

A photograph of the Scotts Bluff National Monument. The foreground is a vast, flat plain covered in dry, golden-brown grass. In the middle ground, there are several large, flat-topped rock formations (bluffs) with distinct horizontal layers. The sky is filled with heavy, grey clouds, suggesting an overcast day. The overall scene is a typical arid landscape.

# **Scotts Bluff National Monument Fire Management Plan**

**Environmental Assessment  
August 2000**

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# Chapter 1 - Purpose and Need

## 1.1 INTRODUCTION

This Environmental Assessment (EA) documents the results of a study of the potential environmental impacts of an action proposed by the National Park Service to amend the Scotts Bluff National Monument Fire Management Plan.

This EA has been prepared in compliance with:

- The National Environmental Policy Act (NEPA) of 1969 (42 United States Code (USC) 4321 et seq.), which requires an environmental analysis for major Federal Actions having the potential to impact the quality of the environment;
- Council of Environmental Quality Regulations at 40 Code of Federal Regulations (CFR) 1500-1508, which implement the requirements of NEPA;
- National Park Service Conservation Planning, Environmental Impact Analysis, and Decision Making; Director's Order (DO) #12 and Handbook.

### *The Purpose of an Environmental Assessment (EA)*

There are three primary purposes of an EA:

- To help determine whether the impact of a proposed action or alternative could be significant, thus an environmental impact statement (EIS) is needed;
- To aid in compliance with NEPA when no EIS is necessary by evaluating a proposal that will have no significant impacts, but that may have measurable adverse impacts; and
- To facilitate preparation of an EIS if one is necessary.

Key goals of NEPA are to help Federal agency officials make well-informed decisions about agency actions and to provide a role for the general public in the decision-making process. The study and documentation mechanisms associated with NEPA seek to provide decision-makers with sound knowledge of the comparative environmental consequences of the several courses of action available to them. NEPA studies, and the documents recording their results, such as this EA, focus on providing input to the particular decisions faced by the relevant officials. In this case, the Superintendent of Scotts Bluff National Monument is faced with a decision to amend the monument's Fire Management Plan as described below. This decision will be made within the overall management framework already established in the Scotts Bluff National Monument General Management Plan. The alternative courses of action to be considered at this time are, unless otherwise noted, crafted to be consistent with the concepts established in the General Management Plan (copies of the General Management Plan can be obtained from NPS personnel at the monument).

In making decisions about National Park Service administered resources, the Park Service is guided by the requirements of the 1916 Organic Act and other laws, such as the Clean Air Act, Clean Water Act, and Endangered Species Act. The authority for the conservation and management of the National Park Service is clearly stated in the Organic Act, which states the agency's purpose: "...to conserve the scenery and the natural and historic objects and the

wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” This authority was further clarified in the National Parks and Recreation Act of 1978: “Congress declares that...these areas, though distinct in character, are united...into one national park system.... The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.”

The mission of the National Park Service at Scotts Bluff National Monument arises from the monument’s initial proclamation (no. 1547-41 Stat. 1779) in 1919, which mandated the National Park Service to:

- preserve Scotts Bluff, a prominent feature on the western Nebraska landscape;
- preserve the view of and from Scotts Bluff;
- protect Mitchell Pass, which afforded emigrants a passage west without having to cross over the nearby bluffs or the adjacent North Platte River;
- protect the remnants of the Oregon Trail, which are still visible within the boundaries of the monument;
- preserve the geological features of the bluff, which are of scientific interest;
- preserve and interpret the monument’s features for public enjoyment for generations to come; and
- preserve the scenic and historic integrity of Scotts Bluff and adjacent features.

The Boundary Revision Authorization Act of June 30, 1961 (75 Stat. 148) for Scotts Bluff National Monument also charges the National Park Service “...to protect the scenic and historic integrity of Scotts Bluff and adjacent features.”

The requirements placed on the National Park Service by these laws, especially the Organic Act and, in this specific case, Scotts Bluff National Monument’s enabling legislation, mandate that resources are passed on to future generations “unimpaired” (DOI, 2001a). This EA addresses whether the actions of the various alternatives proposed by Scotts Bluff National Monument will impair resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument’s general management plan or other Park Service planning documents (see *Chapter 3 – Environmental Consequences*).

## 1.2 PURPOSE AND NEED

Fire is a natural component of the mixed-grass prairie and one of the forces under which vegetation at Scotts Bluff National Monument evolved. Research indicates that prior to the turn of the 20<sup>th</sup> century, fire burned grasslands in the Scotts Bluff area on an average of every 15 to 30 years depending on the terrain and moisture levels (Wendtland, 1993). These low intensity

recurring fires thinned and prevented accumulation of heavy fuels, thus maintaining an area of predominant grasslands and open forests (Weaver, 1967; Biswell, 1972; Progulske, 1974). From 1919 through 2000, one lightning fire and only a few human-caused fires have been documented to occur in the monument, and all were suppressed. All the wildfires were suppressed while small in nature. The lack of wildfires entering the monument can be attributed to the fragmented terrain (roads) and presence of agricultural crops where large expanses of prairie once occurred.

One hundred years of wildland fire suppression in the region, combined with land uses such as agriculture and grazing, has resulted in an increase of pine and juniper stands, decreased secondary stages of plant succession important to wildlife, and has permitted woody vegetation to invade the prairie (Gartner and Thompson, 1972). More recently, invasive exotic plant species have secured a foothold within the prairie ecosystem of the monument. The historic pre-European settlement pattern of frequent low-severity ground fire, which removed ground fuels, has shifted to a pattern of potential high severity wildfires that may threaten life, property, and monument resources.

Prescribed fire was not initiated in the monument until 1983, and was discontinued for several years in the aftermath of the Yellowstone fires. Beginning in 1998, the monument again used prescribed fire and an annual average of approximately 500 acres have been burned; however, this total acreage varies from year to year.

National Park Service Wildland Fire Management Guidelines (DO-18) states that “all parks with vegetation that can sustain fire must have a fire management plan.” The purpose of this federal action is to develop a fire management plan and program that utilizes the benefits of fire to achieve desired natural resource conditions while minimizing the fire danger to monument resources and adjacent lands from hazardous fuel accumulations. The need for the project is to restore the prairie ecosystem by promoting fire-adapted plant and wildlife species, reducing the extent of noxious weeds, and reducing the levels of hazardous fuels.

## 1.3 BACKGROUND

Scotts Bluff National Monument was established by Presidential Proclamation by Woodrow Wilson on December 12, 1919. It consists of 3,003 acres of prairie and bluff habitat, situated along the North Platte River in the panhandle region of western Nebraska (see Figure 1-1). The monument is adjacent to the city of Gering to the east and is adjacent to the city of Scottsbluff to the north, in Scotts Bluff County. The massive 800-foot high promontory became a notable natural landmark and resting place along the Oregon/California/Mormon and Pony Express Trails (collectively, the Overland Trail). The monument attracts approximately 120,000 visitors each year.

Scotts Bluff National Monument is recognized primarily for its historical significance and unique geological features, the latter consisting of steep, rocky, siltstone and sandstone bluffs, ridges that extend from them, and areas of badlands formations. The monument also contains fossil deposits within its geological strata. The monument preserves the historical scene and associated geological features and natural and cultural resources in perpetuity.

The monument's visitor and support facilities are located 3 miles west of Gering, and include a museum/visitor center, administrative building, ranger residence, maintenance building and yard, visitor parking lot, and employee parking lot. Originating from the visitor center is the Bicycle Trail that connects to the Gering Pathway just outside the monument's east boundary. The monument's Oregon Trail leads to the Overland Trail remnant, and the Saddle Rock Trail leads to the top of Scotts Bluff. The Summit Road passes through three tunnels and terminates at the summit parking lot. At the summit, a network of trails lead to several key overlooks which highlight the views in all directions. Interpretive exhibits and signs are located along the trails.

## 1.4 FIRE MANAGEMENT OBJECTIVES

National Park Service Wildland Fire Management Guidelines (DO-18) requires that all parks with vegetation capable of sustaining fire develop a wildland fire management plan that will meet the specific resource management objectives for that park and to ensure that firefighter and public safety are not compromised. This guideline identifies fire as the most aggressive natural resource management tool employed by the National Park Service. The guideline further states that all wildland fires are classified as either wildfires or prescribed fires. Prescribed fires and wildland fire use may be authorized by an approved wildland fire management plan and contribute to a park's resource management objectives. Human-caused wildfires are unplanned events and may not be used to achieve resource management objectives.

*Wildfires* are any non-structure fires, other than prescribed fires, that occur in the wildland. This term encompasses fires previously called both wildfires and prescribed natural fires.

*Prescribed Fires* are any fires ignited by management actions in defined areas under predetermined weather and fuel conditions to meet specific objectives.

*Wildland fire use* is the management of naturally ignited wildland fires to accomplish specific pre-stated resource management objectives in predefined geographic areas outlined in Fire Management Plans.

DO-18 identifies three paramount considerations for each park's fire management program. They are:

- protect human life and property both within and adjacent to park areas;
- perpetuate, restore, replace, or replicate natural processes to the greatest extent practicable; and
- protect natural and cultural resources and intrinsic values from unacceptable impacts attributable to fire and fire management activities

The overall objectives of the Scotts Bluff Fire Management Plan are the following:

- Reduce the incidence and extent of human-caused fires;
- Use fire to meet resource management objectives;
- Protect life, property, and monument resources from the effects of unwanted fire; and
- Prevent adverse impact from fire suppression activities.



Resource management objectives in relation to the fire management program include the following:

- Use prescribed fire to maintain the historic scene of the bluffs as the bluffs and the surrounding countryside appeared to the emigrants;
- To the extent practicable, use prescribed fire as a tool to restore the ecosystem to the condition existing prior to the settlement by Europeans;
- Shift vegetation composition in natural areas from less desirable plant species (exotics such as Japanese brome, smooth brome, downy brome, Kentucky bluegrass, kochia and Russian thistle) to more favorable (native) plant species;
- Reduce broadleaf tree regeneration especially in ravines and along canals within the monument;
- Restore and maintain the mixed-grass prairie community by impeding and reducing the extent of ponderosa pine, Rocky Mountain juniper and eastern red cedar encroachment;
- Restore or gain the mosaic pattern of different plant communities associated with post-fire stages;
- Rehabilitate prairie restoration areas that were planted or established with non-native grasses, such as abandoned golf courses, old home sites and other disturbed areas; and
- Restore fire as a critical component of the ecosystem.

With an active prescribed fire program, the monument hopes to maintain and or increase the density and number of native grass, forb, and shrub species, as well as reduce non-native species such as exotic grasses and weedy exotic annuals. In addition, the prescribed fire program seeks to increase the availability of browse for deer, increase fire-adapted shrub species and densities, increase mortality of juvenile juniper trees, and provide shelter, cover and structure for deer, birds and small mammals in the slopes and draws dominated by Rocky Mountain juniper.

## 1.5 SCOPING ISSUES AND IMPACT TOPICS

On November 16, 2001, a scoping notice describing the Proposed Action and inviting the public to an open house was sent to a mailing list of 74 individuals, organizations, and media outlets. Local television stations aired segments on the proposed action and provided information about the open house. The public open house was held at the monument on November 29, 2001 to discuss the Fire Management Plan and the proposed use of prescribed fire treatments in the monument. Three people signed the attendance list. The major issues and concerns that came from the open house and other public input (e.g. email, written correspondence) were evaluated and sorted. Issues determined to be important were those related to the effects of the proposed action, and those not already adequately addressed by laws, regulations, and policies. Important issues were considered in developing and evaluating the alternatives to the Proposed Action discussed in this EA.

### 1.5.1 *Important Issues*

- Issue: Prescribed fires (broadcast burns) may escape or spot outside of control lines and/or discharge too much smoke, thus having the potential to impact human health and safety, private structures, and property.
- Issue: Prescribed fires may impact (loss of habitat or direct mortality) threatened and endangered species on the monument.

### 1.5.2 *Issues Considered but not Evaluated in this Environmental Assessment*

- Issue: Ponderosa pines should be re-planted on the summit since prescribed fires have killed some of them and tree densities no longer resemble pre-settlement conditions. This issue was considered, but not evaluated further because it is addressed in the monument's Resource Management Plan (RMP) and Boundary Adjustment Act of 1961. The Act mandates that the National Park Service "preserve the historic and scenic integrity of Scotts Bluff and the adjacent features." The RMP has initiated a restoration program based on its current knowledge of the monument's vegetation and the opinions of professionals in the field of mixed-grass ecosystems.
- Issue: In the Scotts Spring area, trees are encroaching on the spring and could dry it up; fire management activities should address this issue. This issue was considered, but not evaluated further because it is addressed in the monument's Resource Management Plan (RMP) and Boundary Adjustment Act of 1961. The Act mandates that the National Park Service "preserve the historic and scenic integrity of Scotts Bluff and the adjacent features." The RMP has initiated a restoration program based on its current knowledge of the monument's vegetation and the opinions of professionals in the field of mixed-grass ecosystems. Prescribed fire is contemplated in the monument's Resource Management Plan as one tool to help restore the prairie ecosystems on the monument.
- Issue: Prescribed fire should be used in the Sandhills area. This issue was considered, but not evaluated further because the Sandhills area is outside the jurisdiction of Scotts Bluff National Monument.
- Issue: Smoke from prescribed fires may discolor the rocks of Scotts Bluff. This issue was considered, but not evaluated further because prescribed fires would be conducted on days with adequate smoke dispersal that would minimize or eliminate the potential for "blackening" of the rocks on the bluff. In addition, any soot on the sandstone would be temporary since natural forces (e.g. wind and water) would remove it.

### 1.5.3 *Impact Topics Evaluated in this Environmental Assessment*

Impact topics are derived from issues raised during internal and external scoping. Not every conceivable impact of a proposed action is substantive enough to warrant analysis. The following topics, however, do merit consideration in this EA:

**Geology and Soils:** Preserving geologic conditions is one of the purposes listed in the enabling legislation of Scotts Bluff National Monument. Soils can potentially be adversely affected by intense fires as well as by suppression activities. Therefore, impacts to soils and geology are analyzed in this EA.

