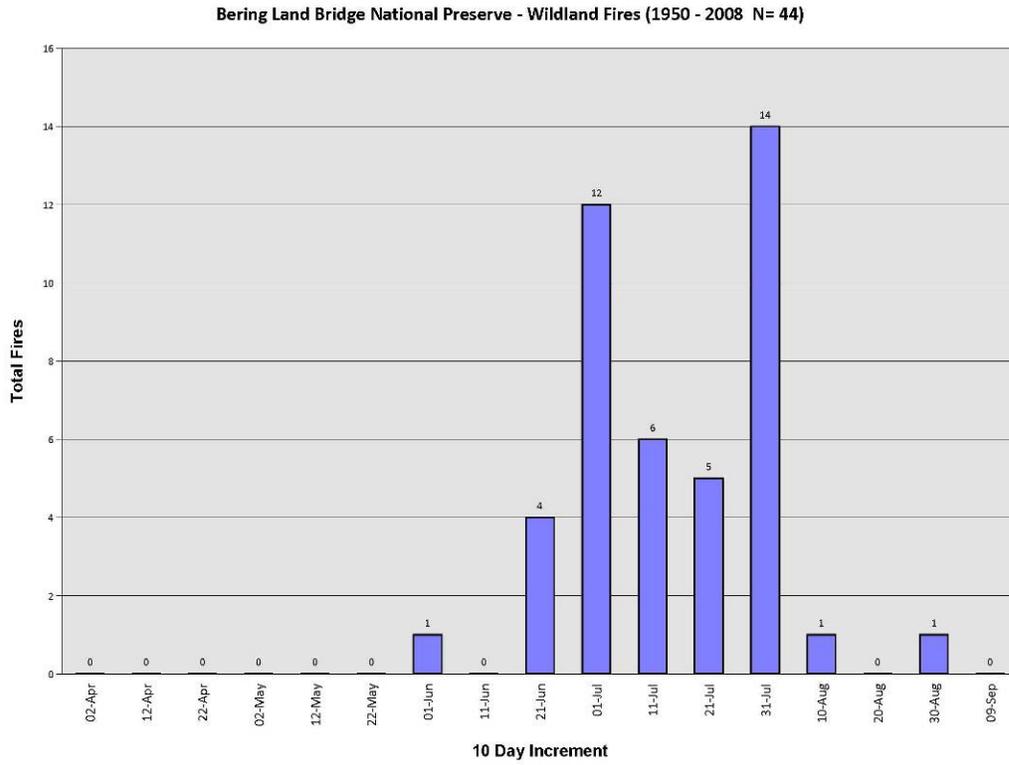
Northwest Areas - Wildland Fires
1950-2008 N = 208



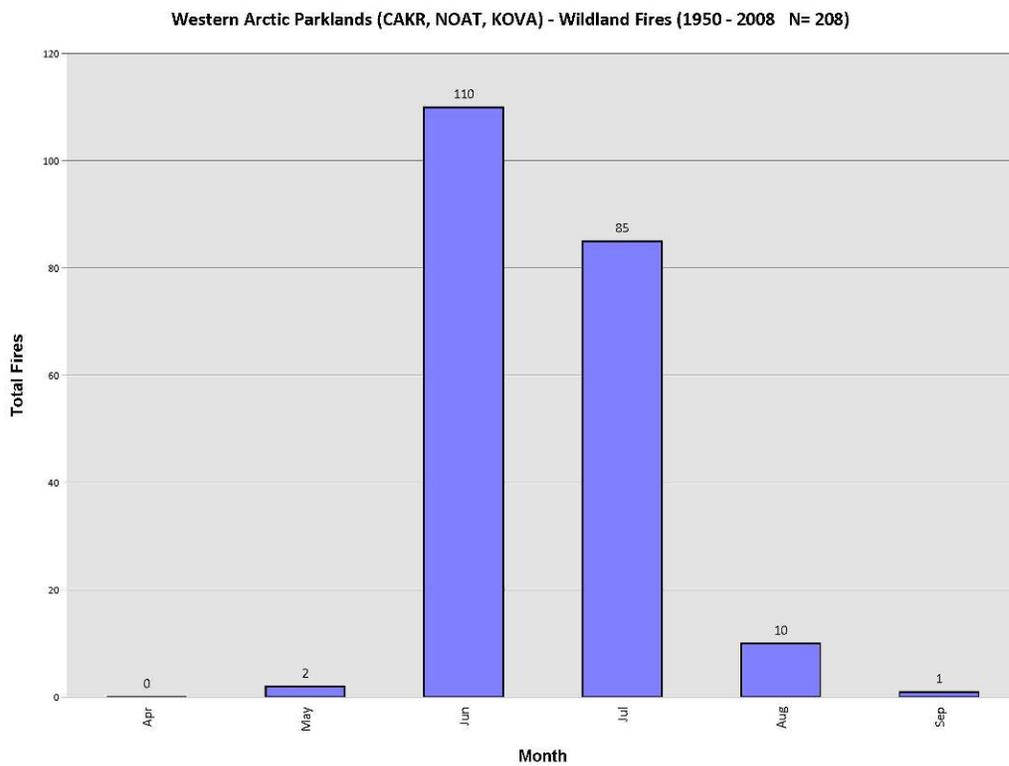
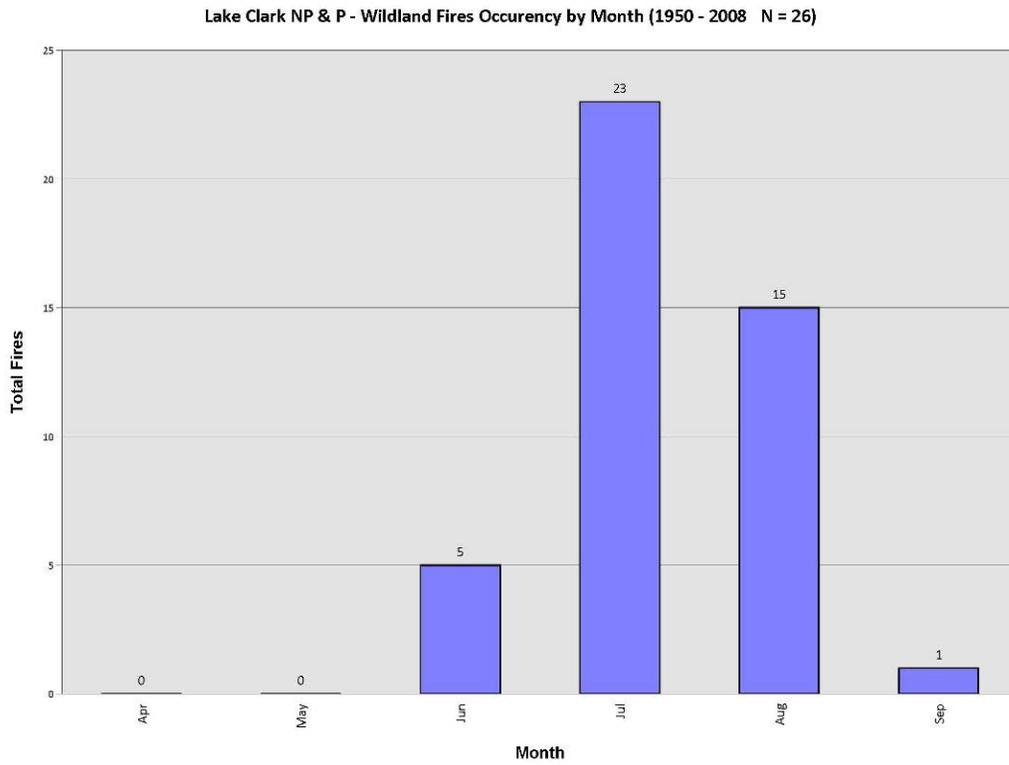
Fire Statistics and Graph 2: Wildland Fire Occurrence by Start Date



