United States Department of the Interior
National Park Service and Bureau of Land Management

Craters of the Moon

National Monument and Preserve

Idaho

Draft Management Plan/Environmental Impact Statement





CRATERS OF THE MOON NATIONAL MONUMENT AND PRESERVE

Draft Management Plan and Environmental Impact Statement

March 2004

Dear Reader:

Enclosed for your review and comment is the Draft Management Plan/Environmental Impact Statement (Plan/EIS) for the Craters of the Moon National Monument and Preserve. This Plan sets forth the proposed management direction for approximately 740,000 acres of public lands located on the Snake River Plain of Southern Idaho.

In November 2000, Presidential Proclamation 7373 greatly expanded the boundaries of Craters of the Moon National Monument. The Proclamation also directed that the Bureau of Land Management (BLM) and the National Park Service (NPS) cooperatively manage the area. In August 2002, President George W. Bush signed legislation designating the expanded area within the NPS boundaries of the Monument as a National Preserve.

BLM and NPS published in the Federal Register a Notice of Intent to prepare this Plan/EIS in April of 2002. The agencies then published two newsletters and held eight open houses to encourage public input regarding the future management of the Monument. From this input, the agencies developed four conceptual alternatives that were presented to the public via a widely circulated newsletter, the Internet, and in a series of three workshops in February 2003. Information from these meetings and the response to the newsletters were then used to analyze the impacts of the four alternatives and propose a Preferred Alternative.

This Draft Plan/EIS describes the four alternative strategies for managing the Monument and identifies Alternative D as the Preferred Alternative. The Draft Plan/EIS also contains an analysis of the impacts, consequences, and tradeoffs of implementing each of the Alternatives. We will use your comments on this document in making a final decision among the four alternatives. The final decision may be to implement one of the alternatives in its entirety or to use a combination of various actions contained in more than one of the alternatives.

The Final Management Plan will serve as the guiding management strategy for the next 15 to 20 years. The approved, Final Plan will provide a framework for proactive decision-making, including decisions regarding visitor use and preserving natural and cultural resources. The Final Plan will provide overall guidance under which more detailed activities are conducted or implementation plans are prepared. This Draft Plan and the Final Plan must incorporate the purposes for which the area was established as a Monument, the Monument's significant attributes, and the goals that direct appropriate management activity.

We welcome your comments regarding the content of this document. We are particularly interested in input that addresses: 1) possible flaws in the analysis; 2) new information that would have a bearing on the analysis; or 3) needs for clarification. Specific comments would be most useful. We truly appreciate your assistance and contributions to the future of your National Monument.

Sincerely,

James A. Morris
Superintendent
Craters of the Moon National Monument and Preserve
National Park Service

Rick Vandervoet
Monument Manager
Craters of the Moon National Monument
Bureau of Land Management

HOW TO USE THIS DOCUMENT

This Draft Management Plan/EIS is presented in five chapters and appendices, consistent with federal requirements that guide the preparation of an EIS. Chapter 1 sets the stage for the Draft Plan and EIS by describing the purpose and need for its preparation as well as providing key background information. Chapter 2 describes several potential management approaches, or "alternatives." The alternatives represent reasonable sets of management decisions that are considered and evaluated in the EIS. Chapter 3 describes the environment, or resources, that will be affected by the decisions contained in the individual alternatives. Chapter 4 describes the impacts of the decisions on these resources. Chapter 5 describes the actions undertaken to provide open and effective participation from members of the public, as well as from organizations, governmental agencies, and consultation with the tribes that all have a stake in the outcome of this process. The appendices provide more detailed information, including a glossary, which some readers may find helpful when reviewing the main text of the document.

Each chapter begins with a more lengthy discussion of its purpose and how the content of that chapter fits into the planning process. All maps and figures are placed within the text of the applicable chapters. In many cases, decisions or other discussions contained in this Draft Plan/EIS refer directly to maps and figures. In fact, many decisions themselves are "map based." The reader must rely on the text, maps, and figures taken together to fully understand the proposed decisions described in this Draft Plan.

HOW TO COMMENT ON THIS DOCUMENT

The announcement in the Federal Register that this Draft Management Plan and EIS is available starts a 90-day public comment period during which members of the public are encouraged to review the document and provide comments. During this period, comments may be submitted using several methods:

All written comments should be sent to:

Craters of the Moon National Monument Planning Team
BLM Shoshone Field Office
400 West F Street
Shoshone, ID 83352-1522

E-mail Comments to:

ID_Craters_Plan@blm.gov

Comments may also be submitted online via both agencies' Web sites:

www.id.blm.gov/planning/craters/index.htm

http://planning.nps.gov/plans.cfm

Finally, comments may be made in person at one of the public meetings, which will be conducted in communities surrounding the Monument. The specific dates and times for these meetings will be announced in local newspapers, in a newsletter and on the agencies websites.

FREEDOM OF INFORMATION ACT CONSIDERATIONS: Public comments submitted during this planning review, including names and street addresses of respondents, will be available for public review at the Shoshone Field Office during regular business hours (7:45 a.m. to 4:30 p.m.), Monday through Friday, except holidays. Individual respondents may request confidentiality. If you wish to withhold your name or address from public review or from disclosure under the Freedom of Information Act, you must state this prominently at the beginning of your comments. Such requests will be honored to the extent allowed by law. All submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, will be made available for public inspection in their entirety.

Draft
Management Plan / Environmental Impact Statement
Craters of the Moon National Monument and Preserve
Blaine, Butte, Lincoln, Minidoka and Power Counties, Idaho

Craters of the Moon National Monument and Preserve was established on May 2, 1924, (Presidential Proclamation 1694). The Monument and Preserve was expanded five times, with the sixth expansion in November 2000. That Presidential Proclamation expanded the boundaries from 54,000 acres to 739, 682 acres to include more volcanic features. That Proclamation also placed the lands under the administration of both the National Park Service (NPS) and the Bureau of Land Management (BLM), with each agency having management authority over separate portions. Visitor use patterns and types have changed, and people are bringing new recreational activities to the area. The Monument is currently being managed under four BLM land use plans and one NPS general management plan, and there is a need to update and consolidate management plans into one comprehensive plan that assists both agencies in managing their resources.

This document examines four alternatives and the impacts of implementing these alternatives in the National Monument and Preserve for the next 15 to 20 years. The **"no-action" alternative, alternative A,** is the existing management and serves as a basis for comparing the other alternatives. **Alternative B** emphasizes a broad array of visitor experiences within the Monument and perpetuates historic use patterns. It would promote more travel and access in the Monument and provide for more extensive educational and directional signs throughout the Monument. One emphasis would be on maintaining a strong interpretation and education program for visitors in the Monument to help protect resources, maintain a safe visitor experience, and minimize conflicts with traditional uses. This alternative represents the highest accommodation of visitor access to and within the Monument. **Alternative C** would emphasize retention and enhancement of the Monument's primitive character, with minimal visitor facilities or services outside the Frontcountry Zone, and less intensive management to influence resource conditions. More acres would be allocated to the Pristine Zone as compared to the other alternatives. This alternative would emphasize opportunities for solitude and provide a more primitive setting for recreational, education, and management activities; it would also offer protection for geologic and cultural resources and features by limiting access and development. **Alternative D** would emphasize aggressive restoration of the sagebrush steppe community lands, including noxious weed control and fire management. It proposes fewer acres in the Pristine Zone than Alternative C and less Frontcountry area than Alternative B. This alternative would target the most acreage for restoration. Commercial service (e.g., outfitters and guides), as well as off-site visitor opportunities, would be emphasized in this alternative. These commercial services would provide opportunities inside the Monument for visitors to experience and learn about the Monument's resources and minimize the need for development and agency staffing in the Monument. This alternative would also encourage more off-site visitor experiences. Alternative D is the National Park Service's and Bureau of Land Management's preferred alternative. The key impacts of implementing the four alternatives are also described in the "Environmental Consequences" chapter.

Please refer to *How to Use This Document* on the previous page for comment procedures and addresses. This method for public comment submittal stems from court rulings concerning the release of public comments; it is included as recommended by the Office of the Solicitor, Department of the Interior.

SUMMARY

The purpose of this Draft Management Plan/Environmental Impact Statement (Draft Plan/EIS) for Craters of the Moon National Monument and Preserve (Monument) is to provide land use direction for both the Bureau of Land Management (BLM) and the National Park Service (NPS) at the Monument for the next 15 to 20 years. The approved plan will provide the framework for making decisions about managing the national and cultural resources, visitor use, development, and operations so that future opportunities and problems can be addressed effectively.

On November 9, 2000, Presidential Proclamation 7373 expanded Craters of the Moon National Monument from approximately 54,000 acres to more then 750,000 acres. The Proclamation and subsequent U.S. Department of the Interior direction instructed the BLM and NPS to co-manage the Monument and jointly prepare a land use plan. A Notice of Intent for the Plan/EIS was published in the *Federal Register* on April 24, 2002. On August 21, 2002, Public Law 107-213 re-designated the NPS portion of the expanded Monument as a National Preserve. The BLM National Monument, original NPS National Monument, and NPS National Preserve are simply referred to as "the Monument."

The Management Plan will replace portions of four existing BLM land use plans and entirely replace the NPS Craters of the Moon National Monument General Management Plan (GMP) (1992). NPS and BLM use slightly different land use planning processes. NPS units typically operate under a GMP, while BLM areas operate under a Resource Management Plan (RMP). This marriage between NPS and BLM represents a need to design a unique planning process, which will produce an effective, single, stand-alone, comprehensive Management Plan for the entire Monument.

ISSUES ADDRESSED

Five major issues were identified during public scoping and were subsequently used in developing alternatives for the Plan. Public scoping included eight open houses and three alternative workshops, with an emphasis on gateway communities. Public comments also involved responses to the publication of three newsletters, tours, briefings for local and state government agencies, Resource Advisory Committee meetings, both agencies' Web sites, and presentations to a wide variety of interest groups. The five major issues are:

1) Development: What kinds of Monument facilities and services will be provided apart from the existing facilities?

   This issue deals with the kind of visitor facilities and services the agencies will provide.

2) Transportation and Access: What type of road and trail system will be needed for travel to, and access within, the Monument?

   This issue concerns the impacts of roads and access on the visitor experience and natural resources.

3) Public/Visitor Use and Safety: What will be the extent and location of public uses within the Monument? What kinds of experiences do visitors want?

   This issue includes a variety of topics, from solitude and managing increased visitation to emergency services and interpretation.

4) Authorized Uses: How will the different uses in the Monument be managed?

   This issue addresses concerns over mineral materials, outfitters/guides/concessioners, and permitted livestock use.

5) Natural and Cultural Resources: How will natural and cultural resources be protected?

   This issue concerns the protection of the outstanding geologic features, as well as plant, animal, and cultural/historic resources, plus related issues concerning fire management, noxious weeds, and restoration of communities.

ALTERNATIVES

The Draft Plan/EIS contains four alternatives.

- **Alternative A** represents the No Action Alternative and continues current management at present levels of funding.
- **Alternative B** emphasizes visitor experience within the Monument.
- **Alternative C** emphasizes and enhances the primitive character of the Monument.

– **Alternative D** was selected as the Preferred Alternative and emphasizes aggressive protection and restoration of physical and biological resources.

The four alternatives vary by emphasis theme, resource management decisions, desired future conditions, and the application of management zones. Each alternative would assign various areas of the Monument to different management zones. These zones identify how different areas would be managed to achieve a variety of resource conditions and visitor experience, including different levels of desired development. The management zones define and spatially apply management goals and objectives for levels of development and different types of potential visitor experiences, as follows:

1. Frontcountry Zone areas would allow for a high probability of encountering other people; paved, improved and maintained roads, a diverse non-motorized trail system, administrative and visitor facilities, developed campgrounds and a high level of interpretive programs.

2. Passage Zone areas would offer a medium probability of encountering other people, relatively high standard gravel/dirt roads, rustic designated campsites, limited interpretation, multiple use trailheads/trails, and a high probability for encountering livestock and associated facilities.

3. Primitive Zone areas would prescribe a low probability of encountering other people, challenging driving conditions on low-standard roads, minimal on-site interpretation, low-standard multiuse trails, and a medium probability of encountering livestock and associated facilities.

4. Pristine Zone areas would allow for a high probability of experiencing solitude, challenging access and no roads, no designated campsites, no on-site interpretation, very few trails, and a low probability of encountering livestock and associated facilities.

Alternative A, the No Action Alternative, proposes no major changes in resource management, visitor programs, or facilities. It depicts current management under the agencies' five existing management plans, as modified by Proclamation 7373, Public Law 107-213, and the agencies' Interim Management Guidelines. Alternative A also serves as a baseline for comparison with the other three alternatives.

The management zones depicted in Alternative A represent the planning team's assessment of current conditions. In other words, the management zones were mapped based on actual, existing conditions in 2003.

Alternative B emphasizes a broad array of visitor experiences within the Monument. Alternative B provides the largest amount of multiple-use trail opportunities; improved access both inside and outside the Monument; and extensive educational, informational, directional signs, and interpretive support facilities throughout the Monument. This alternative also allocates large areas in the Passage Zone to allow for potential new developments like designated rustic campsites, high standard motorized and non-motorized trail networks, and a relatively high standard road system that provides easier access to many areas of the Monument. Alternative B also includes suggested management direction for access roads outside of the Monument.

Alternative C emphasizes the Monument's primitive character. This alternative contains the smallest number of visitor facilities. Management actions that influence resource conditions are as "light handed" and non-intrusive as possible, including weed control and sagebrush steppe restoration. Alternative C allocates the largest acreage of all the alternatives in the Pristine Zone, the least acreage in the Passage Zone, and would result in the fewest miles of maintained roads. Under this alternative, new interpretive facilities would primarily be located outside the Monument. This alternative includes an 11,000-acre Area of Critical Environmental Concern designation in northern Laidlaw Park to provide special protective management for native plants.

Alternative D (Preferred Alternative) emphasizes protection and restoration of physical and biological resources and processes. Alternative D contains the largest weed treatment and prevention program using all available tools. It prescribes the most aggressive fire management program. Alternative D places a greater emphasis than the other alternatives on promoting partnerships at existing facilities such as visitor centers, state parks, and gateway communities. This alternative also emphasizes the use of outfitters to meet recreation experience demands inside the expanded portion of the Monument. This alter-

native allows for the upgrade of the Arco-Minidoka Road through the Monument should the adjacent county governments choose to upgrade the portions of the road outside of the Monument.

A summary of the main features of the four alternatives can be found in Table 10 of the Plan/EIS. All of the alternatives would provide the high degree of protection for the objects of interest identified in Proclamation 7373, while still fulfilling both agencies' land management missions.

IMPACTS

The potential environmental consequences of the alternatives are addressed for various natural resources, land uses (including livestock grazing), cultural resources, Native American tribal treaty rights, visitor uses, and regional social and economic conditions. Table 11 in the Draft Plan/EIS is provides a summary of impacts related to all four alternatives considered, and Chapter 4 contains detailed analyses of these impacts. .

Compared to the other alternatives, the Preferred Alternative would have substantial long-term beneficial impacts from the completion of the extensive sagebrush steppe restoration program, with limited short-term adverse impacts during its implementation. The Preferred Alternative also offers benefits relating to its encouragement for agencies to work with partners, including several key gateway communities, to provide for public information and services outside the Monument. It would also provide for improved access for fire suppression and resource management, which provides benefits that outweigh the adverse impacts that could occur from any disruption of visitor uses. No impairment of the Monument's natural or cultural resources would be expected for the Preferred Alternative, or for any of the alternatives evaluated.

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Chapter 1
Introduction









Previous page, clockwise, from top left
People hiking on cinder cone
Chain of Craters
Bitterroot
Lava river

CHAPTER 1
INTRODUCTION

On November 9, 2000, Presidential Proclamation 7373 expanded Craters of the Moon National Monument from roughly 54,000 acres to approximately 755,000 acres, including 739,682 acres of federal land. The President signed this proclamation to ensure protection of the Great Rift volcanic rift zone and its associated features. The Proclamation also placed the lands under the administration of both the National Park Service (NPS) and the Bureau of Land Management (BLM), with each agency having primary management authority over separate portions. In addition, on August 21, 2002, Public Law (PL) 107-213, 116 Statute [Stat.] 1052 designated the NPS portion of the expanded Monument as a National Preserve.

This document is the Draft Management Plan/Environmental Impact Statement (Draft Plan/EIS), which sets forth the future direction for the use and management of the Monument. This plan covers all new lands and the original NPS Monument; it addresses the direction set forth in the Proclamation and the designation of National Preserve status for NPS lands. It is intended to serve as a combined Resource Management Plan (RMP)/General Management Plan (GMP) to replace portions of four existing BLM RMPs and one NPS GMP. From here on, any reference to "the Monument" is intended to refer to all lands within the new Monument boundaries, including the National Preserve-designated lands.

MONUMENT DESCRIPTION

HISTORY

Craters of the Moon National Monument, the first national park site in Idaho, was established on May 2, 1924 (Presidential Proclamation 1694) for the purpose of protecting some of the unusual landscape of the Craters of the Moon Lava Field. This "lunar" landscape was thought to resemble that of the moon and was described in the Proclamation as "a weird and scenic landscape peculiar to itself."

Since 1924, the Monument was expanded and boundary adjustments made through five presidential proclamations issued pursuant to the Antiquities Act (34 Stat. 225, 16 U.S. Code [USC] 431). Presidential Proclamation 1843 of July 23, 1928, expanded the Monument to include certain springs for water supply and additional features of scientific interest. Presidential Proclamation 1916 of July 9, 1930; Presidential Proclamation 2499 of July 18, 1941; and Presidential Proclamation 3506 of November 19, 1962, made further adjustments to the boundaries. In 1996, Section 205 of the Omnibus Parks and Public Lands Management Act of 1996 (PL 104-333, 110 Stat. 4093, 4106) made a minor boundary adjustment to the Monument.

Presidential Proclamation 7373 of November 9, 2000, expanded the boundary to 739,682 acres (from about 54,000 acres) to include many more of the area's volcanic features. It also enlarged the Monument's administration by adding the efforts of the BLM to those of the NPS, all under the direction of the Secretary of the Interior. Federal legislation PL 107-213, 116 Stat.1052, on August 21, 2002, made one further adjustment by designating the area within the expanded NPS boundaries of Craters of the Moon National Monument as a National Preserve, which allowed for hunting on lands that were closed to this activity by the November 2000 Proclamation. Appendix A provides copies of the proclamations and legislation related to creation of the current Monument and Preserve.

MONUMENT OVERVIEW

Craters of the Moon National Monument and Preserve is located in South Central Idaho (Figure 1) in Blaine, Butte, Lincoln, Minidoka, and Power



Spring flowers in lava.

counties. It is within a one-hour drive of Twin Falls and Idaho Falls.

The Monument contains the youngest and most geologically diverse section of basaltic lava terrain found on the Eastern Snake River Plain, an extensive area of volcanic formations that reaches across southern Idaho east to Yellowstone National Park. It includes three distinct lava fields: Craters of the Moon, Kings Bowl, and Wapi. The Craters of the Moon Lava Field is significant in that it is the largest basaltic lava field of predominantly Holocene age (less than 10,000 years old) in the conterminous United States.

The Monument protects most of the Great Rift area, which includes the numerous lava flows and other products discharged from the Great Rift volcanic rift zone. It compares in significance to other volcanic rift zones such as those found in Hawaii and Iceland. The Great Rift varies in width between one and five miles and extends for more than 50 miles.

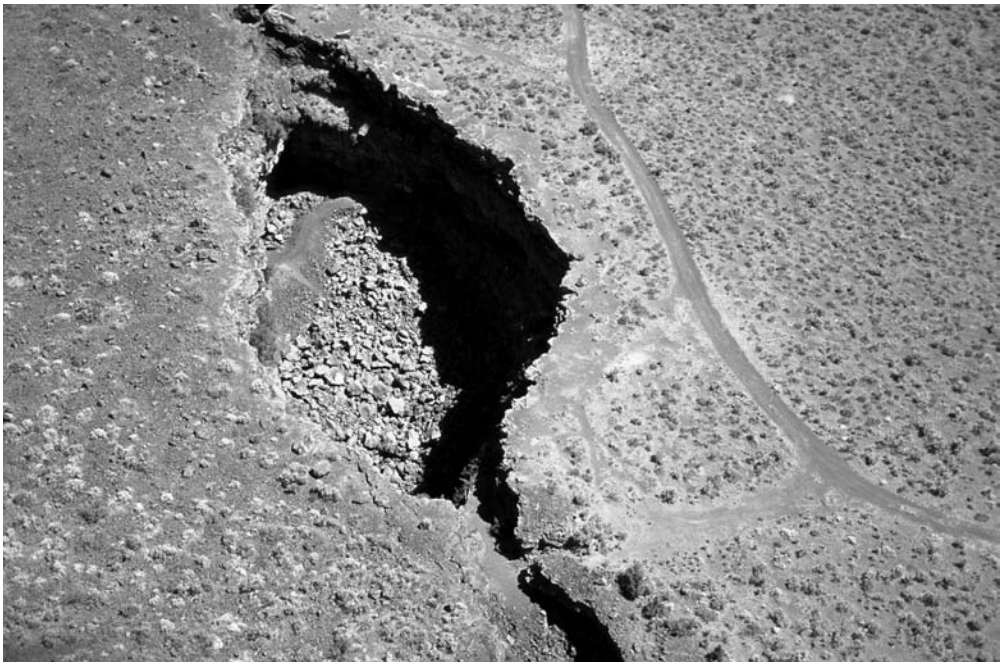
Many features and structures associated with basaltic volcanism are represented in the Great Rift Zone, including various kinds of lava flows, volcanic cones, and lava tubes. There are also lava-cave features such as lava stalactites and curbs, explosion pits, lava lakes, squeeze-ups, basalt mounds, an ash blanket, and low shield volcanoes. Some lava flows within the Great Rift Zone diverged around areas of higher ground and rejoined downstream to form isolated islands of older terrain surrounded by new lava. These areas are called "kipukas." In many instances, the expanse of rugged lava surrounding these small pockets of soil has protected the kipukas from people, animals, and even exotic plants. As a result, these kipukas represent some of the last undisturbed vegetation communities in the Snake River Plain.

Young (dominantly Holocene) lava flows and other features cover about 450,000 acres of the Monument. The remaining 300,000 acres in the Monument are also volcanic in origin, but older in age and covered with a thicker mantle of soil. This older terrain supports a sagebrush steppe ecosystem consisting of diverse communities of grasses, sagebrush, and shrubs, providing habitat for a variety of wildlife. This area also includes lava tube caves, older volcanic formations, and volcanic edifices locally referred to as buttes.

Approximately 70 percent of the Monument is in Wilderness Study Area (WSA) status or designated Wilderness. The Craters of the Moon Wilderness, designated in 1970, is located south of U.S. Highway 20/26/93 within the original Monument. A substantial portion of each of the four WSAs includes lava flows administered by the NPS.

Both the Great Rift Zone and sagebrush steppe ecosystem contain a wealth of cultural resources dating back to the last volcanic eruptions, which were likely witnessed by the Shoshone people. Today, local tribes and communities, as well as visitors and other stakeholders, have an interest in the Monument. Current efforts include preserving cultural resources, wildlife habitat, and pristine wilderness qualities, while also allowing for a variety of resource uses.

Most visitor and educational opportunities are located near U.S. Highway 20/26/93 between the "gateway" communities of Carey and Arco in the north. In addition to guided walks and programs offered by the NPS, the Monument has several self-interpreting trails with waysides and a 7-mile loop drive. Facilities include a visitor center complex, which consists of a campground, museum, and bookstore.



Kings Bowl, The Great Rift



0 50 MILES NORTH

No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

FIGURE 1

Location

Craters of the Moon National Monument & Preserve

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

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PURPOSE AND NEED FOR THE PLAN

PURPOSE

The purpose of this plan is to provide the NPS and BLM with a comprehensive framework for managing public lands within the newly expanded Monument over the next 15 to 20 years. Both agencies are required to maintain up-to-date management plans with an environmental impact statement level analysis. When approved, this plan will replace the land use planning decisions in the existing land use plans for this area. Decisions in existing plans that still have merit will be carried forward and incorporated into the planning effort.

The approved plan will provide a framework for proactive decision-making, including decisions on visitor use and on managing and preserving natural and cultural resources. It will prescribe the resource conditions and visitor experiences that are to be achieved and maintained in the Monument over time. Where law, policy, or regulations do not provide clear guidance, management decisions will be based on the Monument's purpose, public concerns, and analysis of social and resource impacts of alternative courses of action, including long-term operational costs.

This document will not describe how particular programs or projects will be implemented or prioritized. Those decisions will be deferred to more detailed implementation planning, which will follow the broad, comprehensive plan presented in this document.

NEED

The Monument is currently being managed under four BLM land use plans (within three field offices – Shoshone, Burley, and Idaho Falls) and one NPS GMP using the *Interim Management Guidelines* (Appendix B). These five separate existing plans do not address current administrative boundaries and do not provide a comprehensive interagency framework for managing public lands within the new boundaries. They represent a fragmented approach that should be replaced with a single planning document that addresses both BLM and NPS policies, directives, and concerns. Also, the current plans do not specifically address the status of the NPS lands as a National Preserve. Therefore, there is a need for both BLM and NPS to review, update, and consolidate management direction for the new Monument and Preserve and to present relevant Monument planning information and decision-making in one document.

PLANNING AREA DESCRIPTION

The Craters of the Moon National Monument and Preserve encompasses 739,682 acres of federal land, 8,321 acres of state land, and 6,860 acres of private land. The decisions made through this planning process will apply only to the 739,682 acres of federal land within the Monument boundary, referred to as "the planning area" (see Figure 2).

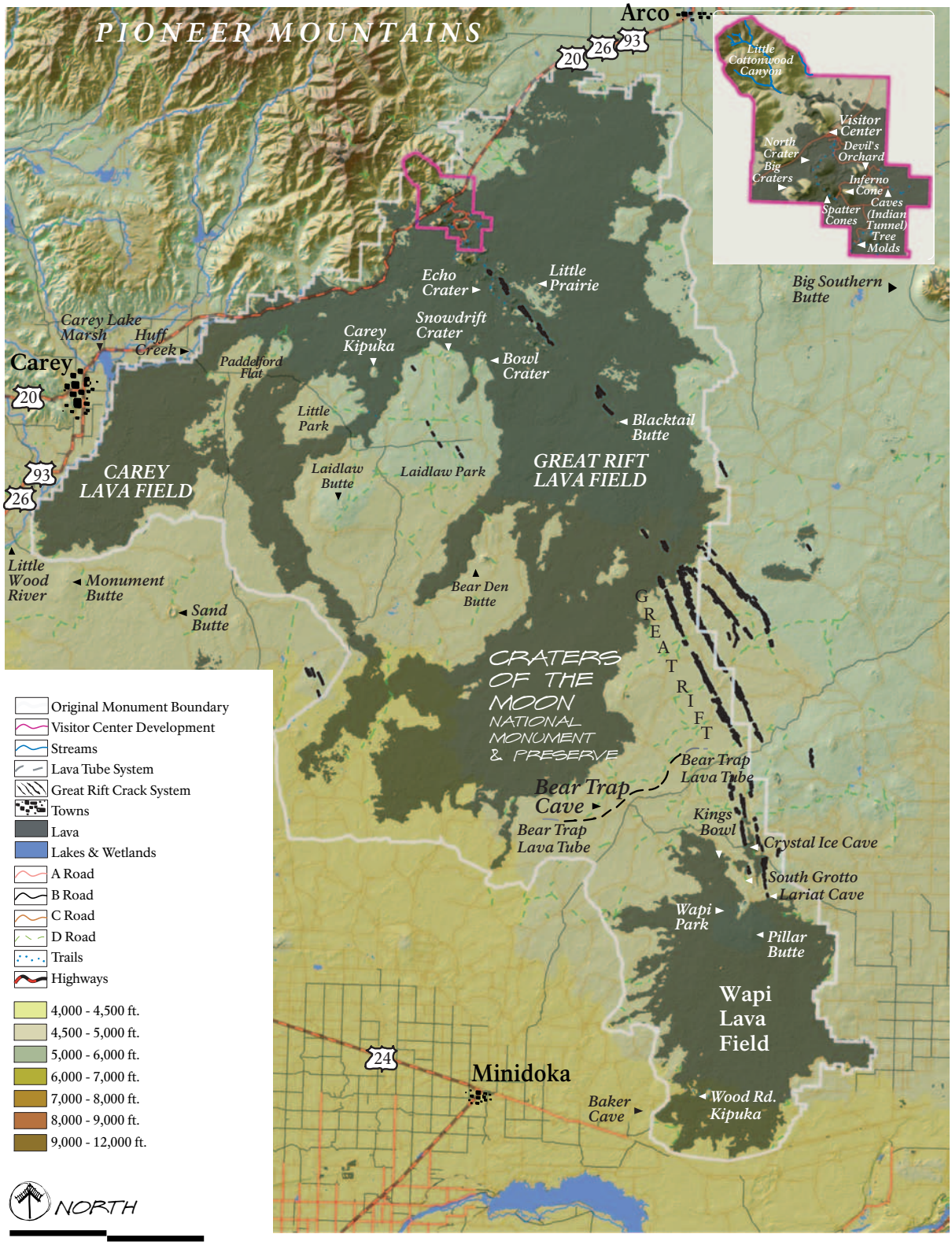
The planning area lies within the Snake River Plain. The Snake River Plain was built up by repeated volcanic outpourings. The chief physiographic features of this region are the flat lava plains broken only by occasional volcanic cones. The Snake River Plain north of the Monument is bounded by the northernmost occurrence of the Basin and Range Mountains. The dominant vegetation is sagebrush with associated grass and forb understory species. Cheatgrass *(Bromus tectorum)* is also widespread as an invasive, non-native component of the plant community.

DIRECTION FOR THE PLAN

PURPOSE AND SIGNIFICANCE OF THE MONUMENT

Purpose statements are the foundation for all subsequent decisions and qualify the language used in the legislation to more clearly state the purpose of the Monument. They are the specific reasons why this area warrants Monument status. Based upon the proclamations (Appendix A), the purposes of the Craters of the Moon National Monument and Preserve are to:

- Safeguard the volcanic features and geologic processes of the Great Rift.
- Provide scientific, educational, and interpretive opportunities for the public to foster an understanding and appreciation of the volcanic geology and associated natural phenomena.
- Maintain the wilderness character of the Craters of the Moon Wilderness Area and of the WSAs.
- Perpetuate the scenic vistas and great open western landscapes for future generations.
- Protect kipukas (older vegetated terrain surrounded by lava flows) and remnant vegetation areas and preserve important habitat for sage grouse, a BLM sensitive species.
- Continue the historic and traditional human relationships with the land that have existed on much of this landscape for generations.



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FIGURE 2
Planning Area
Craters of the Moon National Monument & Preserve
U.S. Department of the Interior / National Park Service
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Significance statements are also drawn from the proclamations establishing Craters of the Moon National Monument, as well as other descriptive documents. Significance statements explain what resources and values warrant the area's designation as a National Monument. Craters of the Moon is significant because:

- It contains a remarkable and unusual diversity of exquisitely preserved volcanic features, including nearly all of the familiar features of purely basaltic volcanism – craters, cones, lava flows, caves, and fissures.
- It contains most of the Great Rift area, the deepest known land-based open volcanic rift, and the longest volcanic rift in the continental United States.
- Many of the more than 400 kipukas contain representative vegetative communities that have been largely undisturbed by human activity. These communities serve as key benchmarks for scientific study of long-term ecological changes to the plants and animals of sagebrush steppe communities throughout the Snake River Plain.
- It contains the largest remaining land area within the Snake River Plain still retaining its wilderness character. The Craters of the Moon Wilderness Area and WSAs within the Monument encompass over one-half million acres of undeveloped federal lands.
- It is a valued western landscape of nearly 755,000 acres that are characterized by a variety of scenery, broad open vistas, and pristine air quality.
- It contains abundant sagebrush steppe communities that provide some of the best remaining sage grouse habitat and healthiest rangelands on the Snake River Plain.
- It contains many diverse habitats for plants and animals as a result of a long history of volcanic deposition.

MISSION GOALS

The following statements are general desired future conditions, or mission goals, for the Monument. These goals incorporate mandates required of Monument management and include input solicited from the public on how others would like to see this area managed.

- The Monument protects, restores, and monitors the geological features, the native biological communities, and the viewscape that characterize the Great Rift area.
- The public enjoys a range of recreational and educational opportunities compatible with protecting Monument resources.
- The Craters of the Moon Wilderness Area and the Wilderness Study Areas retain natural conditions and remarkable opportunities for solitude.
- The public has opportunities to learn and appreciate the diverse history and prehistory and the Monument's important cultural resources.
- The livestock permittees work with BLM to develop management actions to achieve sustainable, healthy rangelands.
- The public receives efficient and coordinated services from the NPS and BLM.

PLANNING CRITERIA (INCLUDING LAWS, REGULATIONS, AND POLICIES)

BLM planning regulations (43 Code of Federal Regulations [CFR] 1610) and NPS directives (Director's Order #2) require preparation of planning criteria to guide development of all RMPs/GMPs. Planning criteria are the constraints, or ground rules, which guide and direct the development of the plan. They influence all aspects of the planning process, including inventory and data collection, formulation of alternatives, estimation of effects, and ultimately the selection of a Preferred Alternative. They ensure that plans are tailored to the identified issues and that unnecessary data collection and analyses are avoided. Planning criteria are based primarily on standards prescribed by applicable laws and regulations and agency guidance, plus consultation and coordination with public, other federal, state, and local agencies and government entities, and North American Indian tribes; analysis of information pertinent to the planning area; and professional judgment.

The NPS and the BLM jointly developed the planning criteria for this Draft Plan/EIS, although the authorities of each agency differ. Each agency's authorities have their origin in separate and different enabling legislation and proclamations. As a result, some planning criteria are specific to one agency or the other. On the other hand, some laws, such as the Clean Water Act, apply equally to both agencies and require the same planning criteria. The agencies'

goal was to develop a single set of planning criteria to guide the development of a single management plan for the Craters of the Moon National Monument and Preserve. The BLM District Manager, Upper Snake River District approved the planning criteria, with concurrence by the NPS Superintendent for Craters of the Moon National Monument and Preserve, in September 2002.

Appendix B presents the planning criteria for this planning effort and identifies the laws, regulations, and policies that form the basis for these criteria and are relevant to each of the resource topics discussed in this Draft Plan/EIS.

THE PLANNING PROCESS AND PUBLIC SCOPING

Planning provides an opportunity to create a vision and to define the Monument's role in relation to its national, historic, and communal settings. The planning process is designed to provide decision makers with adequate information about resources, impacts, and costs. Analyzing the Monument in relation to its surrounding natural, historic, and communal setting, as well as future challenges, helps managers and staff understand how the Monument could interrelate with neighbors and others in systems that are ecologically, socially, and economically sustainable. Decisions made within this planning context are more likely to be successful over time and promote more efficient use of public funds.

The planning process begins by defining the purpose and significance of the Monument, including appropriate goals, and descriptions of resource conditions, visitor uses, and management actions to best achieve those goals. After goals are established, the treatment and use of Monument resources are considered, based on scientific and technical analyses that employ current scientific research, as well as applied and accepted professional practices. Management alternatives are generated on the basis of the goals and analyses. The alternatives are then scrutinized with respect to their consistency with the Monument's purpose and goals, the planning criteria, the impact on Monument resources, the quality of the visitor experience, the short- and long-term costs, and environmental consequences that extend beyond Monument boundaries. The overall planning process for this Draft Plan/EIS is illustrated in Figure 3.

An interdisciplinary planning team was assembled in the spring of 2002. It was comprised of the BLM Monument Manager, the NPS Monument Superintendent, and resource specialists and staff from both the NPS and BLM. The team also included representation from the Idaho Department of Fish and Game (IDFG), U.S. Fish and Wildlife Service (USFWS), and U.S. Geological Survey (USGS). The planning team met several times during 2002 and 2003 to gather background information, identify goals and objectives, examine resource issues, and develop alternatives. Throughout the planning process, public scoping efforts played a large part in helping to focus the plan, identify issues, and formulate alternatives. Public input was especially important in the development of the four management zones that were used to define the alternatives. Several Monument tours and briefings were held, three newsletters were released, and open houses were conducted in eight communities throughout southern Idaho. A detailed account of the public scoping process and public input received during the planning process for the Monument is provided under the Consultation and Coordination chapter of this Draft Plan/EIS.

Following release of this Draft Plan/EIS, there will be a 90-day public review period including public meetings, after which time the comments received will be gathered, analyzed, and used to complete the proposed plan and produce the Final EIS. The proposed plan will then be released for a 30-day no-action and protest period. A Record of Decision will be signed by the NPS Regional Director and the BLM State Director, and a Final Plan will be released to the public. The plan is then implemented, subject to additional environmental analysis for site-specific actions.

RELATIONSHIP TO OTHER PLANS, POLICIES, AND PROGRAMS

This Draft Plan/EIS seeks to define what resource conditions and visitor experiences should be achieved and maintained over time to achieve the purpose of the Monument. This Draft Plan/EIS considers various approaches to use, management, and development, some of which may represent competing interests for the same resource base. Ultimately, the plan serves to define a series of desired future conditions that reflect the concerns and needs of the BLM and the NPS, as well as the public.

As previously described, this Draft Plan/EIS replaces the four existing BLM land use plans and the current NPS GMP, and serves as a combined

RMP/GMP for the Monument. As such, it covers a broad area; addresses a wide range of programs, concerns, and resources; and must, therefore, function at a general level.

The more specific actions required to attain the goals and outcomes defined in this Draft Plan/EIS are accomplished through implementation plans. These plans apply to specific program areas, projects, or operational and development strategies for specific areas of the Monument. Because planning is an ongoing and continuous process, this Draft Plan/EIS must be viewed as a dynamic document. A number of plans already completed would remain in effect, and this Draft Plan/EIS reflects those still deemed to be useful. Future implementation plans would use the goals and conditions defined in this Draft Plan/EIS as their starting point. Implementation plans for actions with potential to affect the environment would require formal analysis of alternatives in compliance with the National Environmental Policy Act (NEPA) and related legislation, including the National Historic Preservation Act (NHPA).

The following explains the relationship between this planning effort and existing plans, policies, or programs of both the BLM and NPS. Other relevant plans, policies, or programs (e.g., state/local land use plans) that were considered in the preparation of this document are listed and discussed in the Environmental Consequences chapter as part of the cumulative impact scenario.

Craters of the Moon National Monument Planning Process

2001 *Initate Project* — *Project Scoping*

October
Joint planning team assembled, identified project scope and issues, and customized planning project.

2002 *Visioning* — *Develop Alternatives*

February
1st newsletter sent out to obtain public suggestions on qualities of Monument that are valuable to preserve, uses to be accommodated, and concerns to be addressed.

June
Public open house meeting held with agencies and interest groups.

July
2nd newsletter sent out summarizing public comments from June workshops.

August
Preliminary alternatives developed by joint planning team from public comments, resource data, and planning criteria.

October
Alternatives reviewed by BLM state director and NPS regional director.

2003 *Alternatives Evaluated and Developed* — *Develop Draft Monument Management Plan/EIS*

January
3rd newsletter sent out for public comment on preliminary alternatives.

February
Public workshop for input on alternatives.

March
Comments compiled and alternatives revised to reflect comments.

May
Environmental impacts of alternatives assessed.

April - December
Draft Monument Management Plan written.

2004 *Final Monument Management Plan/EIS Prepared* — *Final Plan Distributed*

April - June
90-day public comment period; open house held to obtain comments on draft plan.

July - November
Revisions to the draft plan; final plan prepared and printed.

December
Final plan distributed to the public and implemented. Detailed site plans and programs will be developed in the future based on directions established in the approved plan.

FIGURE 3
Planning Process

RELATIONSHIP TO CURRENT BLM PLANS AND POLICIES

The following current BLM land use plans and Environmental Impact Statements have been considered in the development of this Draft Plan/EIS. The Final Plan/EIS will replace the portions of these plans that provide direction for the Monument.

Fire, Fuels, and Vegetation Management Direction: The BLM Upper Snake River District (USRD) is preparing an EIS that will amend all 12 existing land use plans in the district (USDI 2004). The Draft Fire, Fuels, and Vegetation Management Direction Amendments (FMDA) overlaps this Draft Plan/EIS direction related to fire, fire-affected resources, and sagebrush-steppe restoration. Management direction proposed and analyzed for the Draft FMDA/EIS Preferred Alternative is incorporated in this Draft Plan/EIS as "Management Guidance Common to All Alternatives" (see Chapter 2).

Monument Resource Management Plan/EIS and Amendments: The 1985 Monument RMP is the comprehensive framework for managing approximately 1,179,000 acres of public land north of the Snake River in south-central Idaho. RMPs make resource allocations, resolve conflicts between competing uses, and ensure management of the public lands in accordance with the principles of multiple use and sustained yield. The Monument RMP covers approximately 60 percent of the Monument.

Big Lost Management Framework Plan, Grazing EIS, and Amendments: This 1983 Management Framework Plan (MFP) MFP provides management direction for more than 300,000 acres of public land north of U.S. Highway 20/26/93 in central Idaho. MFPs predate RMPs in the BLM land use planning system. MFPs make management decisions and land use allocations by watershed-based planning units. The Big Lost MFP covers less than 5 percent of the Monument.

Big Desert Management Framework Plan, Grazing EIS, and Amendments: This 1981 MFP covers an area west of Idaho Falls in southeastern Idaho and includes 1,162,463 acres of public land. The Big Desert MFP covers approximately 30 percent of the Monument.

Sun Valley Management Framework Plan, Grazing EIS, and Amendments: This 1981 MFP covers approximately 245,000 acres of public land in the northern portion of the BLM Shoshone Field Office. The Sun Valley MFP covers less than 5 percent of the Monument.

Great Rift Proposed Wilderness EIS: This 1980 EIS recommended that 341,000 acres of the Great Rift WSA be designated as part of the National Wilderness Preservation System. The entire Great Rift WSA is within the Monument.

Interior Columbia Basin Ecosystem Management Project: The Interior Columbia Basin Ecosystem Management Project (ICBEMP) was based on Presidential direction to develop a scientifically sound, ecosystem-based strategy for managing the 64 million acres of public lands administered by the Forest Service and the BLM within the Columbia River Basin, and portions of the Klamath and Great basins in Oregon. The project was based on concerns over forest and rangeland health, uncharacteristically intense wildland fires, threats to certain fish and wildlife species, and concerns about local community social and economic well-being. A Final EIS and Proposed Decision were published in December 2000. No basin-scale Record of Decision has been signed, nor is one expected.

Public lands administered by the BLM and NPS within the Craters of the Moon National Monument planning area are included within the lands covered by the ICBEMP analysis. The BLM State Directors and Regional Foresters are completing the project through the use of the Interior Columbia Basin Strategy (Strategy). The BLM is guided by a 2003 Memorandum of Understanding (MOU) to implement this Strategy in the amendment and revisions of RMPs and project implementation on public lands administered by BLM throughout the Interior Columbia River Basin. The Strategy directs BLM to use the findings of the ICBEMP science, new information, and the consideration of the best available science in developing land use plans and implementing resource management projects, including consultation and participation in plan and project design. The ICBEMP analysis and findings have been incorporated into this Draft Plan/EIS.

RELATIONSHIP TO CURRENT NPS PLANS AND POLICIES

NPS plans and studies used to develop this document are listed in the bibliography. The plans listed below directly influenced the development of this Draft Plan/EIS.

1992 Craters of the Moon General Management Plan: The 1992 GMP was the guiding document for the original NPS Monument. Interim Monument guidelines were developed in 2001 with cooperative

input from both agencies. The additional lands added as a National Preserve (approximately 410,000 acres) require the updating of this plan.

1996 Resource Management Plan: NPS RMPs provide a long-range comprehensive strategy for natural and cultural resource management. The strategy describes a program of activities to achieve desired future conditions. The current plan does not incorporate any of the National Preserve resources.

October 2000 Wildland Fire Management Plan: The Wildland Fire Management Plan (FMP) provides fire management direction for the original NPS Monument, not the expanded lands.

Fiscal Year 2000 – 2005 Strategic Plan for Craters of the Moon National Monument and Preserve: NPS strategic plans contain the mission statement and goals, describe strategies to accomplish goals, and identify external factors that could significantly affect achievement of goals. The Strategic Plan does not reflect the 2000 expansion.

1993 Cave Management Program: The 1993 Cave Management Program provides management guidelines for the original NPS Monument's cave resources. This plan is no longer adequate, as it does not reflect the expanded areas of the Monument.

1989 (revised 1996) Backcountry/Wilderness Management Plan: This plan provides management guidelines for basic recreation use of the backcountry and wilderness of the original NPS Monument.

RELATIONSHIP TO OTHER PLANS AND POLICIES

Fire Management Planning

The National Fire Plan is an agreement between the U.S. Department of Agriculture (USDA) Forest Service and the Department of the Interior to help protect communities and natural resources as well as the lives of firefighters and the public. The federal wildland fire management agencies worked closely with states, tribes, local governments, and interested publics to prepare the 10-Year Comprehensive Strategy, completed in August 2001. This strategy outlines a comprehensive approach to the management of wildland fire, hazardous fuels, and ecosystem restoration and rehabilitation on federal and adjacent state, tribal, and private forest and range lands in the United States. It emphasizes measures to reduce the risk to communities and the environment and provides an effective framework for collaboration to accomplish this.

An implementation plan was signed in June 2002 to provide consistent and standard direction to implement the common purposes of the Strategy and the National Fire Plan. BLM will incorporate guidance from the National Fire Plan and 10-Year Comprehensive Strategy in this Draft Plan/EIS.

FUTURE PLANNING NEEDS

This Draft Plan/EIS is intended to describe resource conditions and visitor experiences to be achieved within the planning area at the Monument over the next 15 to 20 years. The agencies will be cooperatively preparing or amending existing "implementation plans" to implement this Draft Plan/EIS. The implementation plans are necessarily dynamic in order to accommodate new information. Following is a list of examples of implementation plans that may be necessary at the Monument.

Travel Management Plan: This would provide further guidance to Monument managers, local road and bridge cooperators, and the general public of the standards for improvement and/or maintenance of the various classes of roads described in this Draft Plan/EIS or potential road closures. It would also include a transportation or road map/brochure of the Monument for public use.

NPS Resources Management Plan: This plan establishes long-term resources management objectives, documents progress towards those objectives, and serves as a guideline for funding specific resource projects.

Fire Management Plan: Management actions analyzed in this Draft Plan/EIS, FMDA, and Wildland FMP (NPS 2000) would be incorporated into an implementation plan to guide suppression efforts and proactive fuels and restoration treatments. The FMP would detail management goals and constraints within specific fire management areas. While these goals and constraints would comply with direction set forth in this Draft Plan/EIS and FMDA, the FMP would be a dynamic document updated regularly to best protect Monument resources.

Wilderness/Wilderness Study Area Management Plan: This plan guides the preservation, management, and use of the designated Wilderness and WSAs. One of the principal purposes is to establish indicators, standards, conditions, and thresholds beyond which management actions would be taken to reduce human impacts to wilderness resources. This plan is no longer adequate as it

does not incorporate the WSAs within the National Preserve.

Comprehensive Interpretive Plan: This plan would identify the primary stories or interpretive themes needed to provide each visitor with an opportunity to develop an understanding of the Monument. Interpretation is a process of education designed to stimulate curiosity and convey messages to the visiting public. This plan would guide the future development of interpretive facilities and programs such as signs, waysides, brochures, guided walks, and oral presentations.

Cave Management Plan: This plan is developed to meet the requirements of the Federal Cave Resources Protection Act (FCRPA) to perpetuate the natural systems associated with caves. This plan would build upon the Cave Management Program (Craters of the Moon National Monument 1993) and the Cave Resources Management Plan (USRD 1999).

Cultural Resources Management Plan: This plan would guide the preservation, management, and use of cultural resources. The plan would also include a Native American Graves and Repatriation Act (NAGPRA) Action Plan to address inadvertent discovery of NAGPRA materials within the Monument.

Integrated Pest Management Plan(s): This plan would provide guidance related to potential pests, monitoring indicators, action thresholds, and treatment methods to address pest issues within the Monument. Among these issues are invasive exotic plants, grasshoppers, and large predators. This plan would be accomplished cooperatively with the USDA.

Kings Bowl Development Concept Plan: All of the alternatives for this Draft Plan/EIS identify some level of development in the Kings Bowl area. These range from the minimal needed to protect the resources and protect visitors from hazards in the area, to that of more fully accommodating visitor access and opportunities for exploring the unique features present in the area. A Development Concept Plan allows for the agencies to examine in greater detail options for protecting the area while accommodating public access and use.

Administrative History: This is a report that documents the history of a unit of the National Park System. It records the evolution of its management and programs in order to familiarize new managers, staff, and other agency officials with the area and provide them with a historical basis for future management decisions. This report would probably be an addendum to the Administrative History of Craters of the Moon National Monument (1992).

Volcanic Hazards Analysis: No contingency planning has ever been done for the advent of a volcanic eruption. No flow routing modeling has been done to help predict where lava would go and how far it would travel based on possible eruption sites and volumes. Therefore, the team has recommended that a comprehensive volcanic hazard assessment be conducted. This would provide the necessary information for crisis and risk management contingency planning.

PLANNING ISSUES AND CONCERNS

BLM and NPS staff and the public raised several issues and related concerns in meetings, responses to newsletters, and discussions with staff from other agencies and organizations. This section identifies those issues or concerns that were discussed and that are considered in development of alternatives and in completion of the EIS, as well as those that are beyond the scope of this planning process.

ISSUES AND CONCERNS ADDRESSED BY THIS DRAFT PLAN/EIS

The following summarizes the primary issues that were raised and considered in the preparation of this Draft Plan/EIS, organized by major category.

Development

What kinds of Monument facilities and services will *there be apart from the existing Monument developments?*

- Are new public facilities needed within this Monument within the next 20 years?
- Are there Monument facilities desired outside the Monument?
- What opportunities do surrounding "gateway" communities want for providing services and facilities to visitors?
- Do any existing facilities need to be removed?

Transportation and Access

What type of road and trail system will be needed for travel to and access within the Monument?

- Will any existing roads within the Monument be closed, or will there be any restrictions on mechanized or motorized travel in order to protect Monument resources?

- Will there be increased risks for fire and noxious weeds?
- Will any existing roads be upgraded? Will some roads receive better maintenance?
- Will access to portions of the Monument be improved?
- Are access improvements needed outside the Monument?
- How will the counties be consulted on transportation issues?

Public Uses and Safety

What is the extent and location of public uses within the Monument?

- How will existing recreational uses of the land be affected?
- Will visitation increase and how would it be managed?
- What opportunities will there be for advancing public understanding and appreciation for the Great Rift area?
- Are there new safety concerns associated with visitor use?
- What level of emergency assistance is needed within the Monument?

Authorized Uses

- How will grazing be managed in the Monument?
- Are new range improvements needed to enhance rangeland health?
- Is there a need to authorize access to private and state land inholdings?
- What is the need for local material for road maintenance?
- What opportunities will there be for outfitter and guide operations and concession activities within the Monument?
- What will the criteria be for determinations on new requests for leases or permits?
- What valid existing rights existed at the time of the Proclamation on November 9, 2000?

Natural and Cultural Resources

How will the natural and cultural resources be protected?

- How will the more fragile and significant of the geological features be protected from visitor use impacts?
- What protection will be offered for cultural resources?
- How will the Shoshone-Bannock tribes be consulted?
- How can we best maintain the integrity and understand the scientific value of both the cultural and geological features, the kipukas, and the large tracts of sagebrush habitat in good condition?
- How will the introduction and spread of noxious weeds be controlled? And are kipukas more important to target for eradication efforts?
- Will there be new guidelines for weed, grasshopper, and predator control programs?
- What opportunities will there be for scientific research?
- How will fire management be addressed in the Monument?
- How will restoration and rehabilitation efforts be addressed on Monument lands?
- How will management actions protect intangible resources like night sky and natural quiet, the integrity of viewscapes, and pristine air quality?



Hill in Monument with ATV use



Sagebrush habitat

Monument Administration

What issues does the staff face in the day-to-day operation of the Monument?

- Will new management (administrative) facilities be needed?
- What public services will the federal government and local governments provide, and which will be provided jointly?
- Will the federal government assist local governments with needs for emergency services within the Monument?
- Will state and private property within or adjacent to the Monument be affected?
- Will the Monument be identified with signs to distinguish it from surrounding public lands? Will NPS and BLM lands within the Monument be marked differently?

Visitor Experience

What kinds of experiences do visitors want?

- What opportunities will there be for enhancing understanding and appreciation of the Great Rift area?
- What kind of interpretive and educational services does the public want?
- Which visitor activities are suitable and where can they occur?

ISSUES BEYOND THE SCOPE OF THIS DRAFT PLAN/EIS

A number of public comments raised issues concerning laws, regulations, or actions that cannot be taken because they are beyond the scope of this Draft Plan/EIS; inconsistent with laws, regulations, or policy; or more appropriately addressed by an implementation plan. For example, a new road across a WSA near Bear Park was suggested, which would be inconsistent with BLM WSA Policy. Another comment asked for road improvements in the vicinity of Big Southern Butte. Big Southern Butte is outside of the planning area. Another comment suggested that the Monument be scaled back to include only outstanding features. Reducing the size of the Monument is outside the authority of the BLM and NPS. Several commenters called for the elimination of grazing on the expanded Monument lands. The Proclamation that expanded the Monument directs BLM to manage livestock grazing under existing laws, regulations, and policies. BLM authority is limited to administering grazing permits on BLM-administered lands only.

Comments that are more appropriately addressed by implementation plans were often site-specific. One comment called for signed turnouts on U.S. Highway 93 with trails to access Goodale's Cutoff. While this comment is too site-specific to be addressed by this Draft Plan/EIS, the plan will generally address signing, vehicle access, and interpretation, as well as the management of Goodale's Cutoff. Another comment called for offices in Arco or Minidoka to fill the need for additional public services. While BLM and NPS planning authority is limited to the lands within the Monument, the Plan/EIS will address need for facilities as well as opportunities to work with local communities and governments to provide visitor services and administrative facilities.

Some comments provided very specific ideas as to how areas should be managed. One comment suggested Moss Cave be monitored and visitor use remain light. Another suggested overnight use at Old Juniper Kipuka should be allowed only with a backcountry permit and that group size should be restricted to 10 persons.

Many comments like those presented above are best addressed in future implementation plans. The agencies have saved all comments and will use those in future planning efforts and/or day-to-day management.

IMPACT TOPICS

Impact topics were identified from those issues that were within the scope of the Plan/EIS and from relevant BLM and NPS policies and regulations. The specific topics addressed under the Affected Environment and Environmental Consequences chapters of this document include the following:

- *Natural Resources*
  Geological Resources
  Soils
  Vegetation, including Special Status Species, and Fire Management
  Water Resources
  Wildlife, including Special Status Species
  Air Quality

- *Cultural Resources*
  Archaeological and Historical Resources

- ***American Indian Rights and Interests (Ethnographic Resources, Resource and Public Land Values, Treaty Rights)***

- *Land Use and Transportation*
  Access and Travel
  Livestock Grazing
  Other Land Uses
  Facilities
  Lands and Realty
  Mineral Materials
  Special Designation Areas
  Wilderness
  Wilderness Study Areas
  Research Natural Areas, National Natural Landmark, Areas of Critical Environmental Concern

- *Visitor Experience*
  Interpretation/Visitor Understanding
  Recreation, including Public Health and Safety
  Visual Resources
  Soundscapes

- *Social and Economic Conditions*

Each topic is discussed under Affected Environment and analyzed under Environmental Consequences. Also, these topics form the basis for much of the discussion of Management Guidance in the Alternatives chapter.

IMPACT TOPICS CONSIDERED BUT DISMISSED FROM FURTHER EVALUATION

As explained below, the following impact topics were discussed during the planning process, but were dismissed from further consideration for the reasons mentioned.

PRIME AND UNIQUE FARMLAND

In August 1980, the Council on Environmental Quality (CEQ) directed that federal agencies must assess the effects of their actions on farmland soils classified as prime or unique by the Natural Resource Conservation Service (NRCS) of USDA. There are no prime or unique farmlands in Craters of the Moon National Monument and Preserve; therefore, the topic of prime and unique farmland was dismissed as an impact topic in this document.

FLOODPLAINS

Water resources are very limited in the Monument, and there are no designated floodplains associated with the few short stream segments that lie within its borders. Therefore, the topic of floodplains was dismissed as an impact topic in this document.

HAZARDOUS MATERIALS

The topic of public health and safety is addressed in the EIS as a subset of Social and Economic Conditions. There are no hazardous materials used, or disposed of, in connection with Monument operations other than small amounts of cleaners, maintenance chemicals, and fuels used in daily operations. Therefore, a separate topic of hazardous materials was not included as an impact topic in the document.

ENVIRONMENTAL JUSTICE

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations, focuses federal attention on the environment and human health condition in minority and low-income communities, promotes nondiscrimination in federal programs, and provides access to

public information and an opportunity to participate in matters that may affect these populations.

Local residents in communities surrounding the Monument include low-income and minority populations. However, no distinct areas of low-income or minority populations were identified near the Monument, or any that depend upon Monument resources for such purposes as subsistence hunting or fishing. Actions proposed under the alternatives would not cause disproportionate adverse human health or environmental impacts to minority and/or low-income populations.