**Water Resources:** NPS policies require protection of water resources consistent with the Federal Clean Water Act. Scotts Bluff is bordered by the North Platte River to the north and contains several irrigation canals within the monument. Both fires and fire suppression efforts can affect water resources by exposing soils, which leads to erosion during storm events and subsequent suspended solids and turbidity in downstream surface waters. Therefore, impacts to water resources are analyzed in this EA.

**Floodplains and Wetlands:** Presidential Executive Orders mandate floodplain management and protection of wetlands. The monument contains 102 acres of floodplains and 27 acres of wetlands adjacent to the North Platte River. The wetlands are identified as marsh and seasonally flood in the spring and temporarily flood at other times due to rainfall events upstream. Fire suppression activities can influence floodplains and wetlands, and therefore impacts to both are analyzed in this EA.

**Vegetation:** Native vegetation of the monument consists of three major plant associations: 1) the moderately dense mixed-grass prairie, 2) the ponderosa pine/Rocky Mountain juniper areas, and 3) the hardwood community along the floodplain of the North Platte River. The protection and management of these plant associations are cited in the monument's purpose and mission statements. Much of the monument's target condition relates to the restoration of the mixed-grass prairies. Since the plant associations are heavily influenced by fire regimes, this EA considers the impacts of the proposed FMP alternatives on the monument's vegetation.

**Wildlife:** The long-term goal of the monument's natural resource management program is to maintain wildlife populations with healthy natural plant communities. In addition, the monument is one of the few places in the Panhandle of Nebraska where wildlife is protected in a natural environment. There are resident populations of various species of reptiles, amphibians, birds, mammals, and invertebrates. Therefore, impacts of the FMP alternatives on wildlife are evaluated in this EA.

**Threatened and Endangered Species:** The Federal Endangered Species Act prohibits harm to any species of fauna or flora listed by the U. S. Fish and Wildlife Service (USFWS) as being either threatened or endangered. Such harm includes not only direct injury or mortality, but also disrupting the habitat on which these species depend. The bald eagle is known to frequent the monument in winter months and there are black-tailed prairie dogs, a candidate species for federal protection under the Endangered Species Act, that reside within Scotts Bluff National Monument. Therefore, this impact topic is included for further analysis in this EA.

**Air Quality:** The Federal 1970 Clean Air Act stipulates that Federal agencies have an affirmative responsibility to protect a park's air quality from adverse air pollution impacts. Moreover, Scotts Bluff is located in a Class II area. While the park generally enjoys good air quality, it is not pristine air quality. Agricultural and sugar refinery operations surrounding the

monument contribute to air quality impacts. All types of fires generate smoke and particulate matter, which can impact air quality within the monument and surrounding region to some extent. All of these considerations warrant the inclusion of impacts to air quality in this analysis.

**Visitor Use and Experience:** The 1916 NPS Organic Act directs the Service to provide for public enjoyment of the scenery, wildlife and natural and historic resources of national parks “in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations.” Fire management activities can result in the temporary closure of certain areas and/or result in visual impacts that may affect the visitor use and experience of the monument. Therefore, the potential impacts of the proposed FMP on visitor use and experience are addressed in this EA.

**Human Health and Safety:** Fires can be extremely hazardous, even life-threatening, to humans, and current federal fire management policies emphasize that firefighter and public safety is the first priority; all FMP’s must reflect this commitment (NIFC, 1998). Therefore, impacts to human health and safety are addressed in this EA.

**Cultural Resources:** Section 106 of the National Historic Preservation Act of 1966 provides the framework for Federal review and protection of cultural resources, and ensures that they are considered during Federal project planning and execution. Scotts Bluff National Monument contains a total of 18 features that have been included in the List of Classified Structures, including the remnants of the Oregon Trail at Mitchell Pass, several Civilian Conservation Corps-era buildings still used to provide visitor services, the summit road tunnels, historic markers (North Observation Point Marker and Pony Express Centennial Marker), the Scott Memorial, and the Hiram Scott Memorial Arch Ruin. Archeological surveys within the monument have identified 56 sites, most relating to paleo-Indian use 8,000-10,000 years ago. These cultural resources can be affected both by fire itself and fire suppression activities, thus potential impacts to cultural resources are addressed in this EA.

**Park Operations:** Severe fires can potentially affect operations at national parks, especially in more developed sites like visitor centers and administrative and maintenance facilities. These impacts can occur directly from the threat to facilities of an approaching fire, and more indirectly from smoke and the diversion of personnel to firefighting. Fires have caused closures of facilities in parks around the country. Thus, the potential effects of the FMP alternatives on park operations will be considered in this EA.

#### *1.5.4 Impact Topics Considered but not Evaluated in this Environmental Assessment*

NEPA and the CEQ Regulations direct agencies to “avoid useless bulk...and concentrate effort and attention on important issues” (40 CFR 1502.15). Certain impact topics that are sometimes addressed in NEPA documents on other kinds of proposed actions or projects have been judged to not be substantively affected by any of the FMP alternatives considered in this EA. These topics are listed and briefly described below, and the rationale provided for considering them, but dropping them from further analysis.

**Noise:** Noise is defined as unwanted sound. Fuels reduction, prescribed fires and fire suppression efforts can all involve the use of noise-generating mechanical tools and devices with engines, such as chain saws, trucks, helicopters, and airplanes. Each of these devices, in particular helicopters and chain saws at close range, are quite loud (in excess of 100 decibels). The use of machines, such as chainsaws, would be extremely infrequent in light of the limited forest cover on the monument (on the order of hours, days, or at most weeks per decade). This is not frequent enough to substantially interfere with human activities in the area or with wildlife behavior. Nor will such infrequent bursts of noise chronically impair the solitude and tranquility associated with monument. Therefore, this impact topic is eliminated from further analysis in this EA.

**Waste Management:** None of the FMP alternatives would generate noteworthy quantities of either hazardous or solid wastes that need to be disposed of in hazardous waste or general sanitary landfills. Therefore this impact topic is dropped from additional consideration.

**Transportation:** None of the FMP alternatives would substantively affect road, railroad, water-based, or aerial transportation in and around the monument. One exception to this general rule would be the temporary closure of nearby roads during fire suppression activities or from heavy smoke emanating from wildland fires or prescribed fires. Over the long term, such closures would be very infrequent and would not significantly impinge on local transportation. Therefore, this topic is dismissed from any further analysis.

**Utilities:** Generally speaking, some kinds of projects, especially those involving construction, may temporarily impact above and below-ground telephone, electrical, natural gas, water, and sewer lines and cables, potentially disrupting service to customers. Other proposed actions may exert a substantial, long-term demand on telephone, electrical, natural gas, water, and sewage infrastructure, sources, and service, thereby compromising existing service levels or causing a need for new facilities to be constructed. None of the FMP alternatives will cause any of these effects to any extent, and therefore utilities are eliminated from any additional analysis.

**Land Use:** The monument itself consists primarily of mixed-grass prairie. Visitor and administrative facilities also occur within the monument, as do private inholdings. Outside the monument boundaries, Gering, Terrytown, and the town of Scottsbluff support a mix of land uses typical of small to mid-sized settlements, including residential, industrial, agricultural, and commercial land uses. Fire management activities would not affect land uses within the monument or in areas adjacent to it. Therefore, this impact topic is not included for further analysis in this EA.

**Socioeconomics:** NEPA requires an analysis of impacts to the “human environment” which includes economic, social and demographic elements in the affected area. Fire management activities may bring a short-term need for additional personnel in the monument, but this addition would be minimal and would not affect the neighboring communities’ (Gering, Terrytown, and Scottsbluff) overall population, income and employment base. Therefore, this impact topic is not included for further analysis in this EA.

**Environmental Justice / Protection of Children:** Presidential Executive Order 12898 requires Federal agencies to identify and address disproportionate impacts of their programs, policies and activities on minority and low-income populations. Executive Order 13045 requires Federal actions and policies to identify and address disproportionately adverse risks to the health and safety of children. None of the alternatives would have disproportionate health or environmental effects on minorities or low-income populations as defined in the Environmental Protection Agency’s Environmental Justice Guidance, therefore, these topics are not further addressed in this EA.

**Prime and Unique Agricultural Lands:** Prime farmland has the best combination of physical and chemical characteristics for producing food, fed, forage, fiber, and oilseed crops. Unique land is land other than prime farmland that is used for production of specific high-value food and fiber crops. Both categories require that the land is available for farming uses. Lands within Scotts Bluff National Monument are not available for farming and, therefore, do not meet these definitions. This impact topic is not evaluated further in this EA.

**Wilderness:** According to National Park Service Management Policies (2001), proposals having the potential to impact wilderness resources must be evaluated in accordance with National Park Service procedures for implementing the National Environmental Policy Act. Because Scotts Bluff does not have any proposed or designated wilderness areas within it or adjacent to it, this impact topic is not evaluated further in this EA.

**Indian Trust Resources:** Indian trust assets are owned by Native Americans but held in trust by the United States. According to National Park Service personnel, Indian trust assets do not occur within Scotts Bluff National Monument and, therefore, are not evaluated further in this EA.

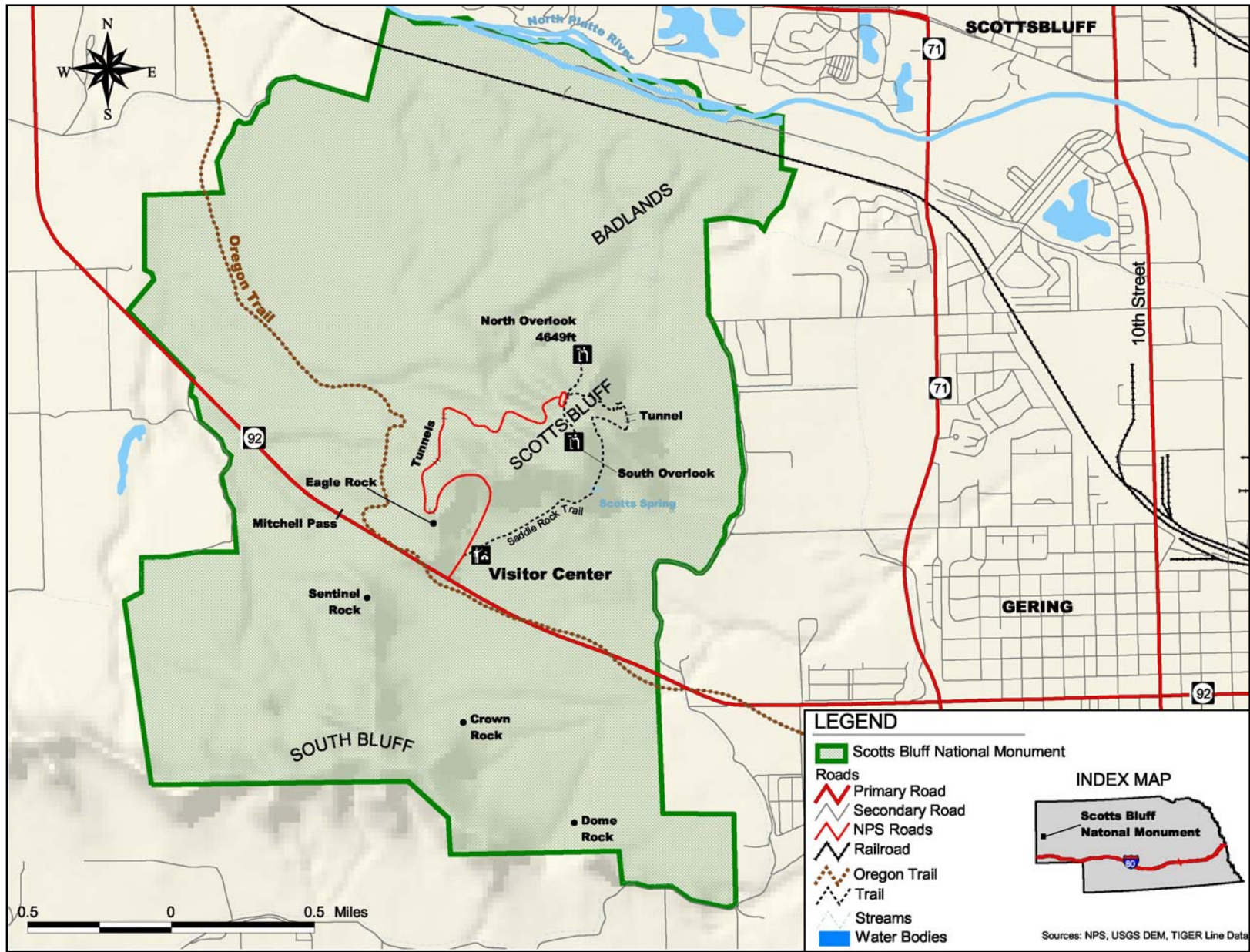
**Resource Conservation, Including Energy, and Pollution Prevention:** The National Park Service’s *Guiding Principles of Sustainable Design* provides a basis for achieving sustainability in facility planning and design, emphasizes the importance of biodiversity, and encourages responsible decisions. The guidebook articulates principles to be used such as resource conservation and recycling. Proposed project actions would not minimize or add to resource conservation or pollution prevention on the monument and, therefore, this impact topic is not evaluated further in this EA.