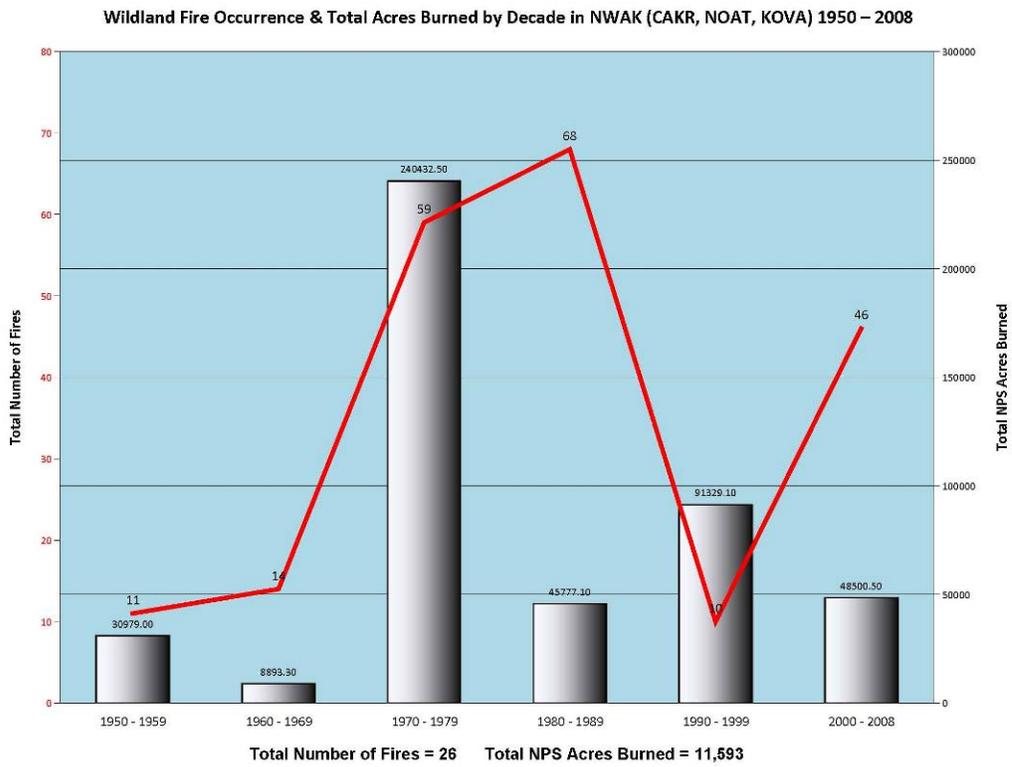
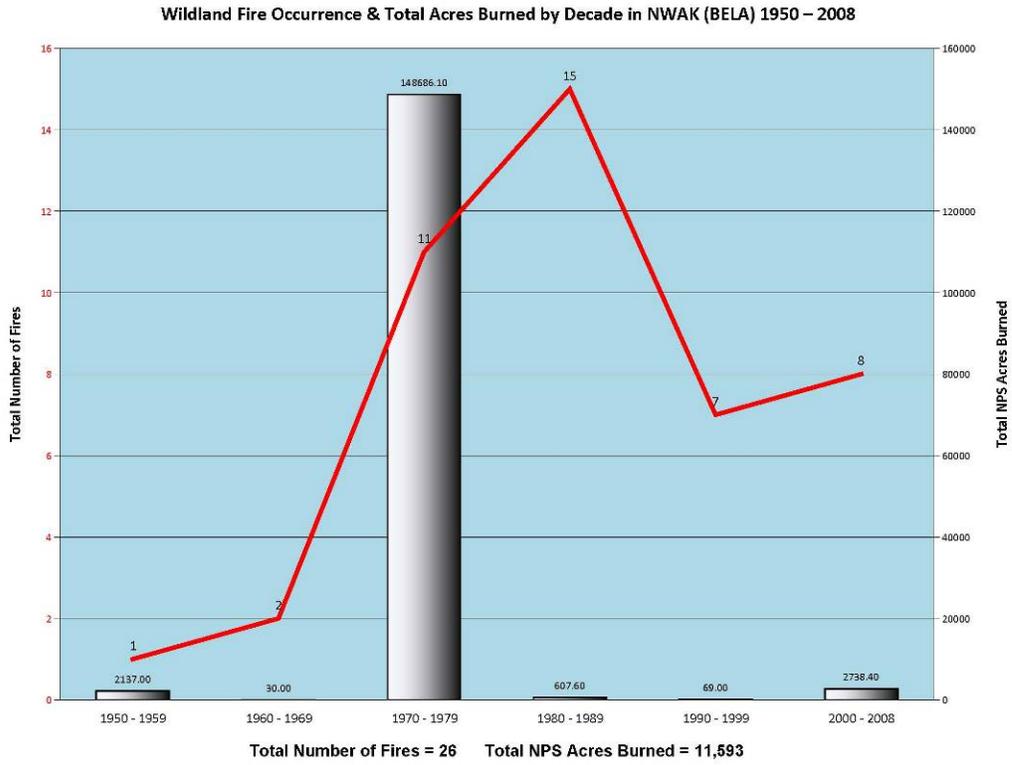
Fire Statistics and Graph 3: Wildland Fire Occurrence (10 Day Increment)



Fire Statistics and Graph 4: Wildland Fire Occurrence by Month

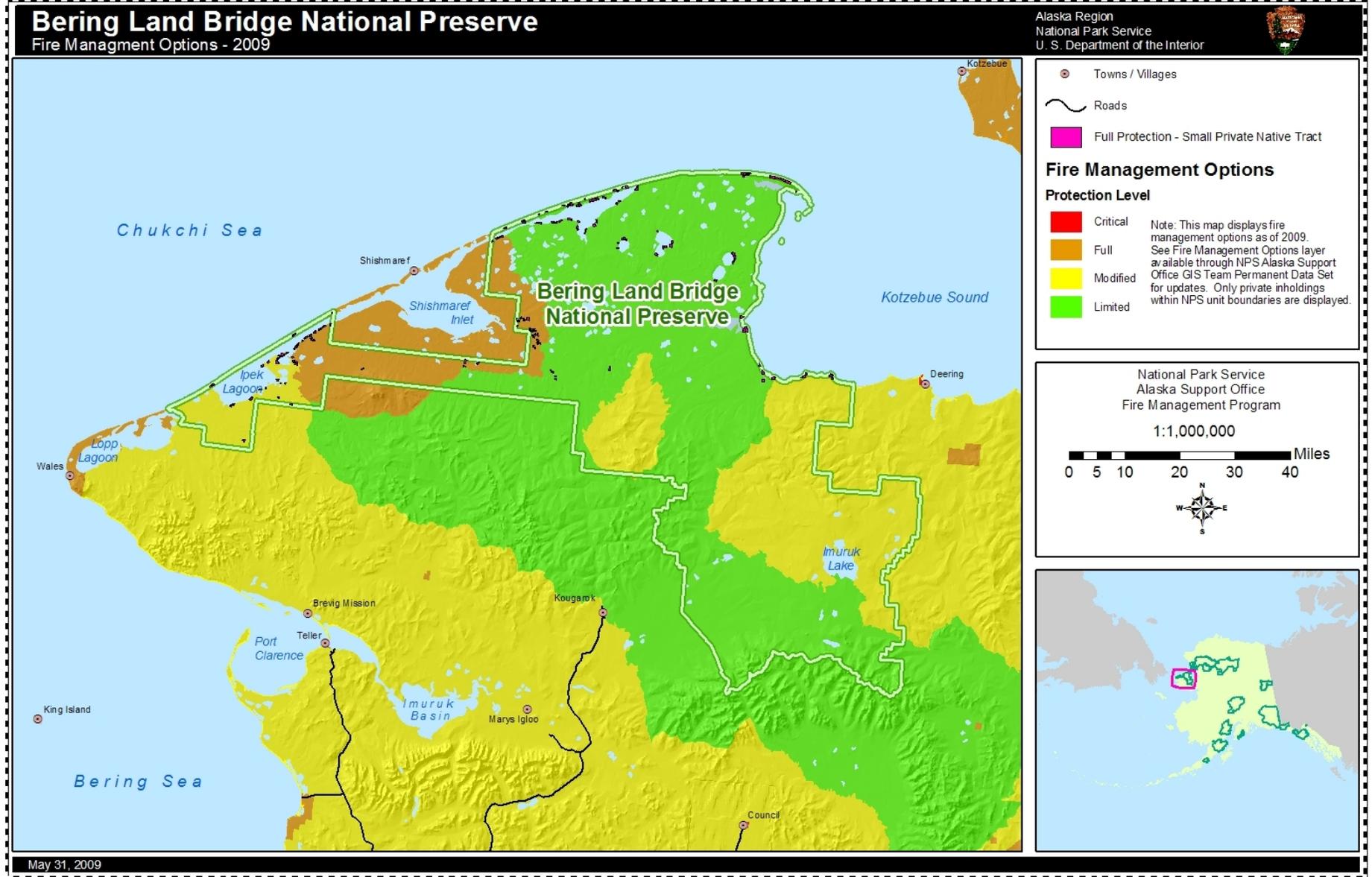


Fire Statistics and Graph 5: Wildland Fire Occurrence & Total Acres Burned by Decade