The planned sagebrush steppe restoration program associated with all the alternatives would occur within the Monument and would not affect populations in nearby communities. Monument operations and permitted uses, including associated tribal treaty rights, would continue similar to current conditions, including recreational use, grazing, and hunting in permitted areas. In addition, the subject of tribal treaty rights was included in the impact analysis (under "American Indian Rights and Interests") and is addressed in this Draft Plan/EIS. All areas of the Monument would remain available and open to all ethnic groups and income levels, and no action would displace users of the park to low-income or ethnically sensitive areas. For these reasons, environmental justice was dismissed as an impact topic in this document.

CULTURAL LANDSCAPES

Although there has never been a formal, systematic inventory to document the presence of any cultural landscapes within the Monument, none has ever been identified by NPS or BLM staff, and the public did not identify any cultural landscapes during scooping for the Draft Plan/EIS. Therefore, the topic was not included under Cultural Resources as a separate impact topic.

MUSEUM COLLECTIONS

The Monument's museum collections include objects, specimens, and archival and manuscript collections that serve as scientific and historical documentation of the Monument's purpose and resources. None of the alternatives considered would adversely affect museum collections or cause substantial changes to the collections or their management, so this topic was not included as a separate impact topic under Cultural Resources.

OTHER PLANNING ISSUES

The following planning issues relate to the Monument's carrying capacity and the adequacy of its boundaries. These issues are common to all alternatives.

CARRYING CAPACITY

Carrying capacity is the character of use that can be supported over a specific time by an area developed at a certain level without causing excessive damage to either the physical environment or the experience of the visitor. To make sure that visitation does not impair resources and compromise visitor experience, NPS is required by law to determine carrying capacity. This determination is based on the purpose, significance and goal statements unique to the Monument. At this level of planning, carrying capacity is defined by the management zone prescriptions for levels of development and desired visitor experiences for that particular zone.

There are three major components of carrying capacity: physical capacity (e.g., parking spaces, facility space, road capacity); visitor experience (such as congestion in the Visitor Center, opportunities for solitude); and resources (including natural and cultural resources). The carrying capacity in a given area could be exceeded for any of these components, which would trigger management action.

The north end of the Monument is the only area that presently has facilities intended to invite and accommodate large numbers of visitors. Roads, parking areas, and related facilities have been designed and located to meet current visitation. This includes consideration of the impact of visitors upon nearby resources. Before any additional facilities are built or current facilities expanded, the agencies will assess whether such development might have any detrimental effects on natural or cultural resources or visitor experience.

Visitation has not reached the point where visitors cause unacceptable levels of resource damage. Due to the older design of the Visitor Center, the museum and bookstore can be congested during peak visitation periods. Because of the harsh terrain, use of the wilderness and backcountry areas is very light.

Carrying capacity for the Craters of the Moon Wilderness is based on "Limits of Acceptable Change" (LAC) planning framework (NPS 1992). The LAC System for Wilderness Planning is appropriate for use at the Monument, since it is a planning

process consisting of a series of interrelated steps leading to the development of measurable objectives, defining desired backcountry and wilderness conditions. It also suggests management actions necessary to maintain or achieve desired conditions. Emphasis is placed on defining and achieving the resource and social conditions desired for the area rather than determining how many users an area can sustain.

MONUMENT BOUNDARIES

Monument Boundaries

Proclamation 7373 set aside and reserved as an addition to Craters of the Moon National Monument, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Craters of the Moon National Monument Boundary Enlargement," which is included as part of Appendix C. The previous National Monument was an area of 53,440 acres, with all federal lands administered by the NPS.

In a memorandum from the Secretary of the Interior (memo from the Secretary of the Interior dated November 24, 2000) the BLM was instructed to complete a metes and bounds description of the Monument. BLM completed a cadastral survey of the external monument boundary in 2001. Based on that survey, the Monument and Preserve boundary contains 739,682 acres of federal land. The total acreage uncompassed by the Monument and Preserve boundary is 754,862 including 8,321 acres of state land and 6,860 acres of private land which are inholdings and not part of the Monument and Preserve.

National Preserve Boundaries

Proclamation 7373 states that the NPS shall have primary management authority over the portion of the Monument that includes the exposed lava flows. This land area was described as including approximately 410,000 acres and designated as a unit of the National Park System "Craters of the Moon National Preserve" by PL 107-213 on August 21, 2002. The NPS continues management authority over the original 53,440 acres of Craters of the Moon National Monument. Proclamation 7373 provides that the BLM has primary management authority over the remaining portion of the Monument.

The boundary between the NPS- and BLM-administered lands is often difficult to describe and locate. In some cases, distinguishing the boundary between the NPS- and BLM-administered land on the ground would be a matter of concern to the agencies and the public. Surveying the entire boundary between the agencies would be costly and is not recommended at this time. When a situation requires determination of the National Preserve boundary within the external Monument boundary, the boundary line would be described by the edge of the brown colored lava shown on the most recent USGS 7.5-minute series topographic quadrangle maps available on the date of the Proclamation 7373.

Boundary Modifications

Potential boundary modifications are examined in a management plan to identify potential additional lands with significant resources or opportunities, or which are otherwise critical to fulfilling the Monument's mission. Based on these criteria, eight areas have been identified for potential boundary modifications. These are described in detail in Appendix C, which contains maps relating to these potential modifications.

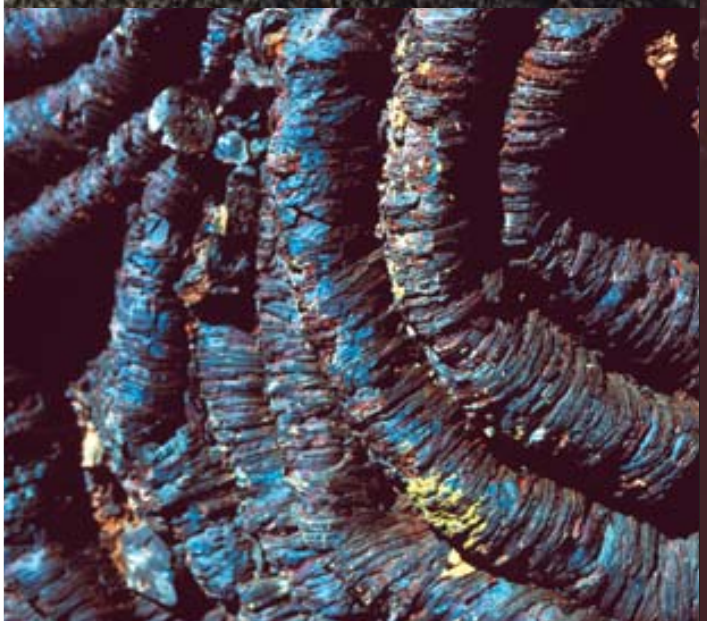
Chapter 2

Alternatives, Including the Preferred Alternative









Previous page, clockwise, from top left
A'a and cinders
Lava flow
Cave entrance
Ropy pahoehoe

CHAPTER 2
ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

OVERVIEW OF ALTERNATIVES

The Bureau of Land Management (BLM) and National Park Service (NPS) developed management alternatives for Craters of the Moon National Monument and Preserve (Monument) using public responses to newsletters and public meetings, as well as ideas from staffs of both agencies. National Environmental Policy Act (NEPA) regulations and BLM and NPS resource management planning regulations require the formulation of a reasonable range of alternatives that seek to address identified planning issues and management concerns. Each alternative must be evaluated to ensure that it would be consistent with the area's purpose and significance; the mission goals for the Monument; and current laws, regulations, and policy.

The four management alternatives developed for the Monument are detailed in this section, including:

- Alternative A – No Action Alternative (required by NEPA) – retains current management of the Monument
- Alternative B – Places emphasis on a broad array of visitor experiences within the Monument
- Alternative C – Places emphasis on retention and enhancement of the Monument's primitive character
- Alternative D (Preferred Alternative) – Places emphasis on aggressive restoration of sagebrush steppe communities

Each alternative has a somewhat different concept, which is primarily defined in terms of area allocations into different management zones. Each alternative also varies somewhat in its desired future conditions and management prescriptions for various resource topics. All alternatives afford the high degree of protection for Monument resources required by Proclamation 7373.

This chapter first contains a description of the four management zones that are apportioned differently in each of the alternatives. These are:

- Frontcountry Zone
- Passage Zone
- Primitive Zone
- Pristine Zone

Next, there is a discussion of "Management Guidance Common to All Alternatives," organized by resource topic. This management guidance includes desired future conditions and management actions for each resource. Desired future condition statements describe the preferred long-term condition for specific resources. Future decisions and actions by management would be judged by whether they further progress towards these desired conditions. Management actions describe specific activities that help to achieve the desired future conditions.

Following the summary of Management Guidance Common to All, each alternative is described, with emphasis on the concepts behind the alternative, management zone allocation, and management guidance for those topics that vary from alternative to alternative. Table 7, at the end of this chapter, contains a summary of the alternatives, with emphasis on the key features described below and those aspects that differentiate the alternatives from one another.

DESCRIPTION OF MANAGEMENT ZONES

Four management zones were developed for use in this plan to guide future management actions within the Monument: Frontcountry, Passage, Primitive, and Pristine. These management zones respond to the wide range of preferences expressed by the public. Different views were expressed about what sort of visitor experiences should be available and what facilities and accommodations should be provided within the Monument. While a different emphasis would be given to various zoned portions of the Monument, the intent is to always be consistent with the purposes for which the Monument was established and with the mission goals identified in the Introduction to this document.

Zones are tools that help guide decision-making on visitor uses, facility development, and other uses. Management zones do not address natural and cultural resource management. Certain limitations and developments in some areas may better provide for one user-type than another. Management zoning would be established throughout the planning area to provide and maintain a range of recreational opportunities for different user-types with varying interests and abilities. Each separate zone has distinct settings to be provided and maintained. Physical settings consider the degree of naturalness and amount and type of facilities, as well as proximity to roads. Social settings consider the number of contacts with other people, the size of groups, and evidence of other users. Managerial settings consider the amount of visitor management used to achieve desired social and resource conditions, the compatibility of traditional land uses with the recreational environment, and the type of vehicle use allowed in the area.

All public lands within each alternative would be assigned to one of the four zones. The location and extent of the various zones vary among the alternatives in order to support the concept behind each alternative.

Table 1 summarizes the main features of each of the four management zones, and photos below illustrate the typical types of uses that would be expected in each zone.



Frontcountry Zone



Passage Zone



Primitive Zone



Pristine Zone

Examples of typical uses in each Management Zone.

Table 1
Management Zones

	FRONTCOUNTRY ZONE	PASSAGE ZONE	PRIMITIVE ZONE	PRISTINE ZONE
Basic Concept	The Frontcountry Zone would be defined by structures and grounds provided for visitor support services such as information, education, and recreation. Access would be easy and convenient, and the visitor encounter rate would be very high. High maintenance and intervention would be required to accommodate concentrated visitor use. Challenge and adventure would be less important compared to other zones.	The Passage Zone would include secondary travel routes that receive use as throughways and provide access to destinations. Most roads would be regularly maintained to a consistent standard. Would also contain access-oriented facilities like trailheads and dispersed campsites. Zone corridor would be 660 feet wide along roads.	The Primitive Zone would provide an undeveloped, primitive and self-directed visitor experience, while accommodating motorized and mechanized access on designated routes. Facilities would be rare and provided only where essential for resource protection.	The Pristine Zone would include mostly lava flows, designated Wilderness and Wilderness Study Areas. This zone would provide an undeveloped and self-directed visitor experience, generally without motorized or mechanical access. Facilities would be virtually non-existent.
Visitor Experience	High chance for encounters with people.	Medium chance for encounters with people.	Low chance for encounters with people.	High chance for solitude.
	Travel on paved, improved, or maintained roads.	Travel on roads with usually higher level of maintenance than the Primitive and Pristine zones.	Travel on low-standard roads with challenging driving.	Travel involves challenging access and no roads.
	Developed campgrounds.	Rustic, designated campsites.	No developed campsites; dispersed primitive camping.	No developed campsites; dispersed primitive camping.
	A high level of interpretation programs; informational exhibits.	Limited interpretation, wayside exhibits.	Minimal on-site interpretation.	No on-site interpretation.
	Diverse trail system, some paved.	Multiuse, maintained, and designated trails.	Low-standard multiuse trails with little or no maintenance.	Very few trails.
	Low chance for encounters with livestock or associated developments.	High chance for encounters with livestock or associated developments.	Medium chance for encounters with livestock or associated developments.	Low chance for encounters with livestock or associated developments.
	High level of contact with agency staff.	Low to moderate level of contact with agency staff.	Very low level of contact with agency staff.	Essentially no contact with agency staff.
	Typical visitor activities: sightseeing, driving, bicycling, walking, nature study, ranger-led programs, camping, picnicking.	Typical visitor activities would be mostly self-directed: driving, sightseeing, hiking, mountain biking, horseback riding, dispersed camping.	Typical visitor activities would require self-sufficiency: hiking, hunting, horseback riding, mountain biking, remote camping, driving on unimproved roads.	Typical visitor activities would require self-sufficiency and involve challenge, risk, and adventure: dispersed camping, backpacking, nature study, and hunting.
Access and Kinds of Development	Paved roads and high-standard gravel roads.	Roads would be regularly maintained to allow car, SUV, light truck passage.	Two-track dirt roads, accessible seasonally only with high-clearance vehicles and OHVs.	No roads.
	Hardened and maintained pedestrian trails.	Trailheads; maintained motorized and non-motorized trails.	Low standard multiuse trails.	Very few trails; no motorized trails.
	Frequent signs for directions, safety, and interpretation.	Signs for directions, safety, resource protection, and interpretation.	Minimal signs for visitor safety and resource protection only.	Very few signs.
	Offices, utilities, maintenance facilities, storage areas, visitor center, employee housing, and restrooms.	Minimal administrative structures, vault toilets.	No buildings.	No buildings.
	Livestock developments unlikely.	Livestock developments would be common, including fences, corrals, troughs, reservoirs, and sheep bed grounds.	Some livestock developments.	Primarily temporary developments associated with livestock trailing.

MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES

The following sections describe the management guidance that would be applicable to all four alternatives. The actions described here would be implemented regardless of which alternative is ultimately selected. This section compiles common direction in one place so that the reader can focus on the actual differences among alternatives. Technical terms used here are defined in the Glossary or are explained more fully in Chapter 3.

Laws, regulations, and policies drive a large portion of BLM and NPS work (see Planning Criteria, Appendix B). The management guidance described in this section includes many decisions, which are required in a land use plan, and also brings forward relevant direction from existing land use plans. Agencies frequently do not have much latitude to vary proposed management across alternatives and still comply with laws, regulations, and policy. For example, at the Monument, approximately 70 percent of the planning area is designated as Wilderness or Wilderness Study Areas. Existing designations like wilderness constrain the type of actions the agencies can propose in this planning effort.

NATURAL RESOURCES

Natural Resources — General

Desired Future Conditions:

- Resource inventories and surveys documenting the condition and extent of natural resources (including geologic features) and processes, kipukas, and sensitive species are given sufficient emphasis to enable completion during the life of the plan.
- Monitoring programs are developed and implemented to track changes in the condition of key resources serving as "vital signs" of ecosystem health or to fulfill other purposes of enabling proclamations and laws.

Management Actions:

- Resource inventories, surveys, and monitoring programs would be provided for and implemented.
- Information gained would be disseminated to the public and used in management decisions.
- Proactive management activities would be undertaken to mitigate potential effects of public use.

Geological Resources

Desired Future Conditions:

- Natural processes remain the dominant agents of change to geologic resources within the Primitive and Pristine zones.
- Resource inventories and surveys that document the condition and extent of geologic features (including caves and paleontological resources) and also the geologic processes are sufficiently completed to provide scientifically defensible management decisions.
- Unique or representative geologic features within Frontcountry and Passage zones are identified, documented, and have protective strategies implemented to minimize any adverse effects from improved access to the areas.
- Knowledge and understanding of the geologic resources and processes are sufficient to interpret the interrelationships between the geology and biotic communities.
- Geologic knowledge and understanding are effectively shared with the public in order to stimulate appreciation and protection of the geologic resources.

Management Actions:

- Geologic features, including caves determined not to be significant according to the Federal Cave Resources and Protection Act (FCRPA), could be modified to facilitate recreational access within Frontcountry and Passage zones. A cave management plan would be developed to meet FCRPA requirements.
- Steps would be taken to protect geological features from damage presently occurring as a result of unrestricted public access and/or poorly designed or constructed public facilities.
- Prior to authorizing surface-disturbing activities, areas would be surveyed for unique, rare, or special geologic resources including fossils.
- Threats to unique or outstanding examples of geologic features, including paleontological and cave resources, would be identified and mitigated as appropriate.

Soils

Desired Future Conditions:

- Soils are stable and functional. The amount of bare mineral soil and cover of perennial vegetation, litter, and biological soil crust are within 10 percent of that expected for the ecological site.

Management Actions:

- Soils would be protected from accelerated or unnatural erosion from ground disturbing activities. For example, post-fire stabilization efforts would protect erosion-prone soils through natural and assisted revegetation.
- The potential for, or presence, extent, and condition of, biological soil crusts would be investigated to provide specific management guidance.
- Biological soil crusts would be considered in management decisions where appropriate.

Vegetation, Including Special Status Species, and Fire Management

Desired Future Conditions:

- Native plant communities sustain biodiversity and provide habitat for native wildlife.
- There is no net loss of sagebrush steppe communities over the life of the plan.
- Woodland communities (e.g., limber pine, aspen, and juniper) are maintained as healthy mixed-age communities within their natural range and distribution.
- Natural ecological processes are the dominant factor in determining the composition and distribution of plant communities in the Monument and wilderness areas.
- The areas dominated by invasive annual species (cheatgrass and other similar plants) are minimized.
- All plant communities are in or making progress towards Fire Condition Class (FCC) 1 (see Chapter 3).
- Preventing or limiting the spread of noxious weeds using Integrated Weed Management perpetuates the natural condition and biodiversity of the planning area.
- Kipukas in the Pristine Zone are free of noxious weeds.
- Sustainable forage is available for livestock and wildlife.
- Special status species (those listed by U.S. Fish and Wildlife Service [USFWS], BLM, and/or the Idaho Department of Fish and Game [IDFG]) remain at viable population levels.

Management Actions:

- Wildland fire would be suppressed to protect life and property, recent rehabilitation and restoration projects, and the Little Cottonwood Creek Watershed.
- Existing sagebrush steppe communities would be protected to prevent loss of shrub cover and managed to promote a diverse, desirable grass, and forb understory.
- Annual grasslands and highly degraded sagebrush steppe communities would be restored to achieve a mosaic of shrubs, forbs, and grasses capable of sustaining native animal populations.
- In the event of wildland fire, burned areas would be rehabilitated when necessary to restore the appropriate mosaic of sagebrush species and subspecies, along with a diverse perennial understory, and suppression of invasive and noxious weeds.
- National and Idaho state habitat guidelines for sage grouse and sagebrush steppe obligates developed by interagency working groups regarding composition and structure of sagebrush habitats on a landscape scale would be adopted to guide sagebrush steppe management.
- Only certified weed free hay, straw, and mulch would be permitted within the Monument.
- Use of native plants would be emphasized in rehabilitation and restoration projects, and only native plants would be used for rehabilitation or restoration projects within the Pristine Zone.
- Integrated Weed Management principles would be used to:
  - Detect and eradicate all new infestations of noxious weeds;
  - Control existing infestations; and
  - Prevent the establishment and spread of weeds within and adjacent to the planning area.
- Weed infestations in wilderness areas would be controlled by methods consistent with minimum tool requirements and Integrated Weed Management principles, including prevention of disturbance activities; use of cultural and mechanical methods to control or physically remove noxious weeds; and application of herbicides and possibly biological controls.
- BLM and NPS would develop a joint fire management implementation plan for the Monument based on the Upper Snake River District Fire Management Direction Amendments (FMDAs) (USDI 2004).
- The cooperative arrangement between BLM and NPS related to fire management would continue, including cooperative agreements with local fire departments and rural fire districts.

Vegetation, Including Special Status Species, and Fire Management (cont.)

- All special status species in the Monument would be inventoried with monitoring plans established, particularly when and where adverse impacts may occur.
- Actions and stipulations necessary to protect special status species and their habitats would be made part of land use authorizations (e.g., limiting fragmentation of special status species populations when considering development of road network) and fire planning.

Water Resources

Desired Future Conditions:

- Riparian areas and wetlands within the planning area are maintained, restored, or enhanced, so that they provide diverse and healthy habitat and water quality conditions for riparian and wetland obligates and other wildlife species.
- Little Cottonwood Watershed yields sufficient safe drinking water for current public and administrative uses in the visitor center complex.

Management Actions:

- No additional playas would be modified or developed.
- The agencies would work with appropriate State of Idaho authorities to obtain water resources needed for Monument purposes.

Wildlife, Including Special Status Species

Desired Future Conditions:

- Habitat within the planning area supports a diverse range of native wildlife species and gives the public high-quality opportunities for wildlife-based recreation.
- Habitat for migratory birds, including forage, water, cover, structure, and security is available within the planning area to support healthy populations of resident and migrant species.
- Special status species (those listed by USFWS, BLM, and/or the IDFG) remain at viable population levels.
- High-quality habitats for sagebrush obligate species are provided.
- Breeding and winter sage grouse habitats are conserved.

Management Actions:

- Inventory and monitoring of wildlife would identify species that are regionally or nationally important.
- Monitoring would identify declining species before they become rare.
- NPS, in consultation with the state, would designate areas within the Preserve and periods of time when no hunting would be permitted for protection of the area's resources.
- BLM would continue to coordinate with U.S. Department of Agriculture (USDA) Wildlife Services as provided for under existing national agreements and BLM Idaho State policy to control predators.
- On all NPS-administered lands, predator control using preemptive strategies would not be authorized except on a case-by-case basis.
- Native animal species identified as pests would be managed in accordance with the applicable BLM or NPS agency management policies depending upon the administrative area in which the pest occurs.
- All special status species in the Monument would be inventoried with monitoring plans established, particularly when and where adverse impacts may occur.
- Actions and stipulations necessary to protect special status species and their habitats would be made part of land use authorizations (e.g., limiting fragmentation of special status species populations when considering development of road network) and fire planning.

Air Quality

Desired Future Conditions:

- Air quality related values, particularly visibility, within the Class I Craters of the Moon Wilderness Area are not degraded and adverse impacts do not occur.
- Air quality parameters negatively affecting human health, visibility or biological diversity remain at or below current levels.

Management Actions:

- The agencies would work proactively with surrounding communities, land management agencies, and the Idaho Department of Environmental Quality to limit increases of particulate matter and sulfur dioxide, which could reduce visibility, throughout the entire Monument.

CULTURAL RESOURCES

Archaeological And Historical Resources

Desired Future Conditions:

- The extent and condition of cultural resources are documented and adverse effects are avoided.
- The agencies maintain a single, consolidated cultural resource database.
- Archaeological resources either listed in or eligible to be listed in the National Register of Historic Places (NRHP) are protected in an undisturbed condition unless it is determined through appropriate consultation that disturbance or natural deterioration is unavoidable.
- The qualities that contribute to the eligibility for listing or listing of prehistoric/historic structures and historic trails in the NRHP are preserved and protected in accordance with the Secretary of the Interior's Standards, unless it is determined through appropriate consultation that disturbance or natural deterioration is unavoidable.

Management Actions:

- The significance of known archaeological and historic resources, structures, and landscapes would be inventoried, evaluated, and documented, in conjunction with the Idaho State Historic Preservation Officer (SHPO), for listing in the NRHP.
- Through consultation with the Idaho SHPO, areas for Section 110 cultural resource inventories would be prioritized.
- Measures such as access limitations and periodic monitoring would be identified to proactively manage and protect cultural resources, including traditional cultural properties.
- A proactive Section 110 inventory would be conducted as funding allows expanding the cultural resource database for the Monument.
- At-risk NRHP-eligible sites would be monitored for vandalism or other disturbances and protected/ stabilized as necessary.
- A comprehensive Archaeological Overview and Assessment of known and potential archaeological resources (baseline research report) within the planning area would be completed.
- A Cultural Resource Management Plan (CRMP) that describes how specific sites would be managed, defines what areas need additional inventory, and designates potential use categories for sites would be completed for the Monument.
- Eligible properties would be monitored periodically and steps would be taken to stabilize any property found to be deteriorating and to limit access as needed.
- Projects would be planned and designed so as to avoid adversely impacting cultural resources where possible. In situations where adverse impacts could occur, BLM and NPS would consult with the Idaho SHPO and other parties, including Native American tribes, to develop alternatives to avoid, minimize, or mitigate the adverse effects.
- Activities that may affect the Goodale's Cutoff of the Oregon Trail, the NPS headquarters/Visitor Center Mission 66-era area, or other properties listed or eligible for the NRHP would be undertaken in consultation with the Idaho SHPO.

Museum Collections

Desired Future Conditions:

- Museum collections (objects, works of art, historic documents, and natural history specimens) are maintained according to NPS museum management program requirements.

Management Actions:

- Monument collections would be accessible for legitimate scientific research and educational purposes.
- All resource management records that would be directly associated with museum objects would be managed as museum property. These and other resource management records would be preserved as part of the archival and manuscript collection because they document and provide an information base for the continuing management of the Monument's resources.

AMERICAN INDIAN RIGHTS AND INTERESTS (RESOURCES, RESOURCE AND PUBLIC LAND VALUES, TREATY RIGHTS)

Desired Future Conditions:

- Traditional cultural properties of Native American tribes and access to those properties are preserved within the Monument for the use and benefit of current and future tribal members.
- For Native American tribes that have ties to this land as part of their ancestral homeland, the Monument holds meaning and value and is a place where treaty rights and religious/sacred traditions may be practiced in a manner supportive of the purpose of the Monument.

Management Actions:

- Shoshone-Bannock Tribes and any other Native American tribes that have expressed an interest in traditional cultural properties within the Monument would be consulted with on a regular basis regarding the management of those properties.
- Handling of Native American Graves Protection and Repatriation Act (NAGPRA) materials would be addressed as a component of a Cultural Resources Management Plan.
- Should any Native American-affiliated NAGPRA materials ever be inadvertently discovered within the Monument, the agencies would follow the tribal consultation procedures outlined in the NAGPRA of 1990 regarding their treatment.
- Appropriate protection measures would be identified for places of traditional cultural importance to Native Americans to preserve the integrity and use of these areas.
- Agencies would consult with associated Native American tribes to develop and accomplish the programs of the Monument in a way that respects the beliefs, traditions, and other cultural values of the Native American tribes who have ancestral ties to Monument lands.
- Agencies would consult with associated Native American tribes prior to taking actions that would affect natural and cultural resources that are of interest and concern to them.
- Hunting, gathering, and use of certain natural resources as sacred objects for religious use would continue on the Preserve and expanded areas of the Monument. (See Chapter 3 for additional discussion.)

LAND USE AND TRANSPORTATION

Access and Travel

Desired Future Conditions:

- There is no net increase in road mileage within the Monument.
- The road system within the planning area provides access for visitors, permittees, non-federal landowners and administrative needs without adversely affecting those resources and values the Monument was established to preserve.
- The agencies coordinate road management inside and outside of the Monument in a cooperative fashion with local government agencies so that the transportation system is managed in a comprehensive, logical manner.
- The agencies also work cooperatively with local government agencies to provide appropriate access to the Monument and private land within the Monument.

Management Actions:

- The agencies would prepare an implementation-level Comprehensive Travel Management Plan, showing road and trail classifications, standards and restrictions.
- The agencies would prepare a travel map showing allowable uses, road and trail classifications, and standards and restrictions.
- No new motorized vehicle roads or trails would be developed or designated within the Pristine Zone.
- The agencies would close and rehabilitate all routes established in Wilderness Study Areas that were not identified in the wilderness inventory as “existing ways.”
- The agencies would prepare guidelines and procedures for authorization of emergency and administrative off-road travel.
- All roads and trails within the Monument would be designated “Limited” for off-highway vehicle (OHV) use (see Glossary).
- All land within the Monument other than designated roads and trails would be designated “Closed” for OHV use.
- All authorized roads located on NPS-administered portions of the Monument and Preserve would be open only to licensed motorized vehicle travel and would be designated as “Park Roads.”
- The agencies may close individual roads and trails temporarily or permanently (NPS) to protect resources on a case-by-case basis.

Livestock Grazing

Desired Future Conditions:

- Sustainable rangeland ecosystems are healthy; public rangelands are maintained or restored to meet Idaho Standards for Rangeland Health.
- Livestock forage is provided on a sustainable basis for the life of the plan, consistent with other resource objectives and with public land use allocations.
- Livestock developments are consistent with the desired future conditions for natural, cultural, and visual resources.

Management Actions:

- Eight allotment boundaries would be altered to accurately reflect the NPS/BLM boundary. There would be no change in animal unit month (AUM) preferences or acres actually available for grazing. See Appendix F for additional details.
- BLM acres of land available for livestock use: total 284,000. BLM acres of land not available for livestock use: total 5,000. NPS acres of land not available for livestock use: total 466,000.
- Permitted livestock use: totals 36,693 AUMs. The current livestock use authorizations would be maintained until evaluations identify the need for adjustments in livestock use to meet Idaho Standards for Rangeland Health.
- Use of existing livestock developments in Primitive and Pristine zones may continue. BLM may remove developments if they are no longer serving a useful purpose or resource objectives warrant their removal. Sites would be restored.
- The Brigham Point and Paddelford Flat sheep trails across NPS land would be evaluated for future use. See Appendix F.

Facilities

Desired Future Conditions:

- Existing visitor and administrative facilities within the Frontcountry Zone associated with the original NPS Monument meet visitors' needs.
- The agencies cooperate with gateway communities in providing information and services to visitors at sites outside the Monument.
- Location of agency facilities and staffing levels promotes efficiency of operations and public needs.
- Principles of sustainable and universal design are incorporated into all facilities and operations.

Management Actions:

- The existing visitor center/administrative building would be enlarged and undergo reconstruction, as approved.
- Existing paved road system and parking areas would be modified to address safety and maintenance concerns.
- Fire stations at Carey and Kimama would include Monument information. There would be informational kiosks located along roads leading into the Monument.
- Opportunities for sharing BLM and NPS facilities and staff would be evaluated.
- Signs and wayside exhibits previously approved for visitor safety and resources protection would be installed at Kings Bowl.

Lands and Realty

Desired Future Conditions:

- Existing access to private lands is maintained, consistent with applicable laws, while minimizing environmental impacts.
- Valid existing rights are protected (see Glossary).

Management Actions:

- The agencies would pursue acquisition or exchange for private inholdings within the Monument based on initiation by willing seller.
- The agencies would pursue an exchange with Idaho Department of Lands for state lands located in and near the Monument.
- Action on applications for new discretionary land use authorizations would be guided by existing NPS and BLM policies.
- BLM would perform an inventory of all rights of way, easements, land use permits, and other authorizations in effect as of the date of the Proclamation.

Mineral Materials

Desired Future Conditions:

- Material sites (sites excavated for gravel, cinder, and other materials) are reclaimed and restored where feasible when no longer in use.

Management Actions:

- Existing authorization for material sites within the Monument would continue for the term of the authorization.
- New materials sites would not be developed except for Monument administrative purposes.
- Information would be provided on BLM areas outside the Monument where casual collection is appropriate and permitted for materials similar to those found in the Monument.
- Agencies would consult with Idaho Transportation Department on relinquishment of three right-of-way grants for material sites along U.S. Highway 93.

Wilderness and Wilderness Study Areas (WSAs)

Desired Future Conditions:

- Natural conditions in Wilderness and WSA, including air quality, dark night skies and natural quiet, are substantially free of human influences.
- Air quality degradation and adverse impacts to air quality related values, particularly visibility, within the Class I Air Quality Craters of the Moon Wilderness Area do not occur.
- Future generations enjoy the enduring wilderness resources of the Craters of the Moon wilderness, including its conservation, scientific, cultural, educational, and recreational benefits.
- WSAs retain the wilderness values identified in the Wilderness Inventory and Study process.

Management Actions:

- NPS and BLM would develop a joint Wilderness/WSA management plan following completion of this plan.
- No additional wildlife water developments or other habitat manipulations would be undertaken to manage wildlife populations in Wilderness, WSAs, or the Preserve.
- Use of aircraft to survey and monitor wildlife populations could be continued, but flights would be scheduled to avoid high visitor use periods. Any landing of aircraft or dropping of supplies from aircraft in wilderness or WSA would be consistent with a minimum requirement and minimum tool analysis.
- Ways or travel routes within WSAs not identified during WSA inventories would be closed to motorized vehicles and rehabilitated.
- Minimum requirement analysis would precede all management activities within wilderness and WSAs.
- Should those portions of the Great Rift WSA adjacent to the original Monument be designated as wilderness, the 660-foot strip of non-wilderness between the Craters of the Moon Wilderness boundary and the original Monument boundary should be designated as Wilderness as well.
- Should Congress designate any WSA as Wilderness, then a separate Wilderness Management Plan will be prepared for that area.
- Should Congress release any WSA from WSA status, then the area would be managed under the direction of this land use plan.

VISITOR EXPERIENCE

Interpretation / Visitor Understanding

Desired Future Conditions:

- The Monument builds and maintains positive relationships with visitor user groups and educational organizations.
- The public perceives the Monument as a single entity and its management as a model of public service.
- The public understands and appreciates the area's natural and cultural resources, including its history and uses.
- The public has access to Monument information and learning opportunities, both on and off site.
- Information/orientation materials such as travel maps, safety bulletins, resource information and recreation information are conveniently available.

Management Actions:

- A Comprehensive Interpretative Plan for the Monument would be developed.
- Educational programs for schools would focus on programs on site in the original NPS-administered Monument. A number of programs (summer and winter) aimed at special users would be presented each year.
- Both agencies would coordinate services to meet the needs of permittees, visitors, students, educators, interest groups and the general public.
- Developed facilities such as the visitor center at the original NPS Monument would continue to be provided.
- Informational/orientation materials dealing with recreation, maps, safety, and resource concerns would be posted on kiosks located at all primary backcountry access points surrounding the Monument and at proposed fire stations at Carey and Kimama.
- A variety of interpretive media for on- and off-site use would continue to be developed. Interpretive programs and the maintenance of exhibits and waysides would continue.
- Monument staff would continue to promote visitor safety and resource protection.

Recreation

Desired Future Conditions:

- Opportunities are available for diverse recreation experiences, consistent with the intent of Monument proclamations and applicable laws.
- Public awareness of responsible low impact recreational use reduces or eliminates the need for restrictive management policies.
- Public awareness of area hazards, along with an attitude of self-reliance and personal safety, substantially reduces the need for restrictive management policies.
- Impacts associated with recreational uses do not adversely affect the physical and visual integrity of geologic features.
- NPS, BLM, and external partners provide the public accurate and consistent information on recreational opportunities throughout the Monument.
- The area continues to offer a range of opportunities for discovery.
- Responsible low impact recreational use allows for relatively unrestricted recreational opportunities throughout much of the Monument.
- Within the Pristine Zone, public opportunities to experience solitude, natural quiet/night sky, and views of landscapes remain substantially free of human influence.

Management Actions:

- Idaho's State Comprehensive Outdoor Recreation and Tourism Plan (SCORTP) (2003) and the Idaho Outdoor Recreation Demand Assessment would be utilized in implementation-level planning to assist managers in understanding the recreational use patterns, trends, and recreation facilities needed for the area.
- Resources and areas most vulnerable to vandalism, theft, and/or recreation use impacts would be inventoried.

  Leave No Trace and *Tread Lightly!* programs would be promoted with staff and the public.
- Programs would promote wilderness and backcountry ethics.

  Information/orientation materials such as travel maps, safety bulletins, resource information and recreation information would be conveniently available.
- The agencies, in consultation with the State of Idaho, could designate areas within the Preserve and periods of time when no hunting and/or use of firearms would be permitted for reasons of public safety, administration, and/or public use and enjoyment.
- Permits would be required for overnight camping in the Wilderness and/or biking or hiking in the original Monument area north of U.S. Highway 20/26/93.
- No wood fires would be permitted within the original Monument (campground sites provide grills for charcoal cooking only; wood fires permitted at group campsite).
- No hunting would be allowed in the original Monument.

Visual Resources

Desired Future Conditions:

- Existing opportunities to experience solitude, dark night sky, and views of landscapes remain substantially free of human intrusions.
- A primitive and natural visual setting is retained.
- The visual integrity of the Goodale's Cutoff historic trail corridor remains protected.
- Management activities meet or exceed adopted Visual Resource Management (VRM) classes.

Management Actions:

- BLM and NPS managers should seek the cooperation of visitors, neighbors, and local government agencies to prevent or minimize impacts and prevent the loss of western landscape vistas and natural dark conditions.

Soundscapes

Desired Future Conditions:

- Aircraft noise impacts are minimized through coordination with the Department of Defense, Federal Aviation Administration, and the Idaho Department of Aeronautics.
- Existing opportunities to experience solitude and natural quiet remain substantially free of human intrusions.

Management Actions:

- Aircraft landings associated with commercial air tours would not be authorized within the Pristine Zone.

SOCIAL AND ECONOMIC CONDITIONS

Desired Future Conditions:

- Gateway and other nearby communities benefit economically and socially from the presence of the Monument.

Management Actions:

- An intergovernmental coordinating group would be considered to ensure consistency of this plan with other state and local plans.

RESEARCH

Desired Future Conditions:

- The findings of scientific research enhance management decisions and increase public appreciation, and understanding of Monument resources.
- The research community and the Monument staff view the Monument as a productive outdoor laboratory.

Management Actions:

- In order to maintain a complete record of research activities, research and specimen collecting permits would be required for all projects. Standard Operating Procedures for the NPS permit process would be incorporated for the entire Monument.
- Varying means, including interdisciplinary and interagency research projects would emphasize the use of the Monument as an outdoor laboratory for understanding the Great Rift ecosystem.
- BLM and NPS would facilitate the transfer of research information to the public.
- To the extent they are available, NPS and BLM facilities and staff assistance may be made available to qualified researchers and educational institutions conducting authorized studies or field classes.
- The agencies would coordinate the review and approval of research applications to confirm adherence to each agency policy, to assure compatibility with the purposes for the Monument.

ALTERNATIVE A (NO ACTION ALTERNATIVE)

ALTERNATIVE CONCEPT

The No Action Alternative (Alternative A) is required by the NEPA and provides the baseline against which to compare the other alternatives. Under this alternative, current management practices would continue as funding allows. Existing visitor facilities would be maintained to support current activities.

Following the expansion of the Monument, the agencies were directed to follow the directives of Proclamation 7373 and the Interim Management Guidelines issued pursuant to the Proclamation. Alternative A (No Action Alternative) would continue the current management direction, guided by the Proclamation, and Interim Management Guidelines (see Appendix B), as well as existing laws and policy. Current direction includes the five existing land use plans that were in place prior to Proclamation 7373: the Sun Valley Management Framework Plan (1981), the Monument Resource Management Plan (1985), the Big Desert Management Framework Plan (1981), the Craters of the Moon General Management Plan-NPS (1992), and the Big Lost Management Framework Plan (1983).

The key components of Alternative A (No Action Alternative) are as follows:

- Depicts current management under the five existing management plans as modified by Proclamation 7373, Public Law 107-213, and the agencies' Interim Management Guidelines.
- Serves as a baseline for comparison with the other three conceptual alternatives.
- Responds to those public comments favoring keeping things as they are.

MANAGEMENT ZONES

Although the Monument is not currently zoned as depicted, management zones were established for the purposes of this planning process. Figure 4 depicts the zones based on the agencies' best understanding of where the zone boundaries would be located under Alternative A (No Action Alternative). Figure 4 also shows the zone allocations that would occur under Alternative A (No Action Alternative).

As can be seen on Figure 4, the Frontcountry Zone coincides with the high-use visitor areas: the Visitor Center/Loop Road area and U.S. Highway (US) 20/26/93 along the northern boundary of the Monument. The Passage Zone includes a few other main access roads in Laidlaw Park, the portion of the Carey-Kimama Road that goes through the Monument, the southern portion of the Arco-Minidoka Road within the Monument, and a small area at Kings Bowl. The Passage Zone designation is appropriate for these areas since they are the primary travel and access routes within the Monument. They have some signs and facilities used by visitors who are sightseeing, hiking, or accessing camping or day-use areas and they contain many livestock-oriented facilities such as sheep bed grounds, fences, water troughs, and corrals.

The Pristine Zone under Alternative A (No Action Alternative) appropriately includes the undisturbed lava flows, while the Primitive Zone was appropriate for the remainder of the Monument and Preserve, which consists of relatively large expanses with few facilities located between the lava flows and travel corridors. The Primitive Zone includes lands currently used for dispersed recreation and primitive camping only, with mostly two-track dirt roads.

MANAGEMENT GUIDANCE FOR ALTERNATIVE A

Alternative A (No Action Alternative) would incorporate all of the "Management Guidance Common to All" previously described, plus the alternative-specific guidance on page 35.

A series of standard classifications for roads and trails was developed for the purpose of identifying and defining roads and trails at Craters of the Moon National Monument and Preserve. These classifications are defined below and further explained in Chapter 3.

Class A Roads generally are paved and have a surface of asphalt, concrete, or similar continuous material. In addition to U.S. Highway 20/26/93, the only Class A roads are the loop drive, spur roads and associated parking areas in the original NPS Monument. Class A roads are only found in the Frontcountry Zone.

Class B Roads are improved roads constructed with a natural or aggregate surface, and they may have berms, ditches, or culverts. Regular maintenance allows passage by standard passenger and commercial vehicles such as cars, light trucks, and some heavy trucks. Within the Monument, seasonal conditions and lack of snow removal may render these roads impassable. Class B roads are found primarily in the Passage Zone.

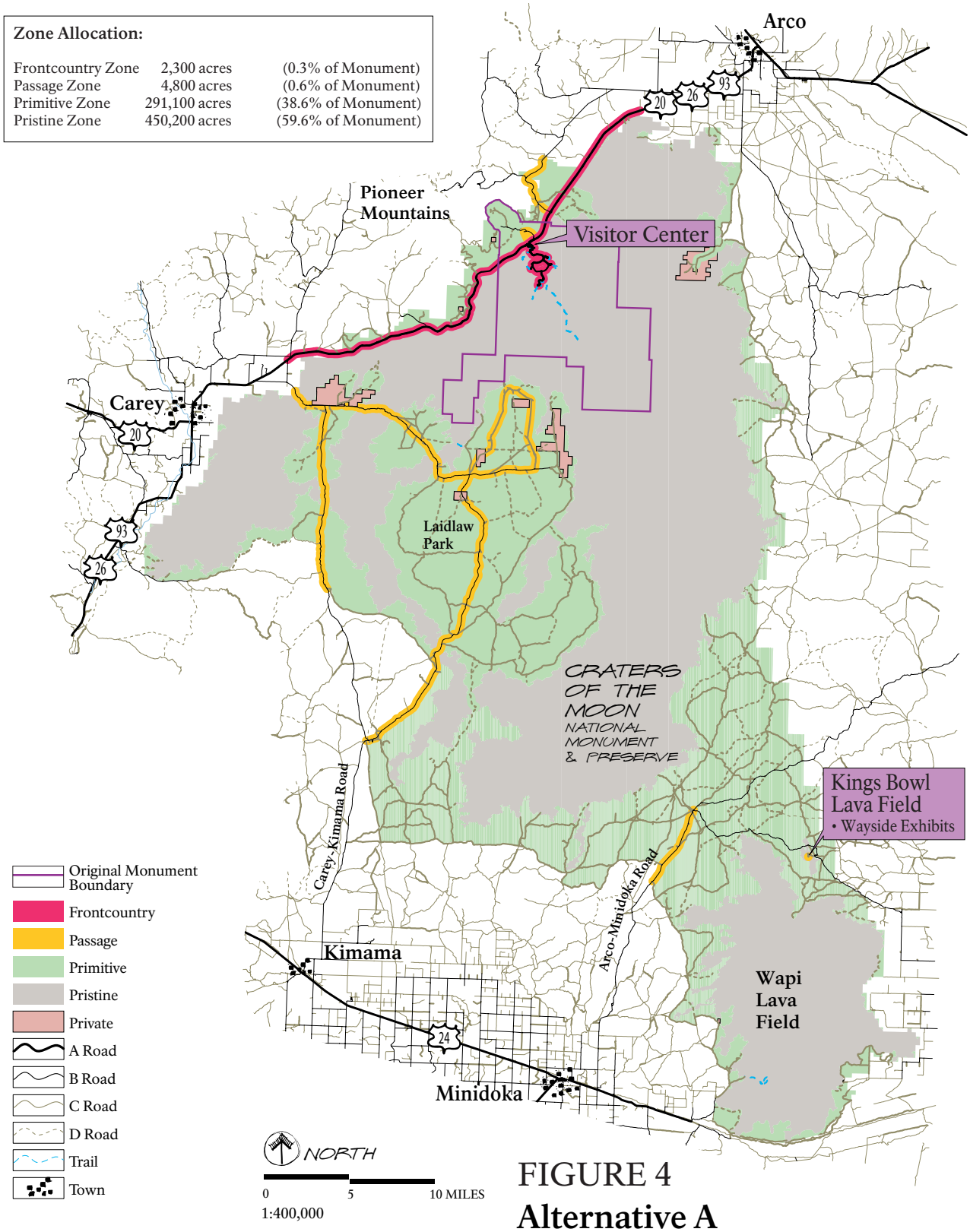


FIGURE 4
Alternative A
(No Action Alternative)

Craters of the Moon National Monument & Preserve
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VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND FIRE MANAGEMENT

Desired Future Conditions:

- Existing and potential sagebrush steppe communities within the Monument are protected and restored, with an emphasis on key sage grouse habitat in Laidlaw Park, Little Park, and Paddelford Flat (direction from the Monument RMP).

Management Actions:

- Approximately 40,000 acres would be identified for proactive restoration and/or post-fire rehabilitation (5 percent of the entire Monument, 15 percent of BLM-administered land). This assumes a current rate of restoration, approximately 2,500 to 4,000 acres annually over the 15- to 20-year life of the plan. Approximately 31,000 acres of annual grassland and 9,000 acres of highly degraded low elevation sagebrush steppe would be treated to control cheatgrass and restore big sagebrush cover with a perennial understory.
- All wildland fires within the Preserve and BLM portion of the Monument would be managed in accordance with current BLM land use plans.
- Wildland fire within the original Monument would be managed according to the NPS Wildland Fire Management Plan (2000) that permits use of naturally ignited wildland fires for resource benefit (wildland fire use) in the Wilderness area under specific conditions.

CULTURAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- A minimum of 5 percent of the Monument would be intensively inventoried (Section 110 National Historic Preservation Act [NHPA]) for cultural resources over the life of the plan.
- Some interpretation of archaeological and historic sites would continue (e.g., Goodale's Cutoff, Baker Cave, and Indian Tunnel).

ACCESS AND TRAVEL

Desired Future Conditions:

- Same as "Common to All." (Most management direction for the desired condition for Alternative A (No Action Alternative) is reflected in the management zone depiction – see Table 2.

Management Actions:

- Roads and trails would continue to be maintained to current standards.
- New trails could be developed within the NPS-administered portion of the Monument and within the area presently zoned as "park and interpretive development" in the 1992 General Management Plan.
- Trails in the Kings Bowl area would be maintained or rehabilitated to prevent further resource damage.
- All existing roads and trails within the Monument that were open to vehicle travel prior to Proclamation 7373 would remain open, although the agencies may close individual roads and trails temporarily to protect resources on a case-by-case basis.

FACILITIES

Desired Future Conditions:

- Administrative and visitor facilities continue to be restricted to an area of approximately 92 acres in the north end of the Monument adjacent to U.S. Highway 20/26/93. This area includes lands adjacent to the seven-mile paved loop drive.

Management Actions:

- The kiosks located along roads leading into the Monument and a few information and directional signs in the interior would continue to be maintained and replaced as necessary.
- Visitor safety and information signs would be provided in the Kings Bowl area.

RECREATION

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- Existing roads in the Pristine Zone would remain open to motorized and mechanical vehicle travel.

VISUAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- VRM inventory classes would be designated as management classes as shown on Figure 5

Class C Roads have an unimproved natural surface and may be either constructed or established over time by repeated passage of vehicles. The natural surface may be dirt, sand, or rock. A minimal amount of maintenance, if any at all, is limited primarily to spot surface grading to allow vehicle passage within the original road corridor. Class C roads accommodate a much smaller range of vehicles than Class B roads, usually high clearance two-wheel drive and four-wheel drive vehicles. Seasonal conditions or wet weather may render these roads impassable at any time. Class C roads are found primarily in the Passage and Primitive zones.

Class D Roads are primitive roads that were not constructed, but established over time by the passage of motorized vehicles. These roads receive no maintenance or grading. Occasional emergency repairs or limited maintenance may be performed for resource protection and administrative purposes. These roads are generally referred to as "two-tracks." The condition of these roads varies from sometimes passable by a passenger car, to only suitable for high clearance four-wheel drives vehicles. Seasonal conditions or wet weather may render these roads impassable at any time. Class D roads are found primarily in the Primitive Zone.

Class 1 Trails are restricted to non-motorized/non-mechanized travel (wheelchairs are allowed). Examples of permitted forms of travel include foot travel, pack animal, and horseback. Examples of prohibited forms of travel on Class 1 trails include mountain bikes and all motorized vehicles. Class 1 trails may be further restricted, for example, to foot travel only.

Class 2 Trails are open to motorized/mechanized travel in addition to foot travel, pack animal, horseback, and other forms of passage. Examples of prohibited forms of travel include any vehicle with a footprint wider than an 18-inch tread (all-terrain vehicles, four-wheelers, and four-wheel-drive vehicles).

The following table summarizes where the various types of roads and trails that currently exist would fall within the management zones as they have been located under Alternative A. Road and trail classification is based on the inventoried condition and maintenance standards for roads and trails as of 2003. Because management zones are a prescription for desired future conditions, road classification would be expected to change over the life of the management plan to match the management zone prescription. Under Alternative A, the intent is to maintain the road network in its current condition and road classification.

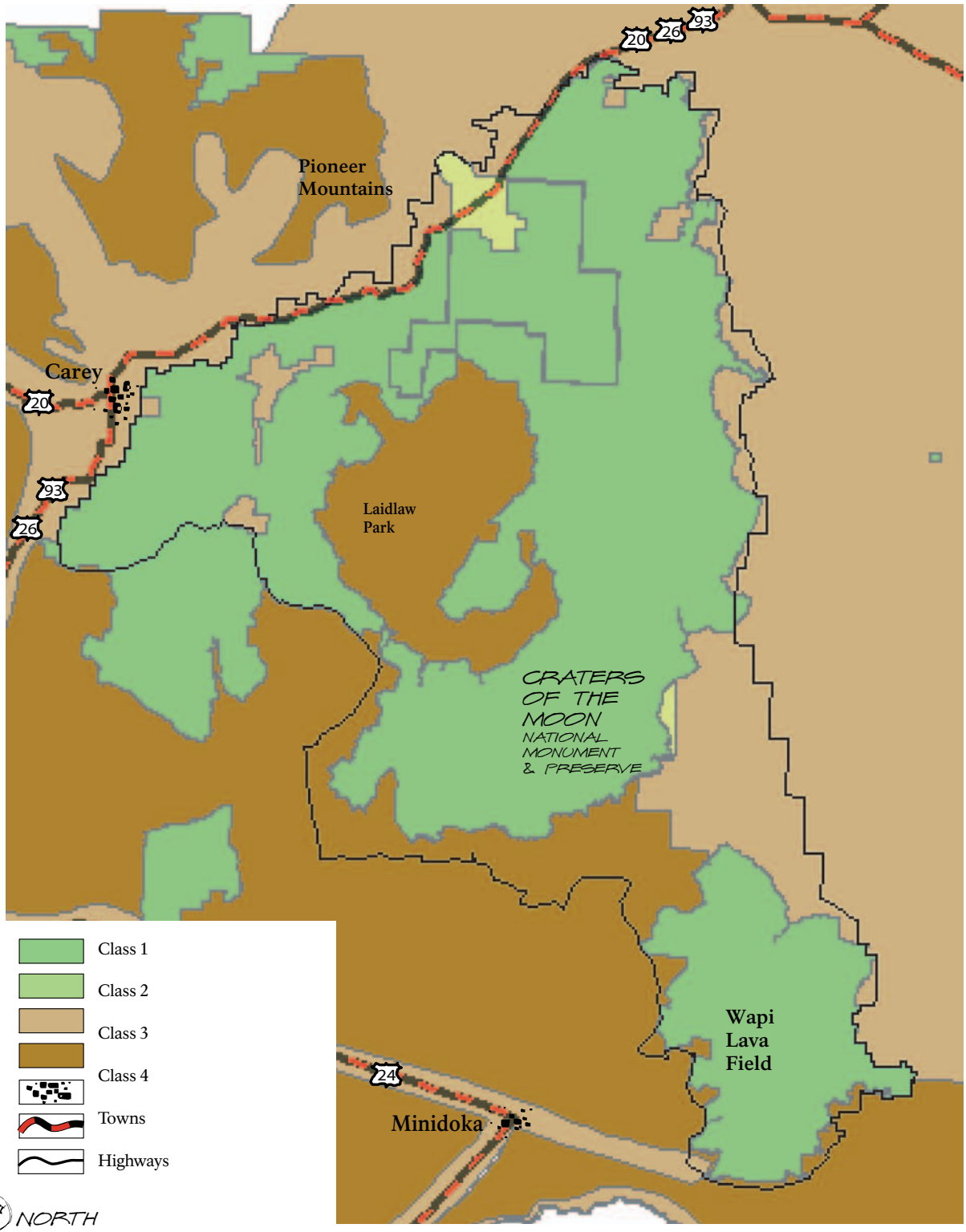
Table 2
Alternative A (No Action Alternative) – Road and Trail Distribution by Management Zone

	MANAGEMENT ZONES*				
Road Classification	**Frontcountry**	**Passage**	**Primitive**	**Pristine**	**Total Miles**
Class A	30	0	0	0	30
Class B	0	45	24	0	69
Class C	2	14	332	1	349
Class D	0	2	166	2	170
Class I Trails	7	0	0	13	20
Total Miles	**39**	**61**	**522**	**16**	**638**

*Approximate miles of existing roads and trails within each zone rounded to the nearest whole number.

Definitions of Classes of Visual Resource Management

- **Class I** – The objective of this class is to preserve the existing character of the landscape. Any contrast created within the characteristic landscape must not attract attention. This classification is applied to Visual ACECs, wilderness and WSAs, Wild and Scenic Rivers, and other similar situations.
- **Class II** – The objective of this class is to retain the existing character of the landscape. Changes in any of the basic visual elements caused by management activity should not be evident in the landscape. A contrast may be seen but should not attract attention.
- **Class III** – The objective of this class is to partially retain the existing character of the landscape. Contrasts to the basic elements caused by a management activity may be evident and begin to attract attention in the landscape. The changes, however, should remain subordinate in the existing landscape.
- **Class IV** – The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. Contrasts may attract attention and be a dominant feature in the landscape in terms of scale. However, the change should repeat the basic element of the landscape.



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FIGURE 5

Visual Resource Management Classification – Alternative A (No Action Alternative)

Craters of the Moon National Monument & Preserve
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ALTERNATIVE B

ALTERNATIVE CONCEPT

This alternative would optimize opportunities to experience the Monument, offer a wide range of recreational opportunities and experiences, and perpetuate historic use patterns. It would promote more travel and access within the Monument and provide for more extensive educational and directional signage throughout the Monument. One emphasis would be on maintaining a strong interpretation and education program for visitors within the Monument to help protect resources, maintain a safe visitor experience, and minimize conflicts with traditional uses. This alternative represents the highest accommodation of visitor access to, and within, the Monument.

The key components of Alternative B are as follows:

- Provides the greatest number of multiple-use trail opportunities.
- Provides extensive educational and directional signs throughout the Monument.
- Allocates large areas in the Passage Zone instead of only narrow corridors.
- Proposes travel corridors outside the Monument boundary to provide consistent road standards and access, to and through the Monument, including the Carey-Kimama, Arco-Minidoka, and American Falls-Kings Bowl roads.

MANAGEMENT ZONES

Figure 6 depicts the zones based on the agencies' best understanding of where the zone boundaries would be located under Alternative B. Figure 6 shows the zone allocations that would occur under Alternative B.