Table 1-1 Impact Topics for Scotts Bluff National Monument Fire Management Plan  
Environmental Assessment

Impact Topic	Retained or Dismissed from Further Evaluation	Relevant Regulations or Policies
Geology and Soils	Retained	NPS <i>Management Policies 2001</i>
Water Resources	Retained	Clean Water Act; Executive Order 12088; NPS <i>Management Policies</i>
Floodplains and Wetlands	Retained	Executive Order 11988; Executive Order 11990; Rivers and Harbors Act; Clean Water Act; NPS <i>Management Policies</i>
Vegetation	Retained	NPS <i>Management Policies</i>

<b>Impact Topic</b>	<b>Retained or Dismissed from Further Evaluation</b>	<b>Relevant Regulations or Policies</b>
Wildlife	Retained	NPS <i>Management Policies</i>
Threatened and Endangered Species and their Habitats	Retained	Endangered Species Act; NPS <i>Management Policies</i>
Air Quality	Retained	Federal Clean Air Act (CAA); CAA Amendments of 1990; NPS <i>Management Policies</i>
Visitor Use and Experience	Retained	NPS <i>Management Policies</i>
Human Health & Safety	Retained	NPS <i>Management Policies</i>
Cultural Resources	Retained	Section 106; National Historic Preservation Act; 36 CFR 800; NEPA; Executive Order 13007; Director's Order #28; NPS <i>Management Policies</i>
Park Operations	Retained	NPS <i>Management Policies</i>
Noise	Dismissed	NPS <i>Management Policies</i>
Waste Management	Dismissed	NPS <i>Management Policies</i>
Transportation	Dismissed	NPS <i>Management Policies</i>
Utilities	Dismissed	NPS <i>Management Policies</i>
Land Use	Dismissed	NPS <i>Management Policies</i>
Socioeconomics	Dismissed	40 CFR Regulations for Implementing NEPA; NPS <i>Management Policies</i>
Environmental Justice	Dismissed	Executive Order 12898
Prime and Unique Agricultural Lands	Dismissed	Council on Environmental Quality 1980 memorandum on prime and unique farmlands
Wilderness	Dismissed	The Wilderness Act; Director's Order #41; NPS <i>Management Policies</i>
Indian Trust Resources	Dismissed	Department of the Interior Secretarial Orders No. 3206 and No. 3175
Resource Conservation, Including Energy, and Pollution Prevention	Dismissed	NEPA; NPS <i>Guiding Principles of Sustainable Design</i> ; NPS <i>Management Policies</i>





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Figure 1-1 Scotts Bluff Vicinity



## Chapter 2 - Issues and Alternatives

This Chapter describes the range of alternatives, including the Proposed Action and No Action Alternatives, formulated to address the purpose of and need for the proposed project. These alternatives were developed through evaluation of the comments provided by individuals, organizations, governmental agencies, and the Interdisciplinary Team (IDT).

### 2.1 ALTERNATIVES CONSIDERED BUT NOT ANALYZED FURTHER IN THIS ENVIRONMENTAL ASSESSMENT

#### 2.1.1 *Revision of the 1983 Fire Management Plan to include Wildland Fire Use*

Wildland fire use involves the management of fires ignited by natural means (usually lightning) that are permitted to burn under specific environmental conditions for natural resource benefits. In many cases, national parks and forests employ wildland fire use as a part of their fire management program to obtain natural resource benefits from wildfire. These parks and forests typically have large acreages and the areas identified for its use contain few if any private residences and structures nearby (wildland urban interface). In such cases, wildland fire use is a critical component in meeting fire management objectives of federal agencies. This alternative was considered but not analyzed further in this EA because the small size of the monument would not be conducive to employing wildland fire use. In addition, the monument is too irregularly shaped to ensure containment within the monument's boundaries. If the wildfire burned out-of-prescription, monument and private residences and structures could be threatened. Monument staff concluded that the potential risk to human health and safety under this alternative outweighs any potential resource benefits that would be obtained from including wildland fire use.

### 2.2 ALTERNATIVES CONSIDERED AND ANALYZED IN THIS ENVIRONMENTAL ASSESSMENT

#### 2.2.1 *Alternative 1 (No Action Alternative) - Implement the 1983 Fire Management Plan*

This alternative meets the purpose and need by continuing the fire program according to the Fire Management Plan approved in 1983, however it would not be updated to reflect current fire policy guidance. The No Action Alternative would include the suppression of all wildland fires, provide for prescribed fires, and allow for mechanical thinning treatments.

The entirety of Scotts Bluff National Monument is contained in one Fire Management Unit since the following characteristics are similar throughout the monument: climate, weather, topography, vegetation, elevation, air quality concerns, access, fire history, fuel types, major fire regimes and expected fire behavior. Under this alternative, all wildland fires in the monument, human-caused fires and naturally-ignited fires (lightning), would be declared wildfires and controlled in a manner that minimizes harm to the environment. During wildfire suppression efforts, fire retardants and foams may be used.

For the prescribed fire program, the monument is divided up into seven burn units based upon administrative and natural barriers: Prairie, North Platte, Saddle Rock, Scotts Spring, Eagle Rock, South Bluff, and Crown Rock (see Figure 2-1, Table 2-1). Units would be burned when resource management objectives would be met, and when funds are available. Prescribed fires would be conducted during the spring, later summer, or fall. Mechanical treatments, including chain saws and chipping, may be used in conjunction with prescribed fire activities to reduce hazardous fuel accumulations. Thinning treatments would concentrate on small understory trees and would not involve the cutting of large diameter or old growth trees. Any and all snags would be preserved for wildlife habitat benefits. The burning of slash piles with prescribed fire is considered in the FMP. Interagency cooperative burns would be sought for areas near and adjacent to monument boundaries. Prescribed fire and suppression activities would likely include mechanical equipment such as fire engines and aircraft.

Table 2-1 Scotts Bluff National Monument Treatment Units

<b>Burn Unit</b>	<b>Timing of Burn</b>	<b>Description</b>
Prairie	Summer/Fall 2007+	The Prairie burn unit is the largest of the burn units at the monument and includes prairie, woody draws, and north facing slopes and a small portion of the summit of Scotts Bluff.
North Platte	Fall 2002	The North Platte burn unit includes badland terrain, isolated pockets of native prairie and floodplain woodlands along the North Platte River. Union Pacific Railroad property bisects this burn unit. The burn unit is located north of the Gering irrigation canal to the North Platte River.
Saddle Rock	Spring 2002	The Saddle Rock burn unit includes an extensive area of restored prairie, and contains the abandoned Scotts Bluff Country Club, which is located north and east of the Saddle Rock formation and extends to the monument's east boundary.
Scotts Spring	Spring 2002	The Scotts Spring burn unit includes some of the best native prairie within the monument and contains most of the summit of Scotts Bluff. It is located east of the Oregon Trail Museum and Summit Road, extending north to the Saddle Rock formation and east to the monument's east boundary. Western Area Power Administration high voltage power lines cross this burn unit.
South Bluff	Summer/Fall 2007+	The South Bluff burn unit includes prairie, wooded north facing slopes and most of the summit of South Bluff. The burn unit is located south of State Highway 92 and west of Mitchell Pass.
Crown Rock	Summer/Fall 2007+	The Crown Rock burn unit includes prairie, wooded slopes and the remaining summit of the South Bluff. Cedars, junipers and pines cover a portion of the South Bluff's north facing slopes. The burn unit is located south of State Highway 92 and east of Mitchell Pass. Western Area Power Administration high voltage power lines cross this burn unit.
Eagle Rock	Spring 2005	The Eagle Rock burn unit contains native prairie in close proximity to the historic headquarters and maintenance buildings of the monument. It is bordered by State Highway 92 on the south, the Summit Road and visitor center parking lot to the east and north, and Mitchell Pass to the west.

### 2.2.2 Alternative 2 (Proposed Action) - *Revise 1983 Fire Management Plan to Reflect Current Fire Policy Guidance*

Under this alternative, the 1983 Fire Management Plan would be revised to reflect current fire policy guidance. In addition, in order to more effectively meet resource management objectives, once each unit has been restored, it would be burned on a 12-year rotation for maintenance, weather conditions and personnel permitting. While prescribed fires would generally be conducted during the late summer or fall to simulate more natural fire occurrence, some units would be burned in the spring to reduce exotic vegetation and stimulate native plants. For example, the control of cheat grass (*Bromus tectorum*) requires prescribed fire following seed germination after either spring or fall precipitation events. Mechanical thinning treatments would be similar to those described under the No Action Alternative.

Since the completion of the monument's previous version of its Fire Management Plan in 1983, national fire policy guidance has changed. The National Fire Plan of 2000 embodied the philosophical changes in fire policy and outlined four major goals. These included:

- Improve Prevention and Suppression
- Reduce Hazardous Fuels
- Restore Fire Adapted Ecosystems
- Promote Community Assistance

The National Fire Plan placed emphasis on the use of prescribed fire, wildland fire use and mechanical thinning as tools that could be used to meet these goals. Congress also embraced this new fire policy direction through its appropriations to fund projects nationwide that would help meet the national fire plan. In particular, Congress emphasized the need to protect the wildland urban interface by reducing hazardous fuel levels. A final difference under the new National Fire Plan involved administrative changes that allowed certain fire management activities of federal agencies to be funded from "emergency funds."

Besides the philosophical changes in fire policy, there have also been terminology changes since the memorial's Fire Management Plan from 1993. The key terminology changes were the following:

- "Prescribed natural fire" would be known as "wildland fire use";
- "Management-ignited prescribed fires" would be known as "prescribed fire";
- The use of the terms "contain, control, and confine" would no longer be used as descriptive strategies for wildland fire suppression in fire management plans. Formerly, each term was defined in a fire management plan with an accompanying description of the fire management strategy associated with it. Under new policy guidance, the terms would only be used during fire management activities to describe firefighter's progress in suppressing wildfires

### 2.2.3 Alternative 3 – *Suppression of Wildland Fires and No Prescribed Fire*

This alternative responds to the public's concern regarding the possible escape of prescribed fire and any associated human health & safety issues associated with such an event. Under this alternative, the 1983 Fire Management Plan would be updated to reflect current fire policy guidance and would

state that all wildland fires (human-caused and naturally-ignited) would be declared wildfires and suppressed. In addition, prescribed fire would not be permitted in the monument for resource benefits or for slash pile burning. Mechanical thinning treatments would be similar to those described under the No Action Alternative.

#### *2.2.4 Environmentally Preferred Alternative*

The National Park Service is required to identify the environmentally preferred alternative(s) for any of its proposed projects. That alternative is the alternative that will promote the national environmental policy expressed in NEPA (Section 101 (b)). This includes alternatives that:

- 1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2) ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- 3) attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
- 4) preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- 5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
- 6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

In essence, the environmentally preferred alternative would be the one(s) that “causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources” (DOI, 2001a).

In this case, the No Action and Proposed Action Alternatives are the environmentally preferred alternatives for Scotts Bluff National Monument since they meet goals 1, 2, 3, and 4 described above. Under these alternatives, fire management activities would reduce hazardous fuel loadings on the monument, mimic the natural ecological processes, and combat the invasion of exotic invasive plants. In addition, the alternatives help protect monument resources and adjacent lands from the threat of wildfires. Finally, the alternatives best protect and help preserve the historic, cultural, and natural resources in the monument for current and future generations.

## 2.3 IMPACT DEFINITIONS

Table 2-2 depicts the impact definitions used in this Environmental Assessment. Significant impact thresholds for the various impact topics were determined in light of compliance with existing state and federal laws, and compliance with existing Scotts Bluff National Monument planning documents.

Table 2-2 Impact Definitions

	“Minor” Impact	“Major” or “Significant” Impact
<b>Impact topics</b>		
Soils	Minor damage to or loss of the litter/humus layers that causes minor localized increases in soil loss from erosion; fire severe enough to cause minor harm to soil community; minor, temporary surface sterilization of soils that does not cause long term loss of soil productivity that would alter or destroy vegetation community	Damage to or loss of the litter/humus layers that would increase soil loss from erosion on a substantial portion of the burn area; fire severe enough to damage soil community; substantial surface sterilization of soils that may cause long term loss of soil productivity and that may alter or destroy a portion of the vegetation community
Water Resources (Including Flood Plains and Wetlands)	Minor damage to or loss of the litter/humus layers that increases sedimentation on no more than 0.1% of a subwatershed; localized and indirect riparian impact that does not substantively increase stream temperatures or affect stream habitats; no alteration of natural hydrology of the floodplain (including wetlands)	Damage to or loss of the litter/humus layers that increases sedimentation on greater than 0.1% of a subwatershed; localized and indirect riparian impact that may substantively increase stream temperatures or affect stream habitats; alteration of natural hydrology of the floodplain (including wetlands)
Vegetation	Short-term changes in plant species composition and/or structure, consistent with expected successional pathways of a given plant community from a natural disturbance event; thinning of small diameter understory trees	Violation of the Endangered Species Act of 1973; removal of numerous large diameter or old growth trees greater than 80cm at breast height;
Wildlife	Temporary displacement of a few localized individuals or groups of animals; mortality of individuals of species not afforded special protection by state and/or federal law; mortality of individuals that would not impact population trends	Violation of the Endangered Species Act of 1973; mortality of species that jeopardize the resident population
Air Quality	Minimal to negligible air emissions and temporary smoke accumulation; temporary and limited smoke exposure to sensitive resources	Violation of state and federal air quality standards; violation of Class II air quality standards; prolonged smoke exposure to sensitive receptors

	“Minor” Impact	“Major” or “Significant” Impact
<b>Impact topics</b>		
Visitor Use & Experience	Temporary displacement of recreationists or closure of trails, and recreation areas during off-peak recreation use; temporary or short-term alteration of the vista, or temporary presence of equipment/structures in localized area; smoke accumulation during off-peak recreation use	Permanent closure of trails and recreation areas; conflict with peak recreation use; long-term change in scenic integrity of the vista; substantive smoke accumulation during peak recreation use
Human Health & Safety	Minor injuries to any worker (e.g. small cuts, bruises); limited exposure to hazardous compounds or smoke particulates at concentrations below health-based levels	Serious injury to any worker or member of the public; exposure to hazardous compounds or smoke particulates at concentrations above health-based levels.
Cultural Resources	Temporary, non-adverse effects to registered cultural sites, eligible cultural sites, sites with an undetermined eligibility, and traditional cultural properties	Temporary or long-term adverse impacts to registered cultural sites, eligible cultural sites, sites with an undetermined eligibility, and traditional cultural properties
Park Operations	Temporary suspension of non-critical monument operations; negligible impact to monument buildings and structures	Prolonged suspension of all monument operations; adverse impacts to monument buildings and structures

## 2.4 MITIGATION MEASURES AND MONITORING

Scotts Bluff National Monument monitors fire effects and conducts long-term environmental monitoring of vegetation, including information on fuel reduction efforts, vegetative resources, and other objective dependant variables, after a fire (wildfire or prescribed fire). During fire events (wildfire or prescribed fire), data would be collected regarding the current fire conditions consistent with the variables identified in a prescribed fire plan, such as fuel and vegetation type, anticipated fire behavior and fire spread, current and forecasted weather, smoke volume and dispersal, etc.) Scotts Bluff National Monument has also identified several areas requiring future research and monitoring such as the role of fire as a natural process in the monument and assessing the effects of fire on plant and wildlife species and communities. A potential future fire research project including the monitoring of archeological sites following prescribed fires would be of interest. The possibility of conducting a post-burn archeological inventory is currently being considered by the monument. Once specific projects or study areas are defined, they would be discussed in revisions to the Fire Management Plan.