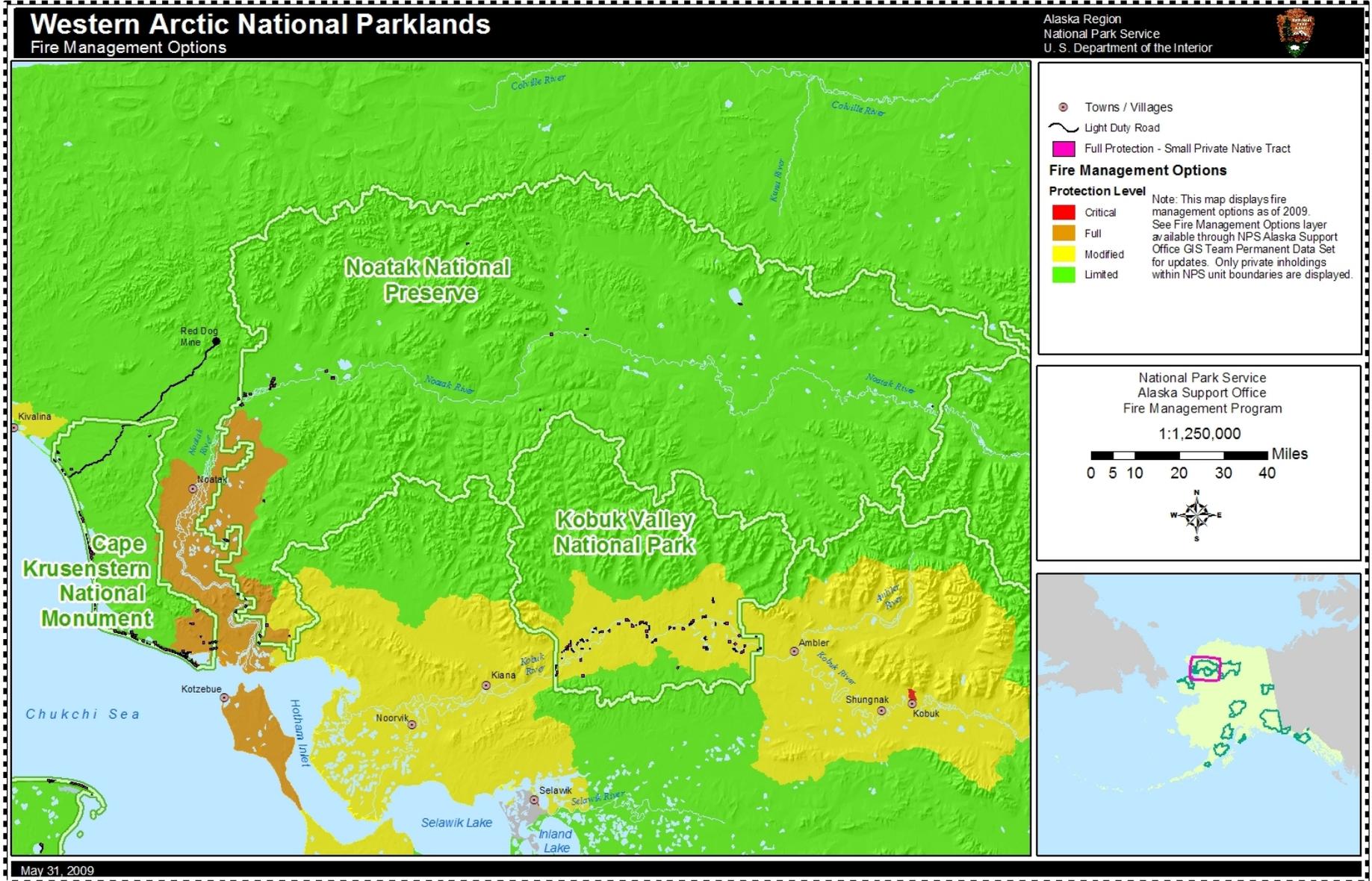


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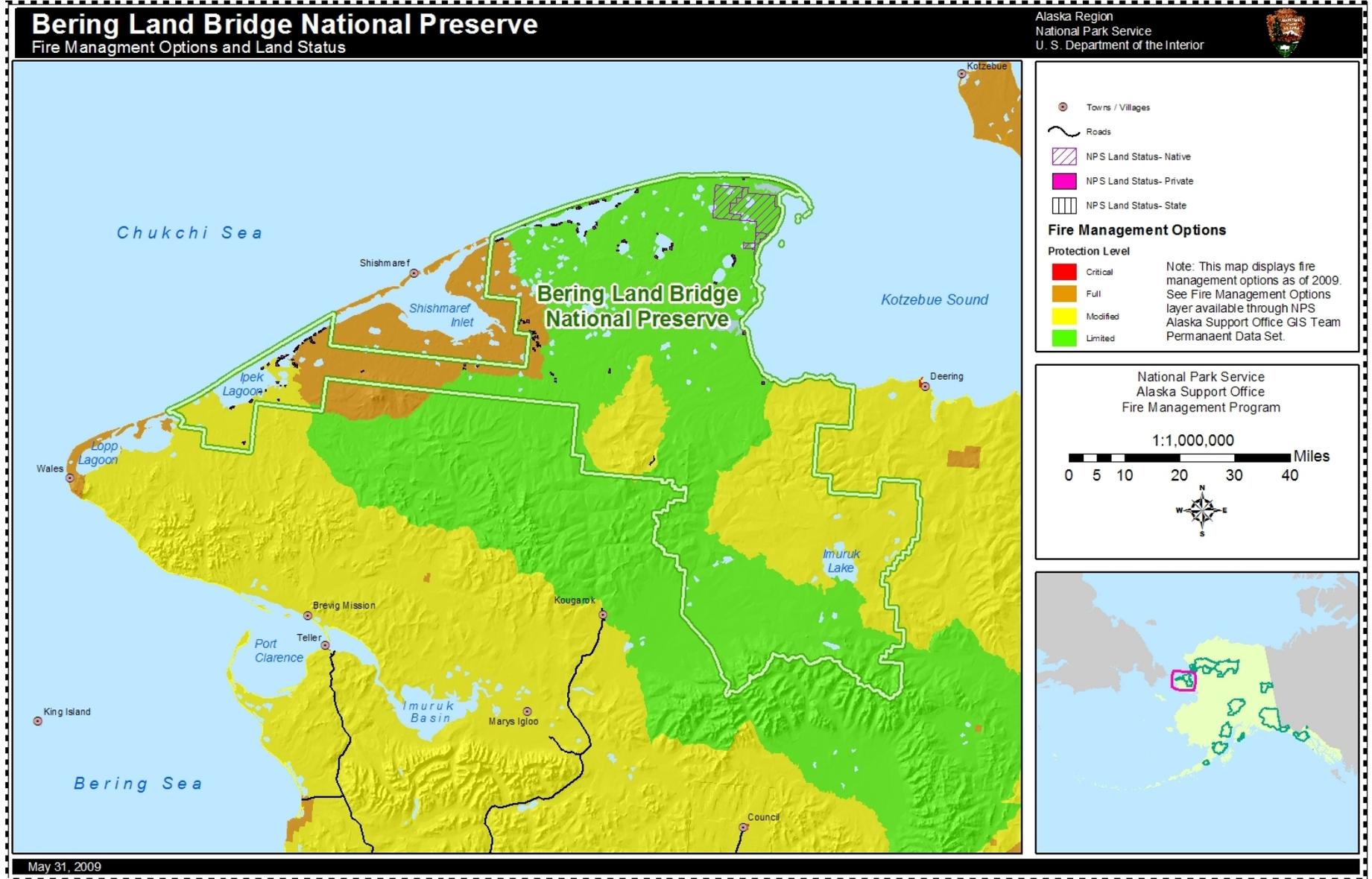
MAP 2a: Fire Management Units (BELA)