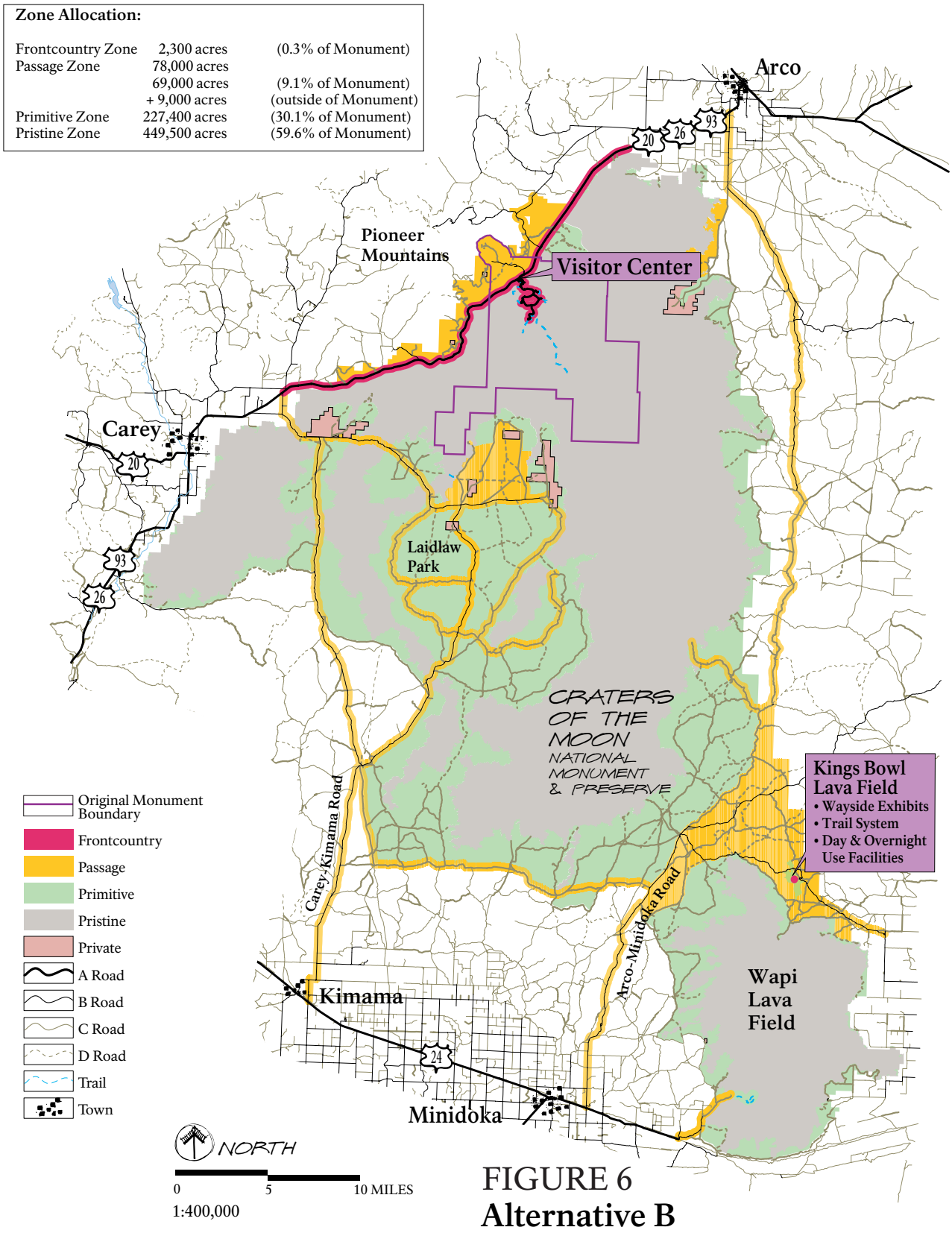
As Figure 6 indicates, under Alternative B the Frontcountry Zone would remain primarily the same as under Alternative A (No Action Alternative). A small area immediately surrounding the existing facilities at the Crystal Ice Caves/Kings Bowl area would be added to the Frontcountry Zone. However, the biggest emphasis would be on the Passage Zone, which would be greatly expanded to include an area north of US Highway 20/26/93, all of the Carey-Kimama and Arco-Minidoka roads (approximately 9,000 acres outside of the Monument), a network of roads leading to and through Laidlaw Park, and two relatively large areas in Laidlaw Park and between the Craters of Moon and Wapi lava flows. These areas were designated as Passage Zone to facilitate access to several areas of the Monument, thereby providing for a broad range of visitor experience and recreation opportunities within the Monument. These roads would be designated Backcountry By-Ways and upgraded to a consistent Class B standard. This would require collaboration with adjacent county governments. Passage Zone designation in these areas also allows for more new facilities including wayside exhibits, trail heads, parking areas, trail systems, day-use facilities, and designated campsites.

With the increase in Passage Zone provided in Alternative B, there would be a corresponding decrease in Primitive Zone areas, with the Pristine Zone allocation remaining about the same as under Alternative A (No Action Alternative). Essentially, Alternative B trades Primitive Zone and associated primitive-type visitor uses for the opportunity to provide an expanded Passage Zone that would allow for increased and/or improved access for visitors to many more areas within the Monument.

MANAGEMENT GUIDANCE FOR ALTERNATIVE B

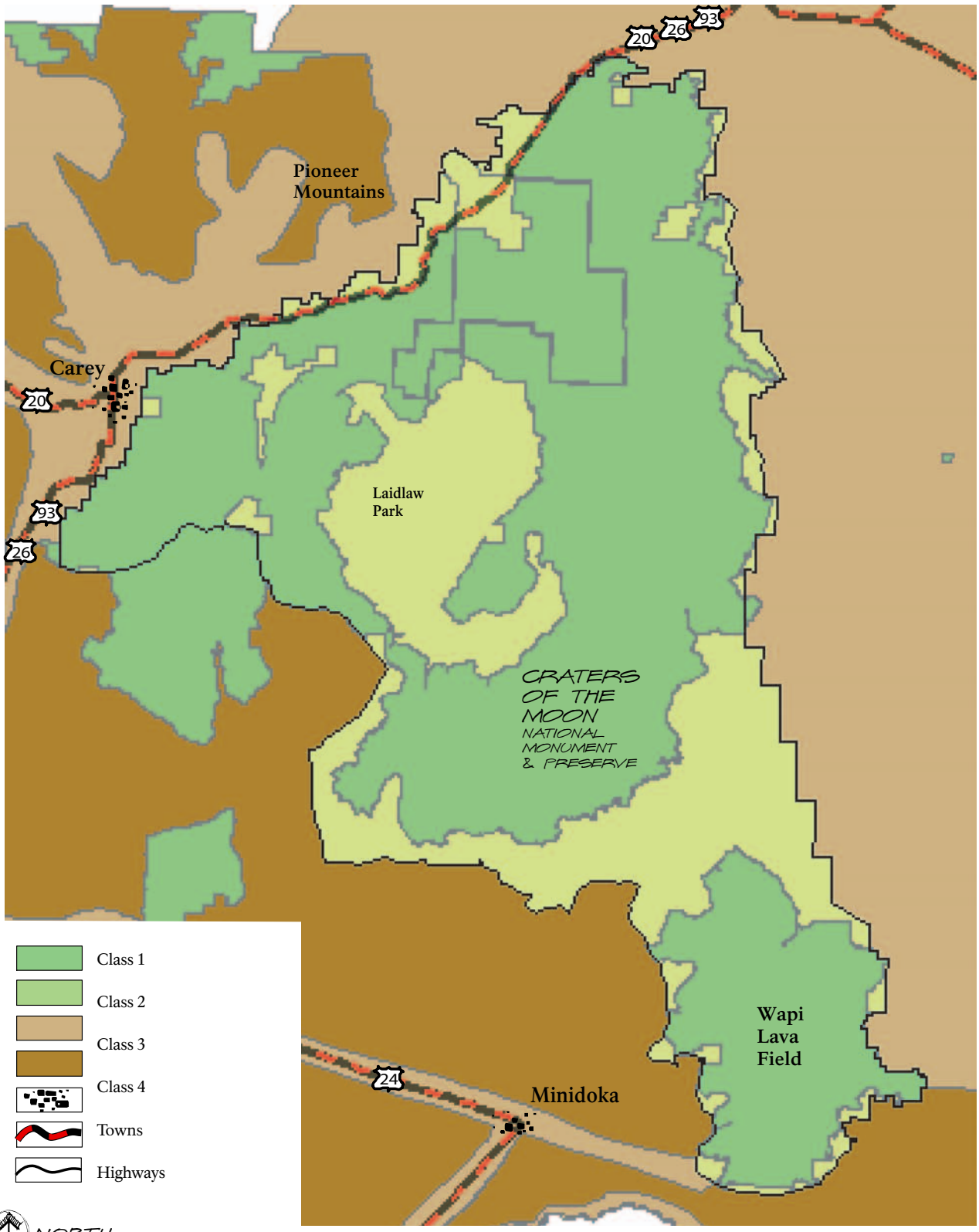
Alternative B would incorporate all of the "Management Guidance Common to All" previously described, plus the alternative specific guidance on pages 41 and 42.

Table 3 summarizes where the various types of roads that currently exist would fall within the management zones as they would be located under Alternative B. Road and trail classification is based on the inventoried condition and maintenance standards for roads and trails as of 2003. Because management zones are a prescription for desired future conditions, road classification would be expected to change over the life of the management plan to match the management zone prescription. Note that there is an increase in Passage Zone mileage and a corresponding decrease in Primitive Zone road mileage compared to Alternative A (No Action Alternative). Some of the Class C and D roads now located within the Passage Zone areas could be improved to facilitate access and/or converted to Class I and II trails.



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FIGURE 6
Alternative B
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FIGURE 7

Visual Resource Management Classification – Alternative B, C & D

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GEOLOGICAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- A restoration program would be initiated to remove graffiti from caves and foster public understanding of the need for cave resource protection.
- Trails to key geological features would be considered to mitigate resource impacts from user-created trails.

VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND FIRE MANAGEMENT

Desired Future Conditions:

- Fire is allowed to function as a natural process in the Wilderness and Preserve.

Management Actions:

- Approximately 45,000 acres would be planned for restoration and/or post-fire rehabilitation treatment (6 percent of the entire Monument, 16 percent of BLM-administered). Approximately 31,000 acres of annual grassland and 14,000 acres of highly degraded low elevation sagebrush steppe would be treated to control cheatgrass and restore big sagebrush cover with a perennial understory.
- Restoration projects would be an opportunity for interpretation on the decline of sagebrush steppe and efforts to restore this dwindling resource.
- Proactive fuels management activities would be undertaken to offset the potential effects of increased public use as a result of improvements to roads and facilities.
- Integrated Weed Management would have a heightened emphasis on treatment/containment, prevention and education, particularly in Frontcountry and Passage zones.
- Wildland fire use would be allowed in the Wilderness and Preserve except when incompatible with resource management objectives or when there would be danger to life or property.
- Limited prescribed fire (<500 acres) would be used in the aspen, conifer, and mountain shrub vegetation types to improve wildlife habitat and invigorate plant communities while protecting the Little Cottonwood Watershed.

CULTURAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- In response to increased access, public education and interpretation of cultural resources would be emphasized and provided at various dispersed recreation sites.
- Emphasis would be on increased Section 110 inventory in the Passage Zone.
- A minimum of 10 percent of the Monument would be intensively inventoried (Section 110 NHPA) for cultural resources over the life of the plan.
- Site monitoring and site protection measures, such as physical barriers, would be emphasized at various dispersed recreation sites.

Definitions of Classes of Visual Resource Management

- **Class I** – The objective of this class is to preserve the existing character of the landscape. Any contrast created within the characteristic landscape must not attract attention. This classification is applied to Visual ACECs, wilderness and WSAs, Wild and Scenic Rivers, and other similar situations.
- **Class II** – The objective of this class is to retain the existing character of the landscape. Changes in any of the basic visual elements caused by management activity should not be evident in the landscape. A contrast may be seen but should not attract attention.
- **Class III** – The objective of this class is to partially retain the existing character of the landscape. Contrasts to the basic elements caused by a management activity may be evident and begin to attract attention in the landscape. The changes, however, should remain subordinate in the existing landscape.
- **Class IV** – The objective of this class is to provide for management activities that require major modification of the existing character of the landscape. Contrasts may attract attention and be a dominant feature in the landscape in terms of scale. However, the change should repeat the basic element of the landscape.

ACCESS AND TRAVEL

Desired Future Conditions:

- The road and trail system within the planning area provides a hgh level of access to a wide variety of destinations, recreational activities, and both Class 1 and Class 2 trails.
- Within the four Passage Zone areas, multiple-use tral systems and associated educational and directional signs/waysides are established.
- The desired condition for Alternative B is reflected in the management zone allocation (see Table 3).

Management Actions:

- The Carey-Kimama and Arco-Minodoka roads would be designated as Backcountry By-Ways over their entire length including protions outside the Monument.
- The Carey-Kimama and Arco-Minodoka roads would be upgraded and maintained to a consistent Class B Standard over their entire length including portions outside the Monument.
- A trail system would be improved at the Kings Bowl area and to additional points of interest.
- Multiuse and single-use (e.g., ATV, equestrian, bicycling, walking) trail routes would be designated.

Table 3
Alternative B – Road and Trail Inventory by Management Zone

	MANAGEMENT ZONES*				
Road Classification	**Frontcountry**	**Passage[1] (Inside / Outside)**	**Primitive**	**Pristine**	**Total Miles[1]** *Inside / Outside*
Class A	30	0 / 0	0	0	30 / 0
Class B	0	68 / 87	0	0	68 / 87
Class C	2	162 / 59	183	1	348 / 59
Class D	0	42 / 2	126	2	170 / 2
Class I Trails	7	0 / 0	0	13	20 / 0
Total Miles	**39**	**272 / 148**	**309**	**16**	**636 / 148**

*Approximate miles of existing roads and trails within each zone rounded to the nearest whole number.

[1]Under Alternative B, portions of the Carey-Kimama and Arco-Minidoka roads that lie outside the Monument boundaries and provide key Monument access are included in the Passage Zone. This would require coordination with the surrounding county governments.

ALTERNATIVE C

ALTERNATIVE CONCEPT

Under Alternative C, there would be emphasis on retention and enhancement of the Monument's primitive character, with minimal visitor facilities or services outside the Frontcountry Zone, and less intensive management to influence resource conditions. More acres would be allocated to the Pristine Zone as compared to the other alternatives. This alternative would emphasize "opportunities for solitude" and provide a more primitive setting for recreational, educational, and management activities. It would offer protection for geologic and cultural resources and features by limiting access and development.

The key components of Alternative C are as follows:

- Would have the largest acreage in the Pristine Zone and least acreage in the Passage Zone.
- Maintains the fewest miles of roads and least amount of road access to the edge of the lava flows.
- Limits the amount of interpretation activities and number of information signs within the expanded Monument.
- Relies on the least intrusive methods of resource management, including sagebrush steppe restoration.
- Includes an ACEC designation in North Laidlaw Park to provide special protective management for native plants.

MANAGEMENT ZONES

Figure 8 depicts the zones based on the agencies' best understanding of where the zone boundaries would be located under Alternative C. Figure 8 also shows the zone allocations that would occur under Alternative C.

Under Alternative C, the Frontcountry Zone would remain the same as under Alternative A (No Action Alternative), and the Passage Zone would be reduced, particularly in Laidlaw Park and along the Arco-Minidoka Road. The biggest change from Alternative A (No Action Alternative) would be the increase in Pristine Zone in Laidlaw Park and the vegetated portions of Wilderness Study Areas.

The reason for the increased Pristine Zone allocation in these areas under Alternative C is to provide for a more primitive visitor experience and to de-emphasize facilities, services, and easy access, and to emphasize retention and enhancement of the Monument's primitive character.

With the expanded Pristine Zone areas, there would be less access to the edge of the lava flows and fewer maintained roads, resulting in more resource protection.

MANAGEMENT GUIDANCE FOR ALTERNATIVE C

Alternative C would incorporate all of the "Management Guidance Common to All" previously described, plus the alternative-specific guidance on pages 45 and 46.

Table 4 summarizes where the various types of roads that currently exist would fall within the management zones as they would be located under Alternative C. Road and trail classification is based on the inventoried condition and maintenance standards for roads and trails as of 2003. Because management zones are a prescription for desired future conditions, road classification would be expected to change over the life of the management plan to match the management zone prescription. Note that there is a decrease in Passage and Primitive zone road mileage and a corresponding increase in Pristine Zone road mileage compared to Alternative A (No Action Alternative). Many of the roads now located in the Pristine Zone could be closed to unauthorized motorized use or converted to Class I trails over the life of the Plan.

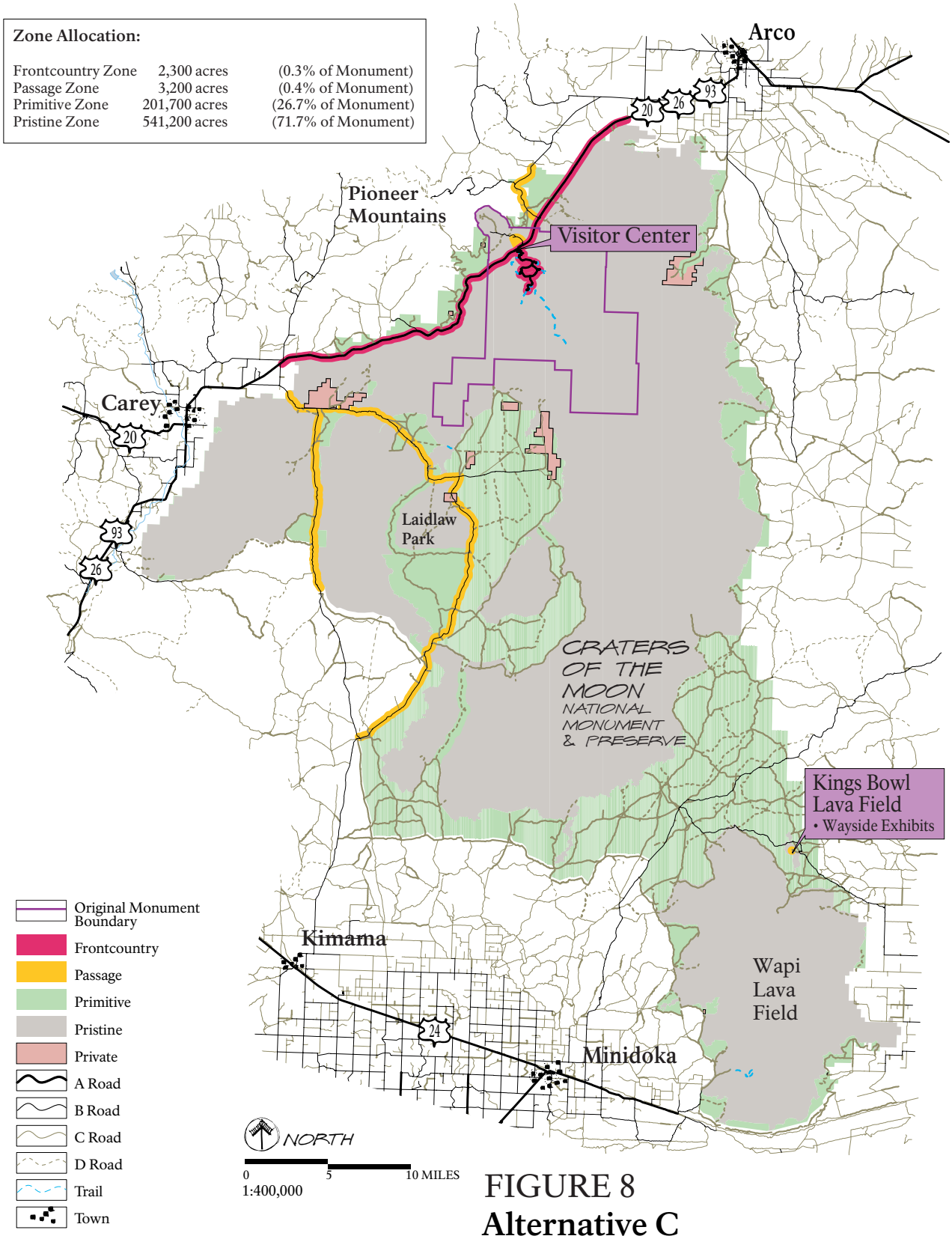


FIGURE 8
Alternative C
Craters of the Moon National Monument & Preserve
U.S. Department of the Interior / National Park Service

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No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

GEOLOGICAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- A limited restoration program would be initiated to remove graffiti from caves and foster public understanding of the need for cave resource protection.
- Site development to facilitate access to caves would be limited to existing infrastructure and programs. Management of all other caves, including Crystal Ice Cave, would emphasize natural conditions.

VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND FIRE MANAGEMENT

Desired Future Conditions:

- Sagebrush steppe communities are protected and restored in Passage and Primitive zones.
- Greater continuity of habitat for special status species and general wildlife is emphasized.
- Fire is allowed to function as a natural process in the Wilderness and Preserve.

Management Actions:

- Approximately 55,000 acres (7 percent of the entire Monument, 20 percent of BLM-administered) would be identified for proactive restoration treatment and/or post-fire rehabilitation. Approximately 31,000 acres of annual grassland and 24,000 acres of highly degraded low elevation sagebrush steppe would be treated to control cheatgrass and restore big sagebrush cover with a perennial understory.
- Non-chemical methods of weed control would be emphasized, while not ruling out herbicide use.
- Less intensive treatment methods would be used for restoration and rehabilitation employing minimum tool constraints and "light handed" non-intrusive technology.
- Larger, more continuous acreages would be treated for restoration.
- Wildland fire use would be allowed in the Wilderness and Preserve except when incompatible with resource management objectives or danger to life or property.
- Limited prescribed fire (<500 acres) would be used in the aspen, conifer, and mountain shrub vegetation types to improve wildlife habitat and invigorate plant communities while protecting the Little Cottonwood Watershed.

CULTURAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- A minimum of 10 percent of the Monument would be intensively inventoried (Section 110 NHPA) for cultural resources over the life of the plan.
- The focus of the Section 110 inventory would be in the Primitive and Pristine zones.

ACCESS AND TRAVEL

Desired Future Conditions:

- The road and trail system within the planning area provides the visitor opportunities for challenge, risk, and adventure with limited improved access to destinations.
- Most management direction related to transportation and access is covered by management zone allocation (see Table 4).

Management Actions:

- All roads and ways within the Pristine Zone would be closed to all motorized and mechanized vehicle use except authorized emergency and administrative use.
- Many Class D roads in the Primitive Zone would be converted to non-motorized trails.

FACILITIES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- Any new facilities would be limited to what may be necessary for public safety and/or resource protection.
- No new livestock developments would be permitted in the nominated North Laidlaw Park ACEC.

SPECIAL DESIGNATION AREAS (ACECs only)

Desired Future Conditions:

- The integrity of native plant community in the nominated North Laidlaw Park (north of E/W pasture fence) is maintained.

Management Actions:

- The nominated North Laidlaw Park (north of E/W pasture fence) would be designated as an ACEC.

INTERPRETATION / VISITOR UNDERSTANDING

Desired Future Conditions:

- A minimum of visitor services is provided except in the existing developed area of the north end visitor center and loop drive. This alternative provides the most opportunities for a self-discovery experience.

Management Actions:

- A variety of portable interpretive media (maps, tapes, guidebooks, etc.) would be developed to interpret the expanded portion of the Monument.

RECREATION

Desired Future Conditions:

- The public enjoys the most extensive opportunities of all the alternatives for self-discovery and primitive type recreation experiences.
- Unsigned and self-directed motorized recreation opportunities are available.

Management Actions:

- Implementation-level planning would make determinations as to where specific trails, trailhead facilities and/or number of primitive campsites would be needed or desired within the Passage Zone. Up to four locations would be developed for camping within the Passage Zone.

VISUAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- VRM inventory classes would be designated as management classes as shown on Figure 7.

Table 4
Alternative C – Road and Trail Inventory by Management Zone

Road Classification	MANAGEMENT ZONES*				
	Frontcountry	Passage	Primitive	Pristine	*Total Miles*
Class A	30	0	0	0	30
Class B	0	37	30	2	69
Class C	2	2	335	9	348
Class D	0	1	125	44	170
Class I Trails	7	0	0	13	20
Total Miles	**39**	**40**	**490**	**68**	**637**

Approximate miles of existing roads and trails within each zone rounded to the nearest whole number.

ALTERNATIVE D (PREFERRED ALTERNATIVE)

ALTERNATIVE CONCEPT

This alternative would emphasize aggressive restoration of the sagebrush steppe community lands, including noxious weed control and fire management. It proposes fewer acres in the Pristine Zone than Alternative C and less Frontcountry area than Alternative B. This alternative would target the most acreage for restoration and utilize aggressive management of weeds and fire to promote restoration of sagebrush steppe communities.

Commercial services (e.g., outfitters and guides), as well as off-site visitor opportunities, would be emphasized in this alternative. These commercial services would provide opportunities inside the Monument for visitors to experience and learn about the resources of the Monument. This would minimize the need for development and agency staffing within the Monument. This alternative would also encourage more off-site visitor experiences.

The key components of Alternative D (Preferred Alternative) are as follows:

- Promotes use of partnerships at off-site facilities such as visitor centers and state parks to provide Monument information and interpretation.
- Maintains a road network suitable for fire suppression and restoration activities within the Monument.
- Encourages outfitter and guide services in the expanded portion of the Monument, instead of new agency-provided services and facilities.
- Has the largest and most aggressive weed treatment and prevention program.
- Aggressively protects and restores sagebrush steppe communities.

MANAGEMENT ZONES

Figure 9 depicts the zones based on the agencies' best understanding of where the zone boundaries would be located under Alternative D (Preferred Alternative). Figure 9 also shows the zone allocations that would occur under Alternative D.

Under Alternative D, the Frontcountry Zone would remain the same as under Alternative A (No Action Alternative), and there would be an increase in Passage Zone acreage, although not to the extent proposed under Alternative B. With the additional Passage Zone, there would be a slight reduction of Primitive Zone. This expanded Passage Zone would be allocated along primary or main linear road corridors, and not over larger contiguous areas as planned under Alternative B. The road system included in the Passage Zone would allow access for the aggressive restoration of physical and biological resources and would facilitate fire suppression, especially in Laidlaw Park.

Recreational uses would continue, but road maintenance in the Passage Zone would be limited to what is needed for fire or resource protection, as opposed to what is desirable for expanded or facilitated visitation. Alternative D's zone allocations were proposed as a means of achieving its aggressive resource protection and restoration goals.

MANAGEMENT GUIDANCE FOR ALTERNATIVE D

Alternative D (Preferred Alternative) would incorporate all of the "Management Guidance Common to All" previously described, plus the alternative-specific guidance on pages 49, 50, and 51.

Table 5 summarizes where the various types of roads that currently exist would fall within the management zones as they would be located under Alternative D. Road and trail classification is based on the inventoried condition and maintenance standards for roads and trails as of 2003. Note that there is an increase in Passage and Primitive zone road mileage and a corresponding decrease in Pristine Zone road mileage compared to Alternative A (No Action Alternative). This allows for Passage Zone roads to serve as access for resource management and protection and also allows for more Pristine Zone protection.

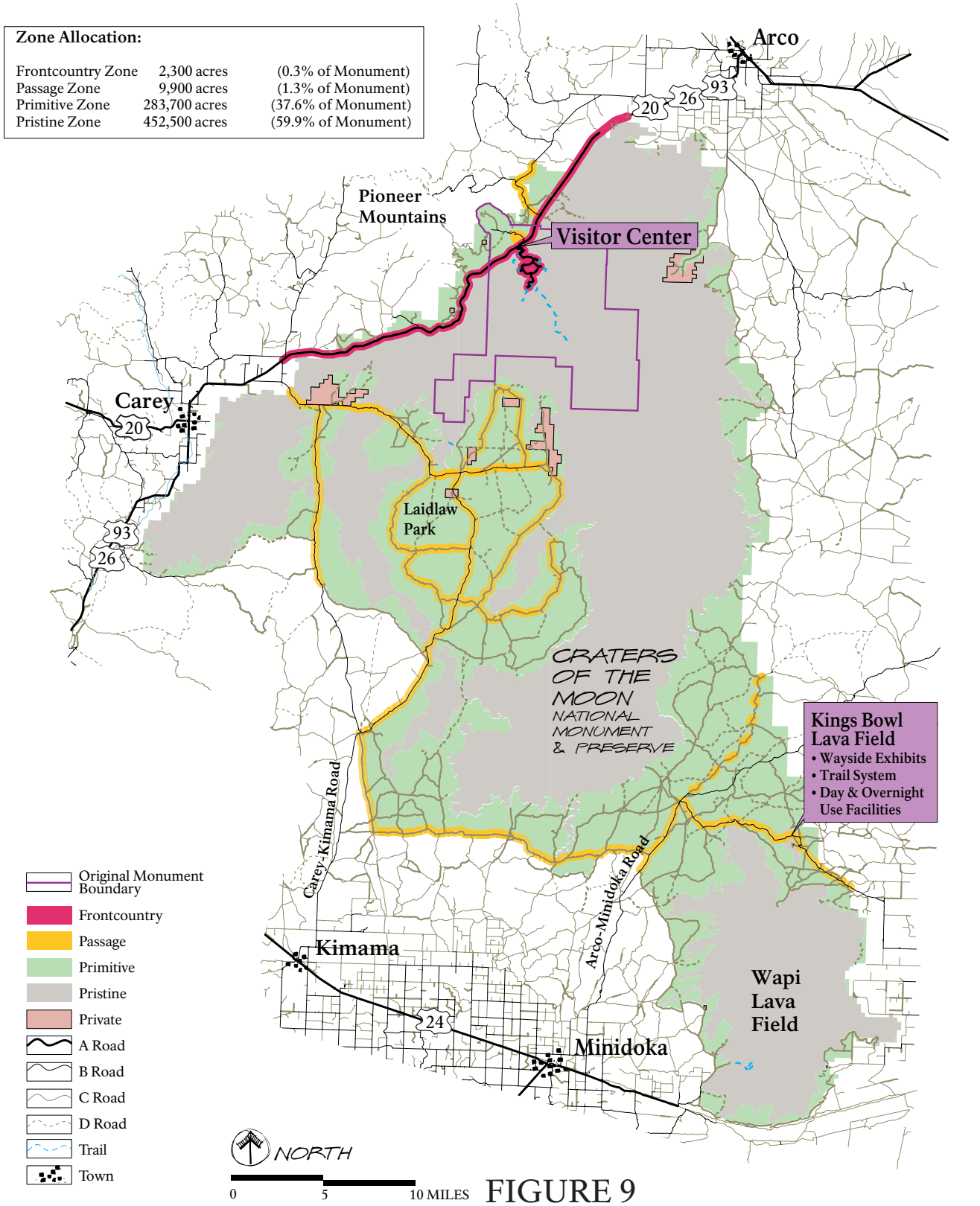


FIGURE 9

Alternative D

Craters of the Moon National Monument & Preserve

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

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No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

GEOLOGICAL RESOURCES

Desired Future Conditions:

- Disturbed or degraded geologic features are identified and restored when feasible.

Management Actions:

- An intensive restoration program would be initiated to remove graffiti from caves and foster public understanding of the need for cave resource protection.
- Public access to caves and other geological features that are experiencing recreational use-related damage would be controlled, and damaged geological features would be restored as needed and when feasible.

VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND FIRE MANAGEMENT

Desired Future Conditions:

- Continuity of habitat for special status species and general wildlife will be emphasized.
- Fire is allowed to function as a natural process in the Wilderness and Preserve.
- The high ecological condition of the vegetation of North Laidlaw Park and Bowl Crater is maintained.

- Management Actions:
- Approximately 80,000 acres (11 percent of the entire Monument, 29 percent of BLM-administered) have been identified within the Monument in need of proactive restoration and/or post-fire rehabilitation treatment, and these areas would be the focus of restoration actions. Approximately 31,000 acres of annual grassland and 49,000 acres of highly degraded low elevation sagebrush steppe would be treated to control cheatgrass and restore big sagebrush cover with a perennial understory.
- Aggressive protection and restoration of degraded areas within the Monument would be emphasized, and all the acreage currently identified for treatment would be restored as quickly as possible, perhaps within 10 years.
- Restoration projects would be prioritized relative to locations of key sage grouse habitats and population strongholds. Emphasis would be on projects that restore annual grasslands and degraded sagebrush steppe communities, as well as enlarging and connecting existing good condition habitats.
- Fire would be managed to maximize protection and restoration of sagebrush steppe in Passage and Primitive zones.
- Wildland fire use would be allowed in the Wilderness and Preserve except when incompatible with resource management objectives or danger to life or property.
- Limited prescribed fire (<500 acres) would be used in the aspen, conifer, and mountain shrub vegetation types to improve wildlife habitat and invigorate plant communities while protecting the Little Cottonwood Watershed.
- The road network would be managed to emphasize access for wildfire suppression and minimal response time.
- To protect vegetation resources, no new livestock developments would be permitted in North Laidlaw Park pasture and Bowl Crater allotment.

CULTURAL RESOURCES

Desired Future Conditions:

- Same as “Common to All.”

Management Actions:

- A minimum of 10 percent of the Monument would be inventoried (Section 110 NHPA) for cultural resources over the life of the plan.
- The agencies would pursue more public education and interpretation off site, with increased monitoring and protection for those sites at risk.
- The focus of the Section 110 inventory would be in the Primitive and Passage zones.

ACCESS AND TRAVEL

Desired Future Conditions:

- The road system within the planning area emphasizes minimum response time for fire suppression activities.
- Most management direction related to transportation and access is covered by management zone allocation (see Table 5).

Management Actions:

- Existing Class B and C roads would remain open, but maintenance would be driven by natural resource management needs, primarily fire suppression, weed management, and restoration activities.
- Selected Class D roads in the Primitive and Pristine zones could be converted to trails or closed for resource protection.
- Allow for a Class B standard on the Arco-Minidoka Road through the Monument should the adjacent county governments choose to upgrade the roads outside the Monument.
- Temporary improvements to Class C and D roads could be authorized in the Passage and Primitive zones to facilitate fire suppression and restoration activities or other management actions aimed at natural resource protection.
- In cooperation with the counties, the agencies would upgrade the primary access roads to the Monument to provide better access for fire management.

Desired Future Conditions:

- Off-site facilities for new visitor services are emphasized.

Management Actions:

- Encourage partnership developing new visitor information facilities in gateway communities.
- Participate in multi-agency and private sector cooperative planning for a new South Central Idaho Visitor Center to be located along the Interstate 84 corridor.

INTERPRETATION / VISITOR UNDERSTANDING

Desired Future Conditions:

- Same as “Common to All.”

Management Actions:

- Interpretive signs would be provided along the U.S. Highway 20/26/93 corridor.
- Informational/orientation materials dealing with recreation, maps, safety, and resource concerns would be available in gateway communities. A visitor center(s) operated in cooperation with local partners would be proposed within the I-84 corridor. Emphasis on providing new interpretive and educational materials and programs outside the expanded portion of the Monument and in partnering communities and facilities.
- Educational programs would be expanded to off-site locations.
- A variety of portable media (maps, tapes, guidebooks, etc.), would be developed to interpret the expanded portion of the Monument.
- Commercial outfitters and guides would be encouraged to offer a range of guided experiences. Visitors who might not otherwise have the proper knowledge, vehicles, or preparation to experience the interior of the Monument would then have a viable option that would not require a lot of the road, trail, and facility improvement associated with Alternative B.
- Interpretation of the expanded Monument, Preserve, and Wilderness would rely on publications, websites, and other off-site methods.
- Safety and resource protection would be emphasized at access points.

RECREATION

Desired Future Conditions:

- The public enjoys opportunities for self-discovery and primitive type recreation experiences.
- Unsigned and self-directed motorized recreation opportunities are available.

Management Actions:

- Implementation-level planning would make determinations as to where specific trails, trailhead facilities, and/or number of primitive campsites would be needed or desired within the Passage Zone. Up to six locations would be developed for camping within the Passage Zone.
- The agencies would emphasize outfitter and guide interpretive and outdoor recreation services within the Monument.

VISUAL RESOURCES

Desired Future Conditions:

- Same as "Common to All."

Management Actions:

- VRM inventory classes would be designated as management classes as shown on Figure 7.

Table 5
Alternative D – Road and Trail Inventory by Management Zone

	MANAGEMENT ZONES*				
Road Classification	**Frontcountry**	**Passage**	**Primitive**	**Pristine**	*Total Miles*
Class A	30	0	0	0	30
Class B	0	57	11	0	68
Class C	2	62	287	1	352
Class D	0	3	158	9	170
Class I Trails	7	0	0	13	20
Total Miles	**39**	**122**	**456**	**23**	**634**

*Approximate miles of existing roads and trails within each zone rounded to the nearest whole number.

ALTERNATIVES AND ACTIONS CONSIDERED BUT NOT ANALYZED IN DETAIL

The Council on Environmental Quality (CEQ) guidelines for implementing NEPA requires federal agencies to analyze all "reasonable" alternatives that substantially meet the purpose and need for the proposed action. The purpose of the Monument Management Plan (Plan/EIS) is to provide for management of the Craters of the Moon National Monument and Preserve within the provisions of the Proclamation, and to meet the requirements of Federal Land Policy and Management Act (FLPMA) and other laws and regulations. Because the Proclamation states that certain uses will not continue, and that other uses will continue consistent with federal laws and regulations, actions that do not comply with the Proclamation would not meet the purpose and need for the plan and are therefore were not included in alternatives that were analyzed in this Environmental Impact Statement (EIS).

The following specific alternatives, or actions that could be components of alternatives, were suggested but not analyzed:

NO LIVESTOCK GRAZING

During the summer of 2000, of the Secretary of the Interior published Consensus Management Points (May 19, 2000) stating:

> "Sheep and cattle grazing will continue in the shrubstep of the Great Rift area to be managed by the Bureau of Land Management (BLM), including Laidlaw Park, consistent with the laws, regulations, and policies followed by the BLM in issuing and administering grazing permits or leases on all lands under its jurisdiction."

Proclamation 7373 states: "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under the jurisdiction shall continue to apply with regard to the lands in the Monument administered by the Bureau of Land Management." Based on this language, a "no livestock grazing" alternative would not meet the purpose and need and would not be consistent with the Proclamation. The BLM's authority to manage grazing under existing laws, regulations, and policies would continue under all the alternatives considered. Lands available for grazing would be limited to those under BLM authority and where BLM's process allows grazing to continue.

NO HUNTING WITHIN THE MONUMENT

Comments supporting a ban on hunting within the Monument or limiting hunting to game species were expressed. Proclamation 7373 states: "Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Idaho with respect to fish and wildlife management," as well as "…the National Park Service shall have primary management authority over the portion of the monument that includes the exposed lava flows, and shall manage the area under the same laws and regulations that apply to the current monument." Hunting is prohibited under the NPS Organic Act and that act applied to the "current monument." Therefore, hunting was prohibited within the NPS-administered portions of the expanded Monument until Public Law (PL) 107-213 (August 2002) designated the NPS-administered lands within the new areas of the Monument as a Preserve and directed the Secretary of the Interior to allow hunting within the Preserve. PL 107-213 provides that the Secretary of the Interior, after consultation with the State of Idaho, "may designate zones where, and establish periods when, no hunting may be permitted for reasons of public safety, protection of the area's resources, administration, or public use and enjoyment".

An alternative proposing zones within the Preserve closed to hunting was not analyzed in detail. However, it is expected in implementing this plan that the NPS will consult with the State of Idaho on options for closing the developed areas of Preserve lands to hunting for reasons of public safety. In addition to consulting with the State of Idaho, that process will require publication as a rulemaking in the *Federal Register* for public review and comment. While no specific circumstances were identified in the public scoping process, the area and timing of hunting activities could be modified in a like manner for the other purposes identified in PL 107-213 should such a need be identified in the future.

OTHER ALTERNATIVES

No comprehensive alternatives were submitted by outside interests, including state and local governments, tribes, or other interest groups.

SUMMARY OF ALTERNATIVES

Table 7, at the end of this chapter, contains a summary of the major features and management actions that would be associated with each of the four alternatives. The table shows actions that are common to all the alternatives, as well as the alternative-specific actions for each.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Table 8, at the end of this chapter, contains a comparative summary of the key environmental consequences for each of the four alternatives. A detailed description of these impacts can be found in the Environmental Consequences chapter.

SELECTION OF THE PREFERRED ALTERNATIVE

To select the Preferred Alternative, all of the alternatives were evaluated with regard to the planning objectives and other criteria deemed important to the planning team. To minimize the influence of individual biases and opinions, a team used an objective analysis process called "Choosing by Advantages" (CBA). This process, which has been used extensively by government agencies and the private sector, evaluates the different alternatives by identifying and comparing the relative advantages of each according to a set of criteria.

One of the greatest strengths of the CBA process is the fundamental philosophy that decisions must be anchored in relevant facts and in the purpose and significance of the resources and lands involved. The CBA process asks which alternative gives the greatest advantages. To answer this question, relevant facts were used to determine the advantages the alternatives provide. To ensure a logical and traceable process, evaluation criteria were based on impact topics where there were differences in the alternatives.

The following categories were further broken down to better assess the alternatives. Alternatives were evaluated to see how well they:

- Protect Natural and Cultural Resources
  - Prevent loss of, or damage to, geologic resources
  - Restore degraded sagebrush steppe vegetation
  - Prevent introduction and spread of noxious weeds
  - Prevent loss of, and damage to, cultural resources
- Provide a Quality Visitor Experience
  - Availability of visitor facilities, interpretive programs and other visitor services
  - Variety of driving experiences
  - Opportunities for solitude and self-discovery
  - Availability of travel assistance (signage and maps)
  - Variety of non-motorized trails (hiking, pack stock, and bicycling)
- Protect Public Health, Safety, and Welfare
- Maintain and Enhance Relationships with Local Governments and Local Communities
  - Impacts on local government – emergency service providers (e.g., sheriff)
  - Fiscal impact on county facilities (e.g., roads)
  - Impacts on "grazing" permittees

In addition, the CBA Team considered but dismissed the following topics, since there were no substantial differences among the alternatives and the management actions were essentially the same for all:

- Air Quality
- Grazing
- Predator control
- Wilderness
- Opportunities for Research and Science

The next step was to assess and rank the alternatives based on the advantages they provided. The advantages were assessed by evaluating how well each alternative would meet (or not meet) the criteria listed above. Protecting natural and cultural resources was determined to be the most important evaluation criterion by the CBA Team.

Each alternative was assigned an "importance" value that reflected its rank; a higher importance value indicated that the alternative would meet more of the evaluation criteria and/or more of the ones deemed most important to the CBA Team. Alternative D ranked the highest in advantages for the resources of the Monument. Major advantages of Alternative D identified during the CBA process included accelerated sagebrush steppe restoration and increased efforts to partner for interpretation and orientation information outside the Monument boundary.

Costs for each alternative versus the advantages provided were also compared and analyzed. These costs were developed for comparative purposes only. Because Plan/EIS costs are estimated well in advance of a project, the numbers will need to be re-examined and refined as BLM and NPS move forward with implementation planning. Costs identified in

the Plan/EIS are not intended to be used as a basis for funding until further analysis has been completed.

Comparative costs for the alternatives, as shown in Table 6, include initial development costs and annual operational costs. Initial development costs include labor and materials for construction of new facilities, annualized over the life of the plan (estimated as 15 years). For the purposes of cost estimating, general assumptions are made regarding amounts and sizes of development, and operations. Annual operational costs consider the annual costs of each alternative over the life of the plan (estimated as 15 years). For example, annual costs would include staffing required, costs of operating a building, ongoing rehabilitation and restoration projects, and replacement and maintenance costs of elements such as roadways in an alternative. Not included here under initial development costs is the possible federal shared cost for new facilities outside the Monument, such as a jointly operated visitor center within the I-84 corridor suggested under Alternative D.

Selection of the Preferred Alternative considers the advantages provided by each alternative (reflected in the importance scores), as compared to the costs of the alternative. Figure 10 summarizes the results of the CBA analysis.

Based on the CBA importance rankings and cost analyses, the CBA Team recommended Alternative D as the Preferred Alternative. Alternative D scored the highest in advantages (215 importance value) and was not the highest cost alternative. Alternative B had the highest cost and a lower importance value compared to Alternative D. Although Alternative C had a lower cost than Alternative D ($450,000 less), it also had a substantially lower importance value. Alternative A (No Action Alternative) had a low cost, but a considerably lower importance value. Overall, Alternative D represented the best choice in that it provided high importance (many advantages) at a relatively reasonable cost.

Based on this analysis and recommendation of the CBA Team, the Idaho BLM State Director and the NPS Pacific West Regional Director selected Alternative D as the Preferred Alternative.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Environmentally Preferred Alternative is defined as "the alternative that will promote the national environmental policy as expressed in §101 of the National Environmental Policy Act." Section

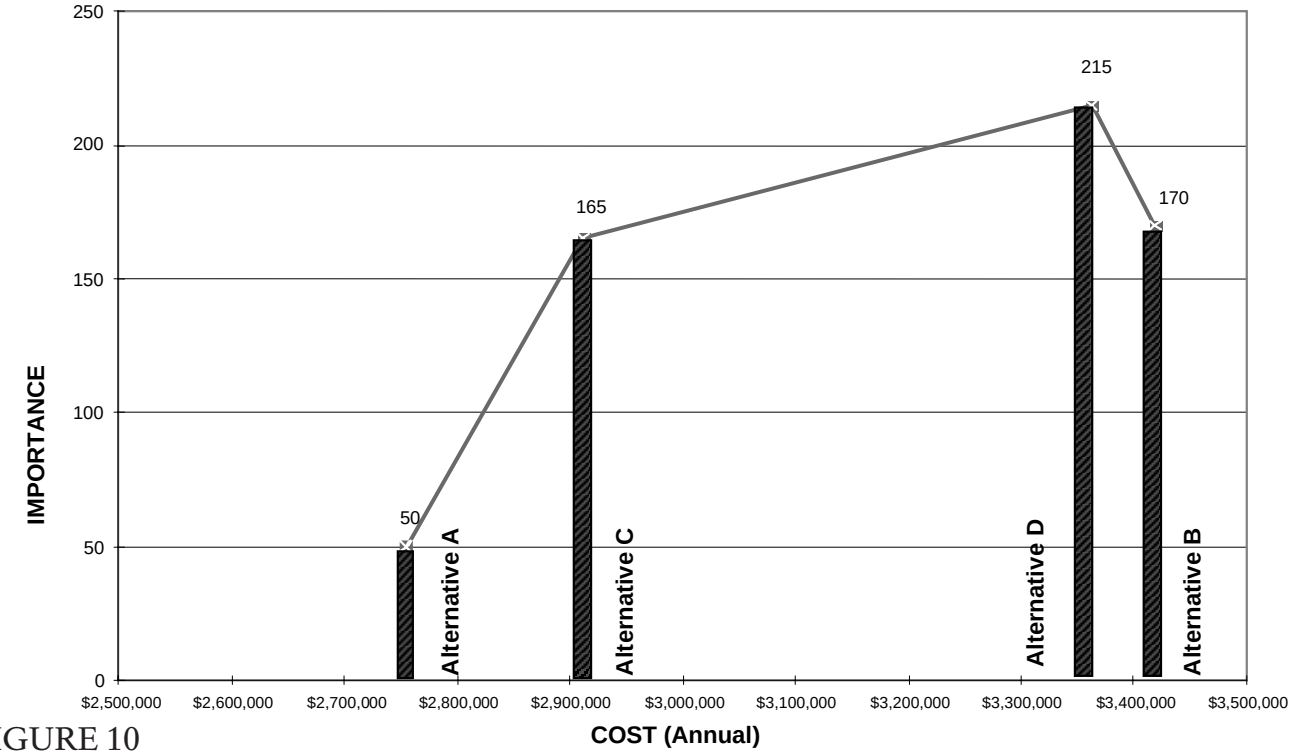


FIGURE 10
Management Plan Cost of Alternatives Compared to Importance (Advantages)

Table 6
Summary of Comparative Costs (FY 2003 dollars)

Alternative	Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alt.)
Annual Operating	$2,754,000	$3,389,000	$2,906,000	$3,352,000
Initial Development	$0	$30,000	$6,000	$9,000
Total	$2,754,000	$3,419,000	$2,912,000	$3,362,000

101 states "…it is the continuing responsibility of the federal government to…

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations.
- Ensure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences.
- 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.
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities.
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources."

In comparison with the other alternatives analyzed, Alternative D, also selected as the Preferred Alternative, best meets the national environmental goals identified above. Alternative D provides a high level of protection of natural and cultural resources, while providing for a wide range of beneficial uses of the environment.

Alternative D (Preferred Alternative) would enhance the ability of BLM and the NPS to achieve the purposes of the enabling laws and proclamations, as well as those goals outlined in Chapter 1 of this document. Alternatives A, B, and C lack the degree of management emphasis required to protect benchmark native vegetative communities and restore degraded sagebrush steppe habitat found in Alternative D. Substantial portions of the new Monument lands are currently in a degraded condition that can only be improved with the scope of active restoration efforts provided for in Alternative D.

Alternative D (Preferred Alternative) would maintain most existing public facilities and access routes, but does not expand or substantially upgrade these. Alternative D allows for largely self-directed dispersed recreational use throughout most of the lands recently added to the Monument, while recognizing that site-specific use restrictions may be required in some areas to protect natural and cultural resources.

Goals related to public understanding and appreciation of the Monument resources would be achieved through existing on-site programs and facilities, as well as expanded programs and facilities located off site and through authorized licensed guide operations. Livestock grazing, a traditional land use on BLM lands prior to Monument expansion, would continue in all the alternatives considered with only minor changes.

MITIGATION MEASURES

The identification of mitigating measures is required by NPS in general management planning documents, as well as by the Council on Environmental Quality in its requirements for implementing the National Environmental Policy Act. These measures would be used to avoid or minimize potential impacts on natural and cultural resources on NPS lands from construction activities, use by visitors, and Monument operations. Similar actions would be taken on BLM lands to protect resources following the "Management Actions" previously described and the Planning Criteria (Appendix B).

Natural Resources

Geological Resources and Caves

Significant cave resources in the Monument would be identified and protected. Prior to any ground disturbing activity, areas would be surveyed for unique, rare, or special geologic resources, including fossils.

BLM would identify significant caves on federal land and restrict or regulate use according to the FCRPA of 1988. All caves on NPS-managed land are considered "significant" and in accordance with NPS policies and procedures would be protected to the greatest extent possible with current funding and staffing levels. Threats to unique or representative geologic resources would be identified and mitigated according to NPS and BLM management policies.

Soils and Water

Whenever possible, new development would be carried out on previously disturbed sites or in carefully selected sites with as small a footprint as possible. During design and construction, Monument staff would identify areas to be avoided.

Soil erosion and associated water quality impacts would be minimized by limiting the time that soil would be left exposed and by using various erosion control measures such as the placement of silt fencing, retention and replacement of topsoil, revegetation of sites with native species, and selective scheduling of construction activities. Conserving topsoil would minimize potential compaction and erosion of bare soil. The use of conserved topsoil would help preserve the microorganisms and seeds of native plants. Topsoil should be re-spread as close to the original location as possible and supplemented with scarification, mulching, seeding, and/or planting with species native to the immediate area. This would reduce construction scars and erosion. In an effort to control the spread of exotic plant species, only certified weed-free hay, straw, or mulch would be used.

All new construction would be completed using sustainable practices, such as the use of environmentally friendly materials and efficient utility systems. Components of such projects would be assessed for visual quality. Utilities and support functions such as water, sewer, electricity, and roads would be evaluated and designed to mitigate visual impact.

Vegetation and Fire Ecology

Monument staff would survey proposed development sites for sensitive species and would relocate new development if those populations were present. Similarly, trails roads, and campsites would be located to avoid impact on sensitive species. Salvaged vegetation, rather than new planting or seeding, would be used to the extent possible. Revegetation efforts would emulate the natural form, spacing, abundance, and diversity of native plant species and would use native species whenever feasible.

To help minimize the spread of non-native plants, Monument managers would allow only the use of weed-free materials and equipment for operations. A variety of measures to prevent weed introduction and spread within the Monument would be implemented. These measures would include cleaning vehicles and equipment that may have been used in weed-infested areas prior to entry into the Monument and educational efforts aimed at staff, livestock permittees, visitors, and contractors.

Trails in the NPS-managed portion of the Monument would be monitored for signs of disturbance of native vegetation. To control potential impacts on plants from trail erosion or social trails, sustainable, low-impact barriers would be used, and disturbed areas would be revegetated with native plants. Also, interpretive signs would educate the public on the effects of soil erosion.

Inventory and monitoring of all natural resources would be undertaken to provide a comprehensive understanding of the Monument's wildlife, vegetation, and habitat.

Wildlife and Special Status Species

A variety of techniques would be employed to reduce the impacts on wildlife, such as visitor education programs and restrictions on visitor activities. NPS, in conjunction with the State of Idaho, would designate areas within the Preserve and periods of time when no hunting would be permitted for reasons of public safety, protection of the areas' resources, administration, or public use and enjoyment.

All special status species in the Monument and Preserve would be inventoried with monitoring plans established. Actions and stipulations necessary to protect special status species and their habitats would be made part of land use authorizations (e.g., limiting fragmentation of special status species populations when considering development of road network) and fire planning.

Air Quality

Dust control during construction activities would be required, and all construction machinery would be required to meet air emission standards.

Cultural Resources

In accordance with NPS policies and procedures, the NPS-managed portion of the Monument and

Preserve would continue to protect cultural resources to the greatest extent possible with current funding and staff levels. Disturbing significant resources would be avoided whenever possible. Where avoidance or preservation could not be achieved, mitigation would be carried out under the guidance of the procedures of the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] 800).

Before any land-modifying activity, a professional archaeologist would inspect the present ground surface of the proposed development site and the immediate vicinity for the presence of cultural remains, both prehistoric and historic. Should newly discovered or previously unrecorded cultural remains be located, additional investigations would be accomplished prior to earth-disturbing activities. Through consultation with the Idaho SHPO, areas for Section 110 cultural resource inventories would be prioritized. All sites eligible for the NRHP would be monitored for vandalism. A CRMP describing how specific sites would be managed, defines what areas need additional inventory, and designates potential use categories for sites would be completed for the Monument. Should any Native American-affiliated NAGPRA materials be inadvertently discovered within the Monument, the agencies would follow the tribal consultation procedures outlined in the NAGPRA of 1990. All preservation, rehabilitation and restoration efforts for historic structures would be carried out in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties, with Guidelines for Preserving, Rehabilitation, Restoring, and Reconstructing Historic Buildings*.

Contractors would coordinate with Monument staff to reduce disruption in normal Monument activities. Construction workers and supervisors would be informed about the special sensitivity of park values, regulations, and appropriate housekeeping.

Table 7
Summary of Alternatives

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
GENERAL CONCEPTS	No major changes in resource management, visitor programs, or facilities.	Provide the opportunity for a broad array of visitor experiences within the Monument and perpetuate historic use patterns.	Retain and enhance the Monument's primitive character with minimal visitor facilities or services and less intensive management action to influence resource conditions.	Aggressively restore the sagebrush steppe communities, including noxious weed control and fire management, and promote partnerships at off-site facilities to provide Monument information and interpretation.
ALLOCATION OF ZONES				
Frontcountry Zone Acreage (% of Monument)	**2,300 acres (0.3%)**	**2,300 acres (0.3%)**	**2,300 acres (0.3%)**	**2,300 acres (0.3%)**
Passage Zone Acreage (% of Monument)	**4,800 acres (0.6%)**	**69,000 acres (9.1%)** ***9,000 acres Outside Monument***	**3,200 acres (0.4%)**	**9,900 acres (1.3%)**
Primitive Zone Acreage (% of Monument)	**291,100 acres (38.6%)**	**227,400 acres (30.1%)**	**201,700 acres (26.7%)**	**283,700 acres (37.6%)**
Pristine Zone Acreage (% of Monument)	**450,200 acres (59.6%)**	**449,500 acres (59.6%)**	**541,200 acres (71.7%)**	**452,500 acres (59.9%)**
NATURAL RESOURCES				
General				
(*) Provide for and implement resource inventories, surveys, and monitoring programs; disseminate information to the public; mitigate threats to resources utilizing proactive management activities.	**(*)**	**(*)**	**(*)**	**(*)**
Geological Resources				
(*) Protect geological features from damage presently occurring; designate and implement resource inventories and monitoring strategies appropriate for resource protection; complete surveys prior to any surface disturbance; identify and mitigate threats to resources.	**(*)**	**(*)** Initiate a restoration program to remove cave graffiti and foster public understanding of need to protect cave resources; consider implementing trails to mitigate impacts from user-created trails.	**(*)** Initiate a limited restoration program to remove cave graffiti and foster public understanding of need to protect cave resources; no further site development to facilitate cave access; emphasize current natural conditions.	**(*)** Initiate intensive restoration program to remove cave graffiti and foster public understanding of need to protect cave resources; control public access to caves and other geological features that are experiencing recreational use-related damage; restore geological features as needed and when feasible.
Soils				
(*) Protect soils from accelerated and unnatural erosion; investigate biological soil crusts to provide specific management guidance.	**(*)**	**(*)**	**(*)**	**(*)**

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Vegetation, Including Special Status Species and Fire Management				
(*) Suppress wildland fire to protect life and property, recent rehabilitation, and restoration projects; develop a joint fire management plan; continue cooperative fire management arrangements.	**(*)** Manage all wildland fires within the Preserve and BLM portion of the Monument according to current BLM land use plans. Manage wildland fire within the original Monument according to NPS Wildland Fire Management Plan.	**(*)** Take proactive fuels management activities to offset the potential effects of increased public use. Allow wildland fire use in the Wilderness and Preserve when compatible. Limit prescribed fire to improve wildlife habitat and invigorate plant communities.	**(*)** Allow wildland fire use in the Wilderness and Preserve when compatible. Limit prescribed fire to improve wildlife habitat and invigorate plant communities.	**(*)** Manage fire to maximize protection and restoration of sagebrush steppe in Passage and Primitive zones. Allow wildland fire use in the Wilderness and Preserve when compatible. Limit prescribed fire to improve wildlife habitat and invigorate plant communities. Manage the road network to emphasize access for wildfire suppression and minimal response time.
(*) Protect and restore sagebrush steppe communities; restore annual grasslands and highly degraded sagebrush steppe communities; emphasize use of native plants.	**(*)** Target 40,000 acres for restoration (5% of Monument; 15% of BLM land); assumes current rate of restoration – 2,500 to 4,000 acres/year.	**(*)** Target 45,000 acres for restoration (6% of Monument; 16% of BLM land).	**(*)** Target 55,000 acres for restoration (7% of Monument; 20% of BLM land).	**(*)** Target 80,000 acres for restoration (11% of Monument; 29% of BLM land).
(*) Rehabilitate wildland fire burned areas when necessary to restore native species and suppress noxious weeds; permit only certified weed free hay, straw, and mulch within the Monument; utilize Integrated Weed Management to control and prevent noxious weeds.	**(*)** Treat areas to control cheatgrass and restore sagebrush cover.	**(*)** Utilize Integrated Weed Management with emphasis on treatment/containment, prevention, and education, particularly in Frontcountry and Passage zones.	**(*)** Employ less intrusive treatment methods for restoration and rehabilitation. Utilize non-chemical weed control methods, while not ruling out herbicide use.	**(*)** Aggressively protect and restore areas as quickly as possible – possibly within 10 years.
(*) Adopt interagency habitat guidelines for sage grouse and sagebrush steppe obligates to guide sagebrush steppe management; inventory all special status species in the Monument; authorize actions and stipulations to protect special status species and their habitats.	**(*)** Restore existing and potential sagebrush steppe communities within the Monument, emphasizing key sage grouse habitat in Laidlaw Park, Little Park, and Paddelford Flat.	**(*)** Create an opportunity for interpreting the decline of sagebrush steppe and efforts to restore this dwindling resource.	**(*)** Treat larger, more continuous acreages for restoration.	**(*)** Restore annual grasslands and degraded sagebrush steppe communities, while enlarging and connecting existing good condition habitats. Prioritize restoration projects relative to key sage grouse habitats and population strongholds. Protect vegetation resources by not permitting any new livestock developments in North Laidlaw Park pasture and Bowl Crat allotment.