Northern Great Plains Area Fire Effects Crew would install permanent vegetation plots prior to prescribed fires following the Fire Monitoring Handbook (2001). These plots will be re-measured immediately following the fires, and at regularly determined intervals to verify that prescribed fire objectives are being met, that desired conditions are being reached, and that unwanted fire effects are not occurring.

Mitigation measures are prescribed to prevent and/or mitigate adverse environmental impacts that may occur from fire management activities. Mitigation measures are common to all alternatives.

#### 2.4.1 *Fire Management Activities*

- Whenever consistent with safe, effective suppression techniques, the use of natural barriers would be used as extensively as possible;
- All suppression guidelines will follow MIST guidelines;
- Fire retardant agents must be on an approved list for use by the Forest Service and Bureau of Land Management;
- Earth moving equipment such as tractors, graders, bulldozers or other tracked vehicles would generally not be used for fire suppression. The Superintendent can authorize the use of heavy equipment in extreme circumstances in the face of loss of human life and/or property);
- When handline construction is required, construction standards would be issued requiring the handlines to be built with minimum impact. No handlines exposing mineral soil would be allowed through cultural sites, and all handlines would be rehabilitated. Erosion control methods would be used on slopes exceeding 10% where handline construction took place;
- All sites where improvements are made or obstructions removed would be rehabilitated to pre-fire conditions, to the extent practicable.

#### 2.4.2 *Soil and Water Resources (Including Floodplains and Wetlands)*

- Canal or river crossings would be limited to set and existing locations;
- Except for spot maintenance to remove obstructions, no improvements would be made to intermittent/perennial waterways, springs or seeps, trails, or clearings in forested areas;
- Log jams/debris would be left in streams to protect fish and aquatic insect habitat;
- Fire line construction would not be permitted in the floodplain or in wetlands;
- Riparian areas, which have been completely burned, may be seeded with native plant species depending on the intensity of the burn and the composition of the vegetation prior to the burn (exotic vs. native);
- Fire lines would be located outside of highly erosive areas, steep slopes, and other sensitive areas. Following fire suppression activities, fire lines would be re-contoured, water barred, and possibly seeded (with native plant species)
- Fire retardant and foam suppressant use would be prohibited within the floodplain and wetlands, and within 100 feet of the North Platte River.

#### 2.4.3 *Visitor Experience and Use*

- Prescribed fires would not be ignited in close proximity to monument structures during periods of peak visitation unless the areas were closed to the public;
- Fire management activities (excluding fire suppression) would not be conducted during periods of peak summer visitation.

#### 2.4.4 *Cultural Resources*

- Prior to all fire management activities, cultural resources in treatment areas would be identified and avoided.

## **2.5 COMPARISON OF ALTERNATIVES**

Table 2-3 briefly summarizes the environmental effects of the various alternatives. It provides a quick comparison of how well the alternatives respond to the project need, objectives, important issues, and impact topics. Chapter 3 discusses the environmental consequences of the proposed alternatives in detail.



Table 2-3 Comparison of Alternatives' Responses to Project Need, Objectives, Important Issues, and Impact Topics

	Alternative 1 - No Action Alternative	Alternative 2 - Proposed Action	Alternative 3 – Suppress Wildland Fires and No Prescribed Fires
<b>Project Need</b>			
Reduces hazardous fuels; reduces noxious weeds	<p>Yes, hazardous fuels reduction over time on ~3,003 acres of the monument; noxious weeds would be reduced</p> <p>This alternative provides hazardous fuels reduction similar to that under the Proposed Action</p>	<p>Yes, hazardous fuels reduction over time on ~3,003 acres of the monument; noxious weeds would be reduced</p> <p>This alternative provides hazardous fuels reduction similar to that under the No Action Alternative</p>	<p>Yes, hazardous fuels reduction on ~390 acres in the summits, draws, and floodplain from thinning activities; noxious weeds would continue to spread</p> <p>This alternative only provides hazardous fuels reduction on ~13% of the lands treated under the No Action and Proposed Action Alternatives</p>
Restoration of fire regime, plant and wildlife habitat diversity	<p>Yes, a low-severity, high frequency fire regime favoring fire adapted plant and animal species would result</p> <p>The degree to which this alternative restores a historic fire regime and contributes to plant and wildlife habitat diversity is similar to that achieved under the Proposed Action</p>	<p>Yes, a low-severity, high frequency fire regime favoring fire adapted plant and animal species would result</p> <p>The degree to which this alternative restores a historic fire regime and contributes to plant and wildlife habitat diversity is similar to that achieved under the No Action Alternative</p>	<p>No, mixed-grass prairie habitat and diversity would continue to decline in the absence of fire; noxious weeds would continue to spread; encroachment of woody trees in the prairie would be stopped</p> <p>This alternative does <b>not</b> restore a historic fire regime and <b>marginally</b> contributes to plant and wildlife habitat diversity</p>
<b>Project Objectives</b>			
Reduces the fire danger to the monument and adjacent communities	<p>Yes, reduced fire danger to the monument and adjacent communities</p> <p>This alternative provides a similar fire danger reduction as that provided under the Proposed Action</p>	<p>Yes, reduced fire danger to the monument and adjacent communities</p> <p>This alternative provides a similar fire danger reduction as that provided under the No Action Alternative</p>	<p>Yes, reduced fire danger to the monument and adjacent communities from thinning of woody tree species</p> <p>This alternative provides <b>less</b> fire danger reduction than the No Action and Proposed Action Alternatives</p>

Table 2-3 Comparison of Alternatives' Responses to Project Need, Objectives, Important Issues, and Impact Topics

	<b>Alternative 1 - No Action Alternative</b>	<b>Alternative 2 - Proposed Action</b>	<b>Alternative 3 – Suppress Wildland Fires and No Prescribed Fires</b>
<b>Important Issues</b>			
Potential escape of prescribed fire	This alternative allows for prescribed fire, however, potential for escape would be minimal in light of mitigation measures and adherence to guidelines and procedures for ignition of prescribed fire	This alternative allows for prescribed fire, however, potential for escape would be minimal in light of mitigation measures and adherence to guidelines and procedures for ignition of prescribed fire	No potential for escape of prescribed fire since there would be no prescribed fires
Potential for impacts on federally-listed species	There would be no adverse impact to federally-listed species	There would be no adverse impact to federally-listed species	There would be no adverse impact to federally-listed species
<b>Impact Topics</b>			
Geology and Soils	Very minor short-term soil erosion impacts resulting from thinning and prescribed fire activities; benefits to soil development and soil nutrification	Very minor short-term soil erosion impacts resulting from thinning and prescribed fire activities; benefits to soil development and soil nutrification	Very minor short-term soil erosion and compaction impacts resulting from thinning activities; increased potential for high-severity fire in the future and direct soil impacts
Water Resources (including floodplains and wetlands)	Very minor short-term impacts to water resources from sedimentation resulting from thinning and prescribed fire activities; floodplain and wetland hydrology unaffected	Very minor short-term impacts to water resources from sedimentation resulting from thinning and prescribed fire activities; floodplain and wetland hydrology unaffected	Very minor short-term impacts to water resources from sedimentation resulting from thinning activities; floodplain and wetland hydrology unaffected
Vegetation	Plant habitat and diversity improved; native grasses and forbs favored; noxious weed species reduced; fuel loadings reduced on ~3,003 acres	Plant habitat and diversity improved; native grasses and forbs favored; noxious weed species reduced; fuel loadings reduced on ~3,003 acres	Plant habitat and diversity degraded; continued spread of noxious weeds at the expense of native grasses and forbs

Table 2-3 Comparison of Alternatives' Responses to Project Need, Objectives, Important Issues, and Impact Topics

	<b>Alternative 1 - No Action Alternative</b>	<b>Alternative 2 - Proposed Action</b>	<b>Alternative 3 – Suppress Wildland Fires and No Prescribed Fires</b>
Wildlife	Thinning and prescribed fire activities would temporary displace some wildlife species; individual mortality of some species likely; no impact on migratory birds, T&E or Sensitive species; wildlife habitat improved in the long-term with restoration of historic fire regime	Thinning and prescribed fire activities would temporary displace some wildlife species; individual mortality of some species likely; no impact on migratory birds, T&E or Sensitive species; wildlife habitat improved in the long-term with restoration of historic fire regime	Wildlife benefits resulting from historic fire regime not realized; no impact on migratory birds, T&E or Sensitive species
Air Quality	Very minor and temporary effects resulting from prescribed fire; no smoke impacts on sensitive receptors	Very minor and temporary effects resulting from prescribed fire; no smoke impacts on sensitive receptors	Suppression efforts reduce air quality impacts from wildfires
Visitor Use and Experience (including Park Operations)	Minor and short-term impacts during thinning and prescribed fire activities (e.g. trail or road closures, presence of work crews in the vista); no effect on park operations	Minor and short-term impacts during thinning and prescribed fire activities (e.g. trail or road closures, presence of work crews in the vista); no effect on park operations	Very minor and short-term impacts during thinning activities (e.g. trail closures or limited access to certain areas, presence of work crews in the vista); potential for impacts on park operations in the event of high-severity fire
Human Health & Safety	Human health and safety improved by reducing fire danger to the monument and adjacent communities; potential for injury from thinning activities; very minor exposure to smoke by workers and the public during prescribed fire	Human health and safety improved by reducing fire danger to the monument and adjacent communities; potential for injury from thinning activities; very minor exposure to smoke by workers and the public during prescribed fire	Human health and safety improved marginally with reduction of hazardous fuels on 390 acres within the monument; increased fire danger to monument and adjacent communities with fuels buildup in the absence of prescribed fire
Cultural Resources	No impact to known cultural resources	No impact to known cultural resources	No impact to known cultural resources

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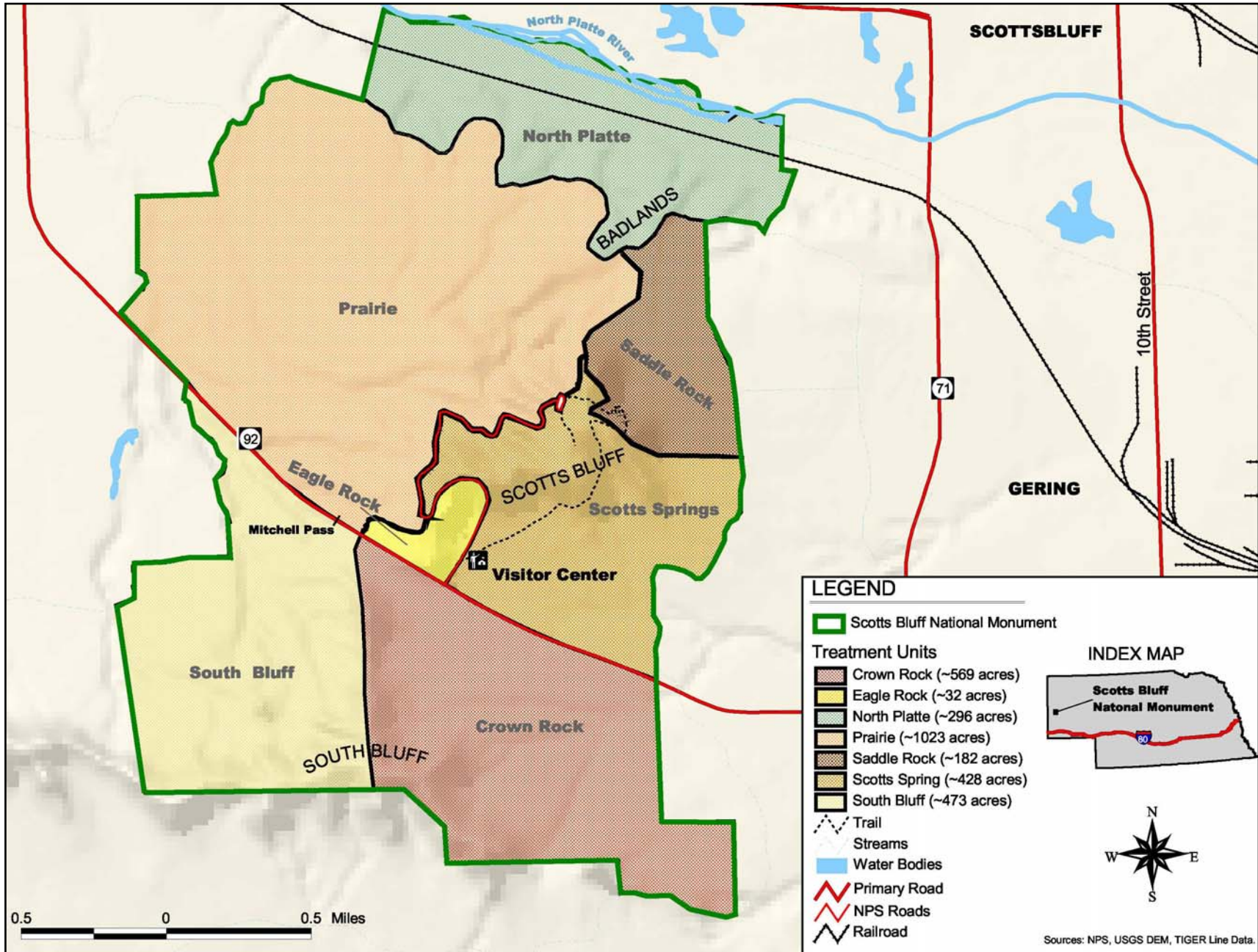


Figure 2-1 Scotts Bluff National Monument Treatment Units

## Chapter 3 – Environmental Analysis

This chapter summarizes the existing environmental conditions and the probable environmental consequences (effects) of implementing the action and No-Action alternatives. This chapter also provides the scientific and analytical basis for comparing the alternatives. The probable environmental effects are quantified where possible; where not possible, qualitative descriptions are provided.