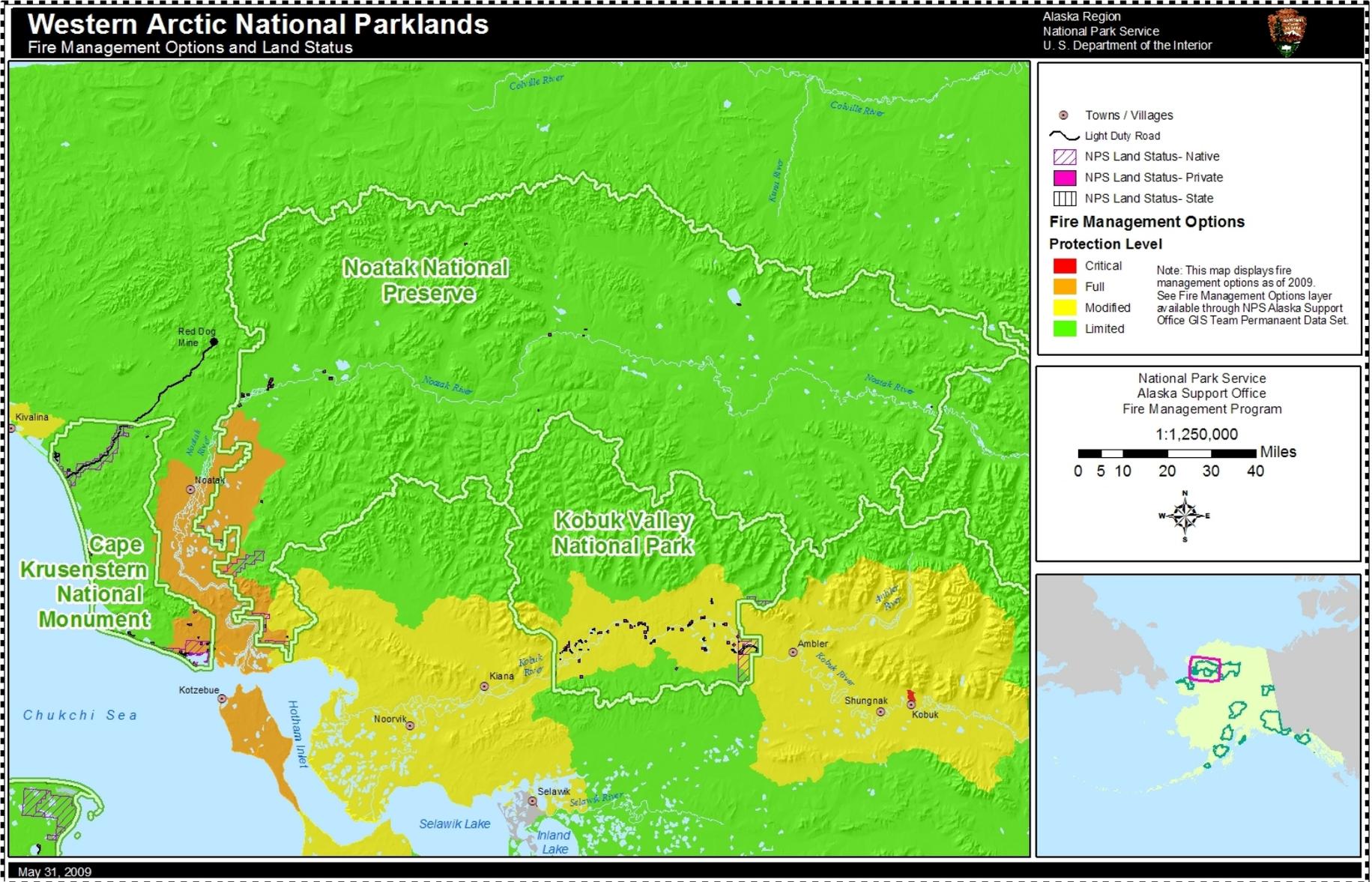
MAP 2b: Fire Management Units (Western Arctic National Parklands, KOVA, NOAT, CAKR)



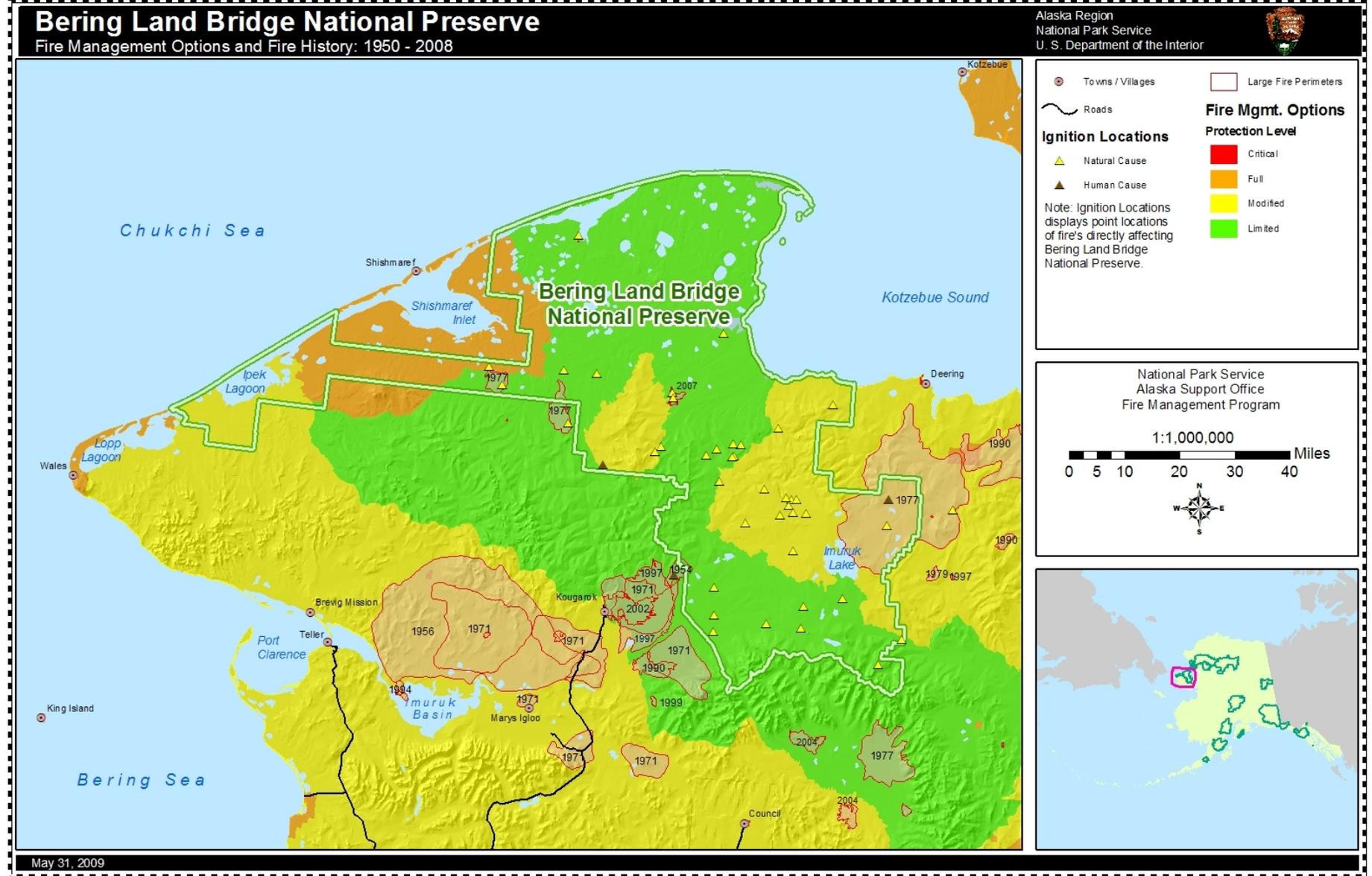
MAP 3a: Fire Management Options and Land Status (BELA)