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Water Resources, Including Wetlands				
(*) Maintain, restore, and enhance riparian areas and wetlands; no additional playas are modified or developed; work with appropriate authorities to obtain water resources needed for Monument purposes.	**(*)**	**(*)**	**(*)**	**(*)**
Wildlife, Including Special Status Species				
(*) Inventory and monitor target species; designate no hunting areas as needed for safety and protection of area resources; protect special status species in the Monument; work with various agencies to control predators and pests.	**(*)**	**(*)**	**(*)**	**(*)**
Air Quality				
(*) Work proactively with surrounding communities, land management agencies, and the Idaho Department of Environmental Quality to limit increases in particulate matter and sulfur dioxide throughout the Monument.	**(*)**	**(*)**	**(*)**	**(*)**
CULTURAL RESOURCES				
Archeological and Historic Resources				
(*) Inventory, evaluate, and document cultural resources of known archaeological and historic resources; prioritize Section 110 inventories in consultation with the Idaho SHPO; complete a baseline research report of archaeological resources within the Monument; manage a Cultural Resource Management Plan that defines what areas need additional inventory.	**(*)** Intensively inventory a minimum of 5 percent of the Monument for cultural resources.	**(*)** Intensively inventory a minimum of 10 percent of the Monument for cultural resources; increase Section 110 inventory in Passage Zone.	**(*)** Intensively inventory a minimum of 10 percent of the Monument for cultural resources; focus Section 110 inventory in the Primitive and Pristine zones.	**(*)** Intensively inventory a minimum of 10 percent of the Monument for cultural resources; focus Section 110 inventory in the Primitive and Passage zones.
(*) Proactively manage and protect cultural resources; monitor and stabilize at-risk NRHP-eligible sites found to be deteriorating and protect/stabilize as needed; continue hunting, gathering, and use of certain natural resources.	**(*)** Continue some interpretation of archaeological and historic sites.	**(*)** Emphasize public education and interpretation of cultural resources in response to increased access. Monitor sites and implement protection measures at various recreation sites.	**(*)**	**(*)** Pursue more public education and interpretation off site; increase monitoring and protection of at-risk sites.

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Museum Collections				
(*) Allow access to Monument collections for legitimate research and educational purposes; manage all resource management records directly associated with museum objects as museum property.	**(*)**	**(*)**	**(*)**	**(*)**
AMERICAN INDIAN RIGHTS AND INTERESTS (RESOURCES, RESOURCE AND PUBLIC LAND VALUES, TREATY RIGHTS)				
(*) Consult with interested tribes on a regular basis regarding the management of traditional cultural properties. Address NAGPRA materials as a component of a Cultural Resources Management Plan; follow NAGPRA procedures should any Native American-affiliated NAGPRA materials be discovered. Take measures to identify traditional cultural places of importance to preserve the integrity and use of these areas.	**(*)**	**(*)**	**(*)**	**(*)**
LAND USE AND TRANSPORTATION				
Access and Travel				
(*) Prepare a Comprehensive Travel Management Plan; prepare a travel map showing allowable uses, road and trail classifications; and standards and restrictions; prepare guidelines and procedures for emergency and administrative off-road travel	**(*)**	**(*)**	**(*)**	**(*)**
(*) Designate all roads and trails as "Limited" off-highway vehicle (OHV) use (i.e., allow OHV on these roads in a restricted manner; no OHV off roads); designate all land within the Monument other than designated roads and trails as "Closed" for OHV use; close and rehabilitate all routes established in WSAs not identified as "existing ways"; authorized NPS "Park roads" are open only to licensed vehicles.	**(*)** Legal roads prior to Proclamation 7373 remain open, but roads can be closed on a case-by-case basis to protect resources.	**(*)** Designate the Carey-Kimama and Arco-Minidoka roads as "Backcountry By-Ways" over their entire length outside the Monument. Designate multiuse and single-use trail routes. Upgrade and maintain the Carey-Kimama and Arco-Minidoka roads to a consistent Class B standard, including portions outside the Monument.	**(*)** Convert many Class D roads in the Primitive Zone to non-motorized trails.	**(*)** Existing Class B and C roads remain open, but maintenance driven by resource, fire/weed control needs, and restoration activities. Select Class D roads in Primitive and Pristine zones could be converted to trails or closed for resource protection. Allow for a Class B standard on the Arco-Minidoka Road through the Monument.

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Access and Travel (cont.)				
(*) No new motorized vehicle roads or trails will be developed in the Pristine Zone; individual roads and trails may be temporarily or permanently (NPS) closed to protect resources.	**(*)** New trails could be developed in certain areas; maintain or rehabilitate trails in the Kings Bowl area to prevent further resource damage.	**(*)** Improve a trail system at the Kings Bowl area and to additional points of interest.	**(*)** Close all road and ways within the Pristine Zone to all motorized and mechanized vehicle use except for emergency and administrative use.	**(*)** Authorize temporary improvements to Class C and D roads in the Passage and Primitive zones to facilitate management actions aimed at natural resource protection. Cooperate with the counties to provide better access for fire management.
Frontcountry road and trail mileage	33 miles	33 miles	33 miles	33 miles
Passage Zone road and trail mileage	61 miles	272 miles *(148 miles Outside Monument)*	40 miles	122 miles
Primitive Zone road and trail mileage	522 miles	309 miles	490 miles	456 miles
Pristine Zone road and trail mileage	16 miles	16 miles	68 miles	23 miles
Livestock Grazing				
(*) Alter eight allotment boundaries to accurately reflect NPS/BLM boundary (no change in AUMs or acreage): 284,000 BLM acres available for livestock use, 5,000 BLM acres not available for livestock use, and 466,000 NPS acres not available for livestock use; 36,693 AUMs permitted. Continue using existing livestock developments in Primitive and Pristine zones; evaluate Brigham Point and Paddelford Flat sheep trails across NPS land for future use.	**(*)**	**(*)**	**(*)**	**(*)**
OTHER LAND USES				
Facilities				
(*) Enlarge and reconstruct existing visitor center/administration building, as approved; evaluate sharing BLM/NPS facilities and staff; install previously approved signs and wayside exhibits at Kings Bowl.	**(*)**	**(*)** Expand and develop new facilities at the visitor center to accommodate increased visitation.	**(*)**	**(*)** Plan with other agencies and the private sector for a new South Central Idaho Visitor Center to be located along the Interstate 84 corridor.
(*) Include Monument information at BLM fire stations in Carey and Kimama.	**(*)** Maintain existing informational and directional kiosks located along and within the Monument.	**(*)** Potential to increase visitor services for the Monument at Carey and Kimama Fire Stations.	**(*)**	**(*)** Encourage partnership developing new visitor information facilities in gateway communities.

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Facilities (cont.)				
(*) Modify existing paved road system and parking areas to address safety and maintenance concerns at NPS Visitor Center at the original Monument.	**(*)** Provide visitor safety and information signs in the Kings Bowl area.	**(*)** Centralized office space for BLM and NPS staff would be considered.	**(*)** Limit any new facilities to what may be necessary for public safety and/or resource protection. No new livestock developments are permitted in the nominated North Laidlaw Park ACEC. Centralized office space for BLM and NPS staff would be considered.	**(*)** Centralized office space for BLM and NPS staff would be considered.
Lands and Realty				
(*) Pursue acquisition or exchange of private inholdings within the Monument; pursue an exchange for state lands located in and near the Monument; use existing policies to guide action on applications for new discretionary land use authorizations. Inventory all rights of way, easements, land use permits, and other authorizations in effect as of the date of the Proclamation.	**(*)**	**(*)**	**(*)**	**(*)**
Mineral Materials				
(*) Continue existing authorization for mineral sites within the Monument for the term of the authorization; no new material sites will be developed except for administrative purposes; provide information on BLM areas outside the Monument where casual collection is appropriate and permitted. Consult with Idaho Transportation Department (ITD) on relinquishment of three right-of-way grants for material sites along U.S. Highway 93.	**(*)**	**(*)**	**(*)**	**(*)**

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Wilderness and Wilderness Study Areas				
(*) Develop a joint BLM/NPS Wilderness/ WSA Plan; no additional water development or other habitat manipulations are undertaken to manage wildlife populations; continue aircraft surveillance and monitoring of wildlife population accordingly. Close and rehabilitate ways or travel routes within WSAs not identified during WSA inventories to motorized vehicles. Should those portions of the Great Rift Wilderness Study Area adjacent to the original Monument be designated as wilderness, designate the 660-foot strip of non-wilderness between the Craters of the Moon Wilderness boundary and the original Monument boundary as Wilderness. Should Congress designate any WSA as Wilderness, prepare a separate Wilderness Management Plan for that area; should Congress release any WSA from WSA status, manage the area under the direction of this land use plan.	**(*)**	**(*)**	**(*)**	**(*)**
Areas of Critical Environmental Concern (ACECs)				
(*) Manage potential ACECs to preserve and enhance the resource values.	**(*)**	**(*)**	(*) Designate North Laidlaw Park as an ACEC.	**(*)**
VISITOR EXPERIENCE				
Interpretation/Visitor Understanding				
(*) Develop a Comprehensive Interpretive Plan; coordinate services to meet the needs of permittees, visitors, students, educators, interest groups, and the general public; encourage partnerships at existing facilities outside the Monument; promote visitor safety and resource protection.	**(*)**	**(*)**	**(*)**	**(*)** Encourage commercial outfitters and guides to offer a range of guided experiences. Emphasize safety and resource protection at access points.
(*) Focus educational programs for schools on programs on site in the original NPS Monument.	**(*)**	**(*)** Expand educational programs for school groups in the Monument.	**(*)**	**(*)** Expand education programs to off-site locations

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Interpretation/Visitor Understanding (cont.)				
(*) Continue developing a variety of interpretive media for on- and off-site use; continue interpretive programs and maintaining exhibits and waysides.	**(*)**	**(*)** Develop a variety of portable media to interpret the expanded portion of the Monument.	**(*)** Develop a variety of portable media to interpret the expanded portion of the Monument.	**(*)** Develop a variety of portable media to interpret the expanded portion of the Monument.
(*) Post informational/orientation materials gat all primary backcountry access points surrounding the Monument and at proposed fire stations at Carey and Kimama.	**(*)**	**(*)** Upgrade interpretive kiosks, wayside exhibits, and associated trail system and day-use area in the Kings Bowl area.	**(*)**	**(*)** Interpretation of the expanded Monument, Preserve, and Wilderness will rely on publications, web sites, and other off-site methods.
(*) Provide developed facilities such as the visitor center at the original NPS Monument.	**(*)**	**(*)** Provide additional interpretive facilities along the U.S. Highway 20/26/93 corridor and at significant sites within the Passage Zone.	**(*)**	**(*)** Provide additional interpretive facilities along the U.S. Highway 20/26/93 corridor. Provide information/orientation materials regarding the Monument in gateway communities; operate a visitor center in cooperation with local partners within the I-84 corridor; emphasize providing new interpretive and educational materials and programs outside the expanded portion of the Monument and in partnering communities and facilities.
Recreation				
(*) Utilize Idaho State Comprehensive Outdoor Recreation and Tourism Plan (SCORTP) and Outdoor Recreation Demand Assessment in implementation-level planning to assist managers in understanding the recreational use patterns, trends, and recreation facilities needed. Require permits for overnight camping in the Wilderness and/or biking or hiking in the original Monument area north of U.S. Highway 20/26/93; no wood fire are permitted within the original Monument.	**(*)** Keep existing roads open to motorized and mechanical vehicle travel in the Pristine Zone.	**(*)** Make implementation-level planning determinations as to where specific trails, trailhead facilities, and/or number of primitive campsites would be located in the Passage Zone; develop up to 12 locations for camping in the Passage Zone. Provide increased opportunities to experience a wide range of recreation trail uses. Keep existing roads open to motorized and mechanical vehicle travel in the Pristine Zone.	**(*)** Make implementation-level planning determinations as to where specific trails, trailhead facilities, and/or number of primitive campsites would be located in the Passage Zone; develop up to 4 locations for camping in the Passage Zone.	**(*)** Make implementation-level planning determinations as to where specific trails, trailhead facilities, and/or number of primitive campsites would be located in the Passage Zone; develop up to 6 locations for camping in the Passage Zone.

(*)COMMON TO ALL ALTERNATIVES	ALTERNATIVE A (NO ACTION ALTERNATIVE	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D (PREFERRED ALTERNATIVE)
Recreation (cont.)				
(*) Inventory resources and areas most vulnerable to vandalism, theft, and/or recreation use impacts. Designate areas within the Monument and periods of time when no hunting and/or use of firearms for reasons of public safety, administration, and/or public use and enjoyment.	**(*)**	**(*)** Set limits on human activities in areas where adverse impacts on resources or the visitor experience occur	**(*)**	**(*)**
(*) Promote *Leave No Trace* and *Tread Lightly!* Programs with staff and the public; provide information/orientation materials.	**(*)**	**(*)**	**(*)**	**(*)**
Visual Resources				
(*) Monument managers seek cooperation of visitors, neighbors, and local governments to prevent or minimize impacts to Western landscape vistas and natural dark conditions.	**(*)** VRM classification – currently 3 Class IV, 2 Class II; Wilderness – Class I.	**(*)** Wilderness and WSAs are Class I; all other areas are Class II.	**(*)** Wilderness and WSAs are Class I; all other areas are Class II.	**(*)** Wilderness and WSAs are Class I; all other areas are Class II.
Soundscapes				
(*) Coordinate with Dept. of Defense, FAA, and Idaho Dept. of Aeronautics to minimize aircraft noise impacts. No aircraft landings associated with commercial air tours are authorized in Pristine Zones (emergency air strips are state managed and are not included in this guidance).	**(*)**	**(*)**	**(*)**	**(*)**
SOCIAL AND ECONOMIC CONDITIONS				
(*) Consider developing intergovernmental coordinating group to ensure consistency with state and local plans.	**(*)**	**(*)**	**(*)**	**(*)**
RESEARCH				
(*) Require research and specimen collecting permits; emphasize the use of the Monument as an outdoor laboratory for understanding the Great Rift ecosystem; coordinate the review and approval of research applications to confirm adherence to applicable policies and compatibility with the purposes of the Monument. Facilitate the transfer of research information to the public. Assist qualified researchers and educational institutions in conducting authorized studies or field classes as feasible.	**(*)**	**(*)**	**(*)**	**(*)**

Table 8
Summary of Impacts

NATURAL RESOURCES			
Geological Resources			
Geological resources would be affected by continued visitor access via roads and trails, as well as by wind erosion, fire, fire suppression, and grazing. These impacts would be mainly direct and both short-term and long-term and would range from negligible to potentially major. Indirect impacts would result from deposition of dust and soils on geological features over time. The limitation on new mineral extraction sites would result in long-term indirect negligible beneficial effects on geological resources.	Alternative B would have the most improved road access and the greatest number of improved roads and additional trail designations, which would result in the largest increase in visitation and/or access of all the alternatives. As a consequence, Alternative B could result in a slightly greater loss of geologic features or structures and a higher rate of degradation of geologic resources or damage from vandalism. Adverse impacts from increased access would range from negligible to potentially major, with specific concerns about direct major damage to features in the Kings Bowl and Wapi Lava Field areas. Increased fire suppression and continued grazing could result in minor to moderate adverse impacts, and small beneficial effects would result from limits on new mineral extraction areas.	Alternative C would have the largest area of Pristine Zone, which would afford the most natural protection to geologic features through difficult or remote, foot-only access. Closures of non-essential roads and limited access would lead to the smallest amount of dust-related impacts. Impacts from visitor damage, theft, or vandalism would range from negligible to potentially major locally, but the probability of major impacts would be lower because of decreased access for many visitors. Negligible to minor adverse impacts from fire and grazing would continue, and there would be slight beneficial effects from limits on new mineral extraction sites. Overall, Alternative C would cause the fewest adverse impacts on geologic resources of all the alternatives.	Alternative D, because of its aggressive restoration goals and emphasis on off-site experience, would result in beneficial effects because it would limit damage from visitors and result in restoration of many features. The erosion of roads, fires, fire suppression, and grazing would result in site-specific negligible to minor adverse impacts.
Soils			
Soil disturbance, erosion, and compaction would be the primary adverse impacts associated with most management actions under Alternative A. Wildland fire and suppression, restoration activities, road and trail maintenance and use, and livestock use are the management activities most likely to affect soils. Overall, short- and long-term adverse impacts on soils would be minor to moderate in intensity, with long-term moderate beneficial effects from the restoration program.	Improved road and trail access, development of recreation facilities, and increased visitor use of the Monument under alternative B might increase the amount of soil area directly and indirectly affected. Additional construction of unpaved roads, trails, and day use areas and more extensive use of fire suppression would cause direct loss of soils locally, resulting in minor to moderate localized adverse impacts. Grazing also would cause minor to moderate adverse impacts. Overall, short- and long-term adverse impacts on soils from Alternative B would range from minor to moderate; the restoration program would result in long-term moderate beneficial effects.	The effects of Alternative C on soils would be substantially the same as those of Alternative A, with slightly more short-term erosion potential and slightly fewer long-term soil impacts. Impacts from facility construction maintenance and fire suppression would be reduced, and adverse impacts from grazing would remain minor to moderate. Overall, short- and long-term adverse impacts would be minor to moderate in intensity, with more long-term beneficial effects from a slightly expanded restoration program.	The effects of Alternative D on soils would be similar to those of Alternative A, with more short-term erosion potential due to road and trail use and maintenance, facility development, and fire. Long- and short-term, minor to moderate adverse impacts could result from grazing and fire suppression. Overall, short- and long-term adverse impacts would be minor to moderate. However, there would be moderate to major long-term beneficial effects on soils in the Monument, assuming successful restoration of the entire proposed acreage under this alternative.

Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Vegetation and Fire Management			
Alternative A would result in both short- and long-term negligible to moderate adverse impacts on vegetation from continued use and maintenance of roads and trails, plus illegal off-road use, spread of noxious weeds, fire suppression and fire, and continued grazing. Restoration activities and construction of facilities would cause short-term negligible to minor direct adverse impacts but they would result in long-term indirect minor to major beneficial effects from vegetation restoration and public education that would accompany facility xeriscaping efforts.	Alternative B would result in a greater possibility of fragmentation, increased risk of noxious weed spread, and greater risk of human-caused fire because of increased visitation and access and more road and trail maintenance. Effects on vegetation would be both short- and long-term, ranging from negligible to moderate, but they would be more widespread than in Alternative A. Facility development would cause some long-term negligible to minor negative impacts on vegetation, but increased public education (along with xeriscaping efforts) would result in minor to moderate long-term beneficial effects. Restoration acreage would be slightly greater than in Alternative A, with short-term minor adverse impacts and long-term moderate to major beneficial effects.	Alternative C would involve less opportunity for extensive visitor access, less access for fire suppression, less active management of noxious weeds, and a slower rate of restoration over a larger area than any other alternative. Adverse impacts on vegetation from access would be minor and limited, with few impacts from facility development and maintenance. Restoration and native xeriscaping efforts would cause long-term minor to major beneficial effects, but these would occur more slowly because fewer herbicides and low-impact methods would be used. Fires, fire suppression, and continued grazing would lead to minor to moderate adverse impacts.	In Alternative D there would be more access for fire suppression and more aggressive noxious weed control and restoration programs, which would result in short-term minor to moderate adverse impacts but long-term moderate to major beneficial effects, occurring in a shorter time than in the other alternatives. Strategically placed restoration projects would increase the size and continuity of healthy vegetation patches and reduce the extent of poor quality vegetation. Adverse impacts from visitor access, fire and fire suppression, grazing, and facility development would be similar to those in Alternative A, with both short- and long-term, minor to moderate adverse impacts.
Water Resources			
Under Alternative A, current local long-term effects on water resources would continue at intensity levels generally ranging from negligible to potentially major, but any major effects would be localized to small areas. The effects of intense recreational use on ice cave pools and effects from livestock watering on individual playas could create minor to moderate changes in nutrient concentrations, bacteria levels, and turbidity. The duration of effects would depend on the intensity of recreational use of each site. The effects would tend to be localized to individual water bodies, because no surface waters connect them. The overall effect of livestock use on playas would be widespread and long-term and could range from minor to potentially major, depending on the location.	The effects of Alternative B would be substantially the same as those of Alternative A, but with a somewhat higher likelihood of more indirect adverse effects on local ice caves and playas resulting from road improvements and more recreational use, plus possible increases in livestock developments. Impacts would generally range from negligible to potentially moderate, but they would be localized. Depending on the site-specific circumstances, the effects could be either short term or long term.	The effects of Alternative C could be substantially the same as those of Alternative A because there still would be a chance that recreational use could affect ice caves, and there could be limited impacts from grazing. However, moderate adverse impacts would potentially be less widespread or frequent because road access would be reduced.	The effects of Alternative D on water resources would be similar to those from Alternative A, with localized long-term effects at negligible to major intensities, depending on site location (proximity of ice caves to roads) or concentration of livestock. Implementing Alternative D could cause local long-term effects on water resources at intensity levels ranging from negligible to potentially major. Intense recreational use could affect ice cave pools, and livestock watering could affect individual playas, causing minor to moderate changes in nutrient concentrations, bacteria levels, and turbidity. The effects would tend to be localized to the individual water bodies because no surface waters connect them

Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Wildlife Resources			
Under Alternative A (continue current conditions), effects on wildlife would continue to come primarily from conflicts with human uses of the Monument, including disturbance by people and vehicles and conflicts and competition with livestock use. Access and roads and associated visitor recreation would result in minor long-term adverse impacts, plus short-term moderate local adverse impacts on some species in high use areas. Sagebrush steppe restoration and weed management actions would cause some short-term minor adverse impacts, with minor to major beneficial effects over the long term, depending on the species involved. Fire and suppression of fire would benefit some species but adversely affect others. The 50 sensitive species, which use all major habitats in the Monument and have a variety of life histories, would experience the same range of impacts as other wildlife. The bald eagle and the gray wolf, which are listed as threatened and endangered, are occasionally found in the Monument, but both are peripheral species, and the impacts on them would be negligible to minor.	The impacts on wildlife from Alternative B would be largely the same as those from Alternative A, but the slight increase in acres that would be restored under Alternative B would result in a related increase in improved habitat for sagebrush steppe species, a long-term minor to major beneficial effect. There could be a modest increase in adverse impacts from traffic disturbance in the larger Passage Zone area and the potential for increased or improved access to motor vehicles in that zone, as well as the development of a visitor use area in Kings Bowl and multiuse trails. The effects on wildlife would vary from species to species, but most effects would be long-term, minor to moderate, and localized.	The impacts on wildlife from Alternative C would be largely the same as those from for Alternative A; but 15,000 more acres would be restored under Alternative C, resulting in more improved habitat for sagebrush steppe species. There would be fewer adverse impacts from traffic disturbance because the Passage Zone would be smaller in Alternative C, and the Primitive Zone would be larger. These designations would include the potential for decreased access for motor vehicles and related recreational use overall, resulting in fewer direct and indirect adverse impacts on all wildlife species. .	The effects on wildlife from Alternative D would be largely the same as those from Alternative A; but the acreage to be restored in this alternative would be double that of Alternative A, resulting in more improved habitat for sagebrush steppe species, a major long-term beneficial effect. Modest changes in the adverse impacts could result from increases in the Passage Zone roads for restoration and administration uses and in the potential for increased or improved access for motor vehicles in that zone.
Air Resources			
Prescribed fire, wildland fire, and fugitive dust from roads result in smoke or dust containing particles that adversely affect human health and air quality related values such as visibility. The effects on air quality from smoke and dust caused by the management activities of Alternative A typically would be short-term and local. The intensity of effects could range from negligible to moderate, depending on weather conditions and the location and size of fires. Most prescribed and wildland use fires would cause minor short-term effects. Fugitive dust from roads with current traffic use would produce short-term localized adverse effects of negligible intensity.	The adverse effects on air quality that would result from Alternative B typically would be short term and limited to the local region. The intensity of effects would range from negligible to moderate, with most prescribed and wildland use fires having minor effects. Fugitive dust from roads with potentially increased vehicle traffic use on unpaved roads would produce short-term local effects of negligible to minor intensity. A substantial increase in traffic would be required to elevate this impact to the moderate levels.	The adverse effects on air quality that would result from Alternative C typically would be short term and limited to the local region. The intensity of effects would range from negligible to moderate, with most prescribed and wildland use fires causing minor effects. Fugitive dust from roads with decreased traffic use and vehicle speeds would produce short-term local effects of negligible intensity.	The adverse effects on air quality that would result from Alternative D typically would be short term and limited to the local region. The intensity of effects would range from negligible to moderate, with most prescribed and wildland use fires causing minor effects. Fugitive dust from roads with current traffic use would produce short-term local effects of negligible intensity. The addition of non-Monument sources occurring during the same time period could produce more intense but still moderate effects throughout the Monument



Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
CULTURAL RESOURCES			
Alternative A would cause a negligible to minor adverse impact on maintaining the long-term integrity of most of the Monument's archaeological resources. The restoration program and fire suppression would result in a long-term moderate beneficial effect, but the initial restoration and suppression actions, grazing, and vehicle travel would result in short-term minor to moderate adverse impacts.	Alternative B, in which recreational opportunities and vehicle access would be emphasized, would result in a moderate adverse effect on maintaining the long-term integrity of most of the Monument's archaeological resources. The restoration program and fire suppression would result in a long-term moderate beneficial effect, but the initial restoration and suppression actions, grazing, and vehicle travel would result in short-term minor to moderate adverse impacts.	Alternative C, in which human and vehicle access into the Primitive and Pristine Zones would be minimized, would result in a minor beneficial effect on maintaining the long-term integrity of most of the Monument's archaeological resources. The restoration program, fire suppression, and restricted access all would contribute to long-term, minor to moderate beneficial effects, but the initial restoration and suppression actions, grazing, and limited vehicle traffic would result in short-term minor to moderate adverse impacts.	Alternative D, in which off-site interpretation, visitor services, and aggressive range restoration would be emphasized, would result in a moderate beneficial effect on maintaining the long-term integrity of most of the Monument's archaeological resources. Short-term minor to moderate adverse impacts would result from vehicle travel, initial restoration activities, suppression actions, and grazing.
AMERICAN INDIAN RIGHTS AND INTERESTS			
Alternative A would result in a negligible to minor beneficial effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument.	By emphasizing recreational activities and vehicle access, Alternative B would result in a minor to moderate adverse effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument.	By minimizing the amount of human and vehicle traffic into the Primitive and Pristine Zones, Alternative C would result in a minor beneficial effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument, but by limiting vehicle access it could cause some hardship for elderly tribal members.	By emphasizing off-site interpretation, off-site visitor services, and range restoration, Alternative D would result in a minor to moderate beneficial effect on maintaining the long-term integrity of the ethnographic resources and traditional use areas in the Monument.
LAND USE AND TRANSPORTATION			
Travel and Access			
Actions under Alternative A would cause minor adverse impacts on access and travel in the Monument, with long-term minor beneficial effects from completed restoration and road maintenance activities.	By emphasizing recreational opportunities and increased access, Alternative B would cause a long term minor to moderate adverse effect on road conditions in the Monument, but it also would lead to a long-term moderate beneficial effect on the availability of access and ease of travel to many locations in the Monument.	By closing more miles of road in the Monument, Alternative C would cause minor to moderate adverse impacts on access. Reduced vehicle traffic could result in minor beneficial effects on transportation safety, but there also might be minor adverse impacts on travel safety from visitors using lower standard roads.	By emphasizing off-site interpretation, off-site visitor services, and long-term range restoration, Alternative D would lead to long-term minor beneficial effects on access and road conditions in the Monument.
Livestock Grazing			
Restoration activities and restrictions in the Pristine Zone in Alternative A could restrict grazing operations and/or increase costs associated with grazing, resulting in short- and long-term minor to moderate adverse impacts. The use of the Passage Zone for potential road improvement and facility development would result in short- and long-term minor beneficial effects, but the potential increased recreational use of this area could cause minor to moderate adverse impacts. Alternative A would have the third largest Pristine Zone, which could restrict or increase the costs associated with grazing.	Restoration activities and restrictions in the Pristine Zone under Alternative B could restrict or increase costs associated with grazing, resulting in short- and long-term moderate adverse impacts on grazing, but larger Passage Zone areas and the development of good access could result in road improvement and facility development, which would cause short- and long-term minor to moderate beneficial effects. The increased recreational use and access in this area could cause minor to moderate adverse impacts.	Restoration activities and restrictions in the Pristine Zone under Alternative C could restrict or increase the costs associated with grazing, resulting in moderate short- and long-term adverse impacts on grazing. The smaller number of areas in the Passage Zone would allow for some access and facility development, a negligible to minor beneficial effect, but any increased recreational use would cause minor adverse impacts on grazing operations. The large amount of Pristine Zone could increase costs and limit access, causing moderate adverse impacts on grazing.	Alternative D would involve the largest acreage identified for restoration; this would cause short-term moderate adverse impacts on grazing operations, but the long-term effects would be beneficial. The use of an expanded Passage Zone for potential road improvement and facility development and potentially more recreational use would result in minor to moderate beneficial effects from increased access and more ability to create new facilities The Pristine Zone could restrict or increase the costs associated with grazing, a moderate adverse impact

Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Other Land Uses			
Alternative A would result in negligible impacts on administrative facilities, realty, and minerals in the Monument.	Alternative B would cause negligible effects on realty and minerals in the Monument and a minor adverse impact on administrative facilities.	By minimizing the amount of human and vehicle traffic into the Primitive and Pristine zones, Alternative C would cause long-term minor beneficial effects on the Monument's administrative facilities, realty, and minerals.	Because of its emphasis on off-site interpretation and visitor services, Alternative D would result in negligible impacts on administrative facilities, realty, and minerals in the Monument.
Special Designation Areas			
The effects on the characteristics and purposes of special designation areas from Alternative A would be primarily negligible to minor and short term, but the effect of livestock use on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods (5+ years). Road system management and limited regulation of off-highway vehicle use could cause negligible to moderate indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes.	The effects on the characteristics and purposes of special designation areas from Alternative B would be primarily negligible to minor and short term, but the effect of livestock use on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods (5+ years). The improvements to the road system could result in higher levels of indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes.	The adverse effect on the characteristics and purposes of special designation areas from Alternative C would be mostly negligible to minor and short term. The effect of livestock on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods (5+ years). The lack of access and limited Passage Zone acreage could cause indirect adverse effects if grazing was expanded to certain areas, with potential indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes. Designating a new ACEC in North Laidlaw Park could lead to minor beneficial effects on Craters of the Moon Wilderness and Great Rift WSA.	The effect on the characteristics and purposes of special designation areas from Alternative D would be primarily short term and negligible, with a potential for more intense effects if restoration activities took place in or near any of the areas. The effect of livestock on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods (5+ years). Road system management and limited regulation of off-highway vehicle use could cause indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes

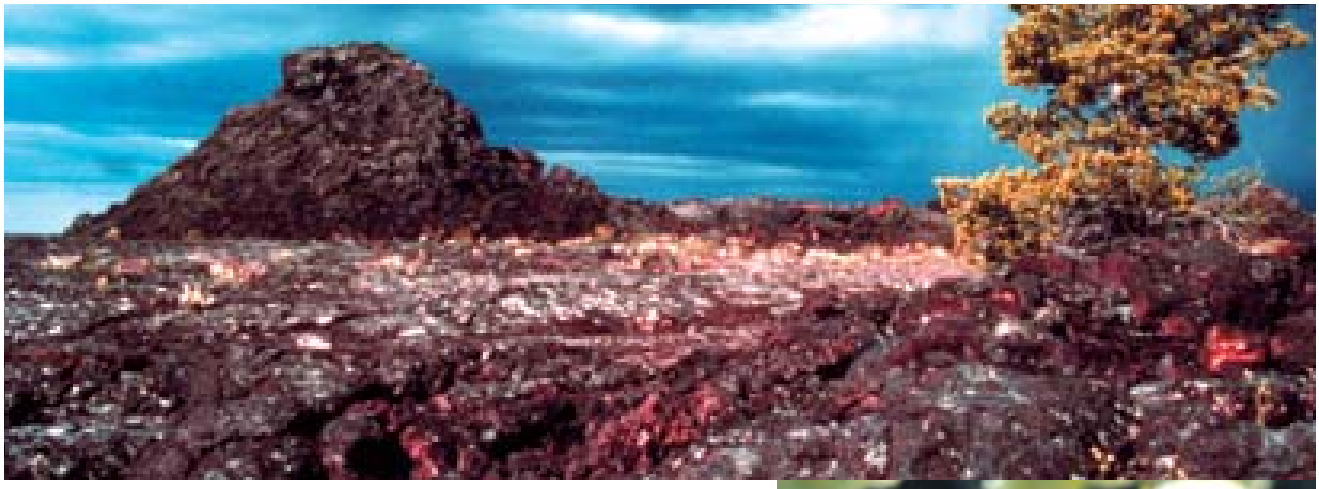
Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
VISITOR EXPERIENCE			
Interpretation and Visitor Understanding			
Posting information at backcountry access points and fire stations, offering school programs at the original NPS Monument, offering interpretation of cultural resources, adding interpretive media, exhibits, and waysides, and modest development in the Kings Bowl area would cause long-term minor beneficial effects on interpretation and visitor understanding, as would agency assistance to research and educational institutions. In addition, long-term major benefits would result from expanding the existing Visitor Center.	Upgrading the Carey-Kimama and Arco-Minidoka Roads, offering school programs at the original NPS Monument, interpreting cultural resources, adding interpretive media, programs, exhibits, and waysides, and developing portable interpretive media would result in long-term minor beneficial effects on interpretation, as would agencies assisting research and educational institutions, developing a cave restoration program, and interpreting sagebrush steppe restoration and integrated weed management. Short-term negligible adverse impacts would result from upgrading the Carey-Kimama and Arco-Minidoka Roads. Long-term moderate beneficial effects would result from adding interpretive facilities along US 20/26/93, at significant sites in the Passage Zone, and at Kings Bowl. Long-term major beneficial effects would result from expanding and developing new facilities at the existing Visitor Center.	Posting information at backcountry access points and fire stations, offering school programs at the original NPS Monument, developing portable interpretive media, and establishing a limited cave restoration program would result in long-term minor beneficial effects on interpretation. There would be cumulative effects from Cooperative Weed Management Area programs. Long-term major beneficial effects would result from expanding the existing Monument Visitor Center.	Long-term minor beneficial effects on interpretation would come from placing interpretive signs and information along the US 20/26/93 corridor and at access points, offering school programs (including off-site efforts) and off-site interpretation of cultural resources, posting interpretive media, programs, exhibits, and waysides, from developing portable off-site interpretive media, and from modest development in the Kings Bowl area. Agency assistance to research and educational institutions and an intensive cave restoration program also would cause long-term minor beneficial effects. Long-term moderate beneficial effects would come from placing interpretive materials, facilities, and programs outside the Monument, in gateway communities and at a visitor center along the I-84 corridor, as well as from offering commercially guided services in the Monument. Long-term major benefits would come from expanding the existing Visitor Center. Commercial guide services could cause long-term minor adverse impacts on people visiting the interior of the Monument without a guide.

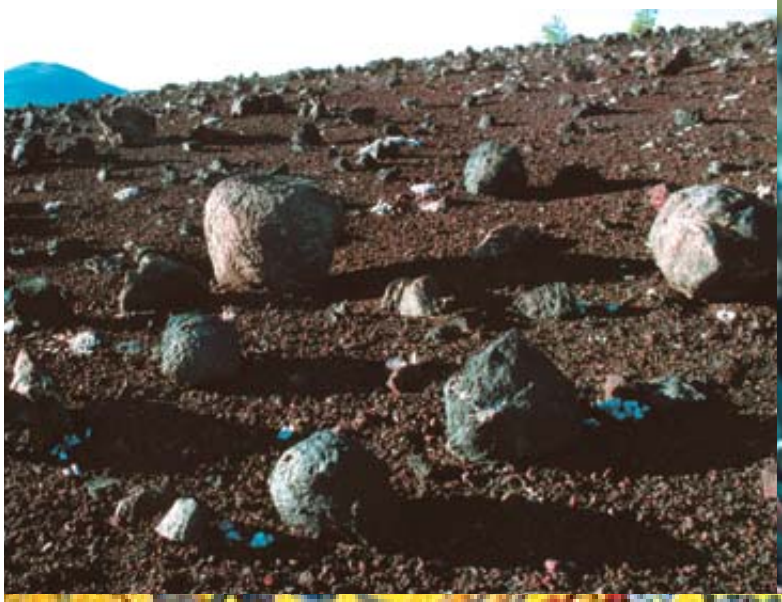
Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Recreation and Public Safety			
Alternative A would result in a wide range of negligible to moderate adverse and beneficial effects on recreation and public safety, depending on the recreational experience desired. Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument; safety emphasis through interpretation, restoring sagebrush steppe communities, trail development and rehabilitation in the Kings Bowl area, developing or improving facilities, closing certain ways in Wilderness areas and WSAs; and authorizing commercial outfitters and guides. Short-term minor beneficial effects would result from wildland fire suppression. Long-term moderate beneficial effects would result from greater protection of geological features in the original NPS Monument and indirectly from restoring sagebrush steppe communities. Keeping almost all existing roads open to motorized travel would result in long-term minor beneficial effects on certain recreational experiences, but such access also could affect other recreational experiences, resulting in long-term minor adverse impacts. Long-term minor beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could affect people who prefer more developed, dispersed camping, resulting in long-term minor adverse impacts. Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.	The added access available in Alternative B would contribute both beneficial and adverse effects, depending on the type of recreation desired. Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument, safety emphasis through interpretation, restoring sagebrush steppe communities, developing and rehabilitating trails in the Kings Bowl area, developing or improving facilities, closing certain ways in Wilderness areas and WSAs, and authorizing commercial outfitters and guides. Short-term minor beneficial effects would result from wildland fire suppression, and short-term negligible adverse impacts would result from wildland fire use. Long-term moderate beneficial effects would result from greater protection of geological features in the original NPS Monument, from designating multiuse and single-use trails, and developing or improving facilities. There would be indirect long-term moderate benefits from restoring sagebrush steppe communities. Improving motorized access would result in long-term moderate beneficial effects on certain recreational experiences, but it also could result in long-term moderate adverse impacts on other recreational experiences. Long-term moderate beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could result in minor long-term adverse effects on people who prefer more developed, dispersed camping. Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.	The restricted access of Alternative C would contribute beneficial and adverse effects, depending on the type of recreation desired. Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument, safety emphasis through interpretation, restoring sagebrush steppe communities, limited facility developments and improvements, closing certain ways in Wilderness areas and WSAs, and authorizing commercial outfitters and guides. Short-term minor beneficial effects would result from wildland fire suppression, and short-term negligible adverse impacts would result from wildland fire use. Long-term moderate beneficial effects would result from greater protection of geological features in the original NPS Monument, and there would be indirect long-term moderate benefits from restoring sagebrush steppe communities. Long-term minor beneficial effects on certain recreational experiences would come from converting many Class D roads to non-motorized trails, but such conversion also would affect other recreational experiences, causing long-term minor adverse impacts. Closing certain roads and ways in the Pristine zone to motorized and mechanized vehicle travel would result in long-term moderate beneficial effects on certain recreational experiences, but long-term minor adverse impacts also would result from such closures, affecting other recreational experiences. These closures also would result in long-term moderate adverse impacts from reduced access. Long-term minor beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could adversely affect people who prefer more developed, dispersed camping, resulting in long-term minor adverse impacts. Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.	The added access available in Alternative D would contribute both beneficial and adverse effects, depending on the type of recreation desired. Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument, safety emphasis through interpretation, developing or improving facilities, and closing certain ways in Wilderness areas and WSAs. Short-term negligible to minor beneficial effects would result from temporary improvements to Class C and D roads that could accommodate certain authorized activities, as well as from wildland fire suppression. Short-term negligible adverse impacts would result from wildland fire use, and short-term minor adverse impacts would result from aggressive rehabilitation. Long-term minor to moderate beneficial effects would result from authorizing commercial outfitters and guides, and long-term moderate beneficial effects would come from greater protection of geological features in the original NPS Monument and from restoring sagebrush steppe communities. Long-term minor beneficial effects on certain recreational experiences would result from closing Class D roads or converting them to non-motorized trails to trails in the Primitive and Pristine Zones, but such conversion also would affect other recreational experiences, causing long-term minor adverse impacts. Long-term moderate beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could affect people who prefer more developed, dispersed camping, resulting in long-term minor adverse impacts. Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects

Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Visual Resources			
Long-term minor beneficial effects on visual resources would result from greater protection of geologic features, from restoring sagebrush steppe communities, and from holding surface disturbing activities to the VRM management class standards that apply in Alternative A. Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would result from the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night. Class B road use would cause short-term minor adverse impacts, and short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.	Long-term minor beneficial effects on visual resources would result from greater protection of geologic features and from restoring sagebrush steppe communities. Long-term minor to moderate beneficial effects would come from holding surface-disturbing activities to VRM management class standards that apply in Alternative B. Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would be caused by the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night. Road upgrades would cause short-term minor cumulative adverse impacts, and short-term minor to moderate adverse impacts would result from Class B road use. Short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.	Long-term minor beneficial effects on visual resources would result from greater protection of geologic features; long-term minor to moderate beneficial effects would come from restoring sagebrush steppe communities; and long-term moderate beneficial effects would result from holding surface- disturbing activities to VRM management class standards that apply in Alternative C. Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would result from the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night. Class B road use would cause short-term minor adverse impacts, and short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.	Long-term minor beneficial effects on visual resources would result from greater protection of geologic features; long-term minor to moderate beneficial effects would result from holding surface- disturbing activities to VRM management class standards that apply in Alternative D, and restoring sagebrush steppe communities would create long-term moderate beneficial effects. Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would result from the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night Class B road use would cause short-term minor adverse impacts, and short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.
Soundscapes			
The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts.	The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. Some increased noise would come from more use of the Passage Zone. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts.	The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations and from livestock operations. Air operations would cause short-term minor adverse impacts.	The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts

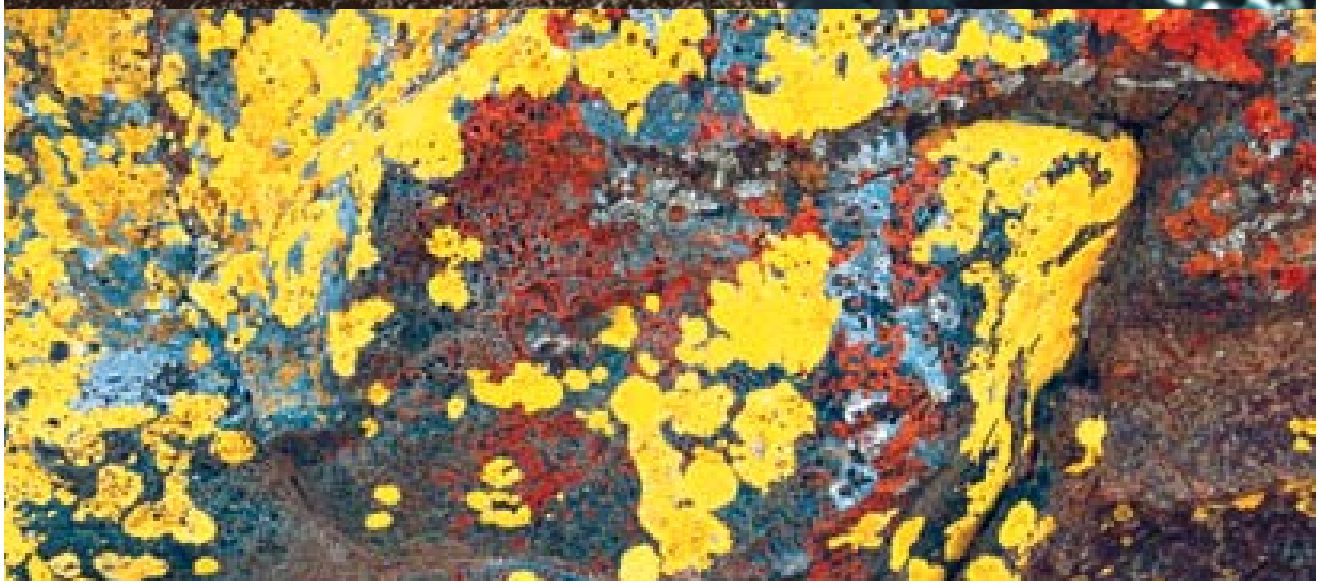
Alternative A (No Action Alternative)	Alternative B	Alternative C	Alternative D (Preferred Alternative)
Social and Economic Conditions			
Alternative A would result in a negligible adverse or beneficial effect on the number of annual visitors to the Monument, length of stay, or visitor spending. There would be no direct, indirect, or cumulative effects on the regional economy or any economic or social indicator, other than moderate adverse impacts related to a gradual loss of mineral leases. Alternative A would not affect the rural character around the Monument.	Alternative B would result in a moderate increase in the annual number of visitors, would lengthen visitors' stay, and would increase recreational spending per visit. This moderate increase in visitors and visitor spending would result in a negligible effect on the local economy, a negligible or minor effect on local employment rates and per capita income, a negligible effect on the local population, health care, education, and crime rates around the Monument, and a moderate adverse or beneficial effect on visitor satisfaction. A moderate adverse impact would result from the gradual loss of mineral leases.	Alternative C would result in a negligible adverse or beneficial effect on the annual number of visitors to the Monument and Preserve, the length of visitors' stay, and the amount of visitor spending. There would be negligible direct, indirect, or cumulative effects on the regional economy or any economic or social indicator, other than the moderate adverse impacts from the gradual loss of mineral leases. Alternative C would not affect the rural character around the Monument.	Alternative D would result in a moderate increase in the annual number of visitors, the length of visitors' stay, and the amount of recreational spending per visit. This moderate increase in visitors and visitor spending would result in result in a negligible effect on the local economy, a negligible or minor effect on local employment rates and per capita income, a negligible effect on the local population, health care, education, and crime rates around the Monument, and a moderate adverse or beneficial effect on visitor satisfaction. A moderate adverse impact would result from the gradual loss of mineral leases.

Chapter 3
Affected Environment









Previous page, clockwise, from top left
Hornito
Dwarf buckwheat
Lava lichen
Lava bombs

CHAPTER 3
AFFECTED ENVIRONMENT

The purpose of this chapter is to describe the physical, biological, cultural, and social environments of the Craters of the Moon National Monument and Preserve (the Monument), including human uses, that could be affected from implementing any of the alternatives described in Chapter 2. The topics discussed in this chapter are those identified as important issues by the public and the agencies during scoping. The discussion generally follows the order of the topics addressed in Chapter 2 under "Management Guidance Common to All Alternatives". The scientific names for species mentioned in the text are listed in Appendix D.

NATURAL RESOURCES

GEOLOGICAL RESOURCES

The purpose and significance of the Monument tie directly to its unique geology. Volcanism has generated an array of features and habitats that make the Monument a recognized outdoor laboratory. As a result, the Monument draws scientists and visitors from around the world to study and experience the diverse volcanic terrain.

Geologic Setting

The Monument is in the Snake River Basin-High Desert (Omernik 1986) and is primarily comprised of three geologically young (Late Pleistocene-Holocene) lava fields that lie along the Great Rift (see Figure 11 for regional setting and location). The Great Rift volcanic rift zone is a belt of open cracks, eruptive fissures, shield volcanoes, and cinder cones, which varies in width between approximately 1 and 5 miles. It begins north of the Monument, approximately 6 miles from the topographic edge of the Snake River Plain, in the vent area of the Lava Creek flows located in the southern Pioneer Mountains (Kuntz et al. 1992). The Great Rift extends southeasterly from the Lava Creek vents for more than 50 miles to somewhere beneath the Wapi Lava Field (Kuntz et al. 1982).

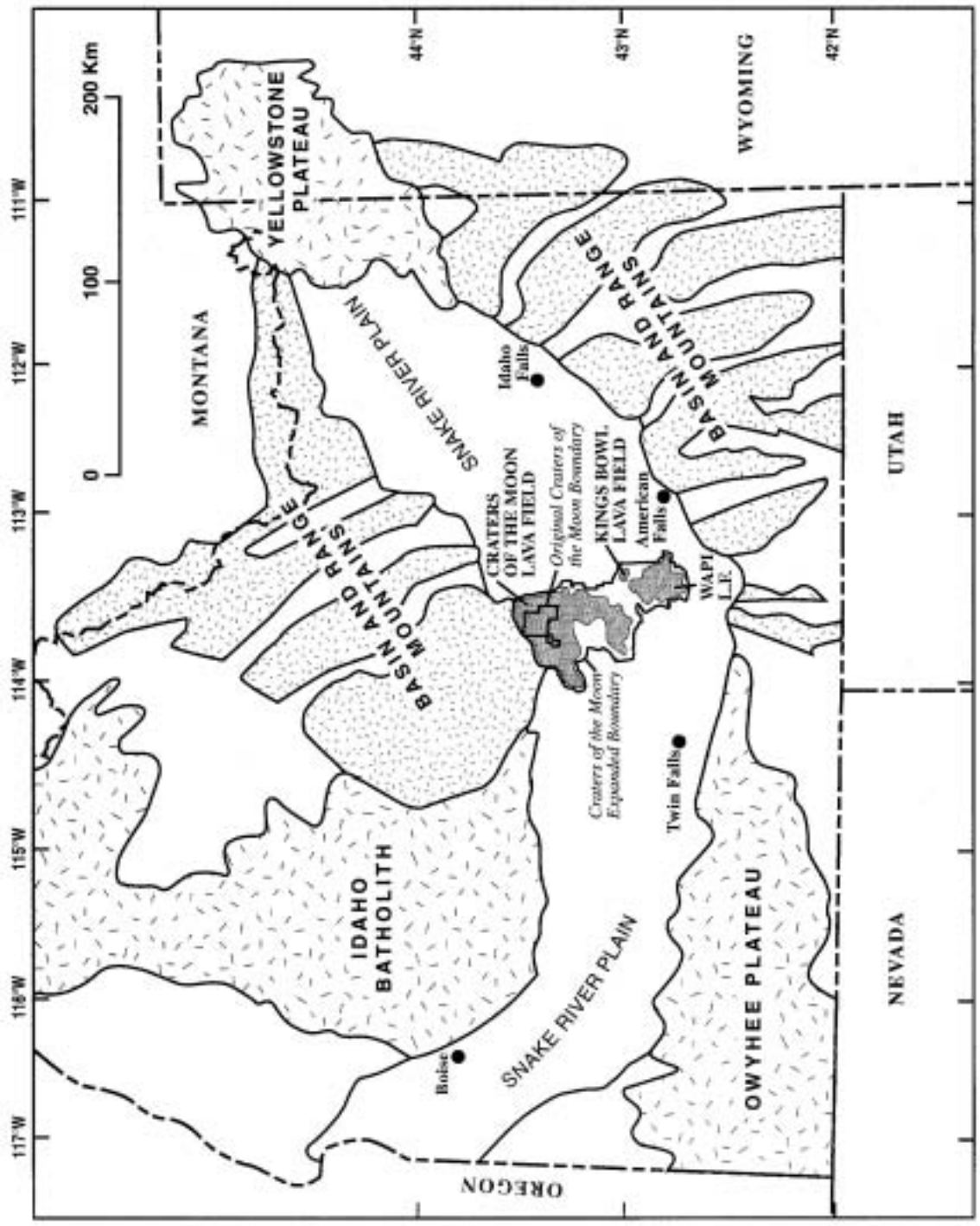
The Craters of the Moon Lava Field is the northernmost and largest of the three young lava fields. Kings Bowl Lava Field is the smallest and lies between Craters of the Moon Lava Field and the Wapi Lava Field. The rest of the Monument is composed of Pleistocene age pahoehoe and A?a flows, near-vent tephra deposits, cinder cones, lava cones, and shield volcanoes (Kuntz et al. 1988). These older areas are mantled with loess deposits (windblown silt) and in some places by windblown sand. During the Holocene (last 10,000 years), the most volcanic activity of any of the Eastern Snake River Plain (ESRP) basaltic rift systems was exhibited by these three lava fields associated with the Great Rift (Hughes et al. 1999).

The Craters of the Moon Lava Field covers 618 square miles and is the largest dominantly Holocene basaltic lava field in the lower 48 states (Kuntz et al. 1992). It contains a tremendous diversity of volcanic features, with nearly every type of feature associated with basaltic systems (Hughes et al. 1999). Contained within the Craters of the Moon Lava Field are at least 60 lava flows, 25 tephra cones, and eight eruptive fissure systems aligned along the northern part of the Great Rift (Kuntz et al. 1992).

Kings Bowl Lava Field formed approximately 2,200 years ago during a single burst of eruptive activity that may have lasted as little as six hours (Kuntz et al. 1992). Kings Bowl has a central eruptive fissure approximately 4 miles long, flanked by two sets of non-eruptive fissures. The dominant feature is a bowl, 280 feet long, 100 feet wide, and 100 feet deep, produced when lava came into contact with groundwater, causing a steam or phreatic explosion.

Adjacent to the bowl is an outstanding example of a lava lake with well-developed levees. The crust of the lake was broken by many of the blocks ejected by the phreatic explosion. The interior of this lake was still molten and oozed up through the holes punched in its crust, resulting in a large number of squeeze-up mounds of gas-charged lava (Hughes et al. 1999). Fissure caves, such as Crystal Ice Cave and Creons Cave, lie along the Great Rift at Kings Bowl. At South Grotto, the rift may be passable to a depth of 650 feet below the surface (Earl 2001). Feeder dikes and spatter cones can be seen along the Great Rift at Kings Bowl.

The Wapi Lava Field, approximately 2,200 years old (Hughes et al. 1999), is a classic shield volcano with a flattened dome shape. Kuntz et al. (1992) believe that the Wapi Lava Field began as a fissure eruption, but developed a sustained eruption from a central vent complex, which produced the low shield volcano seen today. Rising approximately 60 feet above the south side of the largest vent is Pillar Butte. Greeley (1971) reported that the only known dribblet spires in the continental United States occur on the flows associated with Pillar Butte. Now, however, dribblet spires are known to also occur in Diamond Craters in Oregon.



Note: L.F. = Lava Field

FIGURE 11
Regional Geological Setting and
Location of Craters of the Moon National Monument and Preserve

Potential for Future Eruptions

The Craters of the Moon Lava Field formed during eight eruptive periods with a recurrence interval averaging 2,000 years, and it has been more than 2,000 years since the last eruption. The constancy of the most recent eruptive periods suggests that slightly more than 1 cubic mile of lava will be erupted during the next eruption period.

In the past, eruptions in the Craters of the Moon Lava Field have generally shifted to the segment of the Great Rift with the longest repose interval. The next eruptive period should begin along the central portion of the Great Rift in the Craters of the Moon Lava Field, but may include the northern part of the Monument (Kuntz et al. 1986). Initial flows, based on past performance, will probably be relatively non-explosive and produce large-volume pahoehoe flows. Eruptions from potential vents on the northern part of the Great Rift may be comparatively explosive and may produce significant amounts of tephra, destroy cinder cones and build new ones (Kuntz et al. 1986).