### 3.1 GEOLOGY AND SOILS

#### 3.1.1 *Affected Environment*

The plains of Scotts Bluff National Monument were formed by silted alluvial material carried by rivers from the newly uplifted Rocky Mountains about 60 million years ago. The Brule formation is exposed on bluffs and slopes throughout Scotts Bluff County. It is chiefly a ruddy-buff silt, massive and featureless in fresh exposures, but weathering into brick-shaped blocks or slabs. Although bedding is rarely seen, zones of more compact or limey material exhibit greater resistance to weathering and erosion, producing an effect of layering which shows up best where Brule has been eroded into badlands (Champe, 1946).

The soil association in the monument is predominantly Mitchell Silt Loam, Platte Loam, Orthents, and Badlands. These soils are moderately to steeply sloped, of rapid permeability, and low water capacity. Within the monument, Mitchell Silt Loam is usually less than 9 inches in depth and erodes easily when dry and when on steep slopes after heavy rains, however, vegetation will hold the soil. Orthents and Badlands have similar characteristics when dry (Lee and Ragon, 1993; USDA, 1968).

#### 3.1.2 *Environmental Consequences*

Soil impacts were qualitatively assessed using soil characteristics, literature reviews, and mitigation measures.

##### 3.1.2.1 Alternative 1 – No Action

Proposed activities with the potential to impact soils include building fire lines, thinning, and prescribed fire.

Very minor and localized soil compaction would occur from thinning activities, and vehicle use would be restricted to existing roads. Fire line construction would result in soil disturbance and could lead to increased erosion, especially on steeply sloped areas within the monument. To avoid these potential impacts, fire lines would be located outside of highly erosive areas, steep slopes, and other sensitive areas. Following fire suppression activities, fire lines would be re-contoured, water barred, and possibly seeded (with native plant species).

Prescribed fire would release nutrients into the soil and the fertilization effects of ash would provide an important source of nutrients for vegetation in the area. The blackened, burned areas following prescribed fires would also raise the soil temperature by several degrees, particularly in the spring, and would increase fungal, bacterial, and algal activity, which in turn would increase available nitrogen. The increased microorganism activity would also help to increase soil temperatures while aiding in nutrient recycling (Vogl, 1979; Wright and Bailey, 1980).

Fire generally improves mixed-grassland soils without leading to increased erosion. In addition to increasing nitrification of the soils and increasing minerals and salt concentrations in the soil, the ash and charcoal residue resulting from incomplete combustion aids in soil buildup and soil enrichment by being added as organic matter to the soil profile. The added material works in combination with dead and dying root systems to make the soil more porous, better able to retain water, and less compact while increasing needed sites and surface areas for essential microorganisms, mycorrhizae, and roots (Vogl, 1979; Wright and Bailey, 1980).

#### 3.1.2.2 Alternative 2 – Proposed Action

General soil impacts under Alternative 2 would be similar to those described under the No Action Alternative.

#### 3.1.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

General soil impacts would be similar to those described under the No Action Alternative, except the benefits accruing to soils from prescribed fire would not occur.

#### *Conclusion*

The implementation of any of the alternatives would not impair geologic and soil resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument's General Management Plan or other National Park Service planning documents.

## **3.2 WATER RESOURCES (INCLUDING FLOODPLAINS AND WETLANDS)**

### 3.2.1 *Affected Environment*

Scotts Bluff National Monument is bordered by the North Platte River and is traversed by three irrigation canals – Gering Irrigation District canal, Gering/Fort Laramie Irrigation District canal, and the Central Irrigation District canal. There is one known natural spring in the monument, Scotts Spring. It flows throughout the year and, up until the 1960s, was regularly used for drinking water. It is not currently available for drinking and is allowed to seep back into the ground. The monument also contains approximately 102 acres of floodplains and 27 acres of wetlands adjacent to the North Platte River. The wetlands are identified as marsh and seasonally

flood in the spring and temporarily flood at other times due to rainfall events upstream. The floodplain historically was subject to periodic flooding which stripped the area of any new vegetation growth, however, dams and reservoirs upriver and the diversion dams for irrigation have greatly reduced natural flooding events. The area is now densely covered with woody trees and shrubs.

The North Platte River at the monument has been classified as a Class A recreation stream, a Class B coldwater stream, and a Class A agricultural stream. Class A recreation streams are waters which are used, or have high potential to be used, for primary contact recreational activities. Class B coldwater streams provide, or could provide, a habitat capable of maintaining year around populations of a variety of coldwater fish and associated vertebrates, invertebrates and plants, or which support seasonal migration of salmonids. Class B coldwater streams do not support natural reproduction of salmonid populations due to limitations in flow, substrate composition, or other habitat conditions, but salmonid populations may be maintained year round if periodically stocked. Class A agricultural waters are used for general irrigation purposes such as livestock watering and irrigation without treatment (NDEQ, 1990).

### 3.2.2 *Environmental Consequences*

Water resource impacts were qualitatively assessed using presence/absence of surface water resources, literature reviews, and mitigation measures.

#### 3.2.2.1 Alternative 1 – No Action

Proposed activities with the potential to impact water resources include building fire lines, vehicle and fire retardant use associated with suppression activities, thinning, and prescribed fire.

Thinning, fire line construction, and prescribed fire activities would result in a temporary and minor increase in soil erosion, especially in steeply sloped areas. Increased erosion would result in very minor and temporary turbidity and sedimentation of the North Platte River and irrigation canals. In light of the mitigation measures employed during fire management activities (e.g. no fire line construction in the floodplain and wetlands; no fire retardant use within or immediately adjacent to water resources), there would be very minor vegetation impacts within the floodplain and wetlands in the monument. Hydrology of all monument water resources would not be affected.

The use of fire retardants or foams could potentially cause short and long-term impacts to water resources if misapplied or mishandled. Retardants contain ammonia and phosphate or sulfate ions, which can change the chemistry of a water body, thus making it lethal to fish and other aquatic organisms. Foams contain detergents that can interfere with the ability of fish gills to absorb oxygen. The degree of impact would depend on the volume of retardant/foam dropped into the water body, the size of the water body, and the volume of flow in the stream or river. For example, if a 800-gallon drop is made into a fast flowing river, it is likely that the lethal effects to aquatic resources will be short-lived as dilution below the toxic level is quickly achieved. On the other hand, a 3,000-gallon drop in a stagnant pond would likely cause toxic levels to persist for some time (USDA, 2001).



While the removal of large numbers of trees in riparian areas could reduce shading of the river and result in increased localized water temperatures, thinning efforts would focus on small understory trees and would not be extensive enough to affect temperatures in the fast flowing North Platte River. Riparian areas, which have been completely burned, may be re-seeded with native plant species depending on the intensity of the burn and the composition of the vegetation prior to the burn (exotic vs. native). This action would help re-vegetate the areas and minimize bank erosion.

Fire management activities would not affect the multiple classifications of the North Platte River at the monument.

#### 3.2.2.2 Alternative 2 – Proposed Action

General water resources impacts under Alternative 2 would be similar to those described under the No Action Alternative.

#### 3.2.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

General water resources impacts under Alternative 3 would be similar to those described under the No Action Alternative, with one exception. The absence of prescribed fire would eliminate any associated soil erosion and subsequent sedimentation.

#### *Conclusion*

The implementation of any of the alternatives would not impair water resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument's General Management Plan or other National Park Service planning documents.

## 3.3 VEGETATION

### 3.3.1 *Affected Environment*

The native vegetation of the monument consists of three major plant associations: 1) the moderately dense mixed-grass prairie, 2) the ponderosa pine/Rocky Mountain juniper areas, and 3) the hardwood community along the floodplain of the North Platte River. Within these areas of the monument can be found seven major habitat types: riverine woodland, coniferous woodland, mixed-grass prairie, riparian habitat associated with irrigation canals, pine studded bluffs, shrub-dominated slopes, and badlands.

The mixed-grass prairie comprises approximately 87% of the total acreage within the monument and includes the relatively flat prairie surrounding Scotts Bluff and South Bluff as well as the grassy slopes leading to their summits. The mixed-grass prairie is dominated by blackroot sedge (*Carex filifolia* var. Nutt.) and needle-and-thread grass (*Stipa comata*). Other native grasses, such as western wheatgrass (*Agropyron smithii*), blue grama (*Bouteloua gracilis*), prairie



sandreed (*Calamovilfa longifolia*), and side oats grama (*Bouteloua curtipendula*) are common. In addition, many exotic plants such as Canadian thistle (*Cirsium arvense*), Russian thistle (*Salsola iberica*), and field bindweed (*Convolvulus arvensis*) have invaded the area with varying amounts of success.

The ponderosa pine/Rocky Mountain juniper areas comprise approximately 10% of the total acreage within the monument and include the summits of Scotts Bluff and South Bluff, as well as the ravines and draws. Ponderosa pine (*Pinus ponderosa*) is the most abundant tree species on the summits, while Rocky Mountain juniper (*Juniperus scopulorum*) and some eastern red cedar (*Juniperus virginiana*) occupy the ravines and draws. The most abundant grass species in the understory of the ponderosa pine are little bluestem (*Schizachyrium scoparium*), needle-and-thread, blue grama, and side oats grama. The ravines and draws contain western snowberry (*Symphoricarpos occidentalis*), skunkbush sumac (*Rhus trilobata*), and various sedges.

The hardwood community along the floodplain of the North Platte River consists of approximately 3% of the total acreage within the monument and lies between the badlands and the North Platte River on the north boundary of the monument. Woody species include cottonwood (*Populus deltoides*), box elder (*Acer negundo*), green ash (*Fraxinus velutina*), and Siberian elm (*Ulmus pumila*). Poison ivy (*Toxicodendron rydbergii*) and other shrubs are common.

There are ten state listed rare plants in the monument. These include: Platte River milk vetch (*Astragalus pectinatus*), rabbit brush (*Chrysothamus parryi*), buckwheat (*Enogonum cernuum*), leopard lily (*Fritillaria atropurpurea*), stickseed (*Lappula cenchrusoides*), polemonium (*Leptodactylon caespitosum*), dog parsley (*Lomatium nuttallii*), whitestem blazingstar (*Mentzelia albicaulis*), nailwort (*Paronichia sessiliflora*), scorpionweed (*Phacelia hastata*), double bladderpod (*Physaria brassicoides*), and wire lettuce (*Stephanomeria runcinata*). Of the ten, seven are restricted to areas of eroding siltstone and sandstone. Platte River milk vetch, rabbit brush, and leopard lily are found in the prairie.

### 3.3.2 Environmental Consequences

Vegetation impacts were qualitatively assessed using literature reviews and quantitatively assessed by acres impacted.

#### 3.3.2.1 Alternative 1 – No Action

Thinning activities would occur on approximately 390 acres of the monument under this alternative, while prescribed fire would occur throughout the entirety of the monument (3,003 acres).

The restoration of the historic fire regime to the mixed-grass prairie would restore and enhance the variety and diversity of native plant species and habitats, while at the same time help control noxious weeds. Plant communities adapted to high frequency, low-severity fires would be favored with prescribed fire. Prescribed fire would also release nutrients into the soil and the fertilization effects of ash would provide an important source of nutrition for vegetation in the

area. In general, fires tend to stimulate plant growth, resulting in larger, more vigorous plants, greater seed production, and increased protein and carbohydrate contents. (Vogl, 1979; Wright and Bailey, 1980)

Research suggests that the optimum timing for prescribed fire would be during the summer months, however, the fire hazard is greatest during that time (Wendtland, 1993). Wendtland found that fall burns had similar effects as summer burns on many mixed-grass prairie ecosystem attributes. In light of the lifecycles of many of the noxious weeds present on the monument (e.g. cheatgrass and Kentucky bluegrass), prescribed fires during seed germination would best control their spread (NPS, 2000).

Suppression activities that resulted in soil disturbance (fire lines, vehicle use) would make those disturbed areas more susceptible to noxious weed infestation. Disturbed areas would be re-seeded with native grasses. Thinning and fire activities would retard the encroachment of woody tree species into the prairie and would reduce hazardous fuels buildup on the monument. Thinning efforts (hand tools and chainsaws) would focus on small understory trees and old growth trees would not be thinned.

Fire management activities would not affect the eight rare plant species that inhabited sparsely vegetated areas, however, prescribed fire would occur in areas that contained Platte River milk vetch, rabbit brush, and leopard lily. The milk vetch and lily are perennials with extensive root systems and flower between May and June, with seed set in mid-July. Prescribed fires would likely remove the above ground part of the plants without resulting in their mortality (DeBacker, 1999). Past fires in the prairie stunted the growth of rabbit brush for a few years, but the plants have returned to pre-fire levels (Manasek, 2002). Prescribed fires may kill a few individual plants, but the viability of the rabbit brush population would not be in jeopardy.

#### 3.3.2.2 Alternative 2 – Proposed Action

General vegetation impacts under Alternative 2 would be similar to those described under the No Action Alternative.

#### 3.3.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

Thinning activities would occur on approximately 390 acres of the monument under this alternative.