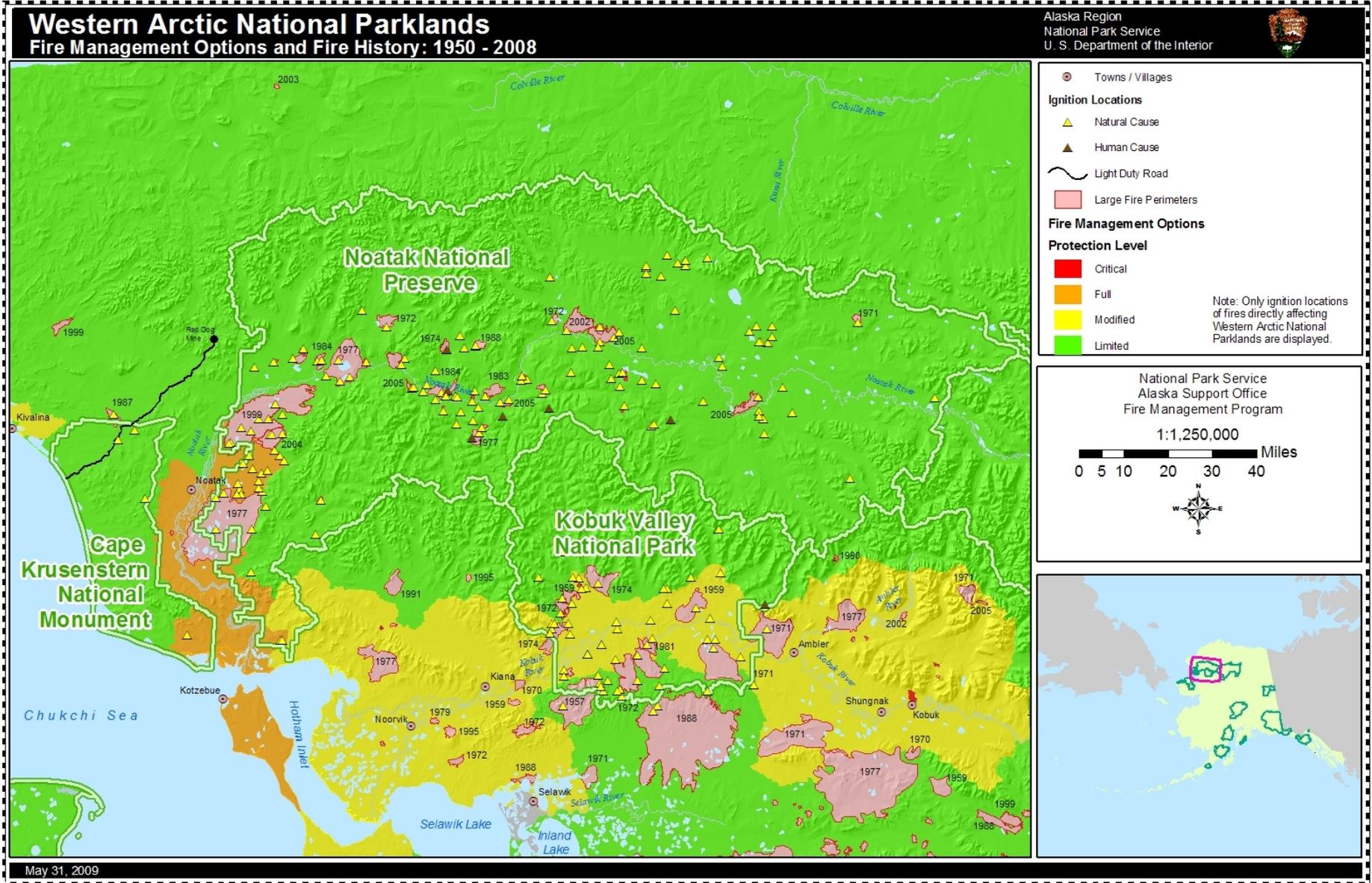
MAP 3b: Fire Management Options and Land Status (Western Arctic National Parklands, KOVA, NOAT, CAKR)



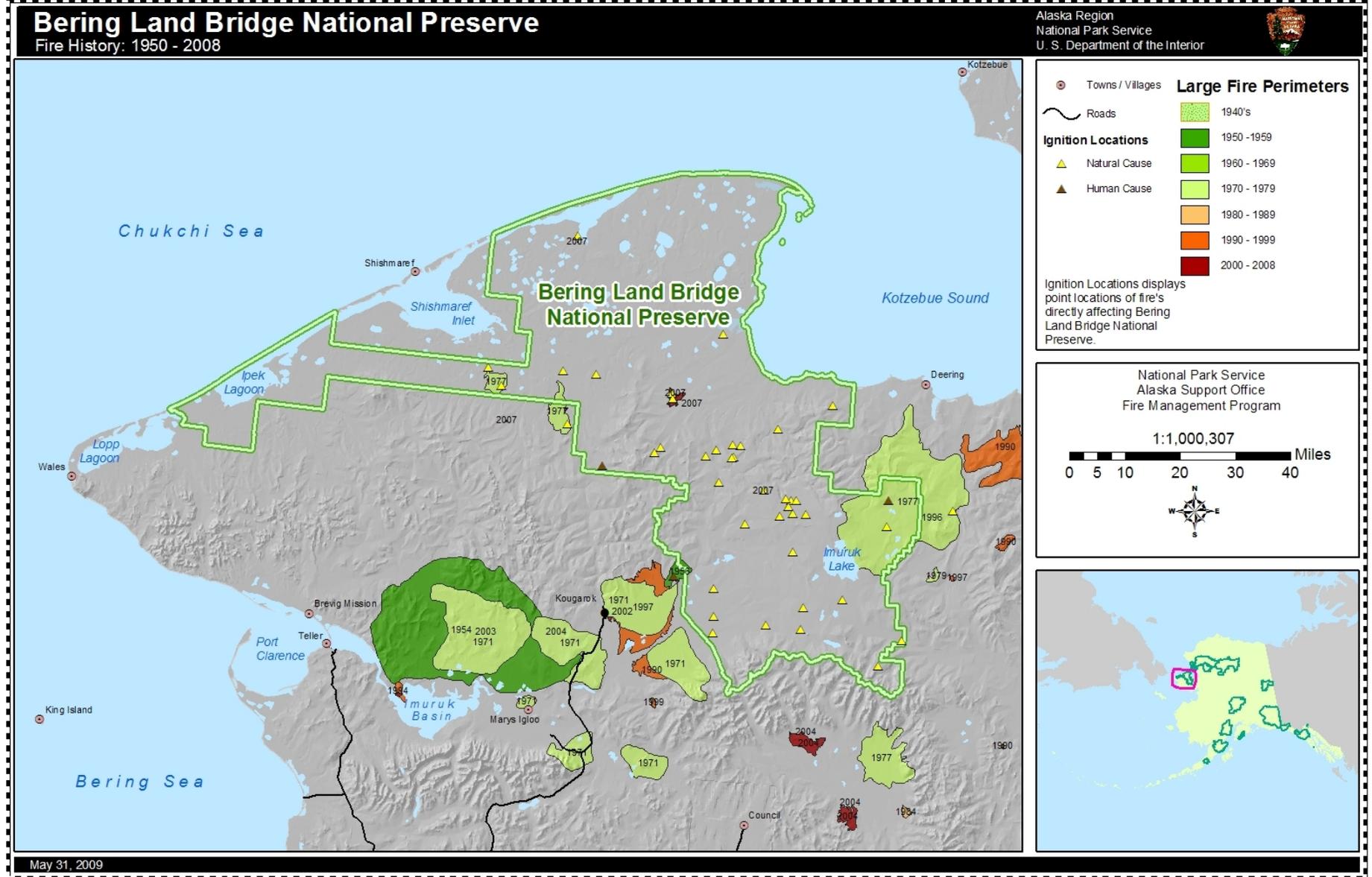
MAP 4a: Fire Management Options and Fire History (BELA)