Candy Kiss



Kings Bowl

Geologic Features

The lava is described by its physical appearance, which is largely determined by its composition, temperature, fluid and crystal content, and the influence exerted on it by the surface and slope it flowed down. Block lava has a surface of angular blocks and forms from very dense lava. A,a has a rough, jagged, or clinkery surface. Pahoehoe has a smooth, ropy, or billowy surface.

There are several types of pahoehoe. Shelly pahoehoe forms from highly gas-charged lava, often near vents or tube skylights, and contains small open tubes, blisters, and thin crusts. Some shelly pahoehoe crusts are so thin and fragile that they are easily broken by foot traffic; much of the shelly pahoehoe that surrounds Pillar Butte is like this. Spiny pahoehoe forms from very thick and pasty lava and contains elongated gas bubbles on the surface that form spines. Spiny pahoehoe is the dominant type of pahoehoe found in the Monument. Slabby pahoehoe is made up of jumbled up plates or slabs of broken pahoehoe crust. Many of the pahoehoe crusts are glassy and may exhibit various shades of blue or green prized by collectors. These glassy crusts are also prone to damage from foot traffic.



Pahoehoe

Lava tubes are hollow spaces beneath the surface of solidified lava flows, formed by the withdrawal of molten lava after the formation of the surface crust. Within lava tubes, various formations such as lava stalactites occur that are vulnerable to damage or theft.

Most of the lava flows in the Monument are pahoehoe and were fed through tubes and tube systems. Some lava flows produce tumuli (small mounds) or pressure ridges (elongate ridges) on their crusts. There are also pressure plateaus that were produced by the sill-like injection of new lava beneath the crust of an earlier sheet flow that had not completely solidified. In some places, squeeze-ups formed when pressure was sufficient to force molten lava up through tension fractures in the top of pressure ridges or cracks in the solidified crust of lava ponds. Because of their small size and unusual shapes, many of the squeeze-ups associated with the Kings Bowl Lava Field are vulnerable to theft.

When lava comes to the surface, highly charged with gas, and is ejected from one or a few vents, it can spray high into the air forming a fire fountain(s). The highly gas-charged molten rock cools and solidifies during flight and rains down to form cinder cones. Loose cinders are particularly vulnerable to compaction and wind and water erosion. Cinders displaying a play of colors, caused by a thin layer of glass, also make a tempting target for souvenir gatherers.

Other lava features include spatter cones that formed when fluid globs (spatter) were ejected short distances (generally less than 200 feet) from some of the vents and accumulated right around the vent, forming short steep-sided cones. Along eruptive fissures where a whole segment erupted, spatter accumulated to produce low ridges called spatter ramparts. Hornitos, also known as rootless vents, are similar in appearance to spatter cones, but formed from spatter ejected from holes in the crust of a lava tube instead of directly from a feeding fissure. The individual globs that comprise the spatter cones, spatter ramparts, and hornitos are frequently not very well adhered to one another and are easily dislodged, making them very vulnerable to human damage.

Four kinds of volcanic "bombs" are found in the Monument; all of which started off as globs of molten rock thrown or ejected into the air. The smaller bombs (backpack size or less) are frequently a target for collection and are now rare in proximity to roads and high-use trails in the Monument. The photo on page 77 depicts one type of bomb known as a "breadcrust bomb".

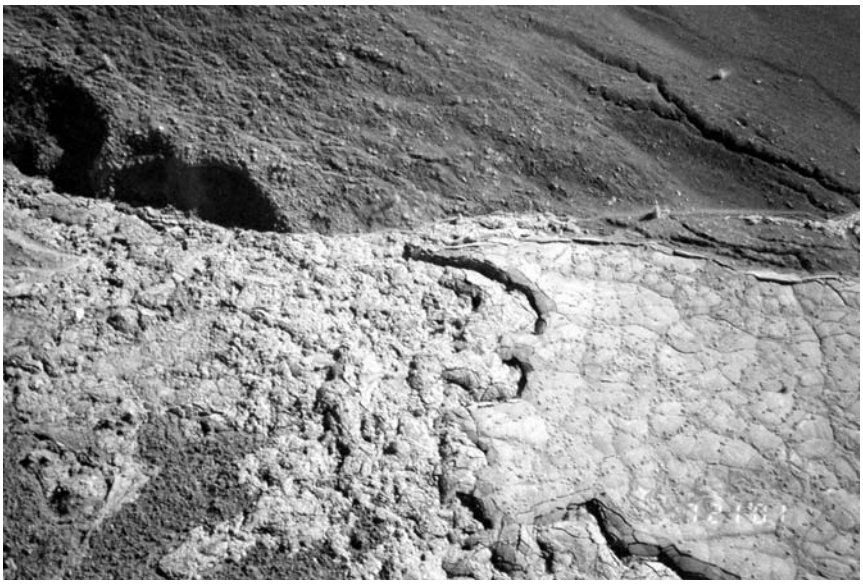
Caves

There are many different kinds of caves in the Monument. Shelly pahoehoe areas contain many small open tubes and blisters. There are thousands of these small open tubes and blisters within the Monument. The photo on page 84 depicts one cave known as Indian Tunnel.

Some fissure caves associated with the Great Rift can be passable to hundreds of feet below the surface. Earl (2001) reported at South Grotto in the Kings Bowl Lava Field that the Great Rift can be passable to a depth of at least 650 feet, depending on the internal ice conditions. Bears Den Waterhole,



Spatter Cone



Pressure Plateau

another fissure cave located in cracks of the Great Rift, is ice floored and usually a source of water even in a drought year.

The nature of flowing lava can produce shallow caves and overhangs at flow fronts as a result of inflation processes. Differential weathering of cinder layers on some cinder cones has also generated a few shallow caves. Some of these small caves are more than 10 feet deep.

These various types of caves in the Monument can also be associated with archaeological and paleontological features, and they can harbor wildlife such as the blind lava-tube beetle, bushy-tailed woodrats, and Townsend's big-eared bats. Deep cracks and fissures, including cracks with likely connections to lava tubes beneath, and the entrances to caves often create or provide microenvironments or microhabitats. Some of these microenvironments support impressive moss, algal, or lichen communities and even ferns.



Breadcrust Bomb



Indian Tunnel

People are attracted to caves, and some of the easily accessed caves in the Monument now contain considerable graffiti (e.g., Lariat Cave), litter, and other forms of vandalism.

Paleontology

Tree molds are impressions in the solidified lava that form as trees are enveloped by the lava flows, begin to burn, release water and other vapors that quickly cool the surrounding lava, and leave behind a mold of the charred tree and occasionally some carbon residue (see photos on page 84). Generally, tree molds preserve impressions of the cracked, partly burnt wood, but do not preserve bark or other textures that would aid in the identification of tree species. In the northern end of the Monument, more than 100 tree molds have been identified. Of the more than 100 inventoried tree molds, 11 showed minor damage from humans, and these were at developed sites.

Animal bones accumulate in lava tubes as inhabitants die naturally and are also introduced into the caves as a result of human or animal disposal. Exploration of such deposits in the lava tubes of the Snake River Plain has revealed bones of extinct animals such as mammoth and camel and modern large animals such as grizzly bear, gray wolf, bison, elk, and pronghorn (Miller 1989). In addition to lava tubes, lava blisters have also accumulated a faunal record. The openings create an excellent



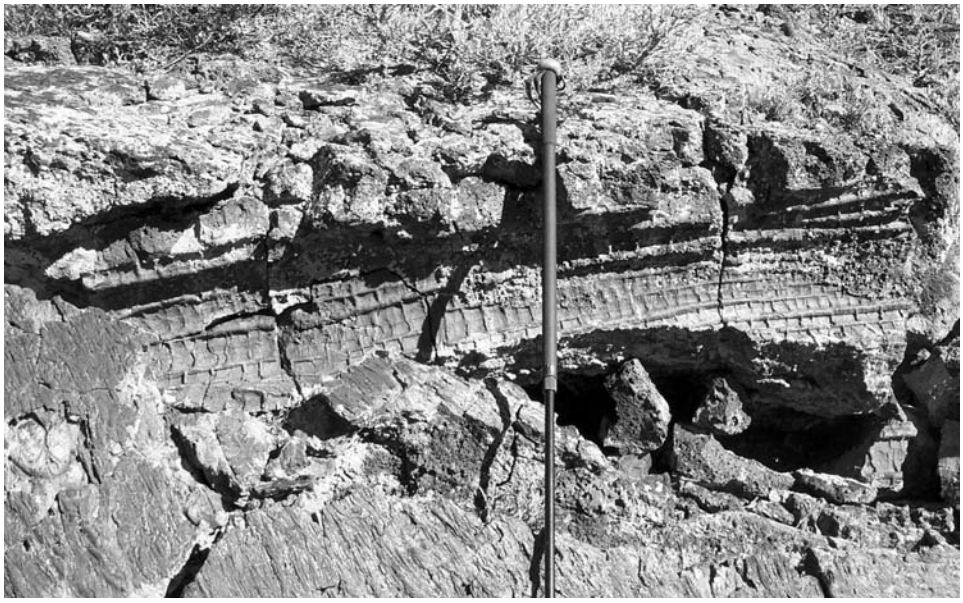


Photo above. Vertical tree nol on left is 8 feet deep and over 1 foot wide; horizontal tree nold on right is almost 2 feet wide. Photo on right. Mold of charred wood: hiking staff for scale.

trap for larger animals. Carnivores found in these blister traps on the ESRP include the now extinct noble marten and animals no longer found in the area such as bison, wolverine, and Canada lynx (Miller 1989).

A third type of unaltered fossil accumulation occurs in packrat nests. These nests, or middens, are an important contributor to the fossil record because of the ability to date the pollen and bone assemblages and relate that information to the paleoecology of the area.

SOILS

The soils of the Monument area are variable, reflecting the differences and interactions between parent material, topography, vegetation, climate, and time. The most significant differences involve the presence or absence of lava flows and the degree of soil development on volcanic substrates. The lava flows, which occupy two-thirds of the Monument, are made up of basalt lava rock. The soils on the younger basalt flows and cinder beds are limited to the initial decomposition of rock and cinders and deposition of windblown loess within crevices, cracks, and fissures. Plants can establish and grow in little to no soil. As time progresses, soil development continues and more vegetation establishes.

Sagebrush steppe, mountain areas, and kipukas within the Monument have deeper, well-formed soils. The high desert environment results in lighter colored soils with low organic matter content. Most of the soils in the Monument area are silt loam to sandy loam in texture and vary in depth. They are moderately drained to well drained, except where clay horizons are present. Soils that are disturbed, not properly vegetated, or located on steep slopes are susceptible to water and wind erosion.

Soil Origins

The soils in the Monument and surrounding area have developed from rocks deposited during a sequence of geologic events that began almost 600 million years ago, during the Cambrian Period. For approximately 500 million years, ancient seas intermittently covered the region, depositing limestone and other sedimentary rocks typical of ocean floors (Shallat and Burke 1994). Beginning about 17 million years ago, fault block mountain building has pushed up the rocks, exposing them to weathering and soil development processes. The many mountain ranges in the Basin and Range Province have developed in this way. Recent earthquake activity is evidence that these mountain-building processes continue today.

During the latter part of the Tertiary Period, from about 16 million years ago, until recently in the Yellowstone area, explosive volcanic activity across the Snake River Plain deposited layers of pyroclastic tuffs and silica rich lavas. More recent basalt lava flows and windblown loess have subsequently covered these rhyolite rocks. The basalt flows that are visible on the surface of the majority of the Snake River Plain began approximately 2 million years ago, during the Pleistocene, and continued until very recent times.

The lava flows on the Snake River Floodplain are approximately 1 million years old (Anderson et al. 1996). This volcanic activity built up the central part of the plain, forming some internally drained basins within, such as Big and Little Lost River sinks.

During recent times, the region has periodically received layers of windblown dust from sources fur-

ther west. These loess deposits have mantled the local geology and have resulted in many of the deeper soils on the eastern Idaho foothills and the leeward sides of lava flows within the Snake River Plain.

Soil Types

Soil surveys have been completed and published by the Natural Resource Conservation Service (NRCS) for most of the Monument outside of the recent lava. Other portions of the area have been partially mapped at different times by the Bureau of Land Management (BLM) in the late 1980s and 1990s. Many of the soils surveys are now in Geographic Information System (GIS) form, where they can be viewed in Arcview and other GIS software.

Soil types in the Monument fall into the following categories:

- **Soils of the Mountains and Foothills** – These soils are located primarily in northern part of the Monument. They have developed in mixed metamorphic and/or volcanic shallow, rocky material and have carbonate accumulations at depth. Typical vegetation includes sagebrush mountain shrubs and tree types found native to eastern and southern Idaho.
- **Soils of Alluvium from the Mountains and Streams** – These soils have developed in lime-rich alluvial materials eroded from the mountains on the Snake River Floodplain and streams. Typical shrub vegetation includes mountain or Wyoming big sagebrush, low sagebrush, and occasionally some basin big sagebrush.
- **Shallow Basalt Soils** – This is a complex of soils developed on the recent basalt flows. Due to the uneven, broken surface of the basalt, soil depths range from a few inches on exposed ridges to 6 or 8 feet on the lee sides of the ridges and in low-lying areas. The type of vegetation varies depending on soil depth and may include various types of shrubs including fern-bush, syringa, and mountain big sagebrush, with some low and Wyoming big sagebrush.
- **Loess Soils** – The loess soils are from glacial Snake River silts and lacustrine materials that have been windblown out of the Snake River drainage. Typical shrub vegetation includes mountain big sagebrush, Wyoming big sagebrush, basin big sagebrush, or some threetip sagebrush.
- **Sandy Soils and Playa Lake Bottoms** – These soils have formed in alluvial and eolian accumulations usually near dry lake bottoms. The sands have weathered from quartzite, basalt, and sedimentary rocks, generally of local origin (Nace et al. 1975). Typical shrub vegetation includes basin big sagebrush or Wyoming big sagebrush.
- **Cinder Soils** – This is a complex of soils mapped by NRCS and particular to cinder cones and deposits located within the Monument. Soils within this complex consist of varying ratios of cinder and eolian loess accumulations. Typical vegetation includes dwarf buckwheat, antelope bitterbrush, mountain big sagebrush, and limber pine.

Biological Soil Crusts

Biological soil crusts are a feature common to nearly all plant communities in arid and semiarid regions throughout the world (Belnap et al. 2001). The development of biological soil crusts is dependent on a number of factors, including soil texture and chemistry, annual precipitation amount and timing, associated vegetation, and disturbance history. Biological soil crusts have not been observed as a highly conspicuous element in the Monument, which could be due to any one of these elements.

Soil textures in the Monument range from fine- to coarse-textured, with silt loams and sandy loams being predominant in areas where biological soil crusts are most likely to occur. Coarse-textured soils are more difficult for biological crusts organisms to stabilize due to the size of the particles. While crusts occur on soils with a variety of chemical natures, they tend to be highly developed on soils with basic pH and that are more saline or calcareous. Mosses are often a dominant organism on soils with neutral to acidic pH. Annual precipitation in the Monument averages from 8 to 16 inches. Areas with approximately 14 inches of annual precipitation have vegetation of a density where crusts are no longer needed to stabilize the soil surface.

The presence or absence of biological soil crusts on the Monument landscape depends on a variety of environmental factors as well as land use and fire history. While several BLM-administered areas and some kipukas in the Monument do not show good development of biological soil crusts, more areas, particularly in the drier southern portions, need to be investigated to determine the potential for crusts development. For example, areas with non-sprouting

basin and Wyoming big sagebrush need to be compared with similar areas supporting the re-sprouting threetip sagebrush to determine if areas with a naturally shorter fire cycle (as indicated by the re-sprouting shrub) might have less potential for crust development than areas with longer historic fire return intervals.

VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND FIRE MANAGEMENT

Although some of the younger lava flows are devoid of vegetation, there is a surprising diversity of plants and plant communities in the Monument. The type and density of vegetation varies widely, depending on the availability of soil. The lavas and kipukas (islands of vegetation surrounded by younger lava flows) show a full range of ecological succession – from pioneer plants, such as lichens and mosses on the basalt surfaces, to complex plant communities in the kipukas and rangelands bordering the lava flows. The rough topography of the lava flows creates numerous microsites where soil and water accumulate to support plants that would normally occur in higher precipitation zones.

Limber pine stands occur on the cinder cones and lava flows in the northern part of the Monument. The transition between limber pine and juniper vegetation types occurs between Blacktail Butte and the original Monument. This ecotone normally occurs only in montane regions and is thus an unusual feature for the lava flows (BLM 1980). Quaking aspen and Douglas fir stands are found on some north-facing slopes in the northern portion of the Monument. Riparian and wetland habitats are limited to the northern periphery due to the geology, topography, and climate of the area.

Early successional plant communities on the cinder cones produce stunning spring wildflower displays. A areas with greater soil development support the sagebrush steppe vegetation that typifies the Snake River Plain. Sagebrush steppe is found on approximately 60 percent of the Monument and covers the more developed soils of the rangelands, kipukas, cinder cones, older lava flows, and the foothills of the Pioneer Mountains. This once was the most common vegetation throughout the Snake River Plain, as well as in the Intermountain West and Upper Columbia River Basin. However, fire, agriculture, and livestock grazing have modified composition and reduced the extent of this vegetation type throughout these regions (Blaisdell et al. 1982; Whisenant 1990; Bunting et al. 2002).

Some of the kipukas and portions of the original Monument have not been grazed by domestic livestock and have seen little in the way of other human-related disturbances. Thus, these areas, which are protected by new, rough lavas, offer some of the best remaining examples of native sagebrush steppe for the Snake River Plain. They are valuable as examples of range conditions before European-American settlement and the introduction of domestic livestock, and they offer an opportunity to observe climax vegetation, as well as successional processes associated with natural disturbances such as fire.

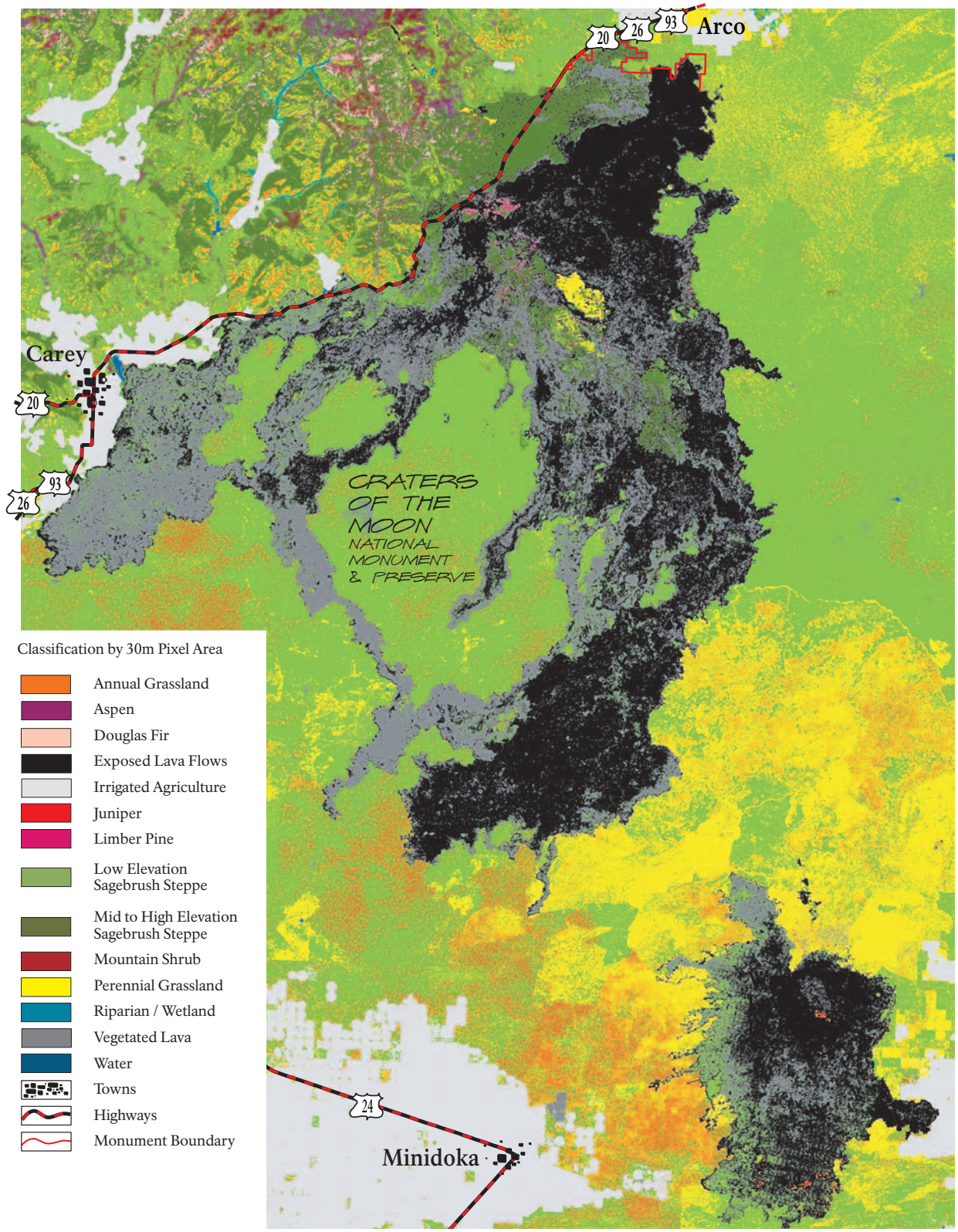
Vegetation in the original Monument and parts of the expanded Monument has been inventoried and mapped through various efforts (Day and Wright 1985; Whipple 1992; Jurs and Sands 2003). A recent vascular plant inventory effort estimates the presence of more than 600 species and at least 35 vegetation communities within the Monument (NPS, unpubl. data). The current vegetation map of the Monument was created with the use of LandSat imagery.

Data from the various vegetation studies, as well as inventory and monitoring points, were used to define spectral signatures. Vegetation inventory and ground-truthing of the map are ongoing; the vegetation map is a dynamic resource. This map, which is relatively broad in scale, is intended to provide a frame of reference for vegetation distribution and diversity within the Monument. The following discussion describes complexes that group and define the various vegetation types illustrated on the map.

Vegetation Types in the Monument

–Vegetated Lava Complex

Exposed lava flows are the newest lava flows or rough A'a flows that are mostly devoid of vascular plants; however, lichens and mosses are frequently present. Based on statewide Gap Analysis of Idaho Land Cover from 1996, approximately 20 percent of the Monument is exposed lava flows and 33 percent is vegetated lava (Landscape Dynamics Lab 1999). Vegetated lava is defined as lava fields with greater than 5 percent total vegetative cover, with plants occurring as islands, pockets, or clustered individuals in the lava flow. The vegetated lava complex mainly consists of early successional and adaptable plants that grow in the limited soil that blows into the cracks and fractures on young basalt rock.



No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

FIGURE 12
Vegetation Type Classification
Craters of the Moon National Monument & Preserve
U.S. Department of the Interior / National Park Service
DSC • Feb 04 • 131 • 20,049

The type of lava and the amount of soil determine the type and density of vegetation. Penstemon and gland cinquefoil grow in shallow soils, while fern-bush, rock spirea, and syringa are present in deeper crevices. Trees, such as limber pine in the north end of the Monument and juniper in the south end, also grow in crevices and cracks where sufficient moisture is funneled and retained. These trees may grow as scattered individuals or as small woodlands. Antelope bitterbrush, rabbitbrush, and sagebrush can also be found (up to 15 percent vegetative cover) where more soil development or deposition has occurred.

– Sagebrush Steppe Complex

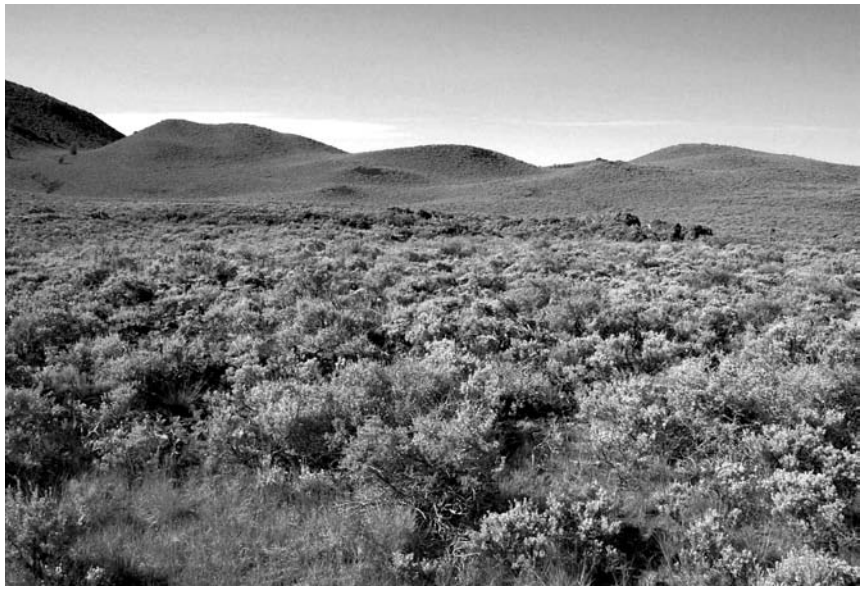
Sagebrush steppe, which is the dominant vegetation in the Monument, includes all areas where adequate soil deposition or development has occurred to allow sagebrush taxa and associated shrubs with a bunchgrass understory to dominate. Due to the drastic reduction of sagebrush steppe in southern Idaho by cultivation, fire, and weed invasion (Hironaka et al. 1983), some of the sagebrush communities in the Monument are the best remaining examples of this vegetation type on the Snake River Plain.

The sagebrush steppe appears to be a monotonous landscape; however, there is a remarkable diversity of plant and community types. Many factors influence the diversity, density, cover, distribution, and health of this high desert sagebrush steppe, including differences in soil depth and development; the precipitation gradient ranging from 8 to 16 inches; the elevation gradient ranging from 4,000 to 7,500 feet between the southern and northern ends of the Monument; historical and current land management; invasive species; and fire frequency. In turn, vegetation structure and composition influence the ability of the community to resist invasive species infestation; its susceptibility to, as well as recovery from, fire; and land management goals, decisions, and practices imposed upon the landscape.

Sagebrush steppe vegetation in the Monument occurs over an elevational gradi-







Top photo - Lava vegetated with sagebrush and fern-bush. Photo center - Vegetated lava complex. Photo below - Low-elevation sagebrush steppe.

ent and is dominated largely by three subspecies of big sagebrush – mountain big sagebrush, basin big sagebrush, and Wyoming big sagebrush – as well as threetip sagebrush. The Mid- to High-Elevation Sagebrush Steppe vegetation type is generally defined by the presence of mountain big sagebrush and antelope bitterbrush, which occur in the higher elevation areas of the northern Monument that are colder and receive more precipitation. Low sagebrush is also found in this vegetation type, occurring in a mosaic with mountain big sagebrush.

The Low-Elevation Sagebrush Steppe vegetation type is defined by basin and Wyoming big sagebrush and threetip sagebrush, although these may overlap to some extent with the mid-elevations. Both basin and Wyoming big sagebrush are adapted to the hot, seasonally dry conditions of the Snake River Plain. Basin big sagebrush communities occur in pockets of deeper, more fertile soils. Wyoming big sagebrush communities tend to be found in shallower soils and can be found intermixed with basin big sagebrush.

Threetip sagebrush is widespread throughout the Monument, particularly in areas burned within the last 20 years. Threetip sagebrush is the only sagebrush found in the Monument that re-sprouts following fire. Both the Low- and Mid- to High-Elevation Sagebrush Steppe vegetation types contain other common shrubs such as antelope bitterbrush, rubber rabbitbrush, and green rabbitbrush.

Understory components in the sagebrush steppe complex vary widely in type and abundance, but common species include Sandberg bluegrass, Idaho fescue, needlegrasses, bluebunch wheatgrass, and the exotic annual cheatgrass. Forbs such as buckwheats, arrowleaf balsamroot, lupine, phlox, and milkvetches are also commonly found growing in these vegetation types. Both diversity and abundance of herbaceous plants increase with increasing elevation and moisture in the Monument.

The reduction of large tracts of sagebrush through increased size and frequency of wildfires is a concern in the area. Less obvious is the loss of native understory plants, particularly native bunchgrasses that are valuable components to the ecosystem. Plants such as bluebunch wheatgrass and Idaho fescue may not be resilient under conditions of closed shrub communities, frequent fire regimes, cheatgrass invasion, altered climate or site conditions, or excessive grazing. The reduction in these native species by one factor increases their susceptibility to other factors. Once native understory species are excluded, they are very difficult to reestablish (Hironaka et al. 1983).

The variation of sagebrush steppe communities influences the multiple values and uses of this landscape in the Monument. These areas are valued as crucial winter range habitat for mule deer and pronghorn, essential habitat for sagebrush-obligate wildlife such as sage grouse, important watersheds, sources of forage for livestock, and enjoyable recreational sites. There is a range of conditions, primarily due to relative isolation and past and present land uses.

The Monument contains more than 500 kipukas, many of which contain relatively undisturbed native sagebrush steppe communities. Fire, livestock grazing, recreation, or cheatgrass invasion has altered some of the kipukas; however, other kipukas in the Monument have been protected from access and buffered by rough lavas. The abundance and condition of resources within most these kipukas is undocumented and relatively unknown. However, for those kipukas that have been documented and studied, it is clear that these unique islands of nearly pristine native vegetation are important rangeland and scientific benchmarks (Henderson and Murie 1958; Yingst and Handy 1961; Tisdale et al. 1965; Caicco and Wellner 1983a, 1983b, 1983c).

The Monument also includes parks. Laidlaw Park, Paddelford Flat, and Little Park technically meet the definition of a kipuka, but are referred to as "parks" due to their larger size, accessibility, and land use. There is road access to and within these parks, and livestock grazing is a current and historical use. All three parks contain the Low-Elevation Sagebrush Steppe vegetation type, as well as areas dominated by annual and perennial grasslands. The abundance of native species and the quality of these sagebrush steppe communities depends mainly on management practices and cumulative effects of environmental responses. For example, the northern parts of Laidlaw Park have not been overgrazed; retain sufficient native under-

story and sagebrush; and support big game as well as sage grouse. However, historic overgrazing, frequent wildfires, Aroga moth infestations, cheatgrass invasion, and noxious weeds have negatively affected the southern portions of Laidlaw Park. In addition, the southern part of the park receives slightly less rainfall than the northern part, making it less resilient to disturbance (Jurs and Sands 2003).

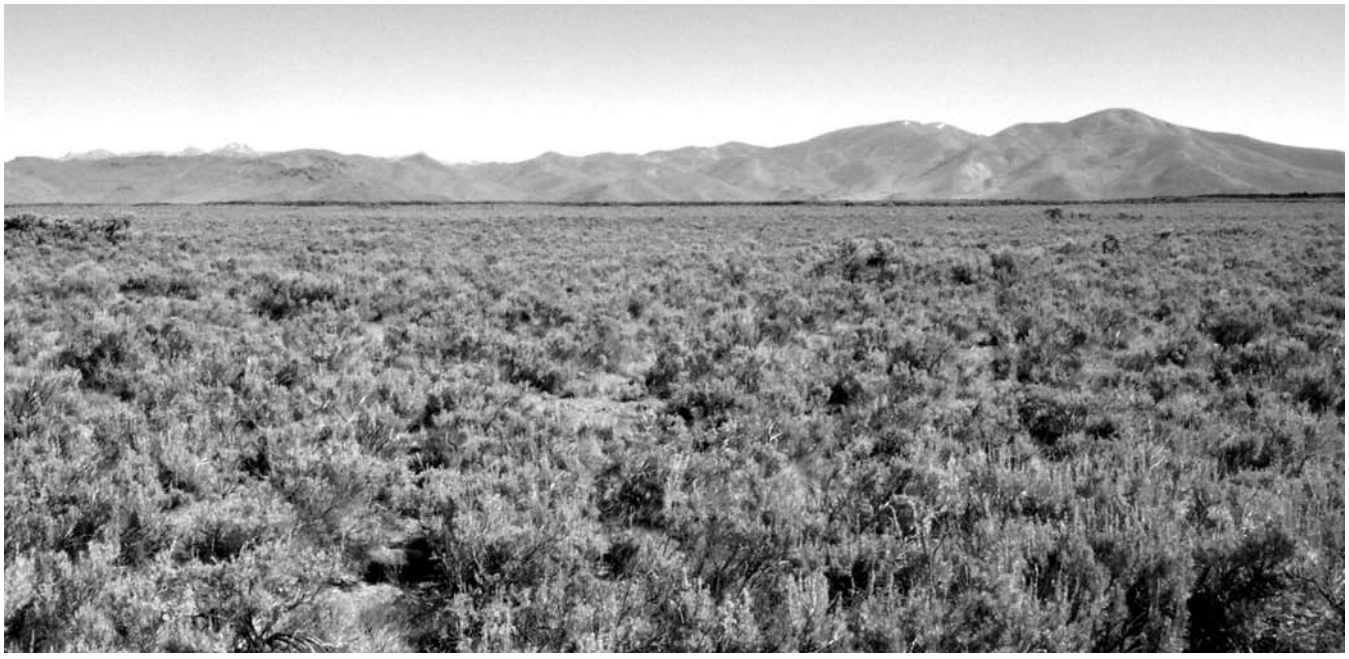
– Grasslands Complex

The Perennial Grassland vegetation type is dominated by native or introduced perennial grasses. Historically, these grasslands were part of the sagebrush steppe complex and formed as a result of disturbance, primarily through fire. Shrubs would eventually reinvade perennial grasslands if they remained unburned for several decades. In most cases, fire is the main cause of shrub removal. Some shrubs such as mountain big sagebrush, threetip sagebrush, rubber rabbitbrush, and green rabbitbrush are able to re-sprout or reestablish within a short time (10 years). However, Wyoming and basin big sagebrush must regenerate from seed and can be slow to reestablish after fire. The Annual Grassland vegetation type is the result of altered disturbance regimes, such as soil surface disturbance or frequent fires in areas with long natural fire return intervals. The primary component is cheatgrass, the exotic species that perpetuates short fire-return intervals and conditions that maintain its dominance.

In many cases, microsite conditions have often been altered to the extent that native grasses are unable to effectively compete with cheatgrass and noxious weeds. Under these conditions, managers revegetate burned areas by seeding perennial vegetation to prevent the establishment of annual grasslands. In areas where altered site conditions and high competition from exotic species exist, select cultivars of introduced and native perennial grasses and forbs are used to rehabilitate burned areas. Some of the species seeded in rehabilitated areas are crested or Siberian wheatgrass, Snake River wheatgrass, tall wheatgrass, big bluegrass, and Sandberg bluegrass. Forbs such as blue flax, sainfoin, and alfalfa have also been seeded. Exclusively native plant seedings have also been conducted to a limited extent. Both the National Park Service (NPS) and BLM encourage the use of native species for restoration and rehabilitation efforts.

– Mountain Complex

The complex of mountain vegetation occurs at the far north end of the Monument in the



Perennial grassland resulting from the 1992 Potter Butte Fire.

foothills of the Pioneer Mountains. This complex covers less than 1 percent of the Monument, but it includes vastly different and important habitat types that contribute to its diversity.

Five vegetation types are included in this complex. The Douglas fir type is found on relatively steep, north-facing slopes of older cinder cones and along Little Cottonwood Creek. The Aspen type is predominantly found in upland sites away from permanent stream courses. The Riparian type is characterized by dense woody vegetation such as black cottonwood, chokecherry, willow, alder, and a dense layer of tall forbs close to permanent watercourses. The Mountain Shrub vegetation type includes communities dominated by mountain big sagebrush, low sagebrush, and mountain snowberry that occupy slopes and ridges of the Pioneer Mountains. The Wetland type predominantly occurs along the periphery of the Monument where this vegetation is supported by cold water and thermal springs, small lakes, playas, and pools.

Human-based activities (e.g., water right diversions, livestock grazing, thermal spring recreation), in the past and present, have degraded the Riparian and Wetland types. For example, NPS water right spring diversions in Little Cottonwood Creek, facility development, and maintenance activities may have altered the plant species composition and influenced the spread of Canada thistle. NPS facilities recently converted to well water and reinstated full spring flow to Little Cottonwood Creek.



Dwarf Monkey Flower

– Cinder Cone Complex

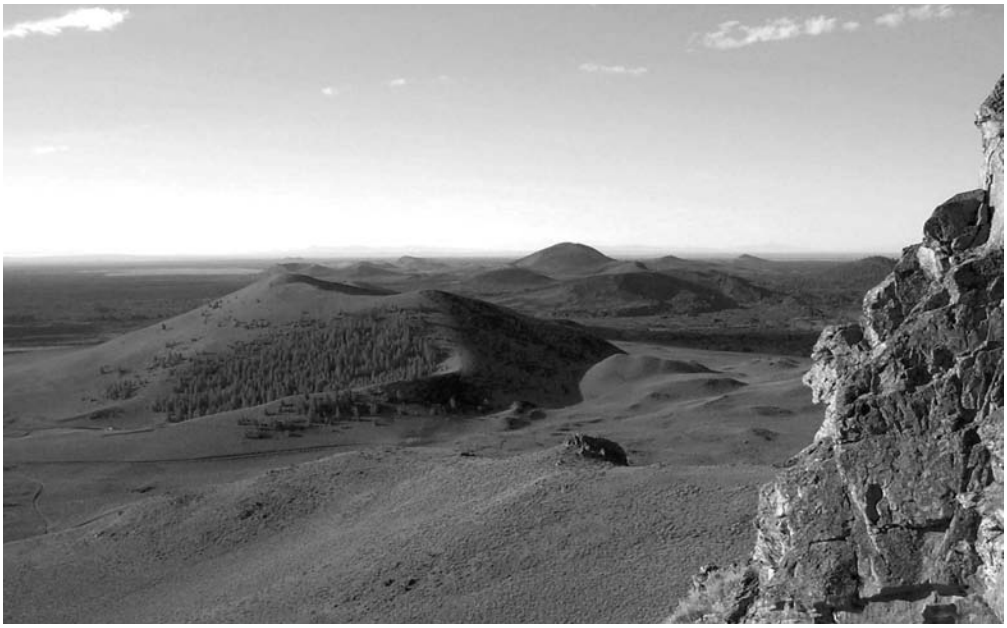
This complex is located in the north end of the Monument, south of the highway, where many cinder cones are present. This area is mapped primarily as the Vegetated Lava, Limber Pine, and Mid- to High-Elevation Sagebrush Steppe types. The cinder cone complex includes three different plant communities, depending on aspect, soil development, and successional stage. Less than 1 percent of the Monument is cinder gardens. Cinder gardens occur on cinder deposits with little to no soil development. These communities produce spectacular spring wildflower displays and are dominated by dwarf buckwheat, scorpion weed, Douglas chaenactis, dwarf monkeyflower, and bitterroot. As soils develop on the cinders, antelope bitterbrush dominates newly establishing mid- to high-elevation sagebrush steppe communities.

The Limber Pine type is present on north-facing slopes where sufficient moisture is available. Limber pine stands with antelope bitterbrush understory provide valuable wildlife



Mountain vegetation complex north of the highway.

habitat and are used by mule deer for fawning. Attempts were made in the 1950s to eradicate native dwarf mistletoe from the limber pine population. More than 6,000 trees were cut or poisoned until managers realized that limber pine and mistletoe had coexisted for thousands of years. The effects of this action have not been studied and are not understood; however, there was a change in the population and age structure of the limber pine forest (Blakesley and Wright 1988).



Cinder Cone Complex

– Nonvascular Plants

Mosses, liverworts, lichens, and fungi are vegetative life forms that have been historically overlooked in the Monument flora due to their inconspicuous nature. These organisms occur to some extent in every vegetation type occurring in the Monument and are commonly observed on exposed lava. This large group of organisms has been studied to some degree in other areas, but limited information exists for the Monument area specifically. Nonvascular plants perform a number of ecologically important functions – they actively decompose detritus, break down rock, and add structure and nutrients to the soil. They are important components of the functioning ecosystem and also serve as environmental quality indicators.

Noxious and Exotic Species

Ten species of weeds designated as noxious by Idaho State Law (State of Idaho 2001) have been identified in the Monument: spotted knapweed, diffuse knapweed, Russian knapweed, rush skeletonweed, leafy spurge, Canada thistle, musk thistle, Scotch thistle, dalmatian toadflax, and field bindweed. Disturbed areas such as road rights-of-way, intensively grazed areas, and burns are particularly susceptible to invasion by exotics; consequently, most of the noxious weeds are found specifically in these areas. No noxious weed infestations have



Diffus knapweed, a state-listed noxious weed occurring in the Monument

currently been documented on the few inventoried kipukas in the Monument.

Spotted knapweed and diffuse knapweed have been documented extensively along U.S. Highway 20/26/93 along the northern extent of the Monument. More than 200 infestations of these knapweeds occur along the highway within Monument boundaries. NPS mapped and treated these locations in 2001 and 2003 as a partner in the Lost Rivers and Blaine County Cooperative Weed Management Areas. Spotted and diffuse knapweeds have also been documented and treated in Paddelford Flat and Laidlaw Park, along the west and east edges of the Monument, respectively.

Rush skeletonweed has been reported in approximately 10 locations in Laidlaw Park and the west side of the Monument; approximately 18 locations have been documented in the Bear Trap Cave and Kings Bowl vicinities along the east side of the Monument. Many observations of this species have not been documented. This weed also takes advantage of disturbed soil and spreads primarily by seed. It is reported to be the most invasive (rapidly spreading) noxious weed in recent years within the Monument.

Leafy spurge has been documented in the west part of the Monument as small, scattered sites within the sagebrush steppe and vegetated lava (Carey Lava Field). It has also been recently documented in the group campsite north of the highway. Large infestations are known to exist along the west edge of the Monument in the Carey area and in the Monument Butte and Sand Butte vicinities. These large infestations have increased the potential for further introduction and spread onto the Monument via bird, deer, livestock, and vehicles. BLM is continuing a successful 10-year control program specifically developed to address infestations on lava-based terrain.

Thistles are found in scattered locations in the North Unit, Laidlaw Park, and along the west and east edges of the Monument. Approximately 75 total infestations have been documented for all three noxious thistles.

Both BLM and NPS have initiated integrated noxious weed programs. Efforts to control these species are in effect, including the use of mechanical and spray techniques, as well as limited use of biological control agents. The priority species discussed have been targeted specifically for mapping, treatment, and prevention programs. Education and public awareness are emphasized by both agencies. Involvement in Cooperative Weed Management Areas has resulted in strong community commitment and cost-effective management of noxious weeds.

Other invasive exotic species, such as cheatgrass, are as much of a concern as state-listed noxious weeds. Cheatgrass, a common and widespread invader throughout the West, was introduced in the early 1900s when domestic sheep grazed the area. Cheatgrass is extremely competitive and readily invades and dominates disturbed land. It can be a component of undisturbed or otherwise healthy sagebrush. For example, cheatgrass has been documented in several kipukas that lack a history of common human disturbances such as livestock grazing. This annual grass out-competes native vegetation and perpetuates a frequent fire regime, which further discourages the regrowth of native species and encourages more cheatgrass. This has been a key management concern for BLM and has driven the development of more effective disturbed land rehabilitation and restoration techniques. Approximately 80,000 acres of annual grassland and low-elevation sagebrush steppe dominated by cheatgrass have been identified in the Monument as needing management intervention to restore functional sagebrush communities.

BLM and NPS have implemented nationwide policies against invasive and harmful exotic species. All the species mentioned in this discussion have been targeted for eradication or control.

Fire and Vegetation

Between 1970 and 2002, approximately 300,000 acres (approximately 40 percent of the Monument) have burned in wildfires within the boundary of the expanded Monument, primarily on BLM-administered land. Peak fire years occurred in 1971 (29,000 acres), 1981 (22,000 acres), 1992 (61,000 acres), 1996 (31,000 acres), and 1999 (87,000 acres). Extensive acreages outside of and adjacent to the Monument also burned during this period. About half of Laidlaw Park and Paddelford Flat and nearly all of Little Park have remained unburned in the last decade. Relatively small fires have burned on vegetated lava and in kipukas, notably Little Prairie in 1992 (1,900 acres) and Echo Crater in 2000 (632 acres). Overall, fires within the original NPS Monument boundaries represent only 8 percent of the total area burned since 1970.

As previously noted, fire plays a key role in determining the diversity and condition of vegetation communities. Large tracts of sagebrush have been lost due to extensive wildfires, and fires have perpetuated



Fire in low-elevation sagebrush steppe dominated by cheatgrass

exotic annual grasslands. However, fire also plays an important role in the maintenance of some vegetation types, including aspen and mountain shrub.

Native Americans historically used fire to manipulate vegetation and wildlife (Williams 2001). Since the mid-1800s, sheepherders used fire in the Monument to reduce shrub cover and encourage herbaceous plant growth. Good fire records prior to 1950 are not available; however, traditional practices throughout southern Idaho are known to have included the use of fire to eliminate sagebrush and promote grass growth. In 1982, the BLM proposed to burn approximately 19,000 acres to break up continuous tracts of sagebrush, create more diverse wildlife habitat; reduce fuel loads; and improve forage for domestic livestock and wildlife (Saras 1982). The burning of approximately half of this acreage was accomplished by 1992, at which time large wildfires occurred in the area and the use of prescribed fire was curtailed. The use of prescribed fire was reinitiated in 2001, when small areas within the Monument (part of larger projects near the southern boundary) were burned to reduce cheatgrass, in conjunction with herbicide and seeding treatments.

The length and timing of the fire season is highly dependent on annual weather and fuel conditions. Generally, the season can extend from mid-May through mid-October. Warm, dry, and windy weather associated with thunderstorm cells can result in lightning activity with or without rain. Ignition of vegetation can occur from natural sources, primarily lightning, or from human sources such as vehicles, campfires, or cigarettes.

Areas most at risk for large, destructive wildfires are the rangelands in the southern part of the Monument where fuel loading is high due to an abundance of cheatgrass in the understory. Ignitions on vegetated lava are rare; however, there is a risk that fires near the edge of the lava can lie low for a period of time and then ignite adjacent rangelands if weather conditions become hot or windy. Fires in kipukas remain localized and small, because the surrounding lava limits spread.

The northern end of Laidlaw Park, in particular, and other isolated areas in the Monument contain good examples of sagebrush steppe vegetation, which could

potentially be lost or degraded by invasive or noxious weeds following a fire. In areas of the Monument north of the highway, mountain shrub, aspen, and Douglas fir communities might benefit somewhat from fire; however, watershed protection in Little Cottonwood Creek (which provides potable water in the Monument) and the protection of research and group campsite facilities necessitate aggressive suppression.

Fire management in the Monument is directed by the current BLM Land Use Plans, Fire Management Plans for the east and west zones of the Upper Snake River District, and the NPS Craters of the Moon National Monument Wildland Fire Plan within the original Monument boundaries (USDI NPS 2000). Under these plans, all wildfires are suppressed except for naturally ignited fires in designated wilderness, which may be managed for resource benefit (also known as wildland fire use).

Fire suppression responsibility is currently delegated to the BLM South Central Idaho Fire Management Officer by the NPS Superintendent. A Mutual Aid Agreement authorizes the suppression of fire on NPS-administered lands by the BLM. Fire management priorities are focused on public and firefighter safety, protection of structures and other infrastructure, maintenance of air and water quality, and protection of plant and animal communities. Suppression methods include ground attack using light and heavy engines, dozers, and hand crews and air attack using fixed-wing or helicopter units and retardant or water. The use of mechanized equipment in NPS Wilderness is prohibited and is limited in Wilderness Study Areas (WSAs) by BLM Wilderness Interim Management Policy, but such use can be authorized by the appropriate manager to prevent the loss of critical resources.

– **Fire and Related Vegetation Management**

Federal wildland fire policy (USDI and USDA 1995; USDI et al. 2001; USDI 2003) focuses on protecting sensitive resources while using fire along with other treatments (such as herbicides and seeding) to achieve desired future conditions for vegetation resources. Currently all federal land management agencies are implementing, or preparing to implement, this policy through a Cohesive Strategy (Laverty and Williams 2000). This strategy presents guidelines for reducing wildland fire risk to human communities and to restore and maintain ecosystem health within fire-prone areas. The Cohesive Strategy is based on the concept of restoring vegetation composition and structure (and thus fire regimes) to historical levels. As part of this process, three Fire Condition Classes (FCC1 through 3) have been identified to help clarify the degree to which a particular vegetation community departs from its historic fire regime, as described below:

- **FCC1** represents low departure from the historic fire regime. Key ecosystem components include a healthy mosaic of various successional stages for each vegetation type. For example, these components would include sagebrush steppe communities with native perennial grass and forb understories, or aspen or Douglas fir communities with trees of variable age, openings to allow tree regeneration, and an abundance of understory grasses and forbs.

- **FCC2** represents moderate departure from the historic fire regime, resulting in some risk of more frequent fire return intervals and/or greater levels of severity.

- **FCC3** represents high departure from the historic fire regime, resulting in high risk of resource loss due to frequent fire return intervals and/or high levels of severity. An example of FCC3 is an area that was formerly low-elevation sagebrush steppe that is currently dominated by an understory or monoculture of cheatgrass.

Currently, several vegetation types within the Monument are in FCC2 or FCC3, with the exception of plant communities on lava (Table 9). The Cohesive Strategy seeks to restore fire to its historic role in ecosystems through managing fire, fuels, and vegetation in order to return areas that are in FCC2 and FCC3 to the FCC1 class. It encourages proactive treatments to reduce fuels and restore plant community structure. These treatments can include prescribed fire, thinning, mowing, herbicide treatments, and seeding.

Similar efforts may also follow unplanned wildland fires through emergency stabilization or rehabilitation (ESR) treatments, which can

Table 9
Approximate acreage of each vegetation type in the Monument and percentage that occurs in each Fire Condition Class

Vegetation Type	Approximate Acreage in Monument	% FCC1	% FCC2	% FCC3
Low-Elevation Sagebrush Steppe	157,000	40	20	40
Annual Grassland (exotic)	31,000	0	0	100
Perennial Grassland (seeding and native)	153,000	10	90	0
Mid-Elevation Sagebrush Steppe	9,400	0	100	0
Lava (bare and vegetated)	399,000	100	0	0
Mountain Shrub	400	50	50	0
Aspen	60	0	100	0
Conifer (Douglas fir)	140	50	50	0
Riparian	670	90	10	0

stabilize burned areas against erosion by wind or water, prevent the dominance of invasive or noxious weeds, and reestablish desirable perennial vegetation. ESR treatments are most commonly required on sites with highly erosive soils and areas in FCC3, and such treatments may be needed in areas in FCC2. The need for post-fire ESR is determined case by case, and Emergency Stabilization and Rehabilitation Plans are prepared in accordance with the Interagency Burned Area Emergency Stabilization and Rehabilitation Handbook, Department of the Interior Manual, and supplemental guidance by the BLM and NPS (http://fire.r9.fws.gov/ifcc/Esr/Handbook/Default.htm).

Special Status Plants

The Monument also provides habitat for two state- and BLM-designated special status plants. Special status plants are those listed under the federal Endangered Species Act (ESA), plus species recognized by Idaho and BLM as sensitive. All species identified as sensitive by BLM must be managed proactively by BLM to protect these species, and NPS strives to manage its land to protect any federally listed, state-listed, or special status species.

The Idaho Native Plant Society (INPS) and Idaho Department of Fish and Game (IDFG) Conservation Data Center (ICDC) meet annually with state and federal agencies to review the status of plants considered to be globally, state, or locally rare. The resulting list is used to determine which species, if they lack federal protection under ESA, require or would benefit from protection at a local or regional level.

Many of the plant communities in the Monument have undisturbed, relict, or pristine conditions or are excellent examples of a specific or even rare habitat type. The areas designated as Research Natural Areas (RNAs) are discussed later in this chapter.

There are no proposed or listed threatened or endangered plants known within the Monument. Potential habitat for Ute ladies, tresses (Spiranthes diluvialis), a federally listed threatened plant species, may exist throughout Idaho. Ute ladies, tresses, an orchid, occurs in moist to mesic sites associated with wetland and riparian areas, including springs, wet meadows, and river meanders. The plant is known to occur at sites ranging from 1,500 to 7,000 feet in elevation. This species generally flowers from mid-August through September in the Intermountain Region and can be identified definitively only at that time. Marginal, potential habitat for Ute ladies, tresses is limited to very small wet meadows associated with creeks and springs in the north part of the Monument.

Surveys for Ute ladies, tresses have been conducted in the past by ICDC botanists (Murphy 2002a) and were again performed in September 2002 by NPS and BLM botanists. No orchids were located as a result of these surveys. Although potential habitat is marginal, these areas will be revisited in the future, because the orchid can remain dormant for several years.

Two BLM sensitive plants are known to occur within the Monument. These species and their associated habitats are summarized in Table 10. Obscure phacelia (Phacelia inconspicua) is one of Idaho,s most rare plants, with only six occurrences (population areas) known statewide. This species is also listed as endangered in Nevada. It occurs on north- and east-facing slopes of volcanic-based mountains and buttes. Picabo milkvetch (Astragalus oniciformis) is narrowly endemic to stable, sandy soils in the north-central portion of the ESRP, near the foothills of the Pioneer Mountains.

Table 10
Vegetation Habitat Characteristics and Location Information for Special Status Plant Species Occurring in the Craters of the Moon National Monument and Preserve

NAME	HABITAT	LOCATION	SOILS	COMMUNITIES
Obscure phacelia (*Phacelia inconspicua)* (Murphy 2002)	Northeast- to east-facing aspects on basaltic and rhyolitic buttes and foothills. Elevation ranges from 5,390 to 6,200 feet. Concave, lower to mid-slopes below the rimrock of butte tops or foothill ridgetops. Slopes are generally moderately steep (averaging about 32 percent), although some populations occur on nearly flat, sheltered terraces. The micro-topography is often undulating due to numerous large boulders and stones deposited from the rimrock or ridges above. *Phacelia* grows in the depressions between boulders. Typi cally grows in small gaps (1 to 5 m^2) within shrubby vegetation in partially shaded microsites to full sunlight. Often grows on disturbed soil associated with older cattle trails, native ungulate trails, and gopher diggings. Subpopulations occupy transitional areas between mesic, dense vegetation dominated by *Populus tremuloides* (quaking aspen), *Prunus virginiana* (chokecherry), or *Lymus cinereus* (Great Basin wildrye), and open, xeric vegetation dominated by *Artemisia ridentate* ssp. *Vaseyana* (mountain big sagebrush) with *Purshia ridentate* (bitterbrush), *Pseuoroegneria spicata* (bluebunch wheatgrass), and *Balsamorhiza sagittata* (arrowleaf balsamroot).	Eastern side of the Great Rift of the upper Snake River Plain and in the foothills of the Pioneer Mountains.	Dark-colored, well-drained silt-loams with varying amounts of sand, gravel, cobble, stone, and boulder colluvium intermixed. Most microsites are not cindery or extremely gravelly. Soils are derived from and overlay volcanic substrates. Areas supporting *Phacelia* usually lack litter accumulation, are always relatively loose or scarified (due to animal and erosion disturbance), and lack dense perennial vegetation. The soil depth varies from shallow (over boulders) to moderately deep.	1*) Prunus virginiana/Leymus cinereus* *2) Artemisia tridentata* ssp. *vaseyana-Symphoricarpos oreophilus* (snowberry)*/Leymus cinereus* *3) Prunus virginiana-Symphoricarpos oreophilus* *4) Populus tremuloides/Symphoricarpos oreophilus* *5) Prunus virginiana-Symphoricarpos oreophilus/Pseudoroegneria spicata* *6) Artemisia tridentata* ssp. *vaseyana/Pseudoroegneria spicata*
***Picabo milkvetch (*Astragalus oniciformis)** (Moseley and Popovich 1995; Alexander 2001)	Sandy basins, bowls, and flats within rolling basalt on the northern edge of the Snake River Plain. *A. oniciformis* is frequently found in open grassy areas (often in previously burned patches within *Artemisia* shrubland) and is rarely found in the understory of late seral *Artemisia* stands.	At the northern edge of the upper Snake River Plain and at the base of the foothills of the Pioneer Mountains and Picabo Hills.	Sandy loams or uniformly, highly calcareous silt loams overlying basalt plains. *A. oniciformis* prefers stabilized sandy soils and is never found on unstabilized sand dunes.	Primarily found in the *Artemisia tridentata* ssp. *wyomingensis* (Wyoming big sagebrush) / *Stipa comata* (needle-and-threadgrass) habitat type, but also *Artemisia tripartita/Pseudoroegneria spicata*. Common associates are *Oryzopsis hymenoides, A. tridentata* ssp. *tridentata*, and *Chrysothamnus* sp.

Areas within and surrounding the Monument have been systematically surveyed for both obscure phacelia and Picabo milkvetch, and population information is documented in status and monitoring reports (Moseley and Popovich 1995; Murphy 2002b). Two-headed onion (Allium anceps) was previously thought to occur on cinder cones in the original Monument and was documented by one historical collection (Davis 1933). This collection was recently determined to have been incorrectly identified (Popovich 2003).