The absence of prescribed fire would eliminate the benefits to plant habitat and diversity that accrue from fire in mixed-grass prairie ecosystems, and the plant communities on the monument would continue to transition away from what was historically present. In particular, noxious weeds would continue to increase in number and out-compete favorable native species.

#### *Conclusion*

The implementation of any of the alternatives would not impair vegetation resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the

monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument's General Management Plan or other National Park Service planning documents.

## 3.4 WILDLIFE

### 3.4.1 Affected Environment

Scotts Bluff is one of the few places in the Panhandle of Nebraska where wildlife is protected in a natural environment. Over 140 species of reptiles, amphibians, birds, and mammals have been recorded by researchers and staff in Scotts Bluff National Monument. Reptilian species include the bullsnake (*Coluber constrictor*) and western prairie rattlesnake (*Crotalus viridis*). The five most common bird species are the western meadowlark (*Sturnella neglecta*), common grackle (*Quiscalus quiscula*), spotted towhee (*Pipilo erythrophthalmus*), black-billed magpie (*Pica pica*), and brown-headed cowbird (*Molothrus aeneus*). Some common mammals occurring at the monument include white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), eastern cottontail rabbit (*Sylvilagus floridanus*), black-tailed prairie dog (*Cynomys ludovicianus*), coyote (*Canus latrans*), deer mouse (*Peromyscus maniculatus*), and plains pocket gopher (*Geomys bursarius*).

The U.S. Fish and Wildlife Service believes there are three federally listed threatened and endangered species that may occur in the vicinity of the monument: black-footed ferret (*Mustela nigripes* [endangered]), whooping crane (*Grus americana* [endangered]), and bald eagle (*Haliaeetus leucocephalus* [threatened]). Black-tailed prairie dogs are an essential food item for black-footed ferrets and the presence of the 45-acre prairie dog town in the northwest corner of the monument increases the likelihood that the ferrets may visit the monument. All prairie dog towns of 100-acres or more are considered to be essential habitat for a mated pair of the black-footed ferrets. Since the prairie dog town on the monument is only 45 acres in size, it is not considered to be essential habitat for the black-footed ferret. The prairie dog is a candidate for federal listing under the Endangered Species Act.

Scotts Bluff National Monument is on the western edge of the whooping crane migration corridor and one whooping crane sighting was confirmed in the vicinity of Scottsbluff several years ago.

Bald eagles winter along the North Platte River in the Scottsbluff area and are commonly observed within the monument from November through March. The main local resting area for the eagles has been east of Gering along the North Platte River, approximately 5 miles from the monument.

NPS *Management Policies* states “the National Park Service will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species, to the greatest extent possible.” There are 12 species of animals and one species of plant that are listed by the State of Nebraska as endangered. They are peregrine falcon (*Falco peregrinus*), whooping crane, eskimo curlew (*Numenius borealis*), bald eagle, piping plover (*Charadrius melodus*), interior least tern (*Sterna antillarum*), black-footed ferret, swift fox

(*Vulpes velox*), river otter (*Lutra canadensis*), American burying beetle (*Nicrophorous americanus*), pallid sturgeon (*Scaphirhynchus albus*), and Hayden penstemon (*Penstemon haydenii*). Of these species, there have only been confirmed sightings of the bald eagle within the monument.

At the present time, there are seven species of animals and two species of plants that are listed by the State of Nebraska as threatened. They are: mountain plover (*Charadrius montanus*), southern flying squirrel (*Glaucomys volans*), western prairie fringed orchid (*Platanthera praeclara*), Ute's lady's tresses (*Spiranthes diluvialis*), lake sturgeon (*Acipenser fulvescens*), northern redbelly dace (*Phoxinus eos*), pearl dace (*Semotilus margarita*), finscale dace (*Phoxinus neogaeus*), and blacknose shiner (*Notropis heterolepis*). None of these species are in the vicinity of the monument.

### 3.4.2 Environmental Consequences

Wildlife impacts were qualitatively assessed using presence/absence determinations, fire's role in mixed-grass prairie ecosystems, and mitigation measures.

#### 3.4.2.1 Alternative 1 – No Action

Proposed activities with the potential to impact wildlife include building fire lines, vehicle and fire retardant use associated with suppression activities, thinning, and prescribed fire.

Habitat conditions for many wildlife species that inhabit mixed-grass prairie would improve with the restoration of the historic high frequency, low intensity fire regime characteristic of mixed-grass prairie ecosystems in the area. Prescribed fire would continue to restore and enhance the variety and diversity of native plant and wildlife habitats. Nutrients released to plants through the fertilization effects of ash would provide an important source of nutrition for wildlife in the area. While some trees would be killed from the effects of fire, these dead standing trees (snags) would be left as these provide important habitat for a variety of wildlife species.

In the event of fire on the prairie, most wildlife species, such as the black-tailed prairie dog, escape by flight or by hiding underground in burrows or under rocky debris. These escape strategies are effective in fast-moving, low-severity fires on the prairie. All the fire management activities could result in the temporary displacement of wildlife or individual mortality of wildlife species. The loss of individuals of a non-threatened or endangered species, however, would not jeopardize the viability of the populations on and adjacent to the monument. There would not be any significant direct or indirect impact to over-wintering bald eagles or to black-tailed prairie dogs from fire management activities.

Fire management activities could also impact migratory birds nesting on the monument. To avoid any potential harm to the birds or their nests, thinning and prescribed fire activities would not be permitted during the breeding season, May 15 - August 15. There would be no impacts to federally or state listed species from fire management activities under this alternative.

### 3.4.2.2 Alternative 2 – Proposed Action

General wildlife impacts under Alternative 2 would be similar to those described under the No Action Alternative.

### 3.4.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

The absence of prescribed fire in the mixed-grass prairie ecosystem would lead to increased fuels and would result in more intense and severe fires. Such a fire regime would not help restore the prairie's native plant and wildlife habitats, and would likely result in increase individual mortality of wildlife species as both the wildland fires and their heat penetrated and damaged a greater degree of soil resources and any wildlife seeking shelter within them. While the potential for individual mortality would increase under this alternative, the viability of populations on and adjacent to the monument would not likely be affected.

#### *Conclusion*

The implementation of any of the alternatives would not impair wildlife resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument's General Management Plan or other National Park Service planning documents.

## **3.5 AIR QUALITY**

### 3.5.1 *Affected Environment*

Under the terms of the 1990 Clean Air Act amendments, the monument is designated as a Class II quality area. By definition, Class II areas of the country are set aside under the Clean Air Act, but identified for somewhat less stringent protection from air pollution damage than Class I areas. Congressional concern for the air resource was apparent in the 1919 enabling legislation, "whereas Scotts Bluff is the highest known point within the state of Nebraska, affording the view for miles over the surrounding country..." The primary means by which the protection and enhancement of air quality is accomplished is through implementation of National Ambient Air Quality Standards (NAAQS). These standards address six pollutants known to harm human health including ozone, carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen oxides (USDA, 2000a).

Agriculture is the economic base for the local communities around the monument. Because of the relatively low precipitation and the soil disturbance from cultivation and agricultural practices, there is frequently a considerable amount of particulate matter in the air, especially in the fall months when crops have been harvested. In addition, the sugar beet industry has several refineries in the North Platte River Valley. These refineries emit a considerable amount of air pollutants, such as sulfur dioxide, volatile organic compounds, and particulate matter. Annually, during the period of sugar beet processing, there is a brown haze stretching across the valley

from the refineries. Lastly, the Western Sugar Company plant in Scottsbluff processes molasses and operates almost year round, contributing to air pollution.

Ambient air quality monitoring conducted by the Nebraska's Air Quality Program reveals that most Nebraskans continue to enjoy high quality ambient air. During the last year, of the six pollutants referenced above, only Total Reduced Sulfur (TRS) exceeded the respective standard in 2 communities. Neither of these communities are located near Scottsbluff. The Nebraska Department of Environmental Quality monitors ambient air quality in Scotts Bluff for particulate matter of 2.5 microns in size [PM<sub>2.5</sub>] (NDEQ, 2002).

### 3.5.2 *Environmental Consequences*

Air quality impacts were qualitatively assessed upon review of National Park Service best management practices to reduce air emissions, State of Nebraska prescribed fire permit specifications and requirements, and the extent of proposed prescribed fire activities under all the alternatives.

#### 3.5.2.1 Alternative 1 – No Action

Smoke consists of dispersed airborne solids and liquid particles, called particulates, which could remain suspended in the atmosphere for a few days to several months. Particulates can reduce visibility and contribute to respiratory problems. Very small particulates can travel great distances and add to regional haze problems. Regional haze can sometimes result from multiple burn days and/or multiple owners burning within an airshed over too short a period of time to allow for dispersion.

Prior to any prescribed fire, the monument would submit a general open fire permit application to the Nebraska Department of Environmental Quality (NDEQ) that, among other things, identifies the location and size of the proposed prescribed fire. The State then reviews the burn application and, upon a favorable review, the State provides the applicant with an open fire permit for that particular prescribed fire. While the state does not require general open fire permit applications to contain quantified emissions from the proposed prescribed fires, NDEQ assesses the possible environmental impacts of the open fire, particularly to air quality. (Duncan, 2002).

For prescribed fires, there are three principle strategies to manage smoke and reduce air quality effects. They include:

1. Avoidance - This strategy relies on monitoring meteorological conditions when scheduling prescribed fires to prevent smoke from drifting into sensitive receptors, or suspending burning until favorable weather (wind) conditions;
2. Dilution – This strategy ensures proper smoke dispersion in smoke-sensitive areas by controlling the rate of smoke emissions or scheduling prescribed fires when weather systems are unstable, not under conditions when a stable high-pressure area is forming with an associated subsidence inversion. An inversion would trap smoke near the ground; and

3. Emission Reduction – This strategy utilizes techniques to minimize the smoke output per unit area treated. Smoke emission is affected by the number of acres burned at one time, pre-burn fuel loadings, fuel consumption, and the emission factor. Reducing the number of acres that are burned at one time would reduce the amount of emissions generated by that burn. Reducing the fuel beforehand, e.g. removing firewood, reduces the amount of fuel available. Conducting prescribed fires when fuel moistures are high can reduce fuel consumption. Emission factors can be reduced by pile burning or by using certain firing techniques such as mass ignition.

If weather conditions changed unexpectedly during a prescribed fire, and there was a potential for violating air quality standards or for adverse smoke impacts on sensitive receptors, the monument would implement a contingency plan, including the option for immediate suppression. Considering the relatively small number of acres that would be affected by prescribed fire under the proposed action over a period of several years, approximately 3,003 acres, and in light of the current air quality in the area and review and approval of the burn permit by the NDEQ, prescribed fire would not violate daily national or state emission standards and would cause very minor and temporary air quality impacts. The greatest threat to air quality would be smoke impacts on sensitive receptors, however, this possibility would be minimized and/or eliminated if the burn plan is strictly adhered to, and if smoke minimization efforts are followed.

#### 3.5.2.2 Alternative 2 – Proposed Action

General air quality impacts under Alternative 2 would be similar to those described under the No Action Alternative.

#### 3.5.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

Under Alternative 3, there would be no direct air quality impacts.

#### *Conclusion*

The implementation of any of the alternatives would not impair air quality resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument's General Management Plan or other National Park Service planning documents.

## **3.6 VISITOR USE AND EXPERIENCE (INCLUDING PARK OPERATIONS)**

### 3.6.1 *Affected Environment*

For many visitors, Scotts Bluff National Monument is a brief stop on their vacation route, which frequently terminates at such destination areas as Yellowstone National Park or the Black Hills of South Dakota. For others, it is a destination. Most visitors spend time in the monument's

museum and visitor center, and a majority travel to the summit of the bluff. There are two main facets to the visitor experience at Scotts Bluff National Monument: 1) the story of the westward migration on the Oregon, California, and Mormon Trails, and 2) the natural history and scenic beauty of the bluffs and surrounding prairie. While the monument is open year-round, visitor use is highest from June through August, with the greatest number of visitors staying for a few hours. On average, the monument has 120,000 visitors per year.

Visitors to the monument are able to experience a significant representation of the westward expansion era as it relates to the historic trails, Pony Express, and first transcontinental telegraph. Visitors can walk in wagon ruts through Mitchell Pass just as emigrants did over 150 years ago. Additional trails are open to the hikers and bicyclists to enjoy and experience the monument's mixed-grass prairie and summits. For those visitors who hike or drive to the summit of the 800-foot high Scotts Bluff, a significant part of their experience is the panoramic view of the prairie, bluffs and badlands within the monument and the more distant views of the North Platte River Valley and the historic landscape beyond.

There are 5 buildings in the headquarters area including a ranger residence, maintenance facility with related bays and shed, visitor center, restroom building, and administration building. There are no visitor services on the summit other than hiking trails. Fire management on the monument is administered with the aid of fire management personnel from Wind Cave National Park.

### 3.6.2 *Environmental Consequences*

Recreation impacts were qualitatively assessed in light of the intensity and duration of fuel treatment activities as they related to visitor use and experience. Visual resource impacts in this EA were assessed in terms of scenic integrity, visual wholeness, and unity of the landscape.

#### 3.6.2.1 Alternative 1 – No Action

There would be some short-term reduction in scenic integrity and visitor use during and immediately following any thinning and/or prescribed fire activities from the presence of engines and thinning or fire crews, as well as suppression activities. Short-term reduction in scenic integrity, however, would be minor because 1) fire management activities would involve only short-term presence of vehicles and people, 2) stumps would be cut flush with the ground, and 3) smoke accumulation would be temporary since prescribed fires would be ignited under favorable conditions for smoke dispersion. Any prescribed fires would likely produce short-term smoke accumulations that impact local visual quality. Minimizing smoke emissions through best management practices and prohibiting prescribed fires during times of peak recreation use would reduce any short-term impacts.