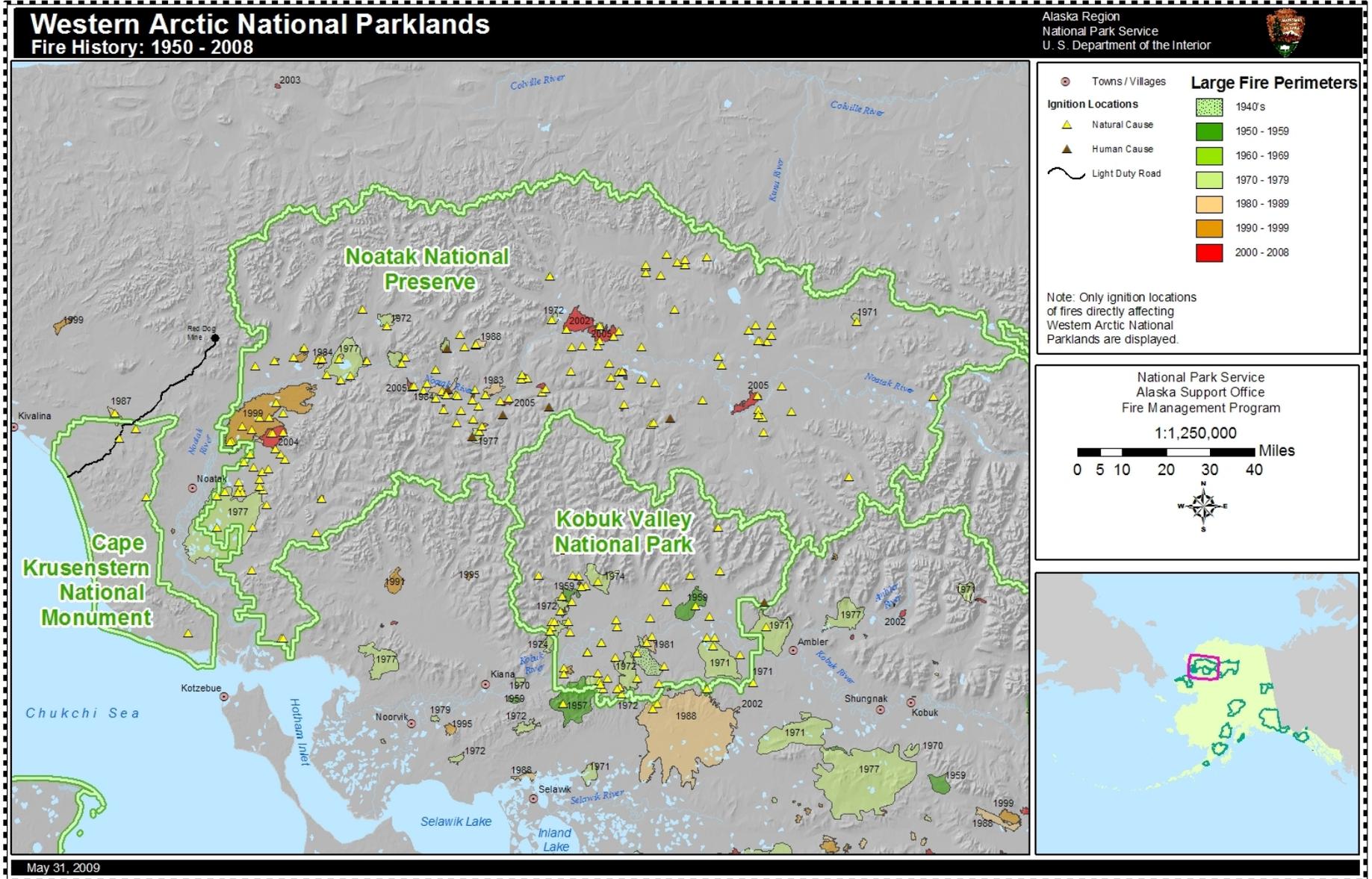
MAP 4b: Fire Management Options and Fire History (Western Arctic National Parklands, KOVA, NOAT, CAKR)



MAP 5a: Fire History by Decade (BELA)



MAP 5b: Fire History by Decade (Western Arctic National Parklands, KOVA, NOAT, CAKR)



Appendix H. – Fuel Treatment Plan

Fuel Treatment Plan Western Arctic Parklands

Introduction

The purpose of the Western Arctic Parkland's Fuel Plan is to provide firefighter/public safety and to increase the probability of protecting the built environment of the park. By implementing the fuel treatment prescription to reduce or remove vegetation, a defensible space will be created and maintained around the park structures. This space allows radiant heat from a wildfire to dissipate, and reduces crown fire potential, thus keeping the building from igniting. It also prevents structural fires from igniting other structures, and provides a safe area for suppression crews to work. Creation of this space reduces the risk of property damage in the event of a wildland fire, improves security for visitors and residents, and reduces the risks for firefighters. This plan also describes implementation and maintenance schedules for specific sites.

This plan documents how to implement the fuel reduction program in the Western Arctic Parklands. An Environmental Assessment was prepared according to the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9). The Environmental Assessment received a Finding of No Significant Impact (FONSI) September, 2004.

The Western Arctic Parkland's Fuel Plan complies with NPS policies and guidelines and provides guidance for treating vegetative fuels. The Alaska NPS Structure Protection Procedures were approved in 2005 by the Alaska Regional Director and provide direction to the park superintendents concerning structure protection.

The wildland urban interface is the line, area or zone where structures and other human development meet or intermingle with undeveloped wildland or vegetative fuels. The vegetation near structures is referred to as fuel. In some areas in the Western Arctic Parklands this vegetation is particularly thick and may touch or overhang structures. The vegetation significantly complicates the ability of fire fighters to control a wildland fire and protect the structures. Many of the structures in the Western Arctic Parklands have been built within the forest or close to the forest edge, or the forest has since expanded to the proximity of the structures. Due to the remoteness and difficulty of access, it takes a significant amount of time, effort, and resources to protect cabins and structures during a fire.

General Concept

In support of the FireWise Community Action Program, the National Park Service will remove hazardous vegetative fuel that surrounds structures in the backcountry areas within the Western Arctic Parklands.

Scope

The proposed areas will be developed through consultation with park staff, typically occurring at isolated historic and cultural sites located throughout the Western Arctic Parklands. To continue the benefits of hazardous vegetative fuel reduction, a maintenance program involving periodic repeated removal of vegetation in these same areas is addressed in this plan. Similar treatments will be applied if additional structures are determined to warrant protection.

Treatment Zones

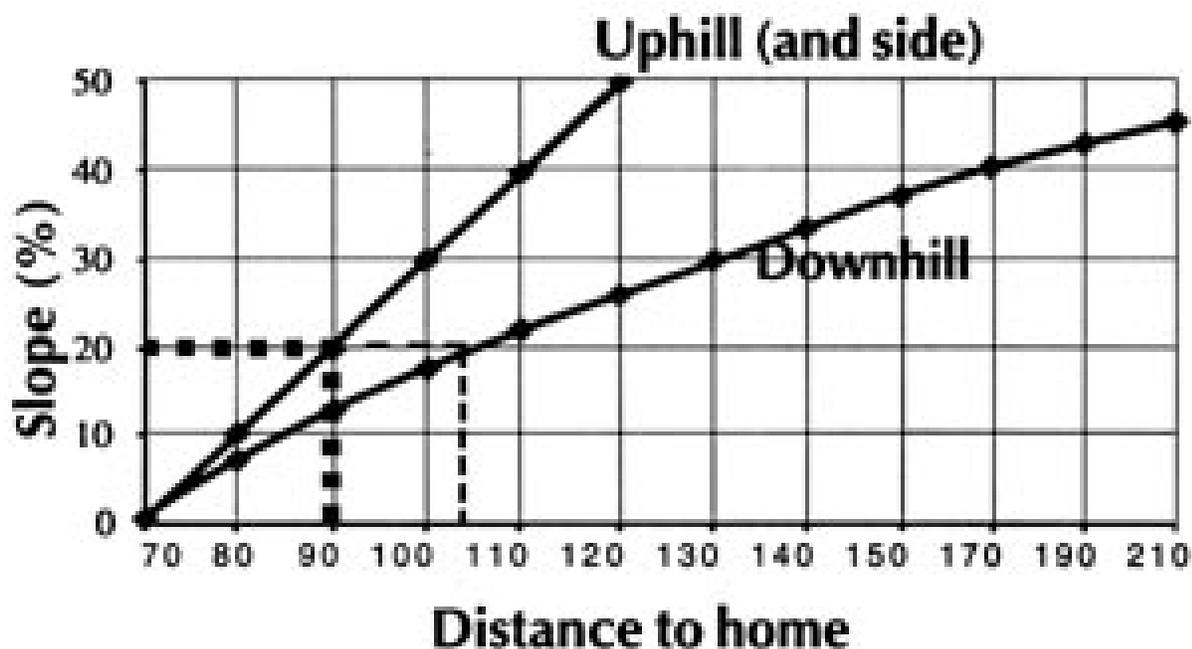
The area around each structure is divided into three fuel treatment zones.