One location for meadow pussytoes (Antennaria arcuata), which is rare in Idaho but not a BLM sensitive species, has been documented directly outside of Monument boundaries in moist meadows associated with Huff Creek. There is a small amount of potential habitat at the northern edge of the Monument. Mourning milkvetch (Astragalus atratus var. inseptus), a BLM sensitive species, was recorded in a plant inventory of Brass Cap kipuka RNA (Caicco and Wellner 1983). However, a plant survey conducted by ICDC and BLM in the late 1980s did not confirm the occurrence of the milkvetch (Popovich 2002).

WATER RESOURCES, INCLUDING WETLANDS

Surface water resources are limited in the Monument. Stream channels are largely nonexistent within the exposed lava flows, and streams draining the Pioneer Mountains rapidly become subterranean once they encounter the lava flows. There are several small perennial streams in the Pioneer Mountains at the north end of the Monument. The entire watersheds of Little Cottonwood and Leech Creeks lie within the Monument. Very short segments of the Little Wood River, Big Cottonwood Creek, and Fish Creek fall just within the Monument boundaries.

The slopes of the Pioneer Mountains contain numerous perennial and ephemeral springs that feed small creeks and marsh wetlands. Just north of the Craters of the Moon Lava Field is a small hot springs complex. Parts of Lava Lake, Huff Lake, and Carey Lake Marsh also lie within Monument boundaries. Seasonal playa lakes are scattered throughout the sagebrush steppe desert. Many of these playas have been developed by BLM to create reservoirs, which increases their water holding capacity and longevity. Numerous caves within the Monument lava flows contain year-round ice deposits, which produce melt water during the summer.

Wetlands and Riparian Communities

Wetland and riparian communities are somewhat rare in the Monument. The cold-water springs, creeks, lakes, and marshes on the lower slopes of the Pioneer Mountains support limited aquatic, wetland, and riparian habitat for numerous plant and animal species. Several species of water-loving (hydrophilic) plants, waterfowl and marsh birds, two frog types, several small mammals, beaver, and moose use these habitats. Many other species use the water sources these areas provide.

Wetlands mapped by the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) are limited to the northwest corner of the Monument. Most wetlands and wetland habitat are palustrine (non-tidal, inland wetlands dominated by terrestrial and emergent vegetation) and are only seasonally or temporarily flooded.

The Monument is mostly composed of a semiarid sagebrush steppe ecosystem. These areas generally receive 8 to 14 inches of precipitation a year. With such little precipitation, snow runoff is the primary source of water for the few wetland areas in the Monument. The snow runoff accumulates in the flat-floored bottom of an undrained desert basin that sometimes becomes shallow lakes called playas. They hold water long enough to allow some specialized aquatic organisms to grow and reproduce, but not long enough for a pond or marsh ecosystem to develop because most of the playas dry up by July and August.

Fairy shrimp, a scarce freshwater crustacean, can be found in almost every seasonal pool (Baraton 1990). Fairy shrimp serve as a valuable food source for migratory waterfowl that use the playas as resting areas along their long trek north in spring and early summer.

Water Quality

Steep-sided canyons with high gradient channels and a narrow floodplain characterize the watershed of Little Cottonwood and Leech Creeks. Mean discharge rates for both streams are less than 1 cubic foot per second. Since the 1930s, NPS has diverted water from four springs in the upper Little Cottonwood Creek Watershed for a public drinking water supply. During dry years, these diversions accelerate the dewatering of stream channels throughout the middle and lower reaches of Little Cottonwood Creek. However, the lower reach of Leech Creek has also run dry with no diversions in place.

To meet new drinking water standards, efforts were initiated in 2000 to replace the existing surface drinking water sources with groundwater sources. Shallow water wells have been developed at the bottom of Leech and Little Cottonwood drainages. Surface water from the two streams disappears below the surface in this vicinity even during wet years. Once the wells are fully operational in 2004, upstream diversions will cease.

Mining activities in the Little Cottonwood Creek drainage predate the establishment of the Monument in the 1920s. Open adits and tailings material remained along the stream until an NPS reclamation project was completed in the mid-1990s. Before this reclamation work, copper and zinc concentrations had exceeded U.S. Environmental Protection Agency (EPA) water quality criteria (NPS 1998).

Streamwater quality in Little Cottonwood and Leech creeks has been monitored and has generally been found to be good, with no violations of Idaho State standards for temperature, dissolved oxygen, and turbidity (Falter 1996). Total dissolved solids content of the water, as indicated by electrical conductivity, has been found to be moderate to low. The streams, waters are carbonate-based, of moderately low alkalinity and carbon dioxide, and neutral to slightly basic pH. Streamwater nutrient concentrations of total phosphorus have been shown to be moderately high with nitrogen limitation indicated, and streamwater concentrations of nitrate nitrogen are high.

Low to moderate levels of fecal coliform with high fecal streptococcus bacteria in streams suggest animal, rather than human, influence on the stream. Aquatic insect associations are balanced, with the exception of the middle reach of Little Cottonwood Creek, where Dipteran (true flies) dominance suggests metals impact from the Martin Mine site (Falter 1996). Stream bank and channel stability is good, with little indication of eroding or collapsing banks.

Ice caves easily accessible to the public have been found to have much higher levels of nutrients than caves located in remote areas. This may be attributable to human waste (Falter 1996).

Water Rights/Water Use

The State of Idaho granted NPS federal reserved water rights within the Monument in 1998. The priority dates of the rights range from 1924 to 1996, depending on the date when each area was added to the Monument. These rights grant diversions of 54.5-acre feet per year from all surface water and groundwater sources within the 1998 Monument boundaries. The rights provide for domestic, irrigation, or industrial use within the Monument, as well as in-streamflow rights on areas including Little Cottonwood and Leech Creeks (Hurlbutt 1998). The rights do not entitle the United States to maintain any specific water table elevation in the Snake River Aquifer beneath the Monument.

The BLM has 337 filed water right claims on 18 springs, 192 playa lakes, and 127 reservoirs within the Monument. The claims, primarily used for stock water and wildlife, are for 333.5 total acre-feet per year, and a de minimus amount of 0.02 cubic feet per second on each source. Priority dates of the water rights claims are as early as 1926.

Many of the water resources in the Monument are used in a variety of ways: drinking water for the Monument Visitor Center, irrigation water for farms, livestock watering sites, and recreational opportunities like bird watching. Human use and activities sometimes alter water and associated resources. Playas and reservoirs developed by BLM are an integral part of this semiarid ecosystem, and they often are the only source of water for wildlife and livestock.

The aquatic and wetland habitat supported by the only thermal spring complex in the Monument has historically been altered by concentrated livestock use and human recreation. Efforts are underway to protect the unique Monument habitat and allow recovery of the biological resources present.

WILDLIFE, INCLUDING SPECIAL STATUS SPECIES

During some portion of each year, about 200 species of birds, 60 mammals, 10 reptiles, and at least three amphibians occupy the Monument. (see Appendixes D and E). Surveys in the late 1960s in a very small portion of the northernmost area identified more than 2,000 species of insects (Horning and Barr 1970).

Wildlife Habitats and Common Monument Wildlife

Sagebrush steppe communities comprise much of the wildlife habitat within the Monument. Numerous species are found in sagebrush habitats (Braun et al. 1976, Trimbel 1989). Some of these are sagebrush obligates (restricted to sagebrush habitats during the breeding season or year-round) or near obligates (occurring in both sagebrush and grassland habitats) (Paige and Ritter 1999).

Sagebrush obligates that occur in the Monument include the sage sparrow, black-throated sparrow, Brewer,s sparrow, sage thrasher, greater sage grouse, pygmy rabbit, sagebrush vole, and sagebrush lizard. Some species, such as Brewer,s sparrows, are at their highest densities statewide in ungrazed portions of the Monument (Bart 2001). Table 11 lists some sagebrush-associated species that can be found in the Monument.

Sagebrush itself and the native perennial grasses and forbs of the shrub-steppe are important sources of food and cover for wildlife (Dealy et al. 1981). During winter, the evergreen foliage of sagebrush often provides the only available green vegetation, and its protein level and digestibility are higher than that of most other shrubs and grasses (Peterson 1995). Pronghorn, pygmy rabbits, and sage grouse may eat exclusively sagebrush in winter, and sagebrush also becomes a major portion of mule deer and elk diets. Taller sagebrush provides cover for mule deer and sage grouse (Dealy et al. 1981), and the crowns of sagebrush break up hard-packed snow,

Table 11
Sagebrush-Associated Species that Occur in the Monument

BIRDS		
Chukar	Grasshopper sparrow	Sage sparrow
Black-throated sparrow	Golden eagle	Short-eared owl
Burrowing owl	Great horned owl	Ferruginous hawk
Red-tailed hawk	Swainson's hawk	Rough-legged hawk
Turkey vulture	Greater sage grouse	Lark sparrow
Common nighthawk	Northern harrier	Common raven
American crow	Bobolink	Gray flycatcher
Horned lark	Brewer's blackbird	Gyrfalcon
Peregrine falcon	Prairie falcon	American kestrel
Loggerhead shrike	Brown-headed cowbird	Ash-throated flycatcher
Long-billed curlew	Sage thrasher	Savannah sparrow
Lazuli bunting	Gray partridge	Common poorwill
Ring-necked pheasant	Green-tailed towhee	Spotted towhee
Vesper sparrow	Say's phoebe	Brewer's sparrow
Western meadowlark	Mourning dove	White-crowned sparrow
MAMMALS		
Pronghorn antelope	Pygmy rabbit	Coyote
Elk	Ord's kangaroo rat	Bobcat
Sagebrush vole	Black-tailed jackrabbit	White-tailed jackrabbit
Yellow-bellied marmot	Montane vole	Long-tailed vole
Mule deer	Northern grasshopper mouse	Great Basin pocket mouse
Deer mouse	Raccoon	Merriam's shrew
Piute ground squirrel	Nutall's cottontail	Least chipmunk
Badger	Northern pocket gopher	Red fox
Kit fox		
REPTILES & AMPHIBIANS		
Rubber boa	Western yellow-bellied racer	Western rattlesnake
Western skink	Long-nosed leopard lizard	Night snake
Short-horned lizard	Desert horned lizard	Gopher snake
Sagebrush lizard	Western terrestrial garter snake	Great Basin spadefoot

making it easier for animals to forage on the grasses beneath (Peterson 1995).

Throughout the rest of the year, sagebrush provides food for pygmy rabbits and sage grouse; protective cover for fawns, calves, rabbits, and grouse broods; and nesting sites for many shrub-nesting birds. The sage thrasher, Brewer's sparrow, sage sparrow, and greater sage grouse most frequently nest in or beneath sagebrush.

The Monument contains portions of the lower slopes of the Pioneer Mountains, which contain both perennial and ephemeral springs. Several of these springs feed small creeks and marshes, and several species of waterfowl and marsh birds, two frog species, several small mammals, beaver, and moose use these habitats exclusively, along with several other species. Numerous species of birds use these areas exclusively or as primary habitat in the area.

The Monument contains some scattered stands of trees, including riparian stands of black cottonwood, willows, alders, and quaking aspen; upland stands of quaking aspen or Douglas fir; and lava- or cinder-based stands of limber pine and junipers. These forested sites are used by more than 110 species of birds, at least four reptile types, and at least 37 mammals (NPS 2003). These coniferous stands are widely scattered throughout the Monument. The open shrub-steppe and agricultural lands of the Snake River Basin surround these small islands of trees.

Migrant forest birds are highly selective of resting habitat (Kerlinger 1995), and these forest stands are important to forest birds migrating from the Northern Rocky Mountains, needing to cross the open habitat of the basin. Dozens of species of migratory birds use the conifer stands. Many resident species, including Clark's nutcracker, chickadees, nuthatches, woodpeckers, and others use them exclusively. Forested sites also provide critical thermal cover for deer, elk, and moose in the foothills of the Pioneer Mountains (Griffith 1983).

Extensive lava flows also serve as habitat for numerous animal species. At least eight species of bats, several species of rodents, and several species of cave invertebrates use lava tubes and flows in the Monument. The flow surfaces also are used by many species of vertebrates and invertebrates, and several species are dependent on the lava structures. Species such as pika, woodrats, skinks, and rock wrens are found primarily on the rock surfaces. Several snake and bat species are dependent on cavities in the lava for hibernation sites. Two of the three known bat maternity colonies of Townsend's big-eared bat in Idaho are in the Monument (Pierson et al. 1999).

Subspecies of the Great Basin pocket mouse, the pika, and the yellow-pine chipmunk are endemic to the lavas of the Great Rift. Darker fur characterizes these subspecies, which may be an adaptation to the black lava rock. Known primarily as residents of high-elevation alpine regions, pikas living on the Craters of the Moon Lava Field occupy lower elevations and the highest mean temperatures within the species, range (Bever 2002).

Several species of birds are also dependent on the lava structures. The Monument has a large population of rock wrens that nest almost exclusively on basalt formations. Many cavity nesting species nest in rock cavities on the flows. Chickadees and swallows are typically associated with woodlands but will use rock crevices when near limber pine or juniper stands. Mountain bluebirds and violet-green swallows nest primarily in tree cavities but are known to use rock crevices for nesting. Both species have been documented nesting in crevices and bubbles in flow surfaces in the Monument (Rich 1985; NPS 2003).

Bluebirds of all species have experienced major range-wide declines as result of habitat loss and competition from introduced European starlings. Bluebirds nest in high densities in the northern part of the Monument but are seen far less frequently in the southern areas, where substantial flocks of starlings now breed.



Fox

Numerous bird species protected under the Migratory Bird Treaty Act (USC Title 16, Chapter 7, Subchapter II) (Appendix E) have been documented in the Monument, occupying all habitat types. The migrant patterns include permanent residents, summer residents, migrants only using resting areas a few days a year, and winter-only residents.

Reptiles in the Monument also occupy a wide range of habitats. Ten species of reptiles have been identified in the Monument, including five snakes and five lizards. Several hibernating sites for snakes have been identified in the Monument (Lee 2002). These hibernacula may contain animals from several square miles of summer habitat both inside and outside the Monument. Garter snakes and rubber boas are predominantly riparian species, and skinks and gopher snakes use primarily rocky habitats with sparse vegetation. Night snakes may occupy the area but are rare and difficult to survey (C. Peterson 2003).

Two frog species make up the Monument's amphibians, Boreal chorus frog and Pacific tree frog. Two toad species may exist in the Monument as well. One, the Great Basin spadefoot toad, has not been detected in recent inventory work, but it can remain dormant for several years and is not readily detected while in burrows. These toads are well documented in the Snake River Plain and it is likely that they occupy the Monument as well. Western toads have not been detected in surveys since 1987; they may have been extirpated.

Six species of large mammals are known to inhabit the Monument: mule deer, pronghorn, elk, cougar, black bear, and moose. Most are widespread throughout the Snake River Plain and Pioneer Mountains and regularly can be found in the Monument.

Mule deer occupy the northern parts of the area as spring and summer range, with two distinct herds migrating into the Pioneer Mountains by autumn (Griffith 1983). One of these herds comes from lands to the north and west of the Monument. The other herd winters in the desert area south of the Craters of the Moon Lava Field. This herd slowly migrates to the northwest as vegetation dries out throughout the summer. By late summer or early fall this herd has merged with the herd from the northwest. Upon reaching the riparian areas, they have access to water and browse that is still fresh.

Mule deer are scattered throughout the most of the vegetated areas. Few studies have been conducted outside of the northwest portion (Griffith 1983). NPS monitoring since 1988 in the northwest part of the Monument indicates a very dynamic population that fluctuates greatly with varying annual conditions. This may even include shifting migration routes out of the area in some years (IDFG 2003). The south part of the Monument contains substantial winter range for deer and pronghorn (IDFG 2003). Since 1999, moose have been regularly seen in both the Big and Little Cottonwood Creek watersheds of the Pioneer Mountains.

Elk summer in the riparian areas of the northwest part of the Monument (NPS 2003). Elk occupy widely scattered areas, with records from both immediately east and west of the Craters of the Moon Lava Field and in larger kipukas like Laidlaw Park. Larger numbers of elk winter in the Pioneer Mountains along the northwestern part of the Monument. Two distinct groups of more than of 100 animals each were recorded moving back and forth across the west boundary during early 2003 (IDFG 2003). In summer, most of these elk move to summer range west and north of the Monument, with only a few animals remaining in the Monument.

Pronghorn are found within much of the Monument and are common throughout the year in Laidlaw Park (IDFG 2003, NPS 2003). A migratory herd of pronghorn uses the western part of the Monument as a migratory corridor and birthing area (IDFG 2003; NPS 2003). Occasional use during winter has also been recorded in this area (NPS 2003).



Mule deer

Smaller numbers of animals can be found along the east boundary and in the rift crack area. Winter range has been identified in the southern areas and the rift crack area (IDFG 2003).

Both cougar and black bear are found in the Pioneer Mountains area of the Monument. In recent decades, documented observations have been confined to the northern part of the Monument in or adjacent to the Pioneer Mountains. Sightings of these two species are rare, and little is known about their status in the Monument.

Moose colonized the riparian areas of the Monument in 1999 and continue to be present. Suitable habitat is limited in the Monument, so that further expansion is not likely.

Four species of large mammals and one small mammal were extirpated from the Monument during the twentieth century. The North American bison, bighorn sheep, wolf, and grizzly bear were last documented in the early twentieth century (Smithsonian Institution 2003). Some wolves from the reintroduced Central Idaho packs occupy territory immediately north of the area. One previously extirpated species, the porcupine, has recently reoccupied historic habitat within the Monument (NPS 2003).

Pest Control – Grasshoppers

The BLM currently implements an integrated grasshopper/Mormon cricket control program in cooperation with the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS). Extreme grasshopper population increases can occur during years favorable to their survival. High numbers of grasshoppers have caused and will continue to cause damage to agricultural crops adjacent to public lands.

There are areas of the Monument adjacent to agricultural crops. One is the private land that borders the Monument south and east of Carey, another is the private land that borders the Monument east of the Wapi Lava Flow, and a third is located along the northeast tip of the Monument near Arco. These agricultural cropland interface areas potentially could be grasshopper treatment areas. These cropland interface areas have traditionally grown crops such as potatoes, beets, corn, barley, alfalfa, and beans, which may be fertilized and treated with pesticides and herbicides.

The USDA, APHIS, and BLM have worked together since the 1960s to control grasshoppers and Mormon crickets on public lands. In 1985, the Secretary of Agriculture issued Instruction Memorandum No. ID-85-242, approving application for applying pesticides by APHIS on more than 6.4 million acres of BLM-managed public land to control grasshopper. That year, the southern one-fourth to one-third of what is now the Monument was aerially sprayed with malathion to control grasshoppers.

In 1986, APHIS and BLM conducted the Nosema Locustae Project along the Little Wood River northeast of Richfield, which is now part of the Monument. Nosema is a biological control agent that affects the grasshoppers, reproductive organs. It was aerially applied to 10,279 BLM acres, 956 state acres, and 673 private acres.

The state directors have issued a Final Decision for the Environmental Assessment (EA) completed for *Strategies for Grasshopper Control in Southern Idaho*. This final decision has a concise version of APHIS and BLM standard operating procedures and application guidelines. The USDA and APHIS are working on new BLM policy that allows some control of insect outbreaks in WSAs and Areas of Critical Environmental Concern (ACECs) as related in Washington Office Instruction Memorandum No. 87-408.

NPS policies address the management of native species, such as grasshopper, which may become pests. Chapter 4 of the NPS Management Policies (2001) addresses *Management of Native Plants and Animals* (4.4.2.1) and *Pest Management* (4.4.5), including the use of pesticides. According to NPS policy, native pests will be allowed to function unimpeded, except that native pests may be controlled to:

- Conserve threatened, rare, or endangered species or unique specimens or communities;
- Preserve, maintain, or restore the historical integrity of cultural resources;
- Conserve and protect plans, animals, and facilities in developed areas;
- Prevent outbreaks of a pest from invading uninfested areas outside the Monument; or
- Manage a human health hazard when advised to do so by the U.S. Public Health Program, or to otherwise protect against a significant threat to human safety.

The NPS follows an integrated pest management process to address all pest issues on a case-by-case basis. Controversial issues, or those with potential to negatively impact the environment, must be assessed according to the National Environmental Policy Act (NEPA). Intervention to control pests may not be undertaken if the pest control actions would cause

unacceptable impacts on the populations of other species or other components and process of the ecosystem that support them.

Wildlife Damage Control

The Wildlife Services (WS) branch of USDA APHIS is authorized by the U.S. Congress to protect American resources and human health and safety from damage associated with wildlife (Animal Damage Control Act of March 2, 1931, as amended [46 Stat. 1486: 7 USC 426-426c] and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988 [PL 100-102, Dec. 27, 1987; Stat. 1329-1331 7 USC 426C]. A 1995 Memorandum of Understanding (MOU) between APHIS WS and BLM is the basis for an annual APHIS WS plan covering those APHIS WS wildlife damage control activities on public (BLM) lands within BLM's Upper Snake River District (USRD).

APHIS WS conducts wildlife damage control activities in response to requests for assistance, when and where there is a demonstrated need, and after review of the available evidence. Assistance includes providing technical assistance and direct control by APHIS WS wildlife damage specialists. Direct control includes the use of traps, snares and other devices, as well as aerial gunning (shooting animals from aircraft). Most animal damage control activities in the Monument have been directed at controlling coyote depredation on sheep.

The state authorizes animal damage activities on BLM-administered land; therefore, wildlife damage control will continue to be implemented during the planning process. For BLM-administered land, wildlife damage control, including any necessary preemptive strategies, will continue to be governed by applicable laws. The BLM will continue to coordinate with Wildlife Services as described in existing national MOUs, BLM state policy, and USRD annual meetings with APHIS WS. Aerial gunning over WSAs requires approval of the BLM State Director.

Within the original Monument and Preserve, NPS management policy limits the management of native animals to specific circumstances, including unnaturally high populations resulting from human influences or to protect property. The NPS Superintendent has the authority to authorize removal of native pest animals (animals that interfere with the purposes or management objectives of a specific area or that jeopardize human health) on NPS-administered land when needed to:

- Conserve threatened, rare, or endangered species or unique specimens or communities;
- Preserve, maintain, or restore the historical integrity of cultural resources;
- Conserve and protect plants, animals, and facilities in developed areas;
- Prevent outbreaks of a pest from invading uninfested areas outside the NPS lands; or
- To manage a human health hazard.

NPS actions to remove or control native pests require appropriate compliance with NEPA.

Special Status Animals

Special status species are those listed as endangered or threatened under the ESA; candidates or species proposed for listing under the ESA; species listed by IDFG as endangered, threatened, or species of special concern; and/or species listed by BLM as sensitive. The BLM manages all species identified as sensitive to minimize the need for future listing as threatened or endangered under the ESA. NPS strives to manage its lands to protect any federally listed, state-listed, or BLM listed species.

The USFWS has provided a list of endangered, threatened, proposed, and/or candidate species that may be present in the area of the Monument (Appendix H). According to this list, threatened and endangered animal species that could potentially occur in the Monument area are Canada lynx *(Lynx canadensis)*, gray wolf *(Canis lupus)*, bald eagle *(Haliaeetus leucocephalus)*, bull trout *(Salvelinus confluentus)*, Bliss Rapids snail *(Taylorconcha serpenticola)*, Utah valvata snail *(Valvata utahensis)*, and Snake River physa *(Physa natricina)*. However, sufficient habitat for Canada lynx, bull trout, and the snails is not available. The Monument area is not in a Lynx Analysis Unit because it lacks suitable habitat for the species. There is not adequate surface water present in the Monument area for the survival of bull trout or the snails, all of which require substantial riverine habitat.

Gray wolves are known to occur in the vicinity of the Monument (Williams 2002). In the spring and winter of 2001, a pack was observed and tracked just north of the Monument. The pack was thought to have followed migrating elk and deer. In addition, individual wolves have been observed near the boundary of the Monument, with several confirmed sightings in this area since 2000.

There is a bald eagle breeding territory just west of the Monument near Carey Lake. Transient, wintering bald eagles might be found anywhere throughout

Blaine, Butte, Minidoka, and Power counties, including parts of the Monument.

Greater sage grouse *(Centrocercus urophasianus)* has been petitioned for federal listing and is a BLM sensitive species. Aerial and ground surveys conducted by IDFG have identified 169 known active and non-active sage grouse leks (breeding display sites) in the Monument. Laidlaw Park contained the greatest concentration, with 79 leks, 29 of which were active and occupied by 184 birds during 2002 (IDFG 2002b). Sage grouse population numbers are not known for the Monument; however, IDFG annual lek studies indicate a downward trend on the Snake River Plain over the last two decades.

The Monument contains suitable lek, nesting, brood rearing, and wintering habitat for sage grouse. The Monument contains several large tracts of stronghold habitat (IDFG 2002a). However, over the last two decades, invasions of cheatgrass, as well as an increase in fire frequency, has resulted in a decrease in the quality of sage grouse habitat by fragmenting contiguous sagebrush stands, eliminating large acreage of sagebrush, or converting sagebrush communities to grasslands (IDFG 1997).

Leks typically occur in small open areas surrounded by sagebrush. Nesting habitat requirements include sagebrush with broad canopies, herbaceous ground cover, and forbs (Schroeder et al. 1999). While sagebrush (typically 12 to 30 inches tall) provides cover for nesting birds, herbaceous cover may provide scent, visual, and physical barriers to potential nest predators. Early brood rearing areas are found in upland sagebrush habitats relatively close to nest sites; usually they are characterized by an abundant forb and insect diversity (Drut et al. 1994). As sagebrush habitats desiccate, grouse usually move to more mesic sites for late-summer brood rearing habitats. During winter, sage grouse feed almost exclusively on sagebrush leaves, requiring canopy cover that remains above snow level (Connelly 2000). When necessary, the grouse will migrate tens of miles to find suitable winter range with exposed sage.

Pygmy rabbits have been documented in several areas of the Monument. Records ranging from the 1930s through 2003 indicate locations from the southernmost areas to the original Monument lands (Hoffman 1988; NPS 2003). Pygmy rabbit populations have experienced severe declines throughout their range, including in Idaho. The rabbits prefer areas with taller and denser sagebrush (Gabler et al. 2001), and it is likely that suitable habitat exists in the Monument. However, there are few surveys for the species in southern Idaho, and the distribution and status of the species is not well understood.

The Monument contains hundreds of caves and several cave-related species of concern, including seven species of bats that are USFWS species of concern, Idaho species of special concern, or BLM sensitive species. As of 1999, three maternity colonies of Townsend,s big-eared bat *(Corynorhinus townsendii)* have been identified in Idaho (Pierson et al. 1999), with two occurring in the Monument. Numerous hibernacula have been identified in the Monument for this and other bat species. Six other cave roosting bats that are classified as sensitive or of concern are found in the Monument (Table 12) (Keller 1996). In addition to bats, other cave species are of concern, including the blind cave leiodid beetle *(Glavcicavicola bathysciodes)*. Two of the four known worldwide sites for this species are in the Monument (IDCDC 2002a).

Two additional insects listed as sensitive by BLM and as USFWS species of concern have been documented on lands adjacent to the Monument. One, the Idaho point-headed grasshopper *(Acrolophitus pulchellus)*, is found in the Lost River drainage adjacent to the Monument. Two of the five known sites are near the northeast perimeter of the Monument (ICDC 2002b). The preferred habitat is relatively level or rolling terrain with gravelly to rocky soil having low sparse vegetative cover between 4,800 and 7,000 feet elevation (ICDC 2002b).

The Idaho dunes tiger beetle *(Cicindela arenicota)* is found only in sand dunes in south central and southeast Idaho. Beetles have been documented at several sites near the southeast corner of the Wapi Lava Field (Idaho State Conservation Effort 1996). More potential habitat for this beetle may exist with the Monument.

Table 12 lists the special status animal species that are known or reported in the Monument, including all those mentioned above. In addition, the table lists 42 sensitive species that are either migratory birds or sagebrush related species that have been discussed in this section.

AIR QUALITY

The Monument and Preserve lie within one of the cleanest air regions of the country. While generally below the national average for most pollutants, the area's relative ranking varies, depending on the specific pollutant. Air quality also varies, depending on

Table 12
Special Status Animal Species in the Monument

MAMMALS			
Gray wolf (*Canis lupus*)	T		
Townsends's big-eared bat (*Corynorhinus townsendii*)	I	S	S
Western small-footed myotis (*Myotis ciliolabrum*)	I	W	
Long-eared myotis (*Myotis evotis*)		W	
Fringed myotis (*Myotis thysanodes*)		S	S
Long-legged myotis (*Myotis volans*)	I	W	
Yuma myotis (*Myotis yumanensis*)	I	W	
Western pipistrelle (*Pipstrellus hesperus*)	I	W	S
Pygmy rabbit (*Brachylagus idahoensis*)	I	S	S
Kit fox (*Vulpes macrotis*)	I	S	
Piute ground squirrel (*Spermophilis mollis*)		S	
BIRDS			
White-faced Ibis (*Plegadis chihi*)	I	S	
Bald eagle (*Haliaeetus leucocephalus*)	T		
Northern goshawk (*Accipiter gentilis*)	I	S	S
Ferruginous hawk (*Buteo regalis*)	I	S	
Swainson's hawk (*Buteo swainsoni*)		W	
Prairie falcon (*Falco mexicanus*)		S	
Peregrine falcon (*Falco peregrinus*)			E
Blue grouse (Dendrogapus obscurus)		W	
Greater Sage-grouse (*Centrocercus urophasianus*)	I	S	
Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)	I	S	S
Wilsons's phalarope (Phalaropus bicolor)		W	
Long-billed curlew (*Numenius americanus*)	I	W	
Black tern (*Chlidonias niger*)			S
Short-eared owl (Asio flammeus)		W	
Western burrowing owl (*Athene cunicularia*)	I	W	S
Calliope hummingbird (*Stellula calliope*)		S	
Lewis' woodpecker (*Melanerpes lewis*)		S	
Red-naped sapsucker (*Sphyrapicus nuchalis*)		W	
Williamson's sapsucker (*Sphyrapicus thryoideus*)		S	
Olive-sided flycatcher (*Contopus borealis*)		S	
Loggerhead shrike (*Lanias ludovicianus*)	I	S	SA
Cordilleran flycatcher (*Empidonax occidentalis*)		W	
Hammond's flycatcher (*Empidonax hammondii*)		S	
Willow flycatcher (*Empidonax traillii*)		S	
Pinyon jay (Gymnorhinus cyanocephalus)		W	
Sage thrasher (*Oreoscoptes montanus)*		W	
Green-tailed towhee (*Pipilo chlorurus*)		W	
Grasshopper sparrow (*Ammodramus savannarum*)		W	
Brewer's sparrow (*Spizella breweri*)		S	
Sage sparrow (*Amphispiza belli*)		S	
Black-throated sparrow (*Amphispiza bilincata*)		S	

Species	Status		
	Federal	BLM	Idaho
Brewer's blackbird (Euphagus cyanocephalus)		W	
Cassin's finch (Carposdacus cassinii)		W	
REPTILES & AMPHIBIANS			
Western night snake (*Hypsiglena torquata*)		S	
Western toad (*Bufo boreas*)	I	S	S
Short-horned lizard (*Phrynosoma douglassi*)	I		
INVERTEBRATES			
Idaho dunes tiger beetle (*Cicindela arenicola*)	I	S	
Blind cave leiodid beetle (*Glacicavicola bathysciodes*)	I	S	
Idaho pointheaded grasshopper (*Arolophitus pulchellus*)	I	S	

Federal Designations:
E = Federally Endangered
T = Federally Threatened
C = Federal Candidates for listing as T or E
I = Species of concern to USF&WS but without formal federal status

BLM
S = Bureau of Land Management Sensitive Species: in this listing, all species without other current status but formerly federal candidates or state species of concern; additionally all species with either federal or state status should also be considered BLM Sensitive Species.
W = Watch list species: Species that are not BLM sensitive species but current population or habitat information suggests that the species may warrant sensitive species status in the future

Idaho Species of Special Concern: (Native species that are either low in numbers, limited in distribution, or have suffered significant habitat losses)
E = Endangered

the location within the unit, the pollutant being measured, the season and time of day, wind direction, and climatic factors. Clean air enhances the understanding and appreciation of the Monument's geologic resources by allowing clear views of distant landscape features.

Sources of air pollutants are both local and regional. Emission sources within the Monument are limited to automobile exhaust, smoke from wood stoves and campfires, smoke from wildfires, and windblown dust. Smoke from forest and rangeland fires, as well as agricultural burning, are seasonal sources of fine particulate matter, carbon monoxide, and volatile organic compounds. Industrial point sources are located at the Idaho National Engineering and Environmental Laboratory (INEEL), which is 12 miles east of the Monument, and Bonneville, Bingham, and Bannock Counties to the east. Population densities in the four counties surrounding the Monument range from 1.3 to 26.6 people per square mile, with a total population of 50,000 people across 7,043 square miles (Idaho Department of Commerce 2000).

The air quality management of fire and roads is the primary activity affecting resources in the Monument. Both naturally ignited wildland fires and prescribed fires produce smoke emissions over the life of the fire. The amount of smoke produced and the rate at which it disperses will vary, depending on weather conditions existing during the fire, the amount and type of vegetation burned, and the moisture content of the vegetation consumed. As actively managed events, prescribed fires burn at a controlled size, intensity, and time; therefore, smoke emissions can be minimized and dispersal rates maximized. While wildland fires result from natural, unplanned ignitions, decisions to manage the fire for resource benefits or extinguish it are based in part on the potential impacts of the smoke generated over the life of the fire.

The major pollutant of concern in smoke from fire is fine particulate matter (PM), both PM10 and PM2.5. National Ambient Air Quality Standards (NAAQS) for PM are established for two aerodynamic diameter classes: PM10 is particulate matter less than 10 microns in diameter, and PM2.5 is less

than 2.5 microns in diameter. Studies indicate that 90 percent of all smoke particles emitted during wildland burning is PM10, and 90 percent of PM10 is PM2.5 (Ward and Hardy 1991). In 2001, the PM2.5 annual average within the Monument was 2.8 micrograms per cubic meter ($\mu g/m^3$) (Visibility Information Exchange Web System: http://vista.cira.colostate.edu/views/Default.htm), compared with the national health-based standard of 15 $\mu g/m^3$.

Fugitive dust consists of PM suspended in the air by the wind and human activities. It originates primarily from the soil and is not emitted from vents, chimneys, or stacks. Soils on burned lands or bare agricultural lands lacking vegetative cover are subject to wind erosion of soil particles until vegetative cover is restored. Fugitive dust can also be generated by wind blowing across unpaved roadbeds and by the passage of vehicles along the same roads.

Estimates of the quantity of fugitive dust generated are imprecise and difficult to calculate. The amount of dust produced and its effects vary seasonally with weather conditions (soil moisture, wind speed, and direction) and the amount and speed of motor vehicle traffic. The best indicator of fugitive dust potential is fugitive dust sources, including unpaved roads and lands burned to remove vegetative cover.

The Craters of the Moon National Wilderness Area (43,243 acres) within the Monument is a mandatory Class I area, as defined in Clean Air Act (42 USC Sections 7401-7671q; as amended in 1990, PL 101-549). Congress created a *Prevention of Significant Deterioration* (PSD) section, the purpose of which is "to preserve, protect, and enhance the air quality in national parks, national wilderness areas and other areas of special national or regional natural, recreational, scenic, or historic value." Specifically, the PSD section reflected the law's intention that, among the clean air regions of the country, certain areas – the Class I areas – deserve the highest level of air quality protection. The impairment of visibility within Class I areas was a major concern addressed in the Clean Air Act. Integral vistas include those views perceived from within Class I areas of landmarks or panoramas located outside the boundary of a Class I area.

The rest of the Monument is a Class II area (including the WSAs). Class II areas also have limits on increases of particulate matter and sulfur dioxide above baseline concentrations. The allowable increases for Class II areas are higher than those established for Class I areas. Other Class I areas in the region are the Sawtooth Wilderness (70 miles northwest) and Yellowstone and Grand Teton National Parks (140 miles east).

Air quality monitoring in the Monument has recorded concentrations of ozone, PM, visibility, acid deposition, and radionuclides (gross alpha, gross beta, and gamma spec). These monitoring programs have been conducted as part of NPS responsibilities under the Clean Air Act, as well as part of the INEEL off-site environmental surveillance program. All the monitoring sites have been at the north end of the Monument.

Ozone is a widespread air pollutant formed in the atmosphere from emissions of nitrogen oxides and volatile organic compounds. High levels of ozone can injure vegetation and affect human health. Ozone concentrations monitored in the Monument have not exceeded the primary national ambient air quality standard for ozone. The primary ozone standard is exceeded when the annual fourth-highest maximum 8-hour ozone concentration averaged over three years exceeds 80 parts per billion (ppb) (USDI 2000).

The annual fourth-highest maximum 8-hour ozone concentration averaged from 1994 to 2000 was 63 ppb (USDI NPS 1994-2000). The peak ozone concentration (the second-highest 1-hour average) measured at the northern end of the Monument in 2000 was 77 ppb, which was comparable to concentrations in Yellowstone National Park (73 ppb) the same year. The peak ozone ranged from 63 to 89 ppb and averaged 73 ppb during the 1994 to 2000 period. Peak ozone concentrations in 2000 at other NPS units in the Western United States ranged from 123 ppb at Joshua Tree National Park in Southern California to 56 ppb at North Cascades in Washington (USDI NPS 1994-2000).

The SUM06 statistic (the sum of hourly average ozone concentrations greater than 0.06 parts per million) calculated over a 3-month period is used to correlate with vegetation impacts. The recommended SUM06 value is no more than 8 to 12 parts per million per hour (ppm/hr) to prevent foliar injury to vegetation, which compares to a maximum three-month ozone SUM06 of 12 ppm/hr in the Monument between 1995 and 1999. While at or well below the average for other NPS-monitored units, the trend in ozone concentrations from 1992 through 1999 indicates a statistically significant degradation in ozone-related air quality (USDI NPS 2002).

The scattering and absorption of light by particles and gases emitted by, or formed as a result of, natural

and human-caused activities degrades the visibility of distant features of the landscape. On the clearest days, visibility at the northern end of the Monument is much better than the national average (Visibility Information Exchange Web System: http://vista.cira.colostate.edu/views/Default.htm), compared with 28 other Class 1 areas scattered across the country (USDI NPS 2002). In 2001, the best visibility days (upper 20 percent) at the Monument averaged 5 deciviews (a haziness index, lower = clearer) compared with a 7.2 deciview national average between 1990 and 1999. For the worst visibility days (lowest 20 percent), the Monument averaged 14.5 deciviews in 2001, which is comparable with the national average of 16.9 deciviews. In 2001, the Monument's annual average visibility range was 106 miles as compared to the 1996 to 1999 annual average at Yellowstone National Park of 102 miles (USDI NPS 2002).

Trends from 1990 to 1999 in nearby national parks (Yellowstone and Great Basin) indicate improvement in visibility during the clearest days of the year, but the haziest days have improved only slightly or even gotten worse (USDI NPS 2002). Fine particulates (less than 2.5 micrometers) have been monitored at the Monument as part of the Interagency Monitoring of Protected Environments Program (IMPROVE) since 2000.

EPA has designated portions of Power and Bannock counties (located 50 miles east of the Monument) as non-attainment areas for the national PM standard (EPA Web site: http://www.epa.gov/oar/oaqps/greenbk/pnp.html#16078). The standard is defined as PM that is smaller than 10 micron (PM10).

A National Atmospheric Deposition Program/National Trends Network (NADP/NTN) site has been operated at the north end of the Monument since 1980. The network measures the chemistry of precipitation to monitor the graphical and temporal long-term trends of hydrogen (acidity as pH), sulfate, nitrate, ammonium, chloride, and base cations (such as calcium, magnesium, potassium, and sodium). In 2000, pH levels of Monument samples ranged from 4.6 to 6.7 with an annual mean of 5.5 (NADP/NTN 2000). This compares with a similar result (5.4) at the NADP/NTN site in Yellowstone National Park.

Ammonium and nitrate ion concentrations are generally higher at the Monument. In 2000, the annual mean concentration of ammonium at the Monument was 0.32 milligrams per liter (mg/L) compared to 0.19 mg/L at Yellowstone and 0.20 mg/L in Owyhee County in southwest Idaho.

CULTURAL RESOURCES

Both the NPS and the BLM are responsible for identifying, protecting, managing, and enhancing archaeological, historic, architectural, and traditional lifeway values located on their lands, as well as those that might be affected by BLM or NPS undertakings on non-federal lands. BLM and NPS both manage archaeological remains, historic values, and traditional lifeway values important to Native American groups.

Cultural resources are generally identified through field inventories conducted by qualified professionals in compliance with Section 106 of the National Historic Preservation Act of 1966 (NHPA). Informant information and historical records are also used to identify archaeological, historical, and traditional lifeway values. David Louter (1992) completed a Historic Context Statement for Craters of the Moon National Monument in 1992. This document provides a broad historical overview for the area.

There has been no systematic, formal inventory to document the presence of any potential cultural landscapes within the Monument to date; however, the public did not identify any cultural landscapes of concern during scoping for this Draft Plan/EIS, and this topic was therefore dismissed as an impact topic. Museum collections would not be affected by any of the alternatives considered and were also dismissed as an impact topic. During scoping for this Draft Plan/EIS, No ethnographic resources of importance were identified by any associated cultural groups, except for the Shoshone-Bannock Tribes. Further discussion of Shoshone-Bannock ethnographic resources is included in the section entitled "American Indian Rights and Interests," below.

ARCHAEOLOGICAL AND HISTORICAL RESOURCES

Three types of inventories – Class I, II, and III – are conducted to identify and assess cultural values on BLM lands. A Class I inventory, a literature review, was completed for the BLM portion of the Monument in 1982, as part of a larger study that included the Boise and Shoshone management areas. Several smaller Class III, intensive inventories have been completed in the Monument to fulfill Section 106 responsibilities. These inventories were associated with project activities where sites needed to be identified and evaluated in order to protect signifi-

cant values and minimize effects on these values.

Over the years, several different universities have also conducted Class III inventories on the Monument, unassociated with any specific development project, expanding the information base. It is estimated that less than 5 percent of the Monument has been intensively inventoried for cultural resources. No systematic inventory of the caves associated with the lava flows has been completed. There may be many important cultural resources associated with the lava tubes, as well as the harder to reach kipukas, which have not been recorded by archaeologists because of their remote nature.

Early NPS surveys in the 1960s suggested that there was not a great deal of prehistoric use in this area, but more recent surveys on the adjacent BLM lands would seem to indicate otherwise. These early surveys were concentrated in areas archaeologists deemed likely because they contained known water sources. Today it is known that Native Americans used this area much more than was originally believed. Data from recent nearby fire rehabilitation surveys indicate a rather high density of prehistoric sites in association with the lava flows. Therefore, it is believed that there is a significant prehistoric cultural component associated with the Monument area, in addition to the well-documented historic component.

While these inventories have identified many cultural resource sites, little work has been done to synthesize the results and provide a comprehensive framework for assessing cultural resource function, significance, variability, and distributional patterns. There are also many previously recorded cultural resources that should be revisited so that the present condition of these sites can be assessed. Older records are in need of informational details that can only be obtained by revisiting the sites themselves. The synthesis of this data will be necessary to identify cultural resources that may be suitable for public education or interpretation, as well as resources that will require special preservation measures. Patterns of anticipated visitor use will guide these decisions as well. Most recorded sites in the Monument are considered eligible for listing on the National Register of Historic Places (NRHP). Presently, however, only Goodale's Cutoff is listed on the NRHP.

Cultural resources condition and trend within the Monument varies considerably because of the variability of terrain and geomorphology, access and visibility, and past and current land use. Exposed artifacts and features on the ground surface can be disturbed by elements such as wind and water erosion, animal and human intrusion, and development and maintenance activities. Based on limited site visitation and site form documentation, the trend of site condition within the Monument is considered stable in most areas. Vandalism and unauthorized collection at sites constitutes the main source of cultural resource degradation.

Looting of archaeological sites has been occurring in the Monument for some time, especially in the remote, hard to reach kipukas. With the advent of Internet auctions, illegal artifact collection is becoming more profitable than ever. As long as there is a market for such items, looting will continue to be a problem.

It is likely there are many sites in the interior of the lavas that are unknown at present, and they might lead to clues needed to understand just what prehistoric people were doing in this area thousands of years ago. Undisturbed caves also may hold a fascinating record of the Monument,s early natural history in the form of fossilized skeletal material of Pleistocene mammals. Other caves on the Snake River Plain have produced fossil remains of mammoth, grizzly bear, bison, musk ox, and camel.

Prehistoric and Historic Sites

There are approximately 346 known, recorded cultural resources sites in the Monument, representing a variety of types and chronological periods, dating from at least 8,000 years old to the present. Only one site in the Monument has ever been radiocarbon dated. Identified prehistoric sites include lithic scatters, rockshelters, rock structures and piles, and pictographs. Near the north end of the Monument there may be stone tool quarry sites yet undocumented. These remains mainly represent activities in the area before European contact in the 1800s.

Although there is no evidence of earlier occupation at the Monument, there is certainly evidence to suggest an earlier PaleoIndian occupation elsewhere on the Snake River Plain. Sites that are relatively nearby with definite PaleoIndian artifacts are Wilson Butte Cave (Gruhn 1961), the Buhl Burial, and the Simon Site (Butler 1963). The recent discovery of the Buhl Burial in 1991 provided researchers with an undisputable carbon date of 9,600 years ago. The oldest carbon dates recovered from Wilson Butte Cave (14,500 years ago) were not in clear association with cultural material, and there is some doubt among scholars as to whether the cultural deposits themselves are older than 9,000 years.

The Monument contains portions of an NRHP-listed historic trail. Goodale's Cutoff was an alternate route of the Oregon Trail that skirted the northern edge of the Craters of the Moon Lava Field. These portions of Goodale's Cutoff from U.S. Highway 20/26/93 in Butte County west to Blaine County are on the NRHP. Historic sites in the Monument include portions of historic trails, as well as sheep-herder camps, cairns, and dumps. A few stock-raising homestead claims were filed within the Monument in the 1890s and early 1900s, but the environment proved too harsh for them to succeed, and most were canceled. Virtually no visible physical evidence of these endeavors remains (Louter 1992). During the early days of Euro-American settlement in southern Idaho, sheep and cattle grazing were the predominant economic pursuit in this area. During the 1880s, silver, gold, and lead mining also took place in the mountains just north of the Monument.

The Monument headquarters complex, including the Visitor Center, employee residences, and maintenance buildings, was recently determined to be eligible for nomination to the NRHP (NPS 2000). A nomination has not yet been forwarded to the keeper of the NRHP for approval. The eligibility is based on the continued integrity of the modern architectural design with grouping of public and administrative facilities in a headquarters area. This approach typified the NPS Mission 66 Program of the late 1950s and early 1960s (Allaback 2000). Mission 66 was a 10-year development program designed to upgrade facilities throughout the National Park System. The National Park Visitor Center, as it is known today, is from the Mission 66 era. The concept of a single building incorporating public facilities, interpretive programs, and administrative functions originated during the Mission 66 Program.

AMERICAN INDIAN RIGHTS AND INTERESTS (ETHNOGRAPHIC RESOURCES, RESOURCE AND PUBLIC LAND VALUES, TREATY RIGHTS)

ETHNOGRAPHIC RESOURCES

Native American Indians inhabited southern Idaho, including the present day Monument lands, for thousands of years prior to European contact. Ethnographic information generally suggests that aboriginal populations constantly traversed the Snake River Plain during their seasonal subsistence rounds, moving to the Camas Prairie in spring and then farther into the mountains for summer. In autumn they would return to the Snake River, where they would stay for the winter (Steward 1938). This ancient way of life was disrupted by European settlement of America, when large numbers of immigrants seeking land sought to displace the tribes. During the 1850s and 1860s, treaties were negotiated with the tribes in the Northwestern United States to facilitate peaceful relations and to open unoccupied Indian lands for homesteading.

On July 3, 1868, the Eastern Band of Shoshone and Bannock Tribes and the United States signed the *Treaty with the Eastern Band Shoshoni and Bannock, 1868*, commonly referred to as the Fort Bridger Treaty (15 Stat. 673). Through negotiations with the Federal Government, the tribes relinquished claims to approximately 20 million acres of land to the United States and retained exclusive use of prescribed reservation lands. The treaty retains the tribes, reserved rights to hunt, fish, graze, and gather natural resources off reservation, and provides other associative rights necessary to effectuate these rights on open and unoccupied lands of the United States. Open and unclaimed lands have been determined through court proceedings to be Forest Service and BLM-administered lands.

The BLM and NPS have a unique relationship with federally recognized American Indian tribes and are responsible for maintaining a formal government-to-government relationship with tribal leadership. As outlined in treaties, executive orders, legislation, regulations, and federal policies, this relationship focuses on ensuring the rights and/or interests of tribes are considered and protected. This includes consulting with tribal representatives and identifying and protecting important archaeological, religious, and/or sacred sites, as well as providing tribal members appropriate access to these sites. Also included are provisions for reasonable access for tribal members to gather and harvest plant, animal, and aquatic resources for treaty, subsistence, or traditional use purposes.

NATIVE AMERICAN TRADITIONAL USE AND TREATY RIGHTS

At present Native American tribes are not dependent on commodity resources from the Monument for their economic livelihood. However, they do rely on BLM public land resources for subsistence and

cultural purposes. Tribal treaty rights pursued on public lands within the Monument include hunting of large and small game and gathering various natural resources for both subsistence and medicinal purposes. Game identified by the tribe as having importance are elk, deer, antelope, moose, sharp-tailed grouse, sage grouse, rabbits, rock chucks, squirrels, partridges, and other associated small game.

The Idaho Fish and Game Commission establishes regulations and other needed controls on fishing, hunting, trapping, and management of wildlife that are in line with the state's wildlife policy. The Idaho Department of Fish and Game (IDFG) is charged with enforcing fish and game regulations in the state of Idaho. However, the IDFG recognizes the authority of the Law and Order Division of the Shoshone-Bannock Tribes of the Fort Hall Indian Reservation to regulate tribal members residing on the reservation when hunting on federally administered and state-administered lands outside the reservation, except when those lands have been specifically closed to hunting by state or federal statute.

Hunting is not allowed in units of the National Park System – areas administered by the NPS (16 USC, Parts 1 and 1a-1), unless specifically authorized by Congress. Such authorization does not exist for the original 53,400 acres of the NPS-administered portion of the Monument. However, Congress redesignated the approximately 410,000 acres of the expanded Monument under the administration of the NPS as a National Preserve and has authorized hunting on these lands (Public Law 107-213). Therefore, hunting is not allowed on the 53,400-acre original NPS Monument, but hunting is allowed on the approximately 410,000-acre National Preserve and the approximately 251,000 acres of the BLM-administered part of the Monument.

As a general rule, NPS may not allow consumptive uses of natural resources such as plants, rocks, and wildlife from NPS-administered lands (36 CFR 2.1). However, as a matter of policy, the NPS generally supports the limited and controlled acquisition and use of natural resources for traditional religious and ceremonial purposes (NPS Management Policies, Chapter 8.9).

The American Indian Religious Freedom Act (42 USC 1996) enunciates United States policy to recognize and protect American Indian religion. In part, the law states that the policy of the United States is to protect and preserve the right of American Indians to access sites and use and possess sacred objects for ceremonial and traditional practices. Accordingly, the agencies will accommodate access to and ceremonial use of Native American sacred sites, consistent with the purposes of the Monument (Executive Order 13007).

No specific sacred sites or cultural landscapes in the Monument have been identified by the Shoshone-Bannock Tribes, but there are oral histories documenting the use of the area by tribal members. It is likely tribal members still visit and use isolated areas of the Monument for spiritual purposes today. The local tribes generally do not disclose the location of sacred sites to federal agencies because of a concern over public disclosure of this information. Not knowing the location of these sacred areas sometimes makes it difficult for land managers to assess the impacts of federal actions on them. However, continued consultation with tribes is the best way to maintain an open dialog so tribal members can voice their concerns should a federal action threaten a sacred site, a treaty use, or traditional use area.

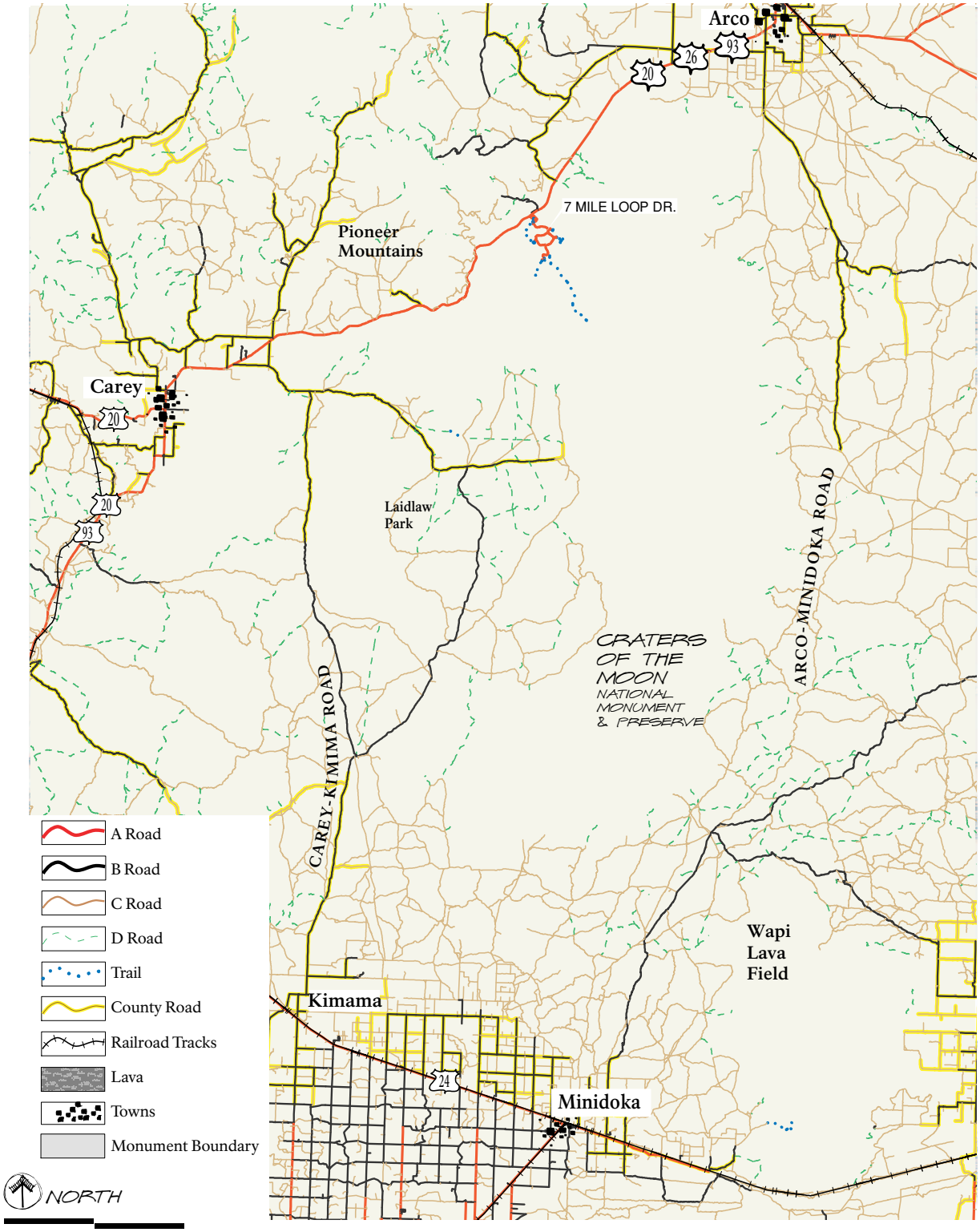
LAND USE AND TRANSPORTATION ACCESS AND TRAVEL

One of the most important issues to be considered in this planning effort is the amount and type of access to and through the Monument. Figure 13 depicts the current road network in the planning area.

Major Transportation Routes

Interstate Highways 15, 86, and 84 on the south and east, U.S. Highways (US) 20/26/93 on the west and north, and US 26 on the northeast connect population centers and constitute the primary access to the planning area. Idaho State Highway (SH) 24 (parallel with the Union Pacific Railroad) connects Shoshone with Rupert by way of Minidoka, and to the east, SH 39 connects Blackfoot and American Falls by way of Aberdeen.

US 20/26/93 traverses the north end of the Monument, and in the developed area of the Monument around the Visitor Center, there is a paved 7-mile Loop Drive and developed trails. No public transportation is available to the Monument. While paved roads surround the Monument, the roads within the Monument are either gravel or dirt, and very few roads cross the lava flows. There is no vehicle access to most of the interior of the Monument in winter or spring because of snow and wet road conditions.



No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

FIGURE 13
Transportation Network
Craters of the Moon National Monument & Preserve
U.S. Department of the Interior / National Park Service
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On the east side of the Craters of the Moon Lava Flow, a 69-mile dirt/gravel road connects Arco and Minidoka. The Arco-Minidoka Road has a wide variety of road conditions. The north and south ends of the road, maintained by Butte and Minidoka counties, are relatively well-maintained gravel roads. The middle part of the Arco-Minidoka Road, within the Monument, is a difficult to follow dirt, two-track road that receives relatively little maintenance. The main travel way on the west side of the Monument is the 39-mile Carey-Kimama Road, of which 11 miles are within the Monument. Carey-Kimama Road is a continuous gravel road that receives regular maintenance.