Visitor use would also be temporarily affected under this alternative since access to locations where crews were conducting thinning, prescribed fire, and suppression activities would be restricted. In addition, interpretive programs that focus on prescribed fire in the monument's mixed-grass ecosystems would educate visitors about the importance of and the benefits derived from a prescribed fire program. Visitor use and experience impacts would be reduced by



restricting thinning and prescribed fire activities to times of low public use and by implementing an interpretive program about prescribed fire.

Park operations would not be affected under this alternative with the aid of fire management personnel from Wind Cave National Park and other National Park Service units. In the event of a wildfire within or adjacent to the monument, park operations could be temporarily affected depending on the severity of the fire and situation at hand as visitors and non-essential monument personnel were evacuated to off-site and safe locations.

### 3.6.2.2 Alternative 2 – Proposed Action

General impacts to visitor use and experience would be similar to those described under the No Action Alternative.

### 3.6.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

General impacts to visitor use and experience would be similar to those described under the No Action Alternative. In the short-term, the absence of prescribed fire would result in fewer temporary impacts to visitor use and experience, however, in the long-term, it would increase the potential for more intense and severe wildland fires that could affect visitor use and experience, and park operations. In addition, high intensity fire could kill or scorch large numbers of trees on the summit and in the draws and floodplain, thus altering the visual landscape in certain areas.

## 3.7 HUMAN HEALTH AND SAFETY

### 3.7.1 *Affected Environment*

Prior to the ignition of any prescribed fire in the monument, all the burn parameters of the existing and approved prescribed fire burn plan must be met to ensure a safe and effective prescribed fire. In addition, staff would prepare brochures for the public and for adjacent landowners that advise them of the time and extent of the proposed burn and educate them about the role of fire in the mixed-grass prairie. In the event of potentially hazardous fires within the monument, the Park Superintendent and Chief Ranger would coordinate public notification efforts within and outside the monument. The extent of public notice would depend on the specific fire situation. In every case, assuring visitor and monument staff safety would take priority over other activities.

### 3.7.2 *Environmental Consequences*

Human health & safety impacts were qualitatively assessed through determination of activities, equipment and conditions that could result in injury, literature review of type and extent of injury caused by equipment and conditions, and in light of mitigation measures and best management practices.

### 3.7.2.1 Alternative 1 – No Action

Factors most likely to adversely impact firefighter health and safety include activities associated with wildland fire suppression efforts (accidental spills, injuries from the use of fire-fighting equipment, smoke inhalation, and, in severe cases, injuries from wildland fires). Impacts to the public could include smoke inhalation, and in severe cases, injuries from wildland fires.

Accidental spills of fire retardants and foams are the most likely to adversely impact human health & safety. Fire retardants used in controlling or extinguishing fires contain about 85% water, 10% fertilizer, and 5% minor ingredients such as corrosion inhibitors and bactericides. Fire suppressant foams are more than 99% water. The remaining 1% contains surfactants, foaming agents, corrosion inhibitors, and dispersants. These qualified and approved wildland fire chemicals have been tested and meet specific requirements with regard to mammalian toxicity as determined by acute oral and dermal toxicity testing as well as skin and eye irritation tests (USDA, 2001). However, they are strong detergents, and can be extremely drying to skin. All currently approved foam concentrates are irritating to the eyes as well. Application of a topical cream or lotion can alleviate the effects of a retardant, and protective goggles can prevent any injury to the eyes when using foams.

Fuel break construction can pose safety threats to firefighters. Injuries can occur from the use of equipment as well as from traveling overland to targeted areas for firefighting efforts during suppression efforts. While each of the crew is trained in the use of firefighting equipment, accidental injuries may occur from time to time. Strict adherence to guidelines concerning firefighter accreditation, and equipment and procedure safety guidelines would minimize accidents.

Smoke inhalation can also pose a threat to human health & safety. Smoke from wildland fires is composed of hundreds of chemicals in gaseous, liquid, and solid forms. The chief inhalation hazard appears to be carbon monoxide (CO), aldehydes, respirable particulate matter with a median diameter of 2.5 micrometers (PM<sub>2.5</sub>), and total suspended particulate (TSP). Adverse health effects of smoke exposure begin with acute, instantaneous eye and respiratory irritation and shortness of breath, but can develop into headaches, dizziness, and nausea lasting up to several hours. Based on a recent study of firefighter smoke exposure, most smoke exposures were not considered hazardous, but a small percentage routinely exceeded recommended exposure limits for carbon monoxide and respiratory irritants (USDA, 2000b).

Use restrictions applied to areas of wildland fires or prescribed fires would minimize or eliminate public human health & safety concerns resulting from smoke exposure and fire injuries. When using prescribed fire, mitigation measures, such as construction of fire lines, the presence of engines, and strict adherence to prescribed fire plans, would minimize the potential for an out-of-prescription burn or escape. Elements of the prescribed fire plan that relate to ensuring a safe burn include such measures as fuel moisture, wind speed, rate of fire spread, and estimated flame lengths. While the potential for a fire escape will always exist when conducting prescribed fires, that potential is extremely small. Recent statistics summarized by the Boise Interagency Fire Center report that approximately 1% of prescribed fires on federal lands required suppression activities of some kind. In most cases these prescribed fires jumped a control line and

suppression tactics were successfully used to control them. Out of the 1% of prescribed fires that required suppression, 90% were controlled without incident. Statistically, this result leaves about 0.1% of prescribed fires that required major suppression actions (Stevens, 2000).

### 3.7.2.2 Alternative 2 – Proposed Action

The general impacts to human health & safety under Alternative 2 would be similar to those described under the No Action Alternative.

### 3.7.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

The general impacts to human health & safety under Alternative 3 would be similar to those under the Proposed Action. The exclusion of prescribed fire (broadcast burning) to reduce ground fuels would eliminate the possibility of an out-of-prescription burn or fire escape. Since slash pile burning would be conducted during winter, the potential for escape from a slash pile burn and for a subsequent wildfire would be very low. In the long-term, however, fuels buildup in the absence of prescribed fire would result in more intense and severe wildland fires that could be more difficult to suppress.

## 3.8 CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their proposals on historic properties, and to provide state historic preservation officers, tribal historic preservation officers, and, as necessary, the Advisory Council on Historic Preservation a reasonable opportunity to review and comment on these actions.

### 3.8.1 *Affected Environment*

The Scotts Bluff National Monument cultural landscape is a mix of archeological remains, natural landmarks and ecology associated with Native American and Euro-American people of the past, a designed landscape including the monument headquarters and the Summit Road and trails as well as the irrigation systems and railroad grade, and a vernacular landscape including the Civilian Conservation Corps infrastructure remains. All these integrate into a set of resources and views of those resources that have integrity and spatial organization, and by law are to be conserved without impairment. The view is of particular importance since it is included in the mission statement of the monument's authorizing legislation.

The lands now included within Scotts Bluff National Monument have probably been used by people for at least 9,000 years, since there is evidence of human use to that date at sites such as the Scottsbluff Bison Quarry and Signal Butte site 15 miles west of Scotts Bluff, and at the Clary Ranch and Ash Hollow sites 45 miles southeast of Gering. The known archeological record at the monument is based on an extensive survey of monument lands and includes at least one artifact that is probably about 10,000 years old. Most of the investigated archeological sites in the monument date between AD 600 and AD 1450, with sites on all landforms, but especially close to springs. A recent park-wide archeological survey of the monument has resulted in a total of 56 archeological sites being located and identified. It is possible that other sites,

particularly those that might be deeply buried under aeolian (“wind-blown”) deposits, could still be discovered. Forty-nine of these sites have been classified as being pre-historic.

Registration of cultural resources is an on-going process at the monument. At present, some monument properties are officially listed on the National Register of Historic Places while others have been determined to be eligible for listing on the Register. Protection measures for sites are keyed to determinations of each site’s eligibility for inclusion in the National Register of Historic Places. Officially listed cultural sites and sites determined eligible or with an undetermined eligibility are of concern. Ineligible sites are dropped from management concerns, and determinations of effect on these properties are not addressed in this analysis. The Nebraska State Historic Preservation Officer (SHPO) has determined the Gering Irrigation Canal eligible for listing on the National Register of Historic Places.

### 3.8.2 *Environmental Consequences*

Cultural resource impacts were qualitatively assessed through a presence/absence determination of significant cultural resources and mitigation measures to be employed during thinning and prescribed fire activities.

#### 3.8.2.1 Alternative 1 – No Action

Proposed activities with the potential to impact cultural resources include building fire lines, thinning, and prescribed fire.

Sites that could be potentially affected during thinning, fire line construction and slash piling would be avoided to eliminate damage to cultural sites. Site boundaries would be clearly marked for avoidance, and sites would be monitored during and after completion of the activities. Because these sites would be avoided, there would be no effect to these cultural resource sites.

Sites with combustible materials (i.e. exposed wood) that cannot be avoided during prescribed fires would be covered with fire resistant foam or fire shelters. If needed, a fire line would be built around the perimeter of these sites. Fuels would be removed from the interior of the sites and from the area surrounding the site to maintain low burn temperatures. Back burning may also take place around the site to reduce fuel loading. Low temperature burning over chipped stone scatters does not require additional protective measures. Low temperature burning is considered to have no adverse impact on the cultural resource sites.

#### 3.8.2.2 Alternative 2 – Proposed Action

General impacts to cultural resource sites under Alternative 2 would be similar to those described under the No Action Alternative.

#### 3.8.2.3 Alternative 3 – Wildland Fire Suppression and No Prescribed Fires

Proposed activities with the potential to impact cultural resources include building fire lines and thinning. Impacts to cultural resource sites from these activities are similar to those described

under the No Action Alternative. In addition, the absence of prescribed fire in the monument, and the corresponding fuels buildup would result in more intense and severe wildland fires, which have an increased potential for affecting cultural resource sites.

#### *Conclusion*

The implementation of any of the alternatives would not impair cultural resources or values that are (1) necessary to fulfill specific purposes identified in the enabling legislation of the monument, (2) key to the natural or cultural integrity of the monument or opportunities for enjoyment of the monument, and (3) identified as a goal in the monument's General Management Plan or other National Park Service planning documents.

### **3.9 CUMULATIVE EFFECTS**

The cumulative effects analysis for the Fire Management Plan environmental assessment considers the past, present, and reasonably foreseeable future actions on land uses that could add to (intensify) or offset (compensate for) the effects on the resources and that may be affected by the Fire Management Plan alternatives. Cumulative effects vary by resource and the geographic areas considered here are generally the monument and areas adjacent to the monument. In some instances, activities may result in both negative and positive impacts when considering the short and long-terms. As a result, some resource categories in Table 3-1 show both positive and negative impacts resulting from a particular activity. The information provided in Table 3-1 is the basis for the cumulative effects described in Table 3-2.

Table 3-1 Affected Impact Topics and Activities/Land Uses  
Contributing to Fire Management Plan Implementation Cumulative Effects

	Geology & Soils	Water Resources	Vegetation	Wildlife	Air Quality	Visitor Use & Experience	Human Health & Safety	Cultural Resources
Agricultural practices (including burning)	-	-		+ -	-	-	-	
Development in Gering, Terrytown, and Scottsbluff	-	-	-	-	-	+ -	+	
Water management of North Platte River	-	-	-	+ -				
Past prescribed fires on the monument	+ -		+ -	+ -	-	+ -	+	+
Lightning & human-caused wildfires	+ -		+ -	+ -	-	+ -	-	+
Wildfire suppression past, present, future	+ -		+ -	+ -	-	+ -	+	+ -
Visitation to the monument						+		

**DIRECT/INDIRECT EFFECTS KEY: (+) Positive/beneficial; (-) Negative/detrimental; (Blank) Neutral/no effect**

Table 3-2 Cumulative Effects

Impact Topic	Past and Present Actions	Proposed Actions	Future Actions	Cumulative Effects
<b>Geology &amp; Soils</b>	Adverse soil impacts (soil erosion or loss) from agricultural practices, road building, water management of the North Platte River, past wildland fires and suppression efforts; Beneficial soil impacts from past wildland fires (nutrification of soils)	Prescribed fire and thinning activities would have temporary and minor adverse effects on soils (soil erosion), but beneficial effects as well over the short and long-terms (soil development and soil nutrification)	Future prescribed fire and thinning activities would have temporary and minor adverse effects on soils (soil erosion), but beneficial effects as well over the short and long-terms (soil development and soil nutrification)	Soils inside of the monument would improve over time with soil development and nutrification from prescribed fires; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to soil cumulative impacts, while Alternative 3 would contribute the least
<b>Water Resources (including floodplains and wetlands)</b>	Natural hydrology of the North Platte River and associated floodplains and wetlands altered; water levels decrease in response to urban and agricultural water use; floodplain dominated by woody tree species in the absence of periodic flood events	Thinning and prescribed fires may have very minor and temporary water resource impacts (sedimentation); no alteration of current hydrology from activities	Future thinning and prescribed fires may have very minor and temporary water resource impacts (sedimentation); no alteration of current hydrology from activities	Water resources in the monument would remain relatively unaffected; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to water resource cumulative impacts, while Alternative 3 would contribute the least
<b>Vegetation</b>	Natural fuel loading increased in absence of historic low-severity, high frequency fire regime; native plant habitat and diversity declined; increased infestation of noxious weeds; current noxious weeds treatments help control their spread and improve diversity of mixed-grass prairie	Thinning and prescribed fire would decrease hazardous fuel loadings native grass and forb species would be favored; mixed-grass prairie habitat and diversity would improve	Future noxious weeds treatments would continue to control their spread and improve diversity of mixed-grass prairie	Mixed-grass prairie habitat and diversity would continue to improve; noxious weeds would continue to decline; fuel loadings would not pose un-natural fire danger; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to vegetation cumulative impacts, while Alternative 3 would contribute the least
<b>Wildlife</b>	Establishment of the monument helped protect wildlife species and habitat in the area, fire suppression efforts degraded wildlife habitat and diversity	Thinning and prescribed fire (broadcast burning) would result in minor, short-term disturbance and displacement with minimal species loss; improved habitat and increased wildlife diversity with restoration of historic fire regime	Monument would continue to provide a sanctuary for wildlife	Wildlife habitat and diversity increases; Fire Management Plan does not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to wildlife cumulative impacts, while Alternative 3 would contribute the least