Zone 1 extends an additional 30 feet from the structure. Combustible vegetation will be removed from Zone 1 to create a 30-foot buffer around the structure.

Zone 2 extends a minimum of an additional 60 feet from Zone 1 for a minimum distance of 90 feet from each structure. In Zone 2 the fuel will be thinned out and limbed up to 6 feet. Crown spacing will be no less than 20 feet. (Crown spacing is measured from the furthest branch of one tree to the nearest branch on the next tree.)

Depending on the availability of natural barriers, the extent of Zone 2 may have to be modified. Modification of Zone 2 on slopes will expand the treatment area. The increase of space on slopes is needed to accommodate the increase in intensity in fire behavior on slopes. As heat rises, fuel on slopes preheats and ignites quickly, causing fires to travel faster upslope. Enlarged defensible space around structures on slopes is needed especially on the downhill side. Figure 2-1 indicates the minimum distances that Zone 2 should be extended depending on the percent slope and position of the slope relative to the structure.

Areas around each structure will be individually evaluated to design defensible spaces within the context of that structure's use, location, and cultural significance. It is important to evaluate each structure on its own relative to the proximity of green lawns, driveways, roads or natural fuel breaks. For example, a spruce tree may be left in Zone 1 if lawn and driveway extended the largely vegetation-free area beyond the 30-foot point. Limited numbers of trees may remain as long as they are not leaning toward the structure or do not have branches that extend over the roof. Efforts will be made to work with residents to identify trees that could remain around their house. Should a fire occur and approach a particular structure, residents need to understand that there is a high probability that even those trees that are not removed in advance will have to be removed to protect the structure.



Criteria Used to Determine Treatment Priority for Structures

Because the protection of every known structure within the park cannot happen at the same time, criteria have been established to provide managers with sound methodology for determining which structures to treat first. The criteria are as follows and may be updated or improved should new information become available (Appendix G. Alaska NPS Structure Protection Procedures) .

TOP PRIORITY (CRITICAL FIRE MANAGEMENT OPTION IN THE ALASKA INTERAGENCY WILDLAND FIRE MANAGEMENT PLAN, AIWFMP)

1. The structure(s) is a primary domicile.
2. Structure(s) is designated as a National Historic Landmark.

SECOND PRIORITY (FULL FIRE MANAGEMENT OPTION IN THE AIWFMP)

1. The structure has been determined eligible for or is on the National Register of Historic Places, has structural integrity (e.g. intact roof and walls, a reasonable probability for defense), is at potential risk from wildland fire and has been identified for or undergoing routine maintenance/restoration.
2. NPS administrative (e.g. patrol cabin) or public use structures – public funds expended to construct or maintain.
3. The use of the structure is provided for under NPS permit or an approved Mining Plan of Operations.

The following types of structures would not receive treatment under this Fuel Plan:

1. Trespass structures
2. Abandoned structures that are not eligible for inclusion on the National Register of Historic Places.
3. Structures without structural integrity or they have not been identified for or are undergoing routine maintenance/restoration. (It is difficult to put a sprinkler system on a structure without a roof.)

On-site Evaluation

Site reconnaissance will be completed to evaluate actual field conditions and determine planned actions. For example, trees selected for removal and areas selected for clearing and thinning will be identified and inspected to confirm planned actions. Representatives from Cultural Resources and Fire Management will review all actions in the field and agree on the designations made for each area or building perimeter. The number of trees removed will vary at each location depending on the type and characteristics of the vegetation, slope and aspect, and degree of significance of the structure. Each site, structure, and situation is unique (for example, fire history, roadside screening, roof material, siding material, continuum of fuel, location of road, privacy, aesthetic considerations) so the treatment of the site will be tailored accordingly. Paramount consideration will be for the safety of personnel protecting the structure should a fire occur.

Specific aspects of removal and clearing to be evaluated include, but are not limited to: resulting vegetative edge conditions, integration of root systems, and canopy constraints.

Resulting vegetative edge conditions should be reviewed to ascertain potential weakness of remaining plant materials that would be exposed to wind, sunlight and a change in precipitation levels. Roots of a number of trees may in fact share a singular root system and may require careful evaluation before removing single specimens. Consideration of canopy form and aesthetic appearance of those trees

that remain should be evaluated to determine whether extensive pruning and/or limbing would be required.

Fire Management staff will devise a site protection plan for each backcountry structure at the initial clearing. This plan would estimate the amount of time and resources needed for protection (and maintenance) of the site.

Site Access

Staff and/or contractors involved in the removal/clearing of vegetation will be provided with the locations of all accessible routes into the area. Locations for staging, stockpiling, parking, landing, and administrative functions should also be identified so that activities are restricted from areas that will continue to be used by public/park staff during the removal period or that contain resources that are to remain undisturbed.

The following measures would be taken to mitigate noise intrusion and resource damage by motorized equipment in areas of designated and suitable wilderness:

- Strictly limit work to only necessary sites. The sites where work is proposed constitute the most critical needs. No work is proposed at less important sites.
- Control means of access. Coordinated on a yearly basis.
- Crews may perform long-term maintenance at some backcountry sites during winter. This may include debris pile burning.
- Where feasible, subsistence permit holders will be encouraged to maintain the defensible space around the cabins, in accordance with the standards identified in this plan. This would reduce NPS administrative presence and associated helicopter use. NPS fire management staff is available to consult with permit holders to identify needed treatment and if it benefits the NPS, fire management staff may assist with the treatment.

Use of Tools

Motorized tools such as chainsaws and “weed eaters” will be permitted for the initial fuel reduction at both designated and suitable wilderness sites. This exception allows motorized use and is based on weighing the need to accomplish the work expeditiously in order to avoid catastrophic harm by fire against the desire to reduce the impacts of motorized noise on wilderness users. Factors considered include labor required to accomplish the work by hand, utility of the buildings and infrequency of visitor presence. The use of mechanized and motorized tools to remove hazard fuels will be subject to the minimum requirement/ minimum tool.

Subsequent maintenance work should be accomplished only with non-motorized hand tools at all sites within the designated Wilderness.

Motorized tools will be permitted for subsequent work at sites outside the designated Wilderness. These tools are commonly used at many of the inholdings and cabin sites by landowners and subsistence users. The projected level of additional use connected with the proposed action would not be significant, and would not diminish the suitability of the portions of the park where these other sites are located from being considered for wilderness designation in the future.

Protection of Resources

Removal of vegetation will be completed in a manner that does not damage or disturb the remaining vegetation, other natural resources, historic and cultural resources, or infrastructure/improvements. If observation by archaeologists, cultural resource specialists, or other park staff is anticipated, they will coordinate with the fuels reduction crew will minimize/facilitate site visits. Park staff will be responsible for properly identifying specific resources that are to be protected and informing the fuels reduction crew.

Fuel reduction crews will be briefed about cultural resources concerns such as the need to use care when removing vegetation growing on, under, or next to structures; the types of artifacts that may be encountered when working around historic structures; and the requirement that trees and shrubs be cut off at ground level and not uprooted.

The crews will be instructed to not disturb artifacts and to immediately contact the supervisor if artifacts are found. Sensitive areas will be identified to the crew to minimize foot traffic and dragging of brush over these sites. Tree felling will be accomplished in such a way that trees would be dropped in directions away from identified sites. A cultural monitor will be requested if historic properties are discovered or unanticipated effects on historic properties are found.

Removal Techniques

Beyond routine and accepted techniques per arboricultural standards, removal of trees will be accomplished in a manner that minimizes disturbance of administrative and public activities. Removal operations will generally occur during normal business hours. Re-routing traffic and controlling access to removal areas will be the responsibility of the involved contractor/park staff. All necessary safety precautions will be taken to protect the public, staff and contracted workers.

Trees designated for removal will ideally be felled with the stump grubbed or cut flush with the existing grade, hashed with saw cuts, and covered with dirt and forest floor debris. This will facilitate recovery of groundcover and will be consistent with the treatment and appearance of cultural landscape that is to be interpreted. Felling should be accomplished in a manner that minimizes leaving permanent markings or indentations on any surface of the ground. At remote sites logs will be bucked up, allowed to dry, and used as firewood at patrol cabins. Larger tree trunks may be saved for renovation of historic structures. Logs from trees at residences may be bucked up and used as firewood by the residents.