The southern part of the Monument, including Crystal Ice Cave and Kings Bowl, is accessed by paved and gravel county roads, which lead to dirt/gravel BLM and county roads near and within the Monument.

Road Classification

Within the Monument, a "road" is defined as an established route capable of accommodating travel by a full-sized automobile or truck. Following other routes or establishing new routes with motorized or mechanized vehicles is considered "off-road" use, which is not permitted in the Monument (see below). There are four different types of roads within the Monument:

Class A Roads generally are paved and have a surface of asphalt, concrete, or similar continuous material. In addition to US 20/26/93, the only Class A roads are the Loop Drive, spur roads, and associated parking areas in the original NPS Monument. Class A roads are only found in the Frontcountry Zone.

Class B Roads are improved roads constructed with a natural or aggregate surface, and they may have berms, ditches, or culverts. Regular maintenance allows passage by standard passenger and commercial vehicles such as cars, light trucks, and some heavy trucks. Within the Monument, seasonal conditions and lack of snow removal may render these roads impassable. Class B roads are found primarily in the Passage Zone.

Class C Roads have an unimproved natural surface and may be either constructed or established over time by repeated passage of vehicles. The natural surface may be dirt, sand, or rock. A minimal amount of maintenance, if any at all, is limited primarily to spot surface grading to allow vehicle passage within the original road corridor. Class C roads accommodate a much smaller range of vehicles than Class B roads, usually high-clearance two-wheel-drive and four-wheel-drive vehicles. Seasonal conditions or wet weather may render these roads impassable at any time. Class C roads are found primarily in the Passage and Primitive zones.

Class D Roads are primitive roads that were not constructed but have been established over time by the passage of motorized vehicles. These roads receive no maintenance or grading. Occasional emergency repairs or limited maintenance may be performed for resource protection and administrative purposes. These roads are generally referred to as "two-tracks". The condition of these roads varies from sometimes passable by a passenger car, to only suitable for high-clearance four-wheel-drive vehicles, to passable only by adventurous off-highway vehicle (OHV) enthusiasts with special equipment. Seasonal conditions or wet weather may render these roads impassable at any time. Class D roads are found primarily in the Primitive Zone. (See Figure 13 and photos on next page).

Ways are defined in the BLM *Handbook 8550-1 Interim Management Policy for Lands Under Wilderness Review* as a "trace maintained solely by the passage of vehicles which has not been improved and/or maintained by mechanical means to ensure relatively regular and continuous use." The BLM identified all ways inside WSAs as part of the wilderness inventory process. Ways are generally open to motorized and mechanical use until Congress designates a WSA as Wilderness or releases it from wilderness consideration. Technically, ways fall into the Class D road classification in this plan. However, this does not imply that roads would be permitted in WSAs.

Trail Classification

A "trail" is a constructed (or established by past use) linear feature, with a single tread designated, designed, and intended for travel by hikers, horses, and two-wheeled vehicles (for example, mountain bikes and motorcycles). Trails are sometimes

referred to as "single track." Trails within the Monument are classified into two types based on use.

Class 1 Trails are restricted to non-motorized/non-mechanized travel (wheelchairs are allowed). Examples of permitted forms of travel include foot travel, pack animal, and horseback. Examples of prohibited forms of travel on Type 1 trails are mountain bikes and all motorized vehicles. Class 1 trails may be further restricted; for example, to foot travel only.

Class 2 Trails are open to motorized/mechanized travel in addition to foot travel, pack animal, horseback, and other forms of passage. Examples of prohibited forms of travel are any vehicle with a footprint wider than an 18-inch tread (all-terrain vehicles, four-wheelers, and four-wheel-drive vehicles).



Class C Road



Class D Road



Class A Road



Class B Road

Road Classes within the Monument.

Table 13
Roads and Trails within Craters of the Moon National Monument and Preserve

ROADS WITHIN THE MONUMENT	MILES	MAINTENANCE
Class A	30	Idaho Transportation Department maintains 21 miles; NPS maintains 9 miles.
Class B	70	BLM maintains 37 miles; remaining 30 miles maintained by Blaine (28) and Butte (2) counties.
Class C	355	BLM maintains 353 miles, NPS maintains 1 mile, Blaine County maintains 1 mile.
Class D	174	Not maintained.
Arco-Minidoka Road	69	BLM maintains 15 Class B miles and 25 Class C miles; remaining 29 miles maintained by Butte (24) and Blaine (5) counties.
Carey-Kimama Road	40	BLM maintains 15 miles (all Class B); remaining 25 miles maintained by Blaine (12) and Lincoln (13) counties.

Table 13 summarizes the current status of roads and their designated classes in the Monument.

Costs vary tremendously for road maintenance, whether performed by BLM or by the counties. The counties and local highway districts receive funding from the Federal Highway Administration (FHWA) at a fixed dollar per mile cost for the number of miles of road they maintain. For example, costs associated with annual maintenance of a Class C road can be relatively low, between $200 and $400 per mile. This would involve smoothing the road surface with a road grader. One-time deferred maintenance (every 10 to 15 years) such as reshaping the road, cleaning ditches, and adding aggregate material on a Class B standard road can cost $10,000 per mile. To completely rebuild a road, or to bring a road from a Class D standard to a Class B standard, can cost as much as $50,000 per mile. These maintenance costs apply to roads leading to the Monument as well as roads within the Monument.

BLM policy requires land use plans to make OHV (also referred to as "off-road vehicle") designations in the land use planning process (Land Use Planning Handbook H1601-1). The three OHV designations are "open", "limited", and "closed". Open means an area where all types of vehicle use is permitted at all times, and closed means an area where off-road vehicle use is prohibited (43 CFR 8340-0-5(f)(g)(h). The limited designation means that the travel plan completed following the final management plan will identify seasonal limitations, vehicle type and size restrictions, road construction, and maintenance standards for all roads and trails.

Federal regulations applying to areas under the jurisdiction of the NPS stipulate that motor vehicles may be operated only on park roads, in parking areas, and on routes designated for off-road motor vehicle use. Routes designated for off-road motor vehicle use may be designated in National Preserves by way of special regulations (36 CFR 4.10(a)(b)). The Idaho Transportation Department (ITD), counties, and local highway districts manage roads leading to and passing through the Monument under the terms of right-of-way grants.

Off-Road Access

Proclamation 7373 prohibits *"all motorized and mechanized vehicle use off road"* except for emergency or authorized administrative purposes. In this plan, "off-road" is synonymous with cross-country travel, so this type of travel is not confused with the use of OHVs. In other words, OHVs may be used on roads and Class II trails, but may not be driven cross country.

Administrative purposes include the authorized activities of the agencies, permit holders (e.g., livestock permittees), and other agencies. In all cases, off-road travel must be specifically authorized by the agencies. The agencies coordinate with livestock permittees, USDA WS, IDFG, and others who may require authorizations for off-road vehicle use.

Existing BLM land use plans address off-road (cross-country) travel on public lands outside of the Monument. Generally, the public lands outside the Monument are designated "open" to OHV use.



Livestock use at the Monument

LIVESTOCK GRAZING

The Proclamation expanding the Monument states: "Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the Monument administered by the Bureau of Land Management." The Monument encompasses a total of 754,862 acres, which are cooperatively managed by NPS and BLM. NPS administers 469,804 acres, or 62 percent, of the Monument, and that area is closed to livestock use. These areas consist primarily of exposed lava flows, which are mostly devoid of available forage and/or inaccessible to livestock; therefore, prohibiting grazing in these areas has little to no impact on the livestock industry.

Three BLM USRD field offices (Idaho Falls, Burley, and Shoshone) administer livestock use on the 289,111 BLM acres in the Monument. Sheep and/or cattle graze these lands, which are divided into management units known as allotments. There are an additional 4,971 acres of BLM-administered land adjacent to privately owned agriculture fields and NPS-administered lava, which are not within a grazing allotment. Figure 14 is a map showing all grazing allotments in the Monument.

Grazing permits are awarded to permittees by allotment. These permits, or leases, convey no right, title, or interest in the land or resources. Although the Proclamation specifically mentions livestock grazing, it does not establish the practice as a "right" or convey to it any new status.

Table 14 shows the breakdown of allotment acres, animal unit months (AUMs), and permittees by field office. Table 15 shows the individual allotment information within the Monument, including AUM figures, which are estimates based on the percentages of each allotment that lies within the Monument.

Grazing systems, or acceptable grazing practices, for allotments are detailed in Allotment Management

Table 14
Livestock Use per BLM Field Office

INFORMATION	SHOSHONE	IDAHO FALLS	BURLEY	TOTALS
Number of Allotments	10	9	4	23
Total Acres	153,610	77,730	52,800	284,140
Number of AUMs	19,047	9,143	8,503	36,693
Number of Permittees	30	35	14	79



No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

FIGURE 14

Allotments in the Monument

Craters of the Moon National Monument & Preserve

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

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Table 15
Craters of the Moon Allotment Animal Unit Months

FIELD OFFICE	ALLOTMENTS	ALLOTMENT			ESTIMATED AUMS WITHIN THE MONUMENT					
		Total Acres	Acres in Monument	% of acres in Monument	Active Cattle AUMs	Suspended Cattle AUMs	Active Sheep AUMs	Suspended Sheep AUMs	Exchange of Use	Total AUMs per Allotment
Idaho Falls	Blizzard Mountain	3,700	160	4	26	-	-	-	-	26
	Huddles Hole	2,300	2,300	100	24	20	-	-	-	44
	Sunset	12,700	1,600	13	197	9	-	-	-	206
	Quaking Aspen	81,400	2,880	4	241	18	-	-	-	259
	Smith	19,800	2,790	14	352	-	-	-	-	352
	Coxes Well	21,500	6,650	31	659	-	-	-	-	659
	Big Desert	235,900	53,950	23	-	-	6,710	-	-	6,710
	Rudeen	15,400	6,600	43	378	421	-	-	-	799
	Craters	2,300	800	35	-	-	88	-	-	88
	TOTAL	**395,000**	**77,730**	**20**	**1,877**	**468**	**6,798**	**-**	**-**	**9,143**
Burley	East Minidoka	21,100	4,920	23	1,025	-	-	-	-	1,025
	Minidoka	99,000	42,720	43	-	-	5,750	1,095	-	6,845
	Sand	8,700	1,670	19	86	-	-	-	-	86
	Schodde	20,900	3,490	17	547	-	-	-	-	547
	TOTAL	**149,700**	**52,800**	**35**	**1,658**	**-**	**5,750**	**1,095**	**-**	**8,503**
Shoshone	Bowl Crater	2,800	2,800	100	133	-	-	-	-	133
	Cottonwood	6,300	670	11	-	-	20	-	-	20
	Crater	2,500	1,620	65	-	-	85	-	-	85
	Kimama	33,000	800	2	-	-	115	-	2	117
	Laidlaw Park	94,300	94,300	100	8,507	-	2,924	-	-	11,431
	Lava Lake	15,100	1,850	12	88	-	-	-	-	88
	Pagari	26,700	1,850	7	159	21	-	-	-	180
	Poison Lake	18,700	18,700	100	2,856	-	406	-	-	3,262
	Timber Butte	8,000	520	7	38	25	-	-	-	63
	Wildhorse	240,800	30,500	13	51	-	3,617	-	-	3,668
	TOTAL	**448,200**	**153,610**	**34**	**11,832**	**46**	**7,167**	**-**	**2**	**19,047**
GRAND TOTAL		**992,900**	**284,140**	**29**	**15,367**	**606**	**19,715**	**1,095**	**2**	**36,693**

Table 16
The Monument Expansion Facts – Upper Snake River District

ALLOTMENT	% OF ALLOTMENT AFFECTED	AUMS IN PROPOSAL	NUMBER OF PERMITTEES	YEAR STANDARDS & GUIDELINES COMPLETE	PERMIT EXPIRATION DATE	STANDARDS MET
IDAHO FALLS						
Blizzard Mountain	4	26	1	1999	2009	Yes
Craters	35	88	1	1999	2009	Yes
Huddles Hole	100	44	1	1999	2009	Yes
Sunset	13	206	1	1999	2009	Yes
Quaking Aspen	4	259	11	1999	2009	Yes
Smith	14	352	1	2008	2008	
Coxes Well	31	659	1	2005	2005	
Big Desert	23	6,710	18	1999	2009	Yes
Rudeen	43	799	1	2005	2005	
BURLEY						
East Minidoka	23	1,025	1	1999	2005	Yes
Minidoka	43	6,845	9	2002	2/05, 4/07, 1/08, 2/09	
Sand	19	86	1	2006	2007	
Schodde	17	547	3	2000	1/06, 2/09	Yes
SHOSONE						
Bowl Crater	100	133	1	2004	2/28/02	
Cottonwood	11	20	1	1999	2/28/02	No
Crater	65	85	1	1999	2/28/02	No
Kimama	2	117	6	1999	Varies	No
Laidlaw Park	100	11,431	14	2003	Varies	No
Lava Lake	12	88	1	2004	2/28/02	
Pagari	7	180	3	2004	Varies	
Poison Lake	100	3,262	1	2005	2/28/02	
Timber Butte	7	63	1	2006	2/28/02	
Wildhorse	13	3,668	22	1999	Varies	No

Plans (AMPs). Grazing systems result from certain decisions and agreements and are subject to standards and guidelines, as are adjustments made to stocking rates.

Standards and guidelines have been applied to 14 out of 23 allotments, as is shown in Table 16. This analysis begins with consultation between an authorized officer, interested publics, and resource users. Field assessments and evaluations are then conducted to determine the achievement or non-achievement for each standard. A plan to reach uniform achievement, when needed, is typically developed through an environmental assessment (EA). EAs identify changes necessary for allotments to meet, or to make significant progress toward meeting, all standards. EAs also require follow-up monitoring and the reporting of results. Appendix F contains the handbook, "Standards for Rangeland Health and Guidelines for Livestock Grazing Management".

Grazing preference is not expected to decrease as a result of standards and guidelines analysis because most allotments are attaining, or are making significant progress toward attaining, uniform achievement.

Rangeland developments are used in the Monument to improve livestock distribution, provide livestock forage, restore degraded areas, protect sensitive sites, improve wildlife habitat, and facilitate intensive management of livestock through the

implementation of grazing systems. Many of these are also closely associated with the road system in the Monument. The photo below depicts a traditional sheep camp that is used in today's sheep herding operations.

Proclamation 7373 recognized existing roads and two-tracks across narrow strips of exposed lava that are used to trail livestock from one grazing area to another. Trailing of livestock between allotments is another common practice in the livestock industry, and historic trail routes are still used today in many areas of the Monument. The majority of this trailing occurs along existing roads. In the map accompanying the Proclamation, these corridors were designated for primary management by the BLM to allow for continued livestock trailing and other authorized uses in these corridors. However, there are two known areas in the Monument where historic livestock trails do not follow designated roads and cross lava flows that are now administered by the NPS. These two much less obvious trails historically used for trailing livestock were not identified on the Proclamation map. While not in use at the time of Proclamation 7373, the question of their future use has been raised during the preparation of this plan. Both were once used for trailing sheep. One leads between US 93 and Paddelford Flat and the other across Brigham Point in the southern portion of the Craters of the Moon Lava Flow.

The Paddelford Flat Trail, in the northern part of the Monument (T.1S, R.23E, Sec. 5,8), allows the passage of livestock from the north end of Paddelford Flat to US 20/26/93, about 1 mile west of Lava Lake. Without this trail, it would take about 13 miles to trail out around the lava and along the highway back to Lava Lake. This trail, which is approximately 1.5 to 2 miles long, is passable by foot traffic only because it is narrow and goes through rugged lava.



Traditional sheep camp

The Brigham Point Trail, in the southern part of the Monument (T.5S, R.25E, Sec.15), is at the north end of the Brigham Point Lava Flow. This trail, which is less than 0.25-mile long, has similar characteristics to the Paddelford Flat Trail, and therefore it is passable only by foot traffic. This trail allows passage between the east and west sides of Brigham Point without having to go around the entire flow, which would be approximately 9 miles.

OTHER LAND USES

Administrative and Visitor Facilities

Existing administrative and visitor facilities in the Monument are concentrated in an area of approximately 90 acres adjacent to US 20/26/93 in the north area of the Monument. These are the visitor center/administrative building, maintenance shop, five residential buildings, the entrance station, paved parking areas and roads, a 51-unit campground, a campsite, and related sites. The Visitor Center (which also serves as the NPS administrative headquarters), the maintenance building, and five residential buildings were built in the late 1950s as part of the NPS Mission 66 Program.

The Visitor Center building contains a lobby with book displays, sales, and an information desk; a small exhibit room; and public restrooms. The administrative office area of the building consists of six rooms serving as offices and shared work areas. A construction proposal to renovate the building and add 1,800 square feet for staff work area and 450 square feet for a multipurpose audiovisual room was dropped from the administration's 2003 fiscal year budget before passage of the 2003 appropriations. The Department of the Interior Fiscal Year 2004 budget has not yet been passed into law, so no funding to proceed with the project has yet been approved.

The six-bay maintenance building provides limited area for its intended purposes, since parts of the building have been converted to offices for maintenance staff, administrative staff, and storage of park supplies. One of the residential buildings has been converted to staff offices and museum collections storage. Sewage is handled by separate septic tanks and leaching wells for the Visitor Center/maintenance building and for the residential area. Each of the campground restrooms is served a separate system.

The 51-unit campground contains a 130-seat amphitheater and two restrooms. An entrance station where visitors are contacted before entering the paved loop drive is located adjacent to the campground. North of the highway is a public group campsite. In this vicinity is also a modest research camp, the park's potable water wells and delivery systems, and underground water storage reservoirs.

A 7-mile paved loop drive with short spur roads, pullouts, and parking areas gives visitors access to scenic vistas, hiking trailheads, and other attractions. Vault toilets are available at three of the parking areas.

Kings Bowl was once a developed site. From the mid-1960s to late-1980s, private operators under permits from the BLM operated a concession at the site with a developed trail/tunnel system into Crystal Ice Cave, a parking and picnicking area, a trailer pad, a generator building, and a small concession stand. All of the aboveground facilities have been removed because of safety concerns. A small parking area and remnants of footpaths and vehicle trails remain. NPS and BLM are in the process of installing a series of waysides and signs in the area to convey important safety and resources protection messages to people who might visit this site.

Lands and Realty

The planning area encompasses approximately 755,000 acres. Figure 15 shows land status, and land ownership is detailed in Table 17.

Private and state land within the Monument boundary is not part of the Monument and is not subject to the direction in this plan. Most of the private land holdings in the planning area were obtained through agricultural entries such as the Desert Land Act, the Carey Act, the Reclamation Homestead Act, and the Stock Raising Homestead Act. There were no pending agricultural entries in the Monument on the date of Proclamation 7373. The private and state land inholdings are used for grazing and contain related developments such as fences, wells, corrals, camp trailers, and seedings. There are no houses, cabins, or other permanent human dwellings on the private or state land.

The agencies will consider acquiring private and state land in the Monument through exchange, purchase, or donation. Acquisitions of private land must be initiated by the private landowner as a willing seller. The Idaho Department of Lands (IDL) has initiated a proposal to exchange state land in the Monument for BLM land outside of the Monument (see letter from IDL in Appendix J). Private or state land acquired by the agencies would automatically become part of the Monument and subject to the direction in this plan.

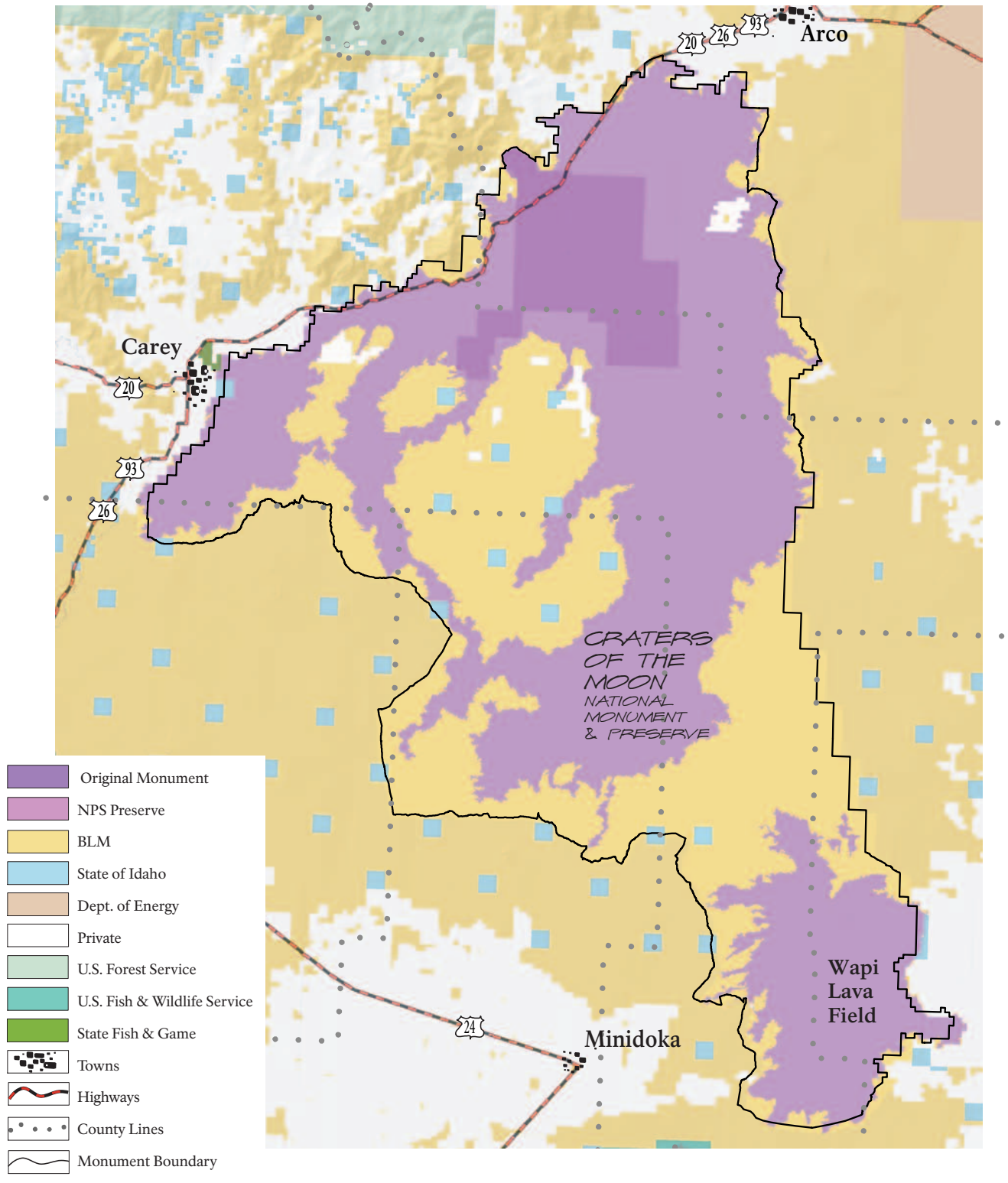
Proclamation 7373 transferred 412,391 acres in the Monument from BLM to NPS administration. In 2002, Congress changed the designation of this land from National Monument to the Craters of the Moon National Preserve.

Proclamation 7373 withdrew all federal land within the Monument and Preserve from all forms of entry, location, selection, sale, and other forms of disposition. Therefore, the agencies cannot exchange, sell, or dispose of any federal land in the Monument except for extremely rare situations that would further the protective purposes of the Monument. This withdrawal includes the disposal of land to local governments for public purposes and community expansion.

The Monument contains multiple land use authorizations for a wide variety of purposes. Lands and realty

Table 17
Landownership

LAND STATUS	ACRES	% OF MONUMENT
NPS Lands		
Federal	465,835	62
Original Monument	53,440	7
National Preserve	412,395	55
State	1,822	0.2
Private	2,147	0.3
NPS Area Total	**469,804**	**62**
BLM Lands		
Federal	273,847	36
State	6,499	0.9
Private	4,713	0.6
BLM Area Total	**285,058**	38
Combined Total		
Federal Total	739,682	98
State Total	8,321	1
Private Total	6,860	1
Grand Total	**754,862**	**100**



No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

FIGURE 15
Land Status

Craters of the Moon National Monument & Preserve
U.S. Department of the Interior / National Park Service
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Table 18
Valid Existing Rights

LOCATION ON FIGURE 16	CASE TYPE	CUSTOMER NAME	CASE FILE NUMBER	SIZE IN ACRES	EXPIRATION DATE
1	Federal Aid Highway 93	ITD	IDI-001314	94	Perpetuity
2	ROW Powerline	Lost River Electric Cooperative	IDI-002855	19	12/16/2019
3	ROW Observation Well	USGS	IDI-012671	10	12/02/2009
4	ROW Telephone Line	ATC Communications	IDI-020118	6	08/08/2012
5	ROW Seismic Station	DOE	IDI-028657	<1	04/16/2012
6	ROW Snow Fence	ITD	IDI-032380	14	09/09/2017
7	ROW Mineral Material Site	ITD	IDI-006614	109	Perpetuity
8	ROW Observation Wells	BOR	IDI-0008954	4	Perpetuity
9	Emergency Airstrip Lease	Idaho Division of Aeronautics	IDI-0010307	43	03/05/2013
10	Emergency Airstrip Lease	Idaho Division of Aeronautics	IDI-0010310	40	09/19/2013
11	Federal Aid Highway 93	ITD	IDBL-0047476	87	Perpetuity
12	ROW Mineral Material Sites	ITD	IDBL-0047852	156	Perpetuity
13	Federal Aid Highway 93	ITD	IDBL-0049776	373	Perpetuity
14	ROW Mineral Material Site	ITD	IDBL-0052624	40	Perpetuity
15	Federal Aid Highway 93	ITD	IDBL-0052700	141	Perpetuity
16	Federal Aid Highway 93	ITD	IDBL-0053778	28	Perpetuity

authorizations fall into two broad categories, valid existing rights and other valid but lesser interests. Proclamation 7373 states that: "The establishment of this monument is subject to valid existing rights." Land use authorizations that give "rights" to the holder under various laws, leases, and filings under federal law, such as some rights-of-way (ROWs), are listed in Table 18 and shown on Figure 16.

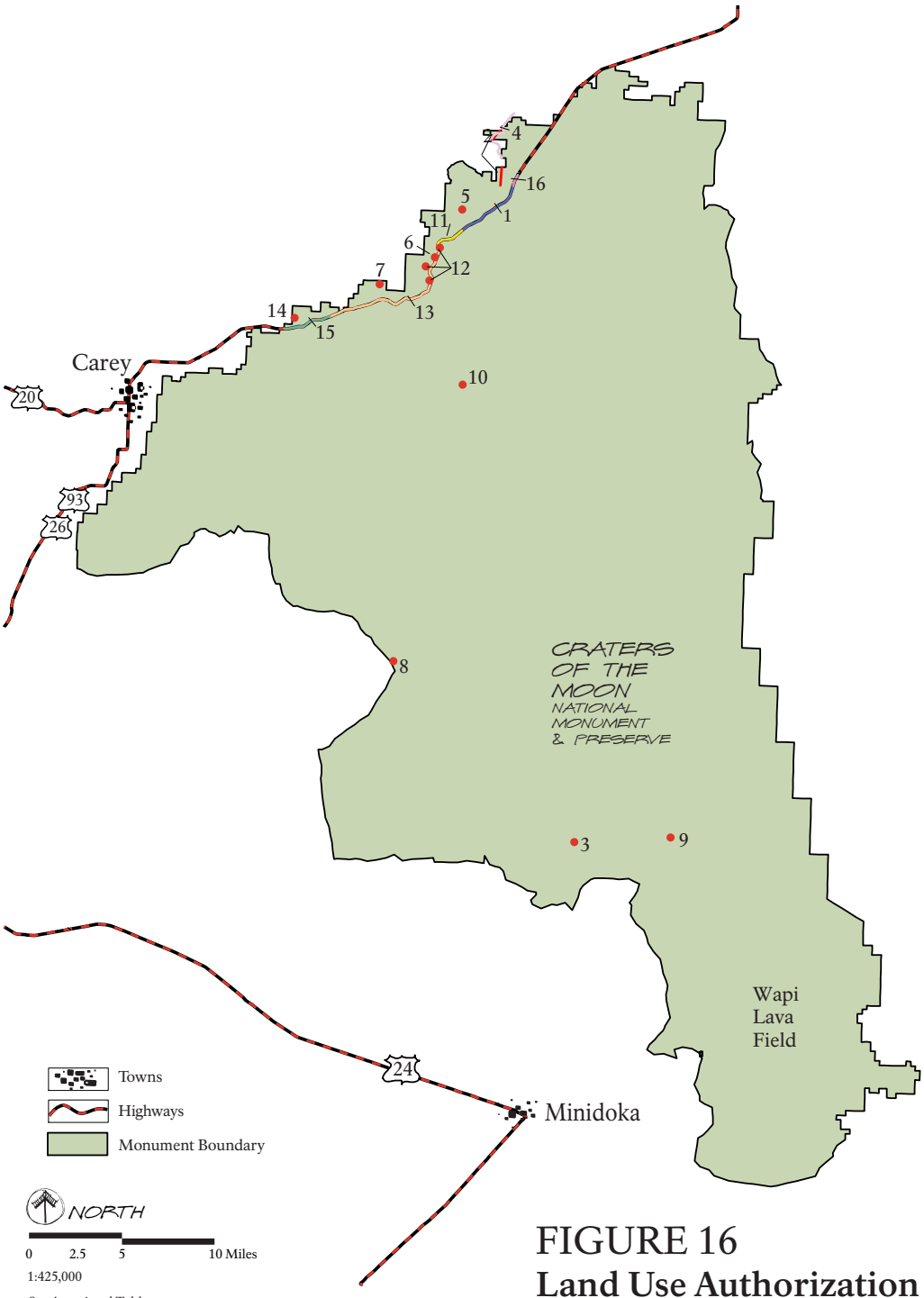
Other existing authorizations in the Monument are three Free Use Permits for mineral materials (see the "Minerals" section, below) and 14 easements held by BLM across state and private land. Only one pending authorization/application for a land use authorization within the Monument existed on November 9, 2000. This is a proposed cooperative agreement for a groundwater recharge area along the Little Wood River, approximately 5 miles south of Carey. At the time of Proclamation 7373, there were no other pending lands and realty cases or applications such as ROWs, Land Use Permits, exchange or sale proposals, or trespass cases.

A potential powerline corridor was identified in 1984, running southwest to northeast between the Craters of the Moon and Wapi lava fields in the Monument (Montgomery 1984). However, because of conflicts with the Great Rift WSA, this corridor has not been carried forward in other regional powerline and utility corridor studies (Western Regional Corridor Study 1992). A utility corridor, an existing 500-kilovolt transmission line, and a railroad ROW border the Monument on its southern extremity near the Wapi Lava Field.

Minerals

The Proclamation expanding the Monument withdrew all federal lands and interests in lands within the Monument from entry, location, selection, sale, leasing, or other dispositions (except for exchanges that would further the protective purposes of the Monument) under the public land laws, including the mineral leasing and mining laws. Thus, new federal mineral leases or prospecting permits may not be issued, nor may new mining claims be located within the Monument. No mining claims existed in the Monument on the date of Proclamation 7373.

There are no known natural gas, oil, or mineral deposits within the Monument boundaries. The general area has moderate potential for developable



No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies. Frontcountry and Passage Zone polygons have been oversized for graphic presentation and are not to scale.

FIGURE 16
Land Use Authorization for Valid Existing Rights

Craters of the Moon National Monument & Preserve
U.S. Department of the Interior / National Park Service
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geothermal resources (Kuntz et al. 1979, Ridenour 1979). Active mining claims for locatable minerals, primarily gold, exist just to north of the Monument in the Pioneer Mountain foothills. NPS has rehabilitated two old abandoned gold mine adits in the northern portion of the original Monument. BLM processed several applications for geothermal leases in the 1970s and issued one lease, which was relinquished in 1982.

The Monument contains three Free Use Permits for pumice/cinders, Butte County and Blaine County use these sites as a material source for gravel road maintenance. Free Use Permits authorize use only by state or local governments. These material sites are not available to the general public or commercial parties.

The amount of suitable road surface material available within the Monument is essentially unlimited. However, Proclamation 7373 and agency policy restricts extraction of mineral materials to valid existing rights and administrative uses only. Cinders are generally considered to be an undesirable material for road maintenance because they are not very durable compared to gravel. Cinders are very light, which reduces transportation costs. High quality crushed gravel is available outside of the Monument, but at a substantially higher cost than the readily available cinders.

ITD also holds three ROW grants for five pumice/cinder material sites in the Monument. These ROWs are valid existing rights unaffected by Proclamation 7373. The former General Land Office granted these ROWs in the 1930s during the construction of US 20/26/93. ITD has used only two of these material sites during the last 10 years.

The Monument contains no known industrial minerals, gems, semiprecious stones, or petrified wood. The collection of any lava rock features in the Monument is authorized only under a scientific collecting permit issued to institutions. Public collecting is illegal. Many public and commercial sources exist throughout southern Idaho for lava-based materials used in landscaping, barbecue grills, and saunas.

SPECIAL DESIGNATION AREAS

Wilderness

Congressional designation of the 43,243-acre Craters of the Moon National Wilderness Area was enacted on October 23, 1970, making the Monument and Petrified Forest National Park the first units within the National Park System with designated wilderness areas (PL 91-504).

The Craters of the Moon Wilderness is south of US 93 entirely within the original Monument (Figure 17). All but the north end of the wilderness boundary is adjacent to lands inventoried by BLM as the Great Rift WSA in 1980 (USDI 1980). When designated, the wilderness boundary was offset one-eighth of a mile (660 feet) inside the Monument boundary. Thus, a narrow non-wilderness strip of the Monument separates the Great Rift WSA and the designated wilderness. This "buffer" area was intended to permit administrative vehicle access for firefighting and other management needs (U.S. House of Representatives 1970). Since the narrow buffer area does not contain roads and consists largely of impassable lava flows, it never has been used for such purposes.

Much of the scenic 7-mile Loop Drive developed by NPS in the 1930s and 1950s lies close to the northern edge of the wilderness area. At two points, the wilderness boundary lies within 2,000 feet of US 20/26/93. The openness of the terrain results in the sights and sounds of traffic on the highway and the 7-mile Loop Drive being perceivable from some of the northernmost areas of the wilderness.

Human-made facilities in the wilderness area are limited to the Wilderness and Tree Molds trails, a small concrete watering trough that predates the Monument, and numerous rock cairns and rock rings of historic or prehistoric origin. Initially developed as a primitive wagon trail to serve pre-1924 livestock use on Little Prairie, the 5.1-mile Wilderness Trail later served as a primitive vehicle route until 1970. At some point, perhaps as early as the 1950s, the route was closed to the public, and only administrative use was permitted. The extent of construction or maintenance on the route up until 1970 is poorly documented, but no evidence of grading exists. There has been no documented maintenance of the route since 1970. The trail to Echo Crater remains distinct, but south of Echo Crater, the trail has faded in some areas.

Before the wilderness was designated, the 1.5-mile Tree Molds Trail was developed to gain access to numerous tree mold features. The Tree Molds Trail is the only maintained trail listed in the 1996 NPS Wilderness Management Plan (USDI 1996). A spur trail leading from the Tree Molds Trail to Great Owl Cavern was closed following wilderness designation, and a large metal stairway leading into the cavern was removed.

NPS management activities have been limited to monitoring air quality, vegetation, wildlife, and recreational impacts and fire suppression. In 2000, a fire management plan was completed that provided for managing natural fires for resource benefits under certain conditions (USDI 2000).

Wilderness Study Areas

WSAs are lands identified through the BLM wilderness inventory process as possessing wilderness characteristics (defined by the Wilderness Act of September 3, 1964, 16 USC 1131). WSA lands are designated in BLM land use plans and managed

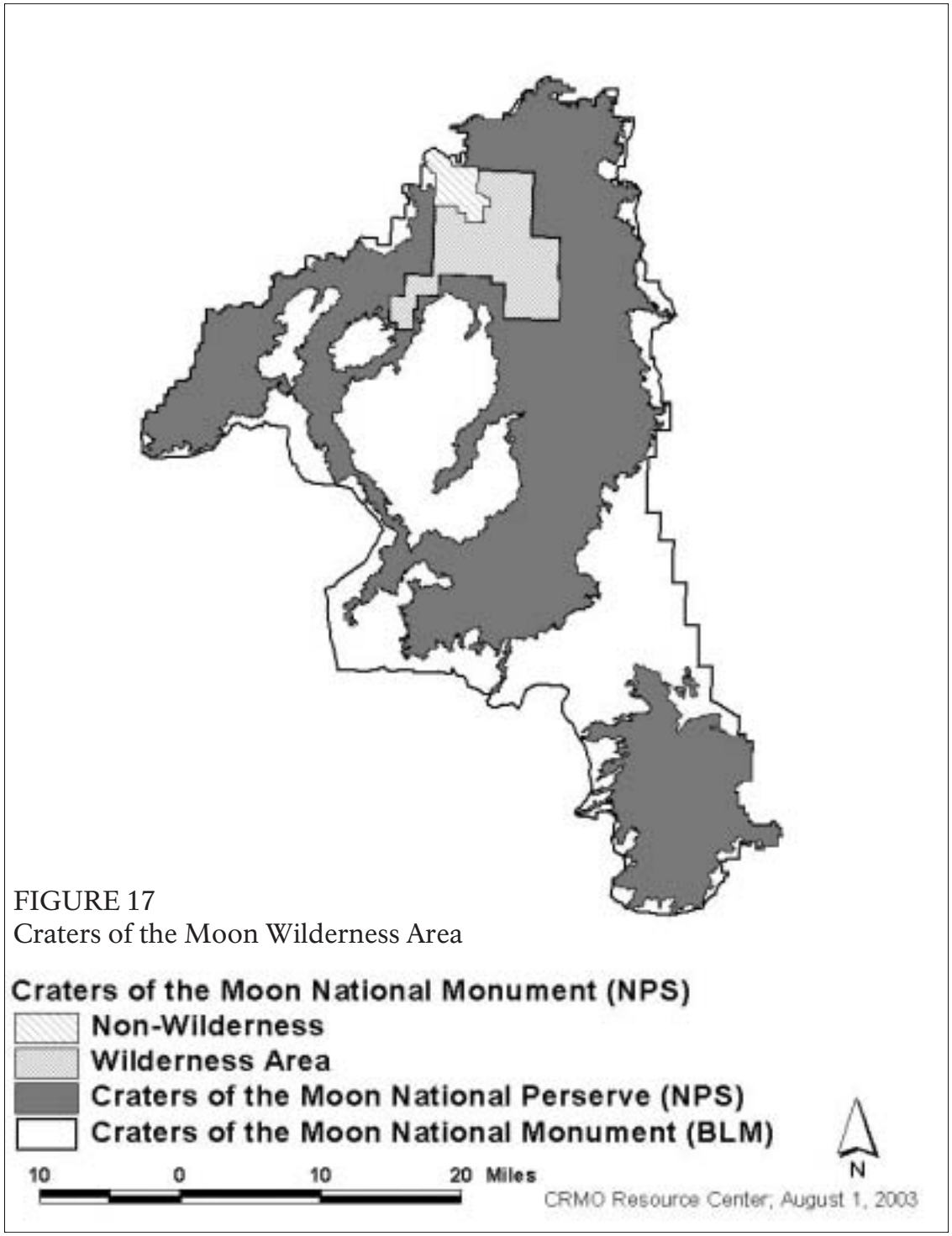


FIGURE 17
Craters of the Moon Wilderness Area

under the BLM Interim Management Policy (IMP) for Lands Under Wilderness Review, Handbook H8550-1, so as not to impair their suitability for wilderness designation (USDI BLM 1995).

Four WSAs have been designated within the boundaries of the Monument (Table 19, Figure 18). Eighty-five percent of the WSAs lie within the National Preserve, the rest is managed by BLM. The 380,200-acre Great Rift WSA was designated in 1980 (BLM 1980). The Great Rift WSA encompasses most of the Craters of the Moon and Wapi lava fields, along with parts of the surrounding sagebrush grasslands. The Raven's Eye WSA covers 67,110 acres of the western part of the Craters of the Moon Lava Field, with 68 percent of the area within the Monument. The Little Deer WSA takes in 33,531 acres of a narrow extension of the Craters of the Moon Lava Field and adjacent sagebrush grasslands. The 9,700-acre Bear's Den Butte WSA is centered on a narrow finger of the Craters of the Moon Lava Field, which extends into Laidlaw Park. The Raven's Eye, Little Deer, and Bear's Den Butte WSAs were designated in 1986 (BLM 1987).

BLM land use plans indicated that parts of the WSA were suitable for preservation as wilderness. Designation of the WSA as wilderness requires a recommendation by the President and an Act of Congress. The lands remain in WSA status until Congress acts either to designate the land as wilderness or to release it for other uses. In 1985, President Reagan recommended that Congress designate 322,450 acres of the Great Rift WSA as wilderness.

Presidential Proclamation 7373 transferred portions of the four WSA to NPS in 2000. The proclamation directed the following:

> Wilderness Study Areas included in the Monument will continue to be managed under Section 603(c) of the Federal Land Policy and Management Act of 1976 (43 USC 17011782).

Section 603(c) requires that WSAs be managed to maintain their suitability for wilderness designation and prevent unnecessary or undue degradation. The BLM and NPS will follow the BLM WSA IMP in guiding management decisions within the WSA until completion of this Plan/EIS (BLM/NPS 2001) and completion of a Wilderness Management Plan for the Monument.

There are no roads within the WSA boundaries. BLM wilderness inventory procedures (BLM 2001) define roads as routes improved and maintained by mechanical means to ensure relatively regular and continuous use. A route maintained solely by the passage of vehicles is defined as a vehicle way. Numerous vehicle ways exist within the WSA. The BLM IMP for WSAs permit continued motorized travel on those ways recorded during the wilderness inventory. Additional vehicle routes created since the inventory were not authorized, and motorized vehicle use of such routes is prohibited.

Wilderness inventories recorded 20 miles of vehicle ways in the Raven's Eye WSA, 5.1 miles in the Little Deer WSA, and 2 miles in the Bear Den Butte WSA (BLM 1987). Inventories of the Great Rift WSA indicate that it contains approximately 25.7 miles of vehicle ways. Unauthorized vehicle ways may have been created since the inventories were completed, but the numbers are unknown. New vehicle ways may have also been created during authorized fire suppression and restoration activities.

Other human-made facilities in the WSAs include wildlife guzzlers, sheep bed grounds, fences, and watering structures associated with livestock use. The sights and sounds of roads adjacent to the WSAs are visible and audible from within limited portions of the WSAs. Communication towers near Arco and Lava Lake are visible from portions of the Great Rift WSA.

Table 19
Summary of Wilderness Study Areas

WILDERNESS STUDY AREA	AREA WITHIN MONUMENT (ACRES)	NPS AREA (ACRES)	BLM AREA (ACRES)	TOTAL WSA AREA (ACRES)	AREA WITHIN MONUMENT RECOMMENDED SUITABLE BY BLM (ACRES)
Great Rift	380,200	335,123	45,077	380,200	341,000
Raven's Eye	45,578	37,211	8,367	67,110	67,110
Little Deer	33,531	20,073	13,458	33,531	0
Bear Den Butte	9,700	4,289	5,411	9,700	0

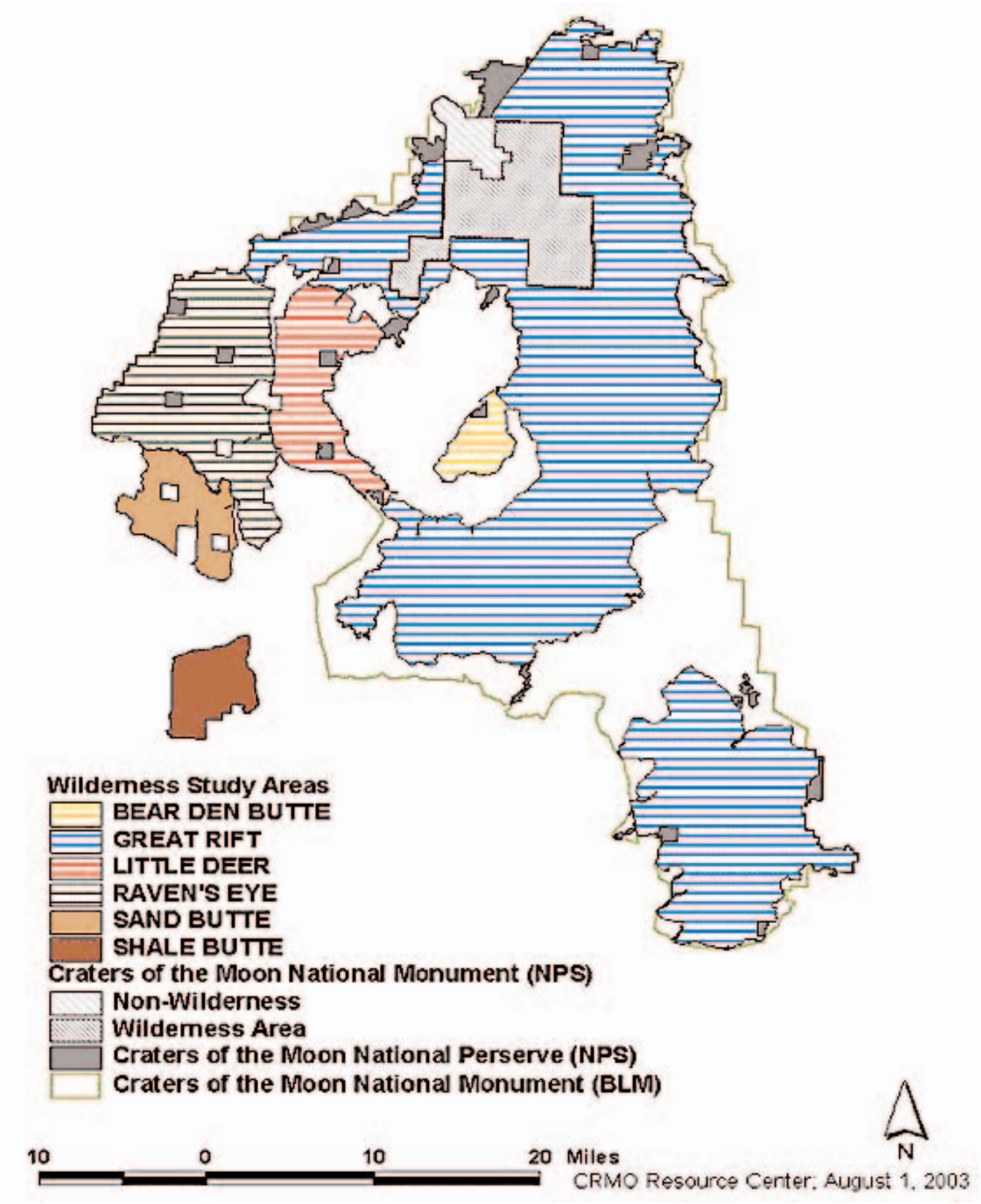


FIGURE 18
Location of Wilderness Study Areas

Research Natural Areas, National Natural Landmark, Areas of Critical Environmental Concern

– Research Natural Areas

NPS policies define RNAs as areas with prime examples of natural ecosystems or significant genetic resources with value for long-term research. Activities within RNAs are restricted to non-manipulative research, education, and other activities that will not detract from the area's research value.

Four RNAs have been designated within the Monument: Carey Kipuka RNA, Big Juniper Kipuka RNA, Brass Cap RNA, and Sand Kipuka RNA. Three of the four were nominated and designated by BLM before 1991 (Hilty 1991). The fourth, Carey Kipuka, was nominated and designated by NPS in 1993. All four RNAs feature kipukas, an area of older vegetated landscape surrounded by recent lava flows. Isolation, difficulty of access, and a lack of surface water made these areas unsuitable for livestock, and little or no grazing has been recorded. Isolation has also limited recreational access to the kipukas. (See Figure 18).

Carey Kipuka RNA is a 170.3-acre kipuka in the Craters of the Moon Lava Field, 14 miles east of Carey, Idaho. The kipuka and surrounding area was added to the Monument in 1961 and became designated wilderness in 1970. The area has also been nominated as a National Natural Landmark (NNL).

The entire kipuka is dominated by sagebrush vegetation represented by three distinct vegetative communities. The area is a particularly good representative of the Low Sagebrush Theme, Low Sagebrush/Idaho Fescue Subtheme. Cheatgrass *(Bromus tectorum)*, an aggressive invader of areas disturbed by fire, is widespread throughout much of the kipuka. No other invasive exotic plants or noxious weeds have been recorded. Scientific investigation of the area dates to 1956, and its value for basic and applied study of sagebrush-grassland ecosystems has long been recognized (Tisdale 1965). Long-term monitoring of vegetation and breeding birds in the area continues to be conducted by NPS.

Big Juniper Kipuka RNA is a 320-acre area within the Wapi Lava Field, 14 miles northeast of Minidoka, Idaho. This RNA contains undisturbed examples of several habitat types that occur on the ESRP, including Wyoming big sagebrush/bluebunch wheatgrass, Wyoming big sagebrush/Thurber's needlegrass, and threetip sagebrush/bluebunch wheatgrass. Surrounding lavas contain a sparse cover of Utah juniper woodland with a mixed shrub later (Caicco 1983b).

Brass Cap Kipuka RNA is an 854-acre area surrounding the Brass Cap Kipuka on the Craters of the Moon Lava Field, 11 miles east of Carey, Idaho. This area is an undisturbed example of a major habitat type. Alkali sagebrush and Idaho fescue are the dominant species, covering nearly 100 acres of the kipuka (Caicco 1983a).

Sand Kipuka RNA is a 320-acre area surrounding Sand Kipuka, 12 miles east of Minidoka within the Wapi Lava Field. The kipuka is dominated by Wyoming big sagebrush or basin big sagebrush and needle-and-thread grass. Utah juniper woodlands are well developed on the lava surfaces surrounding the kipuka (Wellner 1983).

– National Natural Landmarks

NNLs are areas of national significant designated by the Secretary of the Interior as being outstanding representatives of a region's biotic or geologic features (U.S. Government Printing Office 2001). The Monument contains portions of the Great Rift NNL, which was designated by the Secretary of the Interior in 1968 for its geological significance and enlarged in 1980 in recognition of its biological significance.

The low sagebrush/Idaho fescue habitat of the north unit and the early low sagebrush/Idaho fescue habitat in Carey Kipuka have been evaluated and found to meet the criteria for NNL status. They are outstanding representatives of the Low Sagebrush/Idaho Fescue Subtheme in the Low Sagebrush Theme within the Columbia Plateau Natural Region (Rust 2002). Part of the north unit of the proposed NNL extends outside of the Monument onto BLM lands.

– Areas of Critical Environmental Concern

ACECs are certain areas designated by BLM because of their unique or significant environmental qualities or features. The three RNAs (Old Juniper Kipuka, Sand Kipuka, and Brass Cap Kipuka) in the National Preserve were

BLM ACECs before the Monument was expanded. The Laidlaw Park area would be considered for ACEC designation under Alternative C (see Appendix G, Proposed Laidlaw Park ACEC evaluation).

VISITOR EXPERIENCE

INTERPRETATION/VISITOR UNDERSTANDING

Through interpretive and educational programs, NPS and BLM strive to instill in visitors an understanding, appreciation, and enjoyment of the significance of the Monument. Interpretive and educational programs encourage the development of a personal stewardship ethic and broaden public support for preserving our nation's natural and cultural resources.

The interpretive program at the Monument focuses on providing an educational experience to the widest possible variety of visitors. Major target audiences are summer visitors, school students, visitors from local communities, and winter visitors. Other groups are backcountry travelers, hunters, and people planning visits to the Monument. Programs to best meet the needs of these groups are regularly scheduled walks and talks during summer; school group orientations and teacher workshops in spring and fall; special topic weekend programs; and winter ecology workshops.

Informational kiosks, press releases, and the development of Web sites have been implemented recently to address the needs of more users. Visitors unable to attend or take advantage of these activities have an excellent opportunity to learn about the Monument through a broad range of educational opportunities, including a museum, wayside exhibits, self-guided trails, and publications.

Interpretive themes are important ideas, stories, and concepts that are presented to visitors in exhibits, publications, and programs. With the development of a Comprehensive Interpretative Plan for the Monument, the following themes will be addressed:

- An extraordinary example of the creation of a volcanic landscape.
- A place with a diverse population of plants and animals associated with a wide variety of volcanic habitats.
- A resource associated with thousands of years of human history, giving insight into a variety of people, cultures, and times.
- A laboratory that supports a diverse natural and cultural history, which provides important opportunities for research and education.
- A landscape of lava and sagebrush — one of the few remaining examples of what is "natural."

The primary theme of the interpretive program at the Monument is the significance of the awesome effects of volcanism on this landscape. Other themes stress the incredible diversity of plants and animals that have adapted to this harsh environment and the unique cultural history that reflects the interactions between people and the rugged volcanic terrain. An ongoing effort to make visitors aware of their relationship to this environment and their role in preserving and protecting this area is also an integral component of all interpretive activities. Visitor safety, orientation, and trip-planning information are available through a variety of media. See the "Social and Economic Conditions" section for more information about public health and safety, including visitor health and safety.

Making visitors aware of the need to avoid certain behaviors that may have a detrimental impact on Monument resources is the first step in the protection of fragile natural and cultural features. The need for visitors to stay on trails, avoid walking in sensitive areas, and leaving the rocks in place is stressed. This approach is believed to have a positive effect in protecting such features as spatter cones, cinder cones, and ropy lava flows. The need to protect plants, animals, and archaeological and historic sites is also a part of a diverse interpretive program.

A visitor survey done at the Monument in 1989 indicates that interpretive programs were considered important by at least 74 percent of Monument visitors (Machlis et al. 1989). More specifically, the percentage of those visitors using non-personal services such as NPS folder and map (91 percent), wayside exhibits (58 percent), self-guided trails (75 percent), and Visitor Center exhibits (77 percent) indicates wide use among visitors (Machlis et al. 1989). The



Visitor Center

percentage of all visitors using personal services such as evening programs (10 percent) and guided walks (17 percent) indicates that a much smaller number of visitors attend these types of programs. Such visitor statistical information is not available on the expanded part of the Monument.

Nearly all interpretive efforts take place in the developed section of the Monument adjacent to US 20/26/93. Along what is known as the 7-mile Loop Drive, visitors have access to a visitor center with accompanying exhibits and audiovisual programs, a series of self-guided trails, and a system of wayside exhibits at roadside pullouts and along several trails. Interpretive walks and activities, available primarily during the peak season, are also conducted from this site. Although not all interpretive activities or sites are considered accessible to all visitors, a few recently developed sites offer a higher level of access.

The Monument's interpretive facilities are in good to excellent condition. Visitor Center exhibits done in the 1950s have been completely redone in recent years. A few wayside exhibits are dated, but most have been installed within the past 15 years.

The interpretive program also has several other components, including publications, educational programs, winter ecology walks, a Junior Ranger Program, and off-site programs that offer interpretive opportunities to a much larger, diverse audience. Both the NPS and BLM Web sites contain information about the Monument.

Interpretation in the recently expanded Monument is limited, consisting primarily of informational signs at key attractions like Crystal Ice Cave, Kings Bowl, Baker Caves, and Bear Trap Cave. A detailed map of the area published several years ago offers orientation and interpretation. A series of signs is being developed for use in the Kings Bowl/Crystal Ice Cave area to convey critical safety messages and site information. This project, which predates the Monument expansion, is being carried out in connection with the rehabilitation of a defunct commercial operation site that left behind numerous deteriorating structures and unsafe conditions.

Kiosks containing orientation, safety, and user information have been installed at key access points. An extensive self-guiding trail system has been developed at Hell's Half Acre on I-15 which, although not in the Monument, interprets many related subjects.

RECREATION AND PUBLIC SAFETY

General Visitation

Visitation to the original Monument averages 200,000 people per year, with peak visitation on summer weekends. Many visitors are on vacations that include Yellowstone and Grand Teton National Parks to the east and Sun Valley and the Sawtooth National Recreation Area to the west (NPS 1990). Table 20 presents visitation statistics for the original Monument for 1990 through 2001, and Appendix H presents various recreational statistics for 1999 to 2002.

Commonly, visitors spend less than 3 hours at the Monument; 5 percent remain overnight. The typical

Table 20
Visitation at the NPS Craters of the Moon National Monument 1990-2001

YEAR	TOTAL VISITS *	PERCENT CHANGE
2001	186,993	-14.31%
2000	213,758	0.86%
1999	211,929	7.83%
1998	195,328	-10.66%
1997	216,145	-0.44%
1996	217,087	-9.09%
1995	236,827	2.28%
1994	231,427	-1.99%
1993	236,027	-2.17%
1992	241,160	9.60%
1991	218,000	5.50%
1990	206,000	-

Total visits are the total of recreation and non-visits. To view a detailed breakdown, visit the Public Use Statistics Office Web site.



Cross-country skiing in the Monument

visitor will stop and tour the Visitor Center, then sight-see along the 7-mile paved loop drive, taking advantage of photographic opportunities and often having a picnic before leaving.