Table 3-2 Cumulative Effects

Impact Topic	Past and Present Actions	Proposed Actions	Future Actions	Cumulative Effects
<b>Air Quality</b>	Industry and agricultural practices emit pollutants and particulate matter; automobiles, past wildland and prescribed fires contribute to some temporary deterioration in air quality and visibility	Prescribed fire emissions would result in very minor, short-term air quality and visibility impacts	Continued development in Gering, Terrytown, and Scottsbluff and Industry and agricultural practices would continue to increase air emissions	Class II air quality standards would not be violated; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to air quality cumulative impacts, while Alternative 3 would contribute the least
<b>Visitor Use and Experience (including Park Operations)</b>	Establishment of the monument, improved roads and trails provided access for recreation opportunities; increased population growth results in increased recreational use; scenic integrity compromised during times of high winds as a result of displaced particulate matter and burning from agricultural practices	Very minor visitor use and experience impacts resulting from thinning and prescribed fire activities	Increased recreation use as population grows	Long-term enhancement of recreation resources and opportunities offsets short-term recreation inconveniences from fuel treatments; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to visitor use and experience cumulative impacts, while Alternative 3 would contribute the least
<b>Human Health &amp; Safety</b>	Past suppression efforts protected adjacent communities; Expansion and modernization of fire departments in Gering, Terrytown, and Scottsbluff improves ability to combat wildland fires	Thinning and prescribed fire activities might result in very minor impacts; long-term improvement in human health & safety with reduction in fuels	Similar effects as described in Past and Present Actions	Human health and safety would improve over time with thinning and prescribed fire activities; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to human health and safety cumulative impacts, while Alternative 3 would contribute the least
<b>Cultural Resources</b>	Establishment of the monument helped protect cultural resources; past suppression efforts may have impacted unrecorded sites	No impact on cultural resources	Similar effects as described in Past and Present Actions	Cultural resources continue to be discovered and protected; Fire Management Plan would not result in significant cumulative impacts; the No Action and Proposed Action Alternatives would contribute the most to cultural resources cumulative impacts, while Alternative 3 would contribute the least



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### Scoping

Details of the scoping process and the issues that arose from it are described in Chapter 1, Section 1.5 – *Scoping Issues and Impact Topics*.

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## FINDING OF NO SIGNIFICANT IMPACT

### Fire Management Plan

#### Scotts Bluff National Monument

Scotts Bluff National Monument was established by Presidential Proclamation by Woodrow Wilson on December 12, 1919. It consists of 3,003 acres of prairie and bluff habitat, situated along the North Platte River in the panhandle region of western Nebraska. The Monument is adjacent to the city of Gering to the east and is adjacent to the city of Scottsbluff to the north, in Scotts Bluff County. The massive 800-foot high promontory became a notable natural landmark and resting place along the Oregon/California/Mormon and Pony Express Trails (collectively, the Overland Trail). The Monument attracts approximately 120,000 visitors each year.

Scotts Bluff National Monument is recognized primarily for its historical significance and unique geological features, the latter consisting of steep, rocky, siltstone and sandstone bluffs, ridges that extend from them, and areas of badlands formations. The Monument also contains fossil deposits within its geological strata. The Monument preserves the historical scene and associated geological features and natural and cultural resources in perpetuity.

Fire is a natural component of the mixed-grass prairie and one of the forces under which vegetation at Scotts Bluff National Monument evolved. Research indicates that prior to the turn of the 20<sup>th</sup> century, fire burned grasslands in the Scotts Bluff area on an average of every 15 to 30 years depending on the terrain and moisture levels. These low-intensity recurring fires thinned and prevented accumulation of heavy fuels, thus maintaining an area of predominant grasslands and open forests. From 1919 through 2000, one lightning fire and only a few human-caused fires have been documented to occur in the Monument, and all were suppressed. The lack of wildfires entering the Monument can be attributed to the fragmented terrain (roads) and presence of agricultural crops where large expanses of prairie once occurred.

One hundred years of wildland fire suppression in the region, combined with land uses such as agriculture and grazing, has resulted in an increase of pine and juniper stands, decreased secondary stages of plant succession important to wildlife, and has permitted woody vegetation to invade the prairie. More recently, invasive exotic plant species have secured a foothold within the prairie ecosystem of the Monument. The historic pre-European settlement pattern of frequent low-severity ground fire, which removed ground fuels, has shifted to a pattern of potential high-severity wildfires that may threaten life, property, and Monument resources.

An environmental assessment (EA) was prepared to better understand the environmental effects associated with employing prescribed fire and thinning to protect the cultural and natural resources of the Monument, while at the same time protecting employee and visitor safety during these fire management activities. Environmental issues identified during scoping and evaluated in the EA included geology and soils, surface water resources, vegetation, wildlife (including federally threatened and endangered species), air quality, visitor use and experience, human health and safety, and cultural resources.

Alternatives for restoring the natural fire regime to the mixed-grass prairie and reducing hazardous fuels on the Monument included employing the use of prescribed fire and thinning treatments (the preferred alternative) and employing thinning treatments only.

### **PREFERRED ALTERNATIVE**

The entirety of Scotts Bluff National Monument is contained in one Fire Management Unit since the following characteristics are similar throughout the Monument: climate, weather, topography, vegetation, elevation, air quality concerns, access, fire history, fuel types, major fire regimes and expected fire behavior. Under this alternative, all wildland fires in the Monument, human-caused fires and naturally-ignited fires (lightning), would be declared wildfires and controlled in a manner that minimizes harm to the environment.

For the prescribed fire program, the Monument would be divided up into seven burn units based upon administrative and natural barriers: Prairie, North Platte, Saddle Rock, Scotts Spring, Eagle Rock, South Bluff, and Crown Rock. Units would be burned when resource management objectives would be met, and when funds are available. While prescribed fires would generally be conducted during the late summer or fall to simulate more natural fire occurrence, some units would be burned in the spring to reduce exotic vegetation and stimulate native plants. For example, the control of cheat grass (*Bromus tectorum*) requires prescribed fire following seed germination after either spring or fall precipitation events. Mechanical treatments, including chain saws and chipping, may be used in conjunction with prescribed fire activities to reduce hazardous fuel accumulations. Thinning treatments would concentrate on small understory trees and would not involve the cutting of large diameter or old growth trees. Any and all snags would be preserved for wildlife habitat benefits, unless they were considered hazardous to human health and safety. The burning of slash piles with prescribed fire would be considered. Interagency cooperative burns would be sought for areas near and adjacent to Monument boundaries. Prescribed fire and suppression activities would likely include mechanical equipment such as fire engines and aircraft.

### **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

*The “prescribed fire” alternative is the environmentally preferred alternative. The environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed by §101 of the National Environmental Policy Act (NEPA). This includes alternatives that:*

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
3. attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;

4. preserve important historic, cultural and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice
5. achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

In essence, the environmentally preferred alternative would be the one(s) that “causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources”.

In this case, the No Action and Proposed Action Alternatives are the environmentally preferred alternatives for Scotts Bluff National Monument since they meet goals 1, 2, 3, and 4 described above. Under these alternatives, fire management activities would reduce hazardous fuel loadings on the Monument, mimic the natural ecological processes, and combat the invasion of exotic invasive plants. In addition, the alternatives help protect Monument resources and adjacent lands from the threat of wildfires. Finally, the alternatives best protect and help preserve the historic, cultural, and natural resources in the Monument for current and future generations.

#### **THE PREFERRED ALTERNATIVE AND SIGNIFICANCE CRITERIA**

As defined at 40 CFR §1508.27, from the regulations of the Council on Environmental Quality that implement the provisions of NEPA, significance is determined by examining the following criteria:

*Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.*

Burning of the prairie and the subsequent regeneration of the native grass species appears to be a substantial factor in the prairie ecosystem. The EA discusses the fact that periodic burning can enhance the productivity of the native grasses, decrease the spread of most exotic species, and control the expansion of woody species. All of these environmental effects are considered to be beneficial and important components in the restoration of the mixed-grass prairie ecosystem. These effects are considered to be minor and not significant impacts because they exemplify natural ecological processes that occur under a natural fire regime for mixed-grass prairies.

The EA also discusses the negligible to minor impacts to air quality associated with the preferred alternative. Considering the relatively small number of acres that would be affected by prescribed fire under the proposed action over a period of several years, approximately 3,003 acres, and in light of the current air quality in the area and review and approval of the burn permit by the Nebraska Department of Environmental Quality, air quality impacts are felt to be negligible to minor, and not significant.

*The degree to which the proposed action affects public health or safety*

When conducting fire management activities, human health and safety is the primary concern. Under the preferred alternative, there would likely be very minor human health and safety impacts (small cuts and bruises) to firefighters resulting from wildland fire suppression and prescribed fire activities. The preferred alternative provides the best protection since prescribed fire and thinning will help reduce hazardous fuels on the Monument and minimize the fire danger to the Monument staff and the neighboring communities. Before conducting any prescribed fire, fire management officials would ensure that adequate weather conditions existed to facilitate smoke dispersion, thus minimizing and/or eliminating potential smoke impacts on sensitive receptors and the general public.

*Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.*

As described in the EA, the intent of the action alternatives was to provide the maximum amount of protection for the important natural and cultural resources of the Monument. The implementation of the preferred alternative will result in no significant adverse effects to cultural resources since these would be marked and avoided during fire management activities. As discussed under the first significance criteria above, the preferred alternative will have a minor beneficial impact on the mixed-grass prairie ecosystem since fire is so important in the perpetuation of that ecosystem. There are no prime farmlands, ecologically critical areas, or wild and scenic rivers affected. There would be very minor impacts to surface water resources resulting from fire management activities.

*The degree to which the effects on the quality of the human environment are likely to be highly controversial.*

There were no controversial impacts identified during the analysis done for the EA, and no controversial issues were raised during the public review of the EA.

*Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks.*

There are no identified risks associated with the preferred alternative that are unique or unknown, and there are no effects associated with the preferred alternative that are highly uncertain identified during the analysis for the EA or during the public review of the EA.

*The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.*



The preferred alternative does not establish a precedent for any future actions that may have significant effects, nor does it represent decisions about future considerations. The purpose of this action is to develop a fire management plan and program that utilizes the benefits of fire to achieve desired natural resource conditions while minimizing the fire danger to Monument resources and adjacent lands from hazardous fuel accumulations. Under such a program, prescribed fire and thinning activities would be conducted over several years to restore the prairie ecosystem by promoting fire-adapted plant and wildlife species and reducing the extent of noxious weeds. This program will be evaluated and, if necessary, revised during future revisions to the Monument's Fire Management Plan.

*Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.*

Since the vegetation resources thrive under a management scheme that includes fire, the application of fire on an annual basis will cumulatively improve the mixed-grass prairie ecosystem on the Monument. The air quality impacts associated with prescribed fire would be permitted through the Nebraska Department of Environmental Quality. These impacts are negligible when compared with the agricultural burning and industrial operations that take place in the region. The EA determined that there would be no significant cumulative impacts associated with the preferred alternative.

*The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.*

The Scotts Bluff National Monument cultural landscape is a mix of archeological remains, natural landmarks and ecology associated with Native American and Euro-American people of the past, a designed landscape including the Monument headquarters and the Summit Road and trails as well as the irrigation systems and railroad grade, and a vernacular landscape including the Civilian Conservation Corps infrastructure remains. All these integrate into a set of resources and views of those resources that have integrity and spatial organization, and by law are to be conserved without impairment. The view is of particular importance since it is included in the mission statement of the Monument's authorizing legislation. Fire management activities would not have an impact on officially listed or eligible cultural resources since they would be identified and avoided.

Compliance with section 106 of the National Historic Preservation Act was completed by sending a copy of the EA to the State Historic Preservation Office with a concurrence with the NPS determination of no effect by the Nebraska State Historic Preservation Officer by telephone on October 23, 2002.

*The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.*

The U.S. Fish and Wildlife Service concurred with the determination of no effect on threatened or endangered species on September 11, 2002.

*Whether the action threatens a violation of Federal, state, or local law or requirements imposed for the protection of the environment.*

This action violates no federal, state, or local environmental protection laws.

### *Impairment*

In addition to reviewing the list of significance criteria, the National Park Service has determined that implementation of the proposal will not constitute an impairment to the critical resources and values of the Monument. This conclusion is based on a thorough analysis of the environmental impacts described in the Fire Management Plan and its EA, public comment, relevant scientific studies, and the professional judgement of the decision-maker guided by the direction in NPS *Management Policies 2001* (December 27, 2000). The plan under the preferred alternative will result in only negligible to minor adverse impacts to air quality resources, primarily in the form of smoke impacts to visibility. Overall, the plan results in benefits to park resources and values, opportunities for their enjoyment, and it does not result in their impairment.

## **PUBLIC INVOLVEMENT**

The environmental assessment was made available for public review and comment during a 30-day period ending October 8, 2002. Numerous copies of the document were sent to a mailing list developed for the purpose. An article announcing its availability was published in the Scottsbluff Star Herald on September 14, 2002. No one from the general public requested copies of the document; one copy was requested by the Nebraska Game and Parks Commission. One comment was received from a member of the general public, but it contained material already addressed in the EA. One letter was received from another agency (Nebraska Game and Parks Commission). There were no substantive issues raised upon review of the EA. Comments on the part of the general public and other agencies resulted in no changes to the text of the environmental assessment.

The preferred alternative does not constitute an action that normally requires preparation of an environmental impact statement (EIS). The preferred alternative will not have a significant effect on the human environment. Negative environmental impacts that could occur are negligible or minor in intensity. There are no significant impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

Recommended:

\_\_\_\_\_  
Superintendent

\_\_\_\_\_  
Date

Approved:

\_\_\_\_\_  
Midwest Regional Director

\_\_\_\_\_  
Date