Successional changes at treated sites will continue through the selection of seedlings and saplings that will not be removed from Zones 1 and 2. Identified seedlings/saplings will be permitted to grow and develop naturally to replace trees and shrubs that die off.

Park residents are encouraged to discuss the details of fuel removal with fire management staff to assure that both fire protection and aesthetic concerns are addressed when fuel reduction decisions are made. The Park Superintendent will retain the authority to determine if or extent of fuel management treatments if conflicts occur .

Limb and Branch Pruning

Trees may require pruning of lower limbs, damaged or imbalanced branches, previously cut knobs, and sucker growth. Clean cuts will be kept close to the trunk or connecting branch. Trees that may be retained within the 30-foot clear zone of a building will be limbed up a minimum of 6 feet from the ground. Limbing of trees between 30 and 100 feet away from a building will be evaluated on an individual basis; however, a rule of thumb is the closer to the building, the higher the limbing. Some

snags may remain on the outer edges of Zone 2 as long as they do not pose a safety or fire hazard. Snags will not remain in Zone 1 since they are an ideal source of burning embers that pose too great a threat to firefighters and structures.

Burning

Fire prevention measures as identified in a certified burn plan will be taken to assure that a wildland fire is not ignited by burning of shrub and branch debris. The burn plan will address appropriate weather conditions, adequate clearing around debris piles, limiting the number of piles that are burning at one time, and presence of trained personnel with appropriate fire fighting apparatus and personal protective equipment.

Where feasible, shrubs and branches may be scattered rather than burned if the surrounding fuel loading is not adversely affected by additional bio-debris and fire hazard is not increased. Shrubs and branches, if burned, will be piled in locations distant enough from structure areas to prevent damage to the structures. Shrub and branch piles shall be burned during a time that minimizes impact to park users, during a time when visitation is the lowest and fire danger is low. Burning will be done in compliance with National Park Service policies and Alaska Department of Conservation Open Burning regulations.

Clean Up

All tree, limb, and branch debris will be removed from non-paved areas. Additionally, the aforementioned materials plus twigs, leaves, needles, chips, and other organics will be removed from all trails and site furnishings. All refuse generated or brought on site in the form of packaging, equipment parts, or worker supplies will be removed from the park.

Periodic Maintenance

Sites in the Western Arctic Parklands will be revisited periodically following fuel removal. An evaluation of limb, sapling and shrub re-growth will occur and a determination will be made regarding removal cycles. It is generally anticipated that re-treatment may be necessary roughly every five to 10 years. In designated Wilderness, only non-motorized hand tools will be used for follow up treatments, unless there is a fire emergency. Hand tools may include hand saws, scythes, axes and pruning tools. In non-wilderness backcountry areas power hand tools may be used. Reduction in the height and density of herbaceous plants, grasses, and small shrubs may be done annually via mowing in developed areas.

Park	UNIT_ID	Name	Priority (high or low)	Order	2009	2010	2011	2012	2013
AK-DEP		HQ Historic District	High	1	Maintenance				
AK-DEP		HQ Residential	High	2	Maintenance				
AK-DEP		Ccamp and Admin. Structures	High	3	Evaluate	Maintenance			
AK-DEP		Toklat Road Camp	High	4	Evaluate	Maintenance			
AK-DEP		Rock House	High	5	Evaluate	Maintenance			
AK-DEP		Visitor Center Area	High	6		Evaluate	Maintenance		
AK-DEP		MSLC	High	7		Evaluate	Maintenance		
AK-DEP		Wilderness Access Center	High	8		Evaluate	Maintenance		
AK-DEP		HQ/Ccamp Water Facility	High	9			Evaluate		
AK-DEP		MSLC Water Facility	High	10	Evaluate	Maintenance			
AK-DEP	DENA-005	New Thorofare River Patrol Cabin	High						
AK-DEP	DENA-040	Parker's Cabin	High						
AK-DEP	DENA-082	Crooked Creek	High	11	Cut/Pile/Burn				
AK-DEP	DENA-074	Collins (12 mile slough)	High	12				Evaluate	
AK-DEP	DENA-076	Collins Slippery Creek Cabin	High	13	Cut/Pile/Burn				
AK-DEP	DENA-077	Carlson's Slippery Cabin	High	14	Cut/Pile/Burn				
AK-DEP	DENA-095	Birch Creek Cabin	High	15		Maintenance			
AK-DEP	DENA-241	New Birch Creek Cabin	High	16	Evaluate	Cut/Pile	Burn		
AK-DEP	DENA-199	Barb Cabin	High	17	Cut/Pile	Burn			
AK-DEP	DENA-009	Moose Creek Patrol Cabin	High	18	ish Cut/Pile/Burn				
AK-DEP	DENA-127	Lower East Fork Patrol Cabin	High	20			Evaluate	Maintenance	
AK-DEP	DENA-081	Lower Toklat Patrol Cabin	High	21			Evaluate	Maintenance	
AK-DEP	DENA-126	Sushana Patrol Cabin	High	22			Evaluate	Maintenance	
AK-DEP	DENA-149	Stampede Mine	High	23			Evaluate	Maintenance	
AK-DEP	DENA-110	Riley Creek Patrol Cabin	High	25	Maintenance				
AK-DEP	DENA-100	Lower Windy Creek Patrol Cabin	High	27	Maintenance				
AK-DEP	DENA-101	Upper Windy Patrol Cabin	High	40					
AK-DEP	DENA-202	Pearson Cabin	High	30					
AK-DEP	DENA-122	Lower Savage Patrol Cabin	High	31	Burn				
AK-DEP	DENA-207	Igloo Patrol Cabin	High	32					
AK-LCP	LACL 271	NPS Former Field Office	High	1	Evaluate	Cut/Pile			
AK-LCP	LACL 272	NPS Duplex	High	2	Evaluate	Cut/Pile			
AK-LCP	LACL 074	Bly House (The Point)	High	3	Evaluate	Maintenance			
AK-LCP	LACL 218	Snipe Lake Cabin	High	4	Evaluate	Burn			
AK-LCP	LACL 212	Telaquana Ranger Cabin	High	5	Evaluate	Burn			
AK-LCP	LACL 155	Hermit Lake	High	6	Evaluate	Cut/Pile			
AK-LCP	LACL 203	Lower Twin Ranger Cabin	High	7	Evaluate	Cut/Pile			
AK-LCP	LACL 208	Dick Proenneke	High	8	Evaluate				
AK-LCP	LACL 216	Igima River - Kenibuna Lake Cabin	High	9	Evaluate				
AK-WEAR	KOVA-001	Onion Portage Ranger Cabin/Giddings Cabin	High	1	Cut/Pile	Burn			
AK-WEAR	BELA-005	Fairhaven Ditch Cabin #1	High	2			Cut/Pile		
AK-WEAR	BELA-006	Fairhaven Ditch Cabin #2 & #3	High	3			Cut/Pile		
AK-WEAR	KOVA-022	Kantner Cabin 1	High	4	Evaluate				
AK-WEAR	KOVA-023	Kantner Cabin 2	High	5	Evaluate				
AK-WEAR	KOVA-024	Kantner Cabin 3	High	6	Evaluate				
AK-WEAR	NOAT-002	Kelly River Ranger Station	High	7	Cut/Pile				
AK-WEAR	NOAT-048	Nakolik Shelter Cabin (Wolf Control Cabin)	High	8		Cut/Pile			
AK-WEAR	KOVA-013	Portage Shelter Cabin	High	9	Cut/Pile				

APPENDIX I. - DELEGATION OF AUTHORITY AND AGREEMENTS

The following documents are on file in the Fire Management Officer's office at Denali NP/P

1. Delegation of Authority for Fire Management Officer, Western Arctic Parklands
2. Inter-park Agreement Between: National Park Service Alaska Western Area Wildland Fire Management and Denali National Park & Preserve, Lake Clark National Park & Preserve, Bering Land Bridge National Preserve and Western Arctic Parklands
3. Inter-agency Agreement for Wildland Fire Suppression Services and Related Activities between the Department of Interior Bureau of Land Management (Alaska) and the Department of Interior National Park Service (Alaska).