Within the original Monument, nearly 80 percent of visitors are in family groups, with the most common visitors in age groups over 62 and under 11. For nearly 80 percent of visitors, this is their first visit to Craters of the Moon, and 19 percent of all visitors in the 1988 survey were from foreign countries. Most U.S. visitors originated from the states around the Monument – Idaho, Wyoming, California, Colorado, Oregon, and Washington (Machlis 1989).

School groups represent an important visitor group. More than 100 school groups comprising more than 3,000 students visit the Monument each year. Teachers who have attended one of the Monument-provided teacher orientation workshops lead many of these groups.

Commercial tours also come to the Monument through the primary visitation season. Commercial tour numbers vary from year to year, but the average is between 30 and 40 tour buses each year.

Winter visitation is low, but winter attracts local and regional visitors familiar with the quality cross-country skiing and snowshoeing opportunities. The Loop Drive is closed to vehicle traffic and groomed for skiing in winter. The NPS has also offered winter ecology programs for the past few years; these are always well attended.

Visitation to the expanded parts of the Monument over the last 10 years averages approximately 20,000 visits per year, according to BLM's Recreation Management Information System (RMIS). Some popular sites are Pillar Butte, Wood Road Kipuka, Bear Park, Snowdrift Crater, Kings Bowl, and Bear Trap Cave. No visitor facilities are available at any of the sites, but all receive day use and occasional overnight camping. Recreational activities in the expanded part of the Monument, in order of popularity, are hunting; driving for pleasure; geologic exploration including caving, lava hiking, and sightseeing; hiking; primitive camping; photography; horseback riding; and mountain biking.

Hunting

The Idaho Fish and Game Commission sets hunting seasons and other regulations for hunting in Idaho. Most of the Monument and Preserve is within Idaho Fish and Game Hunting Unit 52A. The southern part of the area, including all of the Wapi Lava Field, is included in Unit 68. A very small portion of the northern edge of the Monument and Preserve fall within Units 49 and 50. The length of season and number of available controlled-hunt tags vary annually on the basis of wildlife population levels and other factors.

RMIS and IDFG estimates indicate that sage grouse hunting and open mule deer hunting attract the highest number of hunters in the Monument. The open seasons for archery (antelope, elk, and deer), other small game (rabbits, upland birds), predators and unprotected species, along with the controlled seasons (draw tags) for antelope, elk, and deer, account for a much smaller portion of hunting use.

Almost all hunting has historically has been in the BLM portions of the Monument. A very small amount of hunting occurs in what is now the NPS Preserve. The exposed lava flows in the NPS Preserve can be used for a quality hunt for a few hunters who seek the challenge. Hunting has never been authorized in the original NPS Monument.

The very small amount of hunting by members of the Shoshone-Bannock Tribes that takes place in the Monument is considered a treaty right and is not considered a recreational hunting experience.

Motorized and Mechanized Recreation

OHV use in the Monument includes off-highway motorcycles, all-terrain vehicles (ATVs), and snowmobiles. Most OHV use in the Monument takes place during hunting seasons or in association with other land uses like livestock operations. The amount of OHV-specific recreation activity in the Monument is quite small (RMIS estimates less than 5,000 visits per year). Most OHV activity takes place on the existing road network, since no trails have been designated for motorized use.

A small amount of mountain biking takes place in the expanded part of the Monument. This small but growing recreational use is confined primarily to the existing road network, because no designated trails for mountain biking exist. In the area of the original Monument, mountain bike permits are available for riding along portions of Goodale,s Cutoff and along the 7-mile Loop Drive and other areas. No OHV use is permitted within the original Monument.

Hiking and Horseback Riding

Most hikers hike on designated trails in the original Monument. Hiking trails to features of interest in the original Monument are the North Crater Flow,

Devils Orchard, Inferno Cone, the Big Craters/Spatter Cones area, Tree Molds, and the Cave Area. Hikers in the non-Wilderness part of the original Monument regularly see other visitors, because the area is highly used. Opportunities for solitude are limited; however, the Craters of the Moon Wilderness offers outstanding opportunities for self-directed hiking, with an excellent chance to experience solitude.



Hiking in Craters of the Moon National Monument

Wilderness use is extremely light, with an average of 130 overnight backpackers per year (based on backcountry permits issued 1990 through 2002). Backpacking parties usually consist of fewer than four persons, and they seldom stay out more than two nights (NPS 1990). All water must be packed into the backcountry. Exact numbers of day users are unavailable.

Hiking in the expanded part of the Monument offers outstanding opportunities to experience a high degree of solitude. Since no designated hiking trails exist within the expanded portion of the Monument, most hiking experiences are cross-country and self-directed. Some constructed hiking trails exist at the Crystal Ice Caves/ Kings Bowl area (RMIS estimates 1,000 visits).

Horseback riding and the use of pack stock in the original Monument usually is limited to one or two groups a year and is concentrated primarily along the Craters of the Moon Wilderness Trail. In the expanded part of the Monument, most stock animals and horseback riders work in association with livestock operations and in other non-recreation activities, but there is a small amount of recreational horseback riding and pack-stock use in this area. Hunters also regularly use horses. The few recreational users enjoy outstanding opportunities for solitude and a self-directed experience. Riders and pack-stock users travel cross-country or along the existing road network. No designated trails currently exist for horseback riding.

Camping

In the original Monument, 51 developed campsites with water, restrooms, charcoal grills, and picnic tables are available on a first-come-first-serve basis. Most campers stay only one night and are usually gone by 10 a.m. The campground is rarely full, with the exception of several weekends during the summer season, generally around holidays.

Recreational overnight use of the Wilderness area is light. The NPS issues fewer than 100 overnight camping permits per year in the Wilderness. The entire area is snow-covered and accessible by snowshoe and ski for at least one-third of the year. Most overnight Wilderness users hike the Wilderness Trail and camp in or near Echo Crater. Stock use is restricted to day use by groups of 12 or less on the Wilderness Trail. No overnight camping with stock is permitted (USDI NPS 2002).



Recreational camping in Cinder Butte

The expanded part of the Monument does not contain any developed campgrounds. Currently, dispersed camping is available throughout the entire expanded portion. Many use-established primitive campsites near crossroads, access points, and major features of interest are available throughout the Monument.

Caving

Caving does not draw large numbers of visitors; however, caving is an important and unique recreation opportunity at Craters of the Moon National Monument. Opportunities exist for recreational cave experiences ranging from hiking a paved trail to an easily accessible lava tube such as Indian Tunnel, to visiting a remote wild cave somewhere in the expanded portion of the Monument, to the potential to actually discover a previously unknown cave.

Monument caves differ from limestone caves in that they are lava tubes once formed by flowing lava. Although they exhibit flowstones and other speleothems and erosion features, those features are primarily associated with volcanism and lava transport.

Many easily accessible caves in the area have been known locally for a long and are frequently visited. Over time, some caves show signs of irresponsible use such as graffiti and vandalism, which can detract from the caving experience.

Cave exploration, discovery, survey, and mapping are important activities for local caving organizations. The local and regional chapters (Grottos) of the National Speleological Society play an important role in conserving the cave recreation resource. The groups engage in cleanup projects and other cave conservation activities, in addition to mapping, surveying, exploring, and educating users about caves and cave conservation.

Most caves do not appear on maps but can be explored upon discovery. Other caves require a permit for access. Some cave locations that appear on maps are the 15-mile-long Bear Trap Lava Tube along the Arco-Minidoka Road and the Lariat Cave near Kings Bowl.

The best-known cave in the region is Crystal Ice Cave, which is a fissure cave rather than a lava tube cave. In 1964 a concessioner, under permit from the Idaho Falls BLM District Office, developed the cave. When the cave was open, annual visitation was 5,000 to 10,000 people. Improvements at the cave included buildings, restrooms, and trails. Generators provided electricity to light the cave and run a refrigeration unit used to maintain the ice formations. Prompted by safety concerns and vandalism, BLM removed most outside facilities and signs, sealed the tunnel doors, and installed signs to inform the public about the site closure in 1988. At present, Crystal Ice Cave offers an outstanding opportunity for technically experienced and adventurous cavers.

Health and Safety

Several factors are involved in health and safety concerns for Monument visitors and surrounding communities. These are discussed below.

–Access in and Near the Monument

The Monument contains several hundred miles of roads of various qualities and levels of maintenance. Most of these roads and ways are not maintained at all. In addition to different types of roads, road conditions vary seasonally from impassable snow in winter to deep-rutted mud in spring and late autumn to dry and very dusty in summer. Nearly all the roads in the interior of the Monument require a high-clearance four-wheel drive vehicle equipped with good tires. At any time of year, rain can render the roads impassable to any vehicle.

Due to the size of the Monument and the complexity of the road system, navigation can be confusing. The BLM maintains a system of directional signs on the Monument; however, many roads and ways have appeared throughout the years, making map-based navigation difficult. It is recommended that travelers in unfamiliar parts of the Monument use a good map and use automobile odometers to count mileage from landmark to landmark. The iron-rich nature of the lava and rocks underlying the sagebrush steppe of the Monument can cause compasses to give incorrect readings by as much as 40 degrees.

In many remote areas of the Monument, emergency services can be anywhere from hours to days away. It is advisable to carry a reliable form of emergency communication in these areas at all times.

Two main roads bisect the Monument, and a U.S. Highway runs along its northern border. The Arco-Minidoka Road starts near the town of Arco, on the north side of the Monument, and runs to Minidoka on the south side. Farther to the west, the Carey-Kimama Desert Road

connects the town of Carey, along US 93 to SH 24 on the south end of the Monument near the town of Kimama. US 20/26/93 runs along the northern edge of the Monument.

–Weather

South Central Idaho and the Monument experience various degrees and extremes of weather for all four seasons. Winter can bring high winds, subzero temperatures, and deep snow. Generally, the undeveloped portions of the Monument are inaccessible during winter to all but snowmobile and ski/snowshoe travel, and cross-country travel over lava fields in winter is discouraged for safety reasons. It is inadvisable to drive a wheeled vehicle in the Monument in winter because deep snow and fast-changing weather conditions can leave travelers stranded.

In spring, high winds, cold temperatures, rain, and thunderstorms can present safety hazards to Monument visitors. A sudden rain at any time of year can render the roads impassable to vehicles outside the Frontcountry Zone. In contrast, summer months can be very hot and dry. The average annual rainfall in south-central Idaho is below 14 inches, and it is not uncommon for areas of the Monument area to receive no rainfall at all in summer. The temperatures are typically dangerously hot, often exceeding 100 degrees Fahrenheit for days or weeks on end.

Visitors to areas outside the Frontcountry Zone are advised to come prepared for extreme hot weather and carry the necessary general and emergency supplies, including plenty of water, extra vehicle fuel, a first aid kit, food, navigation equipment such as maps, compasses, and Global Positioning System (GPS) units, and a reliable form of communication. Because there are few, if any, sources of potable water in the Monument, all water must be carried in. :Livestock well water is usually not safe to drink. Dehydration from exposure to extreme desert conditions is a serious hazard in the Monument.

– Caves, Fissures, and Lava

Both the open lava areas and the sagebrush steppe of the Monument area contain lava tube-type caves. These caves range in size and complexity from small rock shelters to several-miles-long convoluted tube systems with ice formations and steep vertical drops. People who want to enter and explore caves should be experienced and familiar with all the provisions and contingencies of safe caving, and they should follow the Monument's cave plan.

Along the Great Rift are many open cracks and fissures, which can expose vertical drops varying from a few feet to an unknown depth. The basalt rock, of which these features are composed, is notoriously friable and can collapse without warning, leading to a serious or deadly fall.

Exposed lava features in the Monument are very rough and difficult to traverse, and in summer the surface temperatures of the lavas can reach 140 degrees Fahrenheit. Hiking over lava surfaces, particularly A?a flows, can be arduous and can present tripping, falling, and joint-twisting hazards. Long hikes over the lava can result in fatigue, dehydration, and disorientation. People hiking on the lava are advised to wear sturdy boots, protective gloves, and carry plenty of water and a reliable emergency form of communication.

– Wildfire

During the annual wildfire season, approximately late-June through September, the Monument area receives little or no rainfall. Very dry vegetation and high wind contribute to hot, fast-moving wildfires that can present serious safety hazards to visitors and surrounding communities. Wildfires are primarily confined to the sagebrush steppe of the Monument. However, at times wildfire can "creep" through colonizing vegetation on the exposed lava flows. Visitors should familiarize themselves with the fire danger level and any warnings or restrictions currently in place.

It is also very easy to start a wildfire on the Monument through the careless use of fire, smoking materials, and many other means. Fires are often started by the catalytic converter on vehicles coming into contact with dry vegetation.

– Livestock

Many areas of the sagebrush steppe in the Monument are in cattle and sheep livestock use allotments. While generally not aggressive, cattle and sheep can be unpredictable and present

a safety hazard to visitors. Sheepherders often keep large sheep-guarding dogs with their bands of sheep. These animals are not human-friendly and may have little or no experience with humans or being treated as pets. Often, these dogs are left alone to tend a sheep band, and their only duty is to chase off or kill anything they deem to be a threat to the sheep. Visitors are advised to avoid these dogs and to prevent their pets from venturing near sheep-guarding dogs or the sheep.

– **Snakes**

Rattlesnakes inhabit the Monument area and are usually active between mid-spring and late-fall. They are most commonly found on the sagebrush steppe, but they can also be found on the open lava. They often hide near cave entrances where there is shade and cool temperatures, which attract prey species. They represent a serious safety issue in that any rattlesnake bite should be treated as an emergency.

VISUAL RESOURCES

Viewscape

Perpetuating scenic vistas and open western landscapes for future generations is one of the purposes identified for the Monument. The visual resources of the Monument represent a remnant of the undeveloped American West and one of the few remaining great expanses of sagebrush steppe. The contrasting lava flows were described in the in 1924 Presidential Proclamation originally establishing the Monument as a "weird lunar landscape ... peculiar to itself." This creates a viewscape unique in North America.

The gray-green sagebrush steppe and black lava fields ride up against the high Pioneer Mountains to the north. Across the Monument, 3,500 feet of vertical relief present visitors with enormous panoramic views to the south. On a clear day, the Grand Tetons, 140 miles to the east, can be seen from the Monument. One of the nation,s clearest airsheds enhances these long, uninterrupted vistas.

The Monument contains numerous striking volcanic features such as pahoehoe and A'a lava flows, cinder cones, spatter ramparts, and enormous lava fields. Low shield volcanoes and cinder cones (known locally as "buttes") rise up throughout the entire monument landscape. The exposed lava varies in color, while shapes and textures of the flows add scenic variety on a smaller scale. Nearly barren of vegetation, the most recent lavas at times flowed around kipukas, which offer some visual relief from the continuous lava. Expansive sagebrush steppe and grasslands, as well as the different ages and types of lava surfaces, support a remarkable variety of plant and animal communities that add to the visual diversity of the Monument.

Visual Resource Management

Visual Resource Management (VRM) is a standard tool used by the BLM to identify and protect visual values on public lands (8400-Visual Resource Handbook and Manual Series). A VRM inventory of the Monument area was completed in 1989, including an evaluation of scenic quality, identification of viewsheds, and key observation points for visitors. This inventory data was analyzed and presented as visual resource classes. This Plan/EIS places all public land into one of four VRM management classes. VRM classes provide standards for planning, designing, and evaluating future management projects.

The four VRM management class designations are as follows:

- **Class I** – The objective of this class is to preserve the existing character of the landscape. Any contrast created within the characteristic landscape must not attract attention. This classification is applied to Visual ACECs, wilderness and WSAs, Wild and Scenic Rivers, and other similar situations.

- **Class II** – The objective of this class is to retain the existing character of the landscape. Changes in any of the basic visual elements caused by management activity should not be evident in the landscape. A contrast may be seen but should not attract attention.

- **Class III** – The objective of this class is to partially retain the existing character of the landscape. Contrasts to the basic elements caused by a management activity may be evident and begin to attract attention in the landscape. The changes, however, should remain subordinate in the existing landscape.

- **Class IV** – The objective of this class is to provide for management activities that require major modification of the existing character of

the landscape. Contrasts may attract attention and be a dominant feature in the landscape in terms of scale. However, the change should repeat the basic element of the landscape.

Night Sky

Night sky is considered an important resource within the Monument. The night sky at the Monument is generally free of artificial light sources and related light pollution. As with daytime viewing of expansive vistas, one of the nation's clearest airsheds creates conditions favorable for stargazing. Astronomy groups have been coming to the Monument for many years to take advantage of dark night skies.

SOUNDSCAPE

Natural Quiet

The Monument is a quiet place. "Natural quiet" refers to the state of having only natural sources of sound; for example, wind, rustling leaves, water, and animal calls. Most of the Monument is not subject to many modern sources of unnatural sound intrusion, or noise. The only major noise producers are highway traffic from outside the Monument, the railroad near the southern edge of the Monument, and aircraft overflights.

The area around the Visitor Center and the campground is adjacent to US 93 and subject to highway noise. Occasional noise from OHVs, ATVs, snowmobiles, and other vehicles occurs in the road portions of the expanded Monument. These noise intrusions are most prevalent during high-use periods, such as hunting season, and least prevalent during low-use periods, such as during winter.

Aircraft overflights create a small amount of unnatural sound intrusion year-round. The Federal Aviation Administration (FAA) has established an advisory ceiling of 2,000 feet above ground level over the Craters of the Moon Wilderness Area. Nonetheless, many overflights occur above 2,000 feet, including commercial aircraft from the airports in Idaho Falls and Hailey, Idaho. There are also small airports in Arco, Picabo, and Burley that support smaller private aircraft that may operate over the Monument. Perhaps the noisiest aircraft overflights are associated with the two military flight-training corridors that cross the Monument.

Helicopter use associated with public land management activities such as wildlife population inventories, livestock monitoring, and firefighting also contribute a small amount of noise. The two emergency airstrips in the monument receive no regular use.

SOCIAL AND ECONOMIC CONDITIONS

This section contains a baseline description of social and economic conditions in and around the Monument. For the purposes of this Plan/EIS, the local and regional social and economic conditions that will be discussed are population, income, employment, and housing and related activities, including public health and safety.

OVERVIEW

Between 1990 and 1999, the populations of Idaho and the Mountain West grew at more than twice the United States average. According to the U.S. Census Bureau, the fastest growing populations in the nation are intermountain western states: Nevada (1), Arizona (2), Idaho (3), Utah (4), and Colorado (5). Nevada and Idaho are predicted to be the two fastest growing states in the nation until at least 2005. Since 1990, Idaho's statewide population has increased by more than 27,000 people per year. Two-thirds of these additional people have moved to the cities and towns of Idaho (Cooke 2000).

In the more than 200 cities and towns in Idaho, more than one-half of the towns have increased slightly in population size. Roughly 24 cities and towns have lost population since 1990. At the other extreme, approximately 24 cities have increased by more than 100 persons per year.

The Monument is in five Idaho counties: Blaine, Butte, Lincoln, Minidoka, and Power Counties. In 2000, approximately 53,700 people lived in this five-county region. Minidoka County was the largest with just over 20,000 people, followed closely by Blaine County with approximately 19,000 people.

Of the five largely rural counties around or within the study area, Blaine County is the fastest growing (U.S. Census Bureau). It includes relatively small populations with substantially high housing values (almost three times the state average). It also includes the growing communities of Sun Valley (1,427), Ketchum (3,003), and Hailey (6,200), all of which are neighboring towns and share high growth and unusually higher income rates compared to the other counties and many areas in the state as a whole.

Much of the affluence and growth in the Sun Valley area can be attributed to important recreation

and tourism attractions. Readers of *Ski Magazine*, *Conde Nast Traveler*, and *Gourmet* magazines have all recently voted Sun Valley as the #1 ski resort in the country (Idaho Department of Commerce). The economy of the valley is strongly represented by the recreation and tourism industry. In winter, visitors come to enjoy snow skiing at Sun Valley, as well as snowmobiling, cross-country skiing, and ice-skating. Summer tourists enjoy golf, tennis, fishing, river rafting, and summer music and arts festivals. The Sawtooth National Recreation Area, the largest National Recreation Area in the National Forest System, which is near these communities, averages more than one million visitor days per year. The BLM Shoshone Field Office records an average of 900,000 visitors per year. Blaine County Recreation accounts for more than $60 million in annual total taxable sales.

By contrast, the area of Blaine County closest to the Monument contains cities of individually small populations and relies on agriculture and recreation as major economic bases, as do the other four counties. For example, Shoshone, the county seat of Lincoln County, is a rural farming area of slightly more than 3,000 people (Association of Idaho Cities 2003). Like the other small towns in this study area, such as Carey, Arco, and Minidoka, Shoshone is a rural community where agriculture is the main economical base. It serves as a gateway to many important natural wonders of the region, and many state parks, museums, ski resorts, lakes, rivers, and dams. The population of Shoshone is of 1,446. Six privately owned lodging rooms are available, as are tourist-related services. Shoshone residents are culturally and ethnically diverse, with representatives of the Basque, Portuguese, Hispanic, and Oriental cultures, along with people of European and Scandinavian backgrounds.

Arco, northeast of the Monument, is located near the Lost Big River and at the base of the Lost River Mountains. Arco (population 1,026), the county seat of Butte County, was the first city in the world to be lit with electricity generated by nuclear power. In the early days of World War II, a Navy gunnery range was established in the desert east of Arco. After its closing in 1947, the Atomic Energy Commission established the National Reactor Testing Station in 1949. Now called the Idaho National Engineering and Environmental Laboratory (INEEL), the 890-square mile installation is the site of the greatest collection of nuclear reactors and test facilities in the world. INEEL is one of the state,s largest employers, with approximately 4,000 workers at the laboratory and 2,700 more employees in Idaho Falls (INEEL Impacts 2001).

Other major employers in Butte County are the Arco School District, Bechtel Bettis, Argonne National Laboratory, Lost River Hospital, and Bechtel BWXT Idaho. INEEL, agriculture, and tourism are the major elements of Arco,s economy. Arco residents are employed in health care and social assistance (16%), education (11%), public administration (11%), construction (11%), professional, scientific, and technical services (10%), and accommodation and food services (10%) (U.S. Census Bureau).

Currently, privately owned lodging totals 79 rooms, and there are a few restaurants and tourist-related services. Arco is also home to the Arco/Butte Business Incubation Center, which offers services and meeting rooms to small businesses. Most homes in Arco were built before (54%); 13 percent were built in the 1960s, 23 percent in the 1970s, and 11 percent since 1980. In comparison, more than 62% of the residences in Idaho were built since 1970 (U.S. Census Bureau). There has been virtually no population change in Arco between 1990 and 2000, with a population of 1,026 and 1,016, respectively, and the population of Butte County dropped slightly between 1990 and 2000.

Carey, 25 miles east of Craters of the Moon National Monument and Preserve, has a population of 525, with the largest employer being Carey Public Schools. Carey,s population grew 23 percent between 1990 and 2000. As in Arco, 54% of the residential homes in Carey were built before 1960.

In Minidoka County is the small community of Minidoka, located on Route 24 south of the Monument. Minidoka, the county,s first settlement, was originally a railroad siding. Its population is approximately 67 residents, which is double the 1990 population (U.S. Census Bureau). Growth in northern Power and Minidoka Counties has been relatively low (8.6 and 11%, respectively).

A major federal government employer is the BLM, which maintains a central field office and fire control office in Shoshone. BLM and NPS cooperatively manage Craters of the Moon National Monument and Preserve.

Three airports are the travel facilities nearest the Monument – in Hailey, Idaho Falls, and Twin Falls (60, 84 and 90 miles from Park Headquarters, respectively). From the nearest towns by vehicle, travel to

the Monument is 18 miles west of Arco via U.S. Highway 20/26/93; 24 miles east of Carey via US 20/26/93; 84 miles from Idaho Falls; and 90 miles from Twin Falls.

REGIONAL ECONOMIC CONDITIONS

Table 21 contains selected income and poverty information for the five counties and for the state of Idaho for comparison. For Blaine County, both countywide and U.S. Census Bureau tract data is presented. Census Tract #9601 consists of the southernmost portion of Blaine County and best represents the community closest to the Monument and Preserve. Blaine County, which contains the resort community of Sun Valley, is not the largest in population, but is by far the most prosperous county, with a per capita income approximately double the levels of the other counties and the state of Idaho. (See Appendix I). The per capita income in Blaine County grew 274% between 1980 and 1999, higher than the statewide average (244%), and considerably higher than the 95% rate in southern Blaine County (census tract 9601) over the same time period. Butte, Lincoln, Minidoka, and Power Counties grew by 147, 141, 137, and 85 percent, respectively, between 1980 and 1999 (U.S. Census Bureau).

The five counties surrounding the Monument are highly dependent on the service industry. Agriculture is also very important in Butte, Lincoln, and Minidoka counties; employment in those counties is nearly three times the state average.

The Monument is part of the local economic environment. Monument NPS staff consists of 15 part- or full-time workers and approximately 10 to 20 seasonal employees. It is estimated that the Monument contributes between $7 million and $11 million to the local economy per year. Also, NPS uses concession contracts and commercial use licenses (formerly incidental business permits) to manage commercial activities within units of the National Park System.

Currently, the only concession contract is issued to the Craters of the Moon Natural History Association, a nonprofit organization. This contract allows the association to offer convenience items such as sunscreen, camera film, and soft drinks, as well as books and educational materials for purchase by visitors in the NPS Visitor Center. There are no current commercial use licenses or incidental business permits issued for activities on NPS lands in the Monument. IDFG offers commercial use licenses on BLM-administered lands.

Under the National Parks Air Tour Management Act of 2000 and implementing FAA regulations, NPS, as a cooperating agency, will assist FAA in developing an air tour management plan for parks with existing or proposed air tours. No air tours currently take place over NPS-administered lands in the Monument on any regular or frequent basis.

Table 22 contains information on the levels of employment for the major economic sectors in the five counties, southern Blaine County Census Tract 9601, and the state of Idaho.

Farmland comprises a large portion of land use in Minidoka and Power counties. The value of farmland per acre in Minidoka County is more than 80 percent above the state average and substantially higher than the other four counties.

The importance of farming to the surrounding counties was reflected in comments received during public scoping. Table 23 contains several measures of the quantity of rural farmland across the five counties and in the state of Idaho, along with estimated market values of land and buildings.

The median housing value is substantially higher in Blaine County and almost three times the state average. The number of seasonal or recreational houses is very high in Blaine County, as would be expected in the Sun Valley Resort area. Table 24 contains housing information for the five counties, southern Blaine County Census Tract 9601, and for the state of Idaho.

As Figure 19 illustrates, the Monument receives about 200,000 visitors per year, with peak visitation occurring from mid-May through September. The principal visitor activities are touring the visitor center/museum, viewing an orientation field, taking the self-guided driving tour, and hiking the many trails off the loop road. Visitation to the Monument has been relatively stable over the past 35 years, with fluctuations in the 1970s and 1980s, possibly due to increases in gasoline prices and weakness in the national and regional economy.

REGIONAL SOCIAL CONDITIONS

Idaho experienced a nearly 82 percent population growth between 1970 and 2000, including a 29 percent growth rate between 1990 and 2000. Blaine County has experienced increasing residential and business development, with population growth of approximately 230 percent between 1970 and 2000, including 40 percent growth from 1990 to 2000. Power, Lincoln, and Minidoka Counties experienced

Table 21
Income

DATA	BLAINE COUNTY	BLAINE COUNTY TRACT 9601	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Personal Income (per capita) (1999)[b]	$41,259	$22,832	$19,376	$19,877	$16,955	$18,027	$22,871
Government transfer payments per capita (1999)[b]	$1,746	Not available	$3,640	$3,135	$2,941	$2,682	$2,837
% persons below poverty level (1999)[a]	7.8%	5.6%	18.2%	13.1%	14.8%	16.1%	11.8%
Federal payments in lieu of taxes (2000)[c]	$507,692	Not available	$154,669	$199,607	$137,775	$228,262	$8,825,194

a. Source: U.S. Bureau of the Census, Census 2000
b. Source: County Profiles of Idaho (http://www.idoc.state.id.us/idcomm/profiles/index.html)
c. Source: BLM Facts (http://www.id.blm.gov/blmfacts/data/pilt_2000.htm)

Table 22
Employment by Major Industry

MAJOR INDUSTRY	BLAINE COUNTY	BLAINE COUNTY TRACT 9601	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Agriculture, forestry, fishing/hunting, & mining	4%	13%	18%	19%	17%	18%	6%
Construction	14%	16%	8%	13%	6%	5%	8%
Manufacturing	4%	4%	4%	9%	16%	19%	13%
Transportation and warehousing, and utilities	3%	4%	9%	5%	7%	6%	5%
Wholesale and retail trade	14%	13%	11%	13%	16%	11%	16%
Services [a]	60%	50%	50%	41%	38%	41%	52%
Total Employed	10,846	2,322	1,226	1,799	8,788	3,325	599,453

[a] Includes information, media, finance, insurance, real estate, rental and leasing, public administration, and other services.
Source: U.S. Bureau of the Census, Census 2000

Table 23
Land Area and Values in Farming (1997)

ALL FARMS	BLAINE COUNTY	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Land in farms (acres)[a]	214,985	129,639	131,473	206,882	424,085	11,830,167
Percent of land area in farms[a]	12.7%	9.1%	17.0%	42.6%	47.1%	22.3%
Average size of farm (acres)[a]	1,102	626	468	307	1,313	530
Estimated market value of land and buildings (average/acre)[a]	$1,361	$775	$1,030	$1,856	$916	$1,017
Average value per farm of products sold[a]	$120,943	$103,932	$156,215	$225,836	$374,535	$149,945
Grazing fee receipts distributed to Idaho counties (2001)*[b]	$5,740.04	$7,128.76	$9,566.65	$1,768.95	$2,569.83	$194,794.89

Note:
* Grazing Fee Receipts Distributed to counties are determined by the Taylor Grazing Act of June 28, 1934 as amended 48 Stat. 1269; 43 USC 315i to be 12.5% of the gross receipts of the grazing fees collected.
a. Source: County Profiles of Idaho (http://www.idoc.state.id.us/idcomm/profiles/index.html)
b. Source: BLM Facts (http://www.id.blm.gov/blmfacts/data/grazing_receipts.htm)

population growth rates of 55, 32, and 28 percent, respectively, between 1970 and 2000. During the same period, Butte County lost about 1 percent of its population (U.S. Census Bureau).

Residents of Butte, Lincoln, Minidoka, and Power Counties have moved less frequently than residents of Blaine County since 1985, and less than the state average. The region surrounding the Monument is sparsely populated; however, the population density of Minidoka County is substantially higher than that of the other counties. None of the counties are heavily populated, with Minidoka County being the most populous. The unemployment rates for the five counties are within 2 percentage points of the state unemployment rate (Table 25).

Residents of Butte, Lincoln, Minidoka, and Power Counties have attained less education than the state average; only Blaine County residents have higher education levels than the state average (Table 26). Similarly, residents of Butte, Lincoln, Minidoka, and Power Counties have fewer physicians than the state average, with Blaine County significantly above the state average (Table 27). Crime rates in Lincoln and Butte Counties are dramatically lower than the state average, whereas crime rates in Blaine, Minidoka, and Power Counties are much higher and closer to the state average (Table 28).

Figure 19
Park Visitation Statistics (1950-2001)

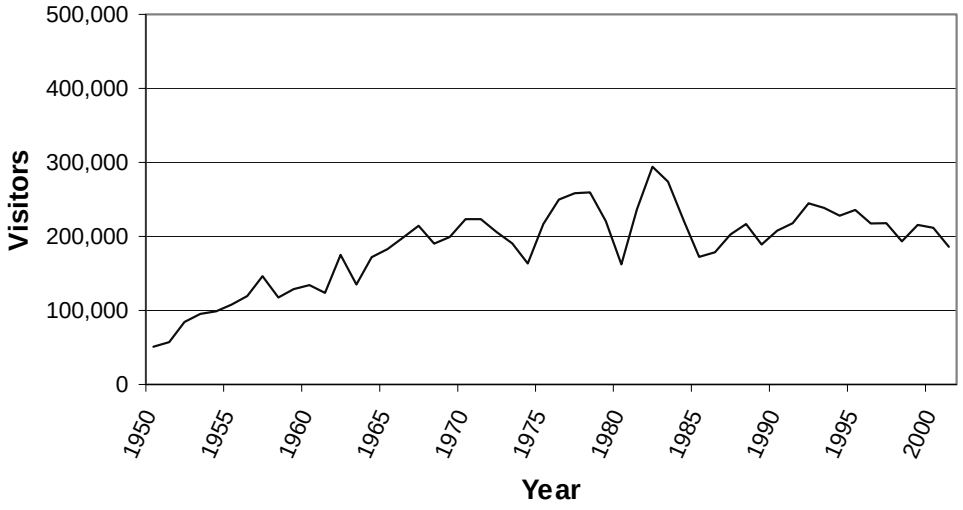


Table 24
Housing

HOUSING	BLAINE COUNTY	BLAINE COUNTY. TRACT 9601	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Number of Units	12,186	1,968	1,290	1,651	7,498	2,844	527,824
Total Vacant Units	4,406	434	201	204	525	284	58,179
For Seasonal, Recreational, or Occasional use	3,723	354	38	36	31	29	27,478
Percent of Owner occupied units	68.90%	71.3%	77.00%	74.80%	76.90%	74.60%	72.40%
Percent of Tenant occupied units	31.10%	28.7%	23.00%	25.20%	23.10%	25.40%	27.60%
Household size	2.42	2.68	2.64	2.77	2.87	2.92	2.69
Median housing value	$288,800	$194,300	$68,700	$75,700	$74,600	$89,000	$106,300
Median rent	$740	$695	$335	$464	$394	$388	$515

Source: U.S. Bureau of the Census, Census 2000

Table 25
Population

DEMOGRAPHICS	BLAINE COUNTY	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Population in 2000[a]	18,991	2,899	4,044	20,174	7,538	1,293,953
Population Density (per square mile)[b]	7.2	1.3	3.4	26.6	5.4	15.6
Labor Force (2000)[b]	11,316	1,302	1,872	9,402	3,488	641,088
Unemployment Rate[a]	4.2%	5.8%	3.9%	6.5%	4.7%	5.8%
Population Change 1970-1980[b]	71.2%	14.3%	12.4%	25.3%	40.7%	32.4%
Population Change 1980-1990[b]	37.7%	-12.7%	-3.7%	-1.8%	3.5%	6.6%
Population Change 1990-2000[b]	40.1%	-0.7%	22.2%	4.2%	6.4%	28.5%
Median Age[a]	37.4	38.8	34.3	33.5	31.6	33.2
Under 20 Years[a]	26.1%	31.7%	33.7%	34.9%	36.6%	32.0%
20 to 64 Years[a]	66.2%	53.3%	53.3%	51.8%	53.0%	56.8%
65 Years and over[a]	7.8%	15.0%	13.0%	13.3%	10.4%	11.3%
Geographic Mobility						
Persons 5 years and older living in a different state in 1985[b]	24.8%	10.6%	8.7%	7.4%	7.5%	14.8%
Persons 5 years and older living in a different county in 1985[b]	11.1%	11.6%	14.0%	11.7%	13.3%	---
Marriage Rate Per 1,000[b]	13.7	5.0	6.3	7.7	6.1	12.4
Divorce Rate Per 1,000[b]	5.2	2.3	4.7	2.7	3.3	5.5
Suicide Rate Per 100,000[b]	23.1	0.0	52.1	9.9	11.9	14.4

a. Source: U.S. Bureau of the Census, Census 2000
b. Source: County Profiles of Idaho (http://www.idoc.state.id.us/idcomm/profiles/index.html)
c. Source: Projections of the Total Population of States: 1995-2005 (http://www.census.gov/population/projections/state/stpjpop.txt)

Table 26
Education

EDUCATION LEVEL	BLAINE COUNTY	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Population 3 years and over enrolled in school	4,341	758	1,127	5,884	2,319	368,579
Nursery School, Pre-School, Elementary School (grades K-8)	2,696	468	696	3,554	1,415	205,611
High School (grades 9-12)	997	216	311	1,660	629	85,576
College or graduate school	648	74	120	670	275	77,392
Educational Attainment of Population over 25	13,021	1,873	2,458	11,940	4,344	787,505
Percent high school graduate or higher	90.2%	82.6%	77.4%	73.7%	74.7%	84.7%
Percent bachelor's degree or higher	43.1%	13.0%	13.0%	10.1%	14.3%	21.7%

Source: U.S. Bureau of the Census, Census 2000

Table 27
Health Care

HEALTH CARE	BLAINE COUNTY	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Physicians per 100,000	421	133	52	64	36	182
Number of Hospitals	1	1	0	1	1	49
Total Hospital Beds	39	14	0	25	10	3105

Source: County Profiles of Idaho (http://www.idoc.state.id.us/idcomm/profiles/index.html)

Table 28
Crime Rates

CRIME	BLAINE COUNTY	BUTTE COUNTY	LINCOLN COUNTY	MINIDOKA COUNTY	POWER COUNTY	STATE OF IDAHO
Murder	0	0	0	0	0	26
Rape	5	0	0	3	4	425
Robbery	0	0	0	2	1	234
Aggravated Assault	28	0	3	41	17	2,420
Burglary	76	8	1	124	40	7,356
Larceny	351	12	10	279	171	27,258
Motor Vehicle theft	26	12	2	31	9	1,929
Arson	3	0	0	3	1	274
Crime Rate per 100,000	2,791	1,036	414	2,346	2,871	3,189

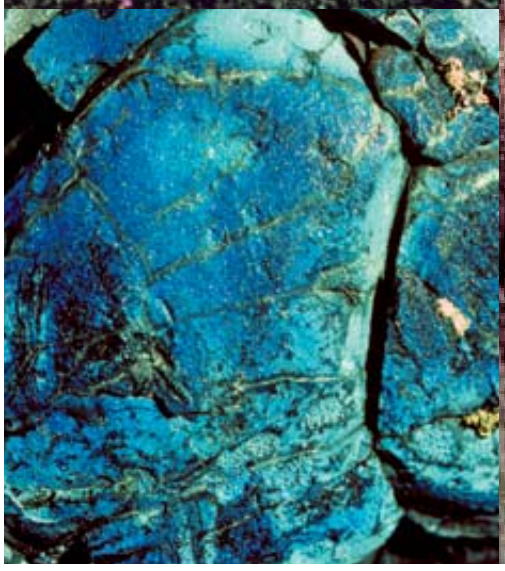
Source: County Profiles of Idaho (http://www.idoc.state.id.us/idcomm/profiles/index.html)

Chapter 4

Environmental Consequences









Previous page, clockwise, from top left
Cinder garden
Lava tube
Devil's Orchard walk
Blue dragon lava

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes the environmental consequences of implementing any of the four planning alternatives previously described. Each program or management action that could impact resources or resource uses has been analyzed, and the conclusions of those analyses are described by resource topic below. Where data are limited, professional judgment has been used to project environmental impacts. Professional judgment was based, in part, on observation, analysis of conditions, and responses in similar areas.

ANALYSIS ASSUMPTIONS AND GUIDELINES

This document assesses the management actions proposed for implementing the proclamation and legislation creating the Craters of the Moon National Monument and Preserve. The analysis is bounded by decisions identified in the proclamation or legislation and does not include alternatives to these decisions. These decisions are as follows:

- Land area included in or excluded from the Monument, Preserve, Wilderness Area, or Wilderness Study Areas (WSAs)
- Uses restricted or limited by the proclamations, legislation, federal regulations, or agency policy
- Providing ongoing reasonable access to state and private land or interests
- Continued grazing where currently permitted on BLM-administered lands
- Regulation of hunting, fishing, and trapping by the State of Idaho, except that the Secretary of the Interior, in consultation with the state, may take certain steps to regulate hunting in the National Preserve for reasons such as public safety and protection of resources.

The following assumptions and guidelines were used to guide and direct the analysis of environmental consequences:

- The alternatives would be implemented substantially, including Management Guidance Common to All Alternatives.
- The BLM and National Park Service would have sufficient funding and personnel to implement any one of the alternatives.
- The planning period for the analysis is the next 15 to 20 years.
- The planning area for the analysis of impacts for each alternative is the area including the BLM and NPS lands included in Proclamation 7373 (see Figure 2). The area of analysis for cumulative impacts is described separately for each resource type.
- Specific actions to protect human life would be taken regardless of the management criteria in the plan alternatives.
- Livestock use on the BLM-managed portion of the Monument would continue to be governed by applicable laws and regulations, including Standards of Rangeland Health and Guidelines for Livestock Grazing Management, across all alternatives.
- Motorized and mechanized cross-country travel is prohibited.
- Recreational use of the planning area will continue to be similar to use in the past.
- Appendix B contains a list of the planning criteria used to develop the alternatives, including regulations and policies that can limit the range of actions.

INCOMPLETE OR UNAVAILABLE INFORMATION

As mandated by 43 Code of Federal Regulations (CFR) 1502.22, agencies evaluating reasonably foreseeable significant adverse effects of the human environment in an EIS must identify incomplete or unavailable information, if that information is essential to a reasoned choice among alternatives. This Draft Plan/EIS is based on the best available data for each resource. However, data for many resource areas are limited. For the resources listed below, information was incomplete or unavailable.

Cultural Resources: Most of the planning area has not been surveyed for cultural resources. Estimates of the number, type, and significance of archaeological and historic sites were based on cultural resource inventories for approximately 5 percent of the planning area.

Paleontological Resources: Most of the planning area has not been surveyed for paleontological resources.

Cave Resources: Complete data are not available for cave resources, including location.

Vegetation: Complete data are not available for vegetation composition and condition.

Wildlife: Complete data are not available for wildlife species occurrence, habitat use, or habitat condition.

Water Quality: Detailed water quality data are available for Little Cottonwood Creek and Leech Creek. Limited data are available for most springs, playas, and reservoirs in the Monument.

Noxious Weeds: Most of the Monument has not been completely surveyed for noxious weeds.

Visitor Use Data: Data about visitor use are available for the original Monument, but such information for the remaining area is limited.

TYPES OF IMPACTS

Effects (impacts) can be beneficial or adverse, direct or indirect, or cumulative. Beneficial effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resource toward a desired condition. Adverse impacts involve a change that moves the resource away from a desired condition or detract from its appearance or condition. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later or farther away but are still reasonably foreseeable. Cumulative effects are the impacts on the environment that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Impacts are also described as to their context, intensity, and duration. Context generally refers to the geographic extent of impact (e.g., localized or widespread). Impact intensity is the magnitude or degree to which a resource would be beneficially or adversely affected. The criteria that were used to rate the intensity of the impacts for each resource topic are presented later in this section under each topic heading. Impact duration refers to how long an impact would last. For the purposes of this Plan/EIS, the planning team used the following terms to describe the duration of the impacts (unless otherwise stated for any particular resource area).

Short-term: Impacts that would occur within 5 years, often during construction and recovery.

Long-term: Impacts that would occur beyond 5 years, often from operations.

Cumulative impacts are described at the end of the analysis for each resource by alternative. The period of potential cumulative impact is defined as the life of the plan, or 15 to 20 years.

PROJECTS THAT MAKE UP THE CUMULATIVE IMPACT SCENARIO

To determine potential cumulative impacts, projects in the area surrounding Craters of the Moon National Monument and Preserve were identified. The area of primary concern is composed of the five Idaho counties in which the Monument is located: Blaine, Butte, Lincoln, Minidoka, and Power Counties. Projects outside this five-county area, however, are also considered if they have the potential to affect resources with broad regional importance. Projects included in this analysis were identified by examining other existing plans and by telephone calls to local governments and to state and federal land managers. Projects identified for the purposes of cumulative impact analyses are past actions, plans or actions that are currently being implemented, and reasonably foreseeable future plans or actions. These projects were considered regardless of what agency, organization, or person undertakes them. Projects included in the cumulative impact analysis do not affect all resources equally.

Cumulative impact analyses are presented in this document by resource topic. The projects that make up the cumulative impact scenario were analyzed in conjunction with the impacts of each alternative to determine if they would have any additive or interactive effects on a particular resource.

The Interior Columbia Basin Ecosystem Management Project. The ICBEMP has coordinated an extensive study of the Interior Columbia Basin. This study has determined that the sagebrush steppe ecosystem is at risk due to several past and existing impacts. These include grazing, road construction, human development, and disturbance-related invasions of exotic plant species. These disturbances will likely continue to contribute cumulatively to the

impacts on vegetation communities in southern Idaho.

To address these risks to key ecosystem components, the BLM entered into a 2003 Memorandum of Understanding (MOU) to implement the ICBEMP. The implementation strategy includes direction to federal agencies to update or develop land use plans to provide direction to address the following:

- Maintain and promote a healthy, productive, and diverse ecosystem and restore, through a system of prioritization, areas that are degraded.
- Develop an integrated mix of restoration activities to provide for re-patterning succession and disturbance regimes and achievement of sustainable landscape conditions, thereby contributing to the reduction of events such as uncharacteristically large and severe wildland fires.
- Restore natural disturbance patterns in watersheds and hydrologic process to help restore and maintain riparian, aquatic, and wetland habitat.
- Develop integrated weed management strategies.
- Develop a coordinated multiscale and interagency approach to planning and decision-making.

Idaho Statewide Implementation Strategy for the National Fire Plan. The Idaho Department of Lands (IDL), in conjunction with the BLM and other federal agencies, signed the Idaho Statewide Implementation Strategy for the National Fire Plan. The implementation plan focuses on fire prevention and suppression, hazardous fuels reduction, restoration of fire-adapted ecosystems, and the promotion of community assistance in fire management (IDPL 2002).

During 2002, IDL, in cooperation with federal agencies, disbursed $1.9 million to wildland-urban interface projects and development of defensible space. Additional money was used for hazardous fuels reduction programs for several communities. The develop of risk assessments and mitigation plans would allow counties and communities in the district to determine their current fire hazard risk and to develop effective mitigation to minimize urban-wildland risks to persons and property. In addition, implementing community-based fuels reduction programs gives private landowners opportunities to work with public land management agencies to manage the urban-wildland interface.

National Forest Plan Revisions. In July 2003, the Southwest Idaho Ecogroup, composed of the Sawtooth, Boise, and Payette National Forests, completed their revised Land Management Plans and the accompanying EIS. These Forest Plans set the course for future management of publicly owned lands within the National Forest System. Although they do not make site-specific decisions, the plans supply a path for all individual projects to follow.

The revised forest management direction responds to new initiatives such as the National Fire Plan and Healthy Forest Initiative and to concerns about listed species, habitat restoration, and commodity production. The revised Forest Plans differ from the original plans in that they emphasize restoring or maintaining vegetation and watershed conditions and focus on the condition of the forests rather than what they can produce.

More specifically, the Revised Sawtooth National Forest Plan affords direction for a strongly integrated noxious weed management program across the forest, in cooperation with other federal, state, and local agencies. The plan supports fire prevention and suppression and gives direction to reduce hazardous fuels, emphasizing actions in wildland-urban interface areas.

Livestock Grazing. Forty grazing allotments extend into the Monument. Much of the surrounding BLM and state lands has been and will continue to be grazed.

Weed Management. Cooperative weed management activities exist among the counties, private landowners, and government agencies.

Irrigated Agriculture. Substantial portions of the privately owned lands adjacent to the Monument are irrigated for agricultural production. Irrigated lands directly adjoin the Monument in three primary areas: east of the Wapi Lava Field, in the vicinity of the town of Carey near the west end of the Monument, and north of the Monument near the town of Arco.

Arco-Minidoka Road. In its comprehensive plan, Blaine County stipulates that the part of the Arco-Minidoka Road within its jurisdiction will continue to be maintained at its current level. Furthermore, the Blaine County Commissioners have specifically stated that this part of the road will be maintained in its current condition.

Shoshone Field Office Land Tenure Adjustment. In June 2002, the BLM prepared an Environmental Assessment (EA) for the Draft Amendments to Shoshone Field Office Land Use Plans for Land Tenure Adjustment and Areas of Critical Environmental Concern. These land tenure adjustments sought to facilitate a watershed approach to natural resource management, in order to improve efficiencies in the management of public lands. Under these amendments, the BLM sought to acquire high resource value lands made available by willing landowners. Acquisition priorities are established to reconnect habitats within priority watersheds. With these amendments, the BLM also proposed three previously nominated areas for designation as Areas of Critical Environmental Concern (ACECs). These areas — King Hill Creek, McKinney Butte, and Tee-Maze — support scenic values, wildlife or fish resources, and values associated with natural systems or processes. These plan amendments have been approved, and the three ACECs have been designated.

Fire Management Direction Amendment. Idaho's Upper Snake River District (USRD) of the BLM is proposing to amend the district's 12 existing land use plans with direction to manage fire, fuels, and related vegetation. The district, which includes the Monument, is composed of public lands managed by the Burley, Idaho Falls, Pocatello, and Shoshone field offices. The proposed land use plan amendments would form the foundation for district fire management plans and normal fire rehabilitation plans, and it would provide guidance for fuels treatments and vegetation management. Amending the land use plans would promote a more effective and economical approach to improving the health of public lands.

Pocatello Resource Management Plan Revisions. The BLM is revising the Pocatello Resource Management Plan (1988) and the Malad Management Framework Plan (1981). These revisions will incorporate the fire, fuels, and related vegetation management direction resulting from the Fire Management Direction Amendment (above). It is likely that the land-use plan revisions would result in more aggressive treatment of noxious weeds (including cheatgrass and medusahead), with associated positive effects on low- and mid-elevation shrub communities.

South Central Idaho Visitor Center. It has been proposed that an expanded, multi-agency regional Visitor Center be developed along Interstate 84 near Twin Falls.

Little Wood River Irrigation District. The Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture (USDA) has announced its intention to prepare an EIS for the Little Wood River Irrigation District Gravity Pressurized Irrigation Delivery System. The objectives of this project, which is in Blaine County, are to save water and energy, promote public safety, and generate energy. The project, which include a hydroelectric generating facility, would convert the open canal irrigation delivery system to a closed gravity pressurized delivery system. The alternatives under consideration to reach these objectives are No Action, Concrete-Lined Canals, Gravity Pressurized Irrigation Delivery System, and Gravity Pressurized Irrigation Delivery System with Hydroelectric Generation.

U.S. Highway 93 Realignment. The Idaho Transportation Department (ITD) plans to realign and upgrade the part of US 93 that passes through and along the boundary of the Monument.

Idaho Standards and Guidelines for Livestock Grazing Management. The BLM will continue to assess all livestock use allotments in Idaho with the use of the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management. These standards are designed to provide resource measures and guidance needed to ensure healthy,

functional rangelands. Livestock use allotments are evaluated to determine if standards and guidelines are being met or if significant progress toward meeting them is being achieved. If standards are not being met, the BLM is required to make changes that would help achieve these standards in the future.

Minidoka Internment National Monument. Minidoka Internment National Monument was established as the 385th unit of the National Park System on January 17, 2001. The Monument commemorates the hardships and sacrifices of the 120,000 people of Japanese ancestry, most of them American citizens, who were interned by the government during World War II. The 73-acre Monument, which is in Jerome County about 20 miles northeast of Twin Falls, preserves building foundations and remnant features such as the entry guard station and rock garden from the original camp. The National Park Service is in the process of developing a General Management Plan (GMP) to guide the management of the new Monument over the next 15 years. Although this management direction has not been established yet, it is anticipated the new Monument will draw increasing numbers of visitors to the area.

Lost River Off-Highway Vehicle Management Demonstration Project. The Idaho Department of Parks and Recreation (IDPR) has proposed a 475-mile loop ATV trail on both sides of US 93 in the Lost River Valley. The trail, which would follow existing Forest Service, BLM, and county roads, would connect the communities of Challis, Mackey, and Arco. No new road construction is proposed. As part of the proposal, IDPR is seeking exemptions from licensing and insurance requirements for off-highway vehicle (OHV) travel on the county roads and for crossing of US 93. The project is envisioned as a cooperative effort between IDPR, Salmon-Challis National Forest, BLM, and the Idaho Department of Fish and Game (IDFG). IDPR is interested in designating the route (with signs and maps) to provide a legitimate route for legal use of OHVs. In addition, the trail is seen as a way to increase tourism to the area, benefiting the local economy.

IMPAIRMENT OF RESOURCES

In addition to determining the environmental consequences of the alternatives, NPS policy (NPS 2001a: *Management Policies*, Section 1.4) requires that potential effects be analyzed to determine whether or not proposed actions would impair the resources or values of the Monument.

The fundamental purpose of the National Park System, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve resources and values. NPS managers always must seek ways to avoid or minimize adverse impacts on the resources and values to the greatest degree practicable. However, the laws do give the NPS the management discretion to allow impacts on the resources and values when necessary and appropriate to fulfill the purposes of a unit, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the NPS this management discretion, that discretion is limited by the statutory requirement that the NPS must leave the resources and values unimpaired unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of the responsible manager, would harm the integrity of the resources and values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. An impact on any resource or value may constitute impairment. An impact would be most likely to constitute an impairment if it affected a resource or value whose conservation would be (a) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (b) key to the natural or cultural integrity of the unit or to opportunities to enjoy it, or (c) identified as a goal in the general management plan or other relevant NPS planning documents. Impairment might result from NPS activities in managing a unit (in this case, the national monument and preserve), visitor activities, or activities undertaken by concessioner, contractors, and others operating in the Monument. In this chapter, a determination about impairment is made in the conclusion section for each natural resource and cultural resource impact topic.

NATURAL RESOURCES

GEOLOGIC RESOURCES

METHODOLOGY AND ASSUMPTIONS

Information used in this assessment of effects on geologic resources was obtained from relevant literature, geologic maps, and consultation with other geologists, as well as from interdisciplinary team meetings, field trips, and site visits. Impacts were identified with the use of best professional judgment and were assessed according to the impact intensity criteria listed below.

Geologic Features

Negligible: Impacts on geologic features would not be detectable through standard observation.

Minor: Actions could result in a change to a geologic feature or natural physical resource, but the change would be local or small; that is, the total volume of disturbance would be nearly indiscernible. Monitoring probably would detect changes or loss of the features, and the loss of associated contextual information would be minimal.

Moderate: Actions would result in a measurable change to a geologic feature or natural physical resource that would be of consequence. The total volume of disturbance could still be small, but quite noticeable in a local area, or it would involve a unique or rare feature. Monitoring would identify most affected geologic features, but some features or associated contextual information would be lost.

Major: Actions would result in a dramatic change to a geologic feature or natural physical resource. The change would be measurable, and the amount of disturbance would be large. Even with monitoring, many features would be significantly altered, or associated contextual information would likely be lost.

Geologic Processes

The following impact thresholds are based on the frequency and magnitude of changes to geologic processes in comparison to the natural range of variability (NRV).

Negligible: The effects on geologic processes would not be detectable based on standard scientific methodologies. Actions would result in frequencies and magnitudes of disruption that would be well within the NRV.

Minor: Effects would be detectable. Frequencies and magnitudes of disruption would be expected to remain within the NRV.

Moderate: Impacts would be detectable. The frequencies and magnitudes of disruption would be outside the NRV for short periods of time but would return to the NRV.

Major: Impacts would be detectable. The frequencies and magnitudes of disruption would be outside the NRV for short to long periods of time or even permanent. Disruptions within the NRV may be long-term. Disruptions of key geologic processes or ecosystems might be long term or permanent.

Because almost all of the Eastern Snake River Plain (ESRP) is covered by basaltic volcanism, the area of analysis for cumulative impacts on geologic resources was defined as the ESRP.

IMPACTS FROM ALTERNATIVE A

Analysis

Roads and trails provide access to geologic features. Experience in the original NPS Monument for more than 75 years has shown that damage, theft, and vandalism are usually concentrated near roads and trails. Such impacts would occur under Alternative A, in which roads and trails would continue to be maintained per current standards.

Geologic resources would be subject to removal

(theft), destruction, vandalism, graffiti, and trash. Resources affected could include lava flows, lava tubes, spatter cones, and cinder cones, as well as smaller scale features such as squeeze-ups, lava ropes, glassy crusts, and volcanic bombs. Vandalism already has caused moderate to major impacts on some caves near roads. For example, Lariat Cave has graffiti and large numbers of spent fireworks and other trash. Under Alternative A, such impacts would be site-specific, ranging broadly in intensity, depending on the attraction and ease of access to the geologic feature. Consequently, these actions would result in site-specific, long-term, and negligible to potentially major adverse impacts on individual features.

Experience has shown that foot traffic affects geologic processes such as downslope movement of unconsolidated or poorly consolidated material on cinder cones, spatter cones, hornitos, and spatter ramparts. Foot traffic also causes compaction and the formation of social trails. Comparisons of Robert Limbert photographs from the early 1900s with the present day view suggests that the spatter cones in the developed part of the original NPS Monument have lost at least 2 feet in elevation because of human disturbance (David Clark, former longtime Chief of Interpretation, personal communication). This is deemed a direct long-term, major impact at these locations. Effects on geologic processes would be expected to occur under Alternative A. These site-specific, short- to long-term adverse impacts would range from negligible to potentially major.

Unpaved roads and parking lots are more vulnerable to eolian processes (wind erosion, transport, and deposition) than surrounding areas anchored by vegetation. Alternative A has 586 miles of Class B, C, and D roads inside the Monument that would be subject to eolian processes. Dust could coat geologic formations, infiltrate into cinders, and be deposited in or fill cracks. In comparison to the aftermath of fire, these impacts would fall within the range of normal variability and therefore would cause a negligible impact on geologic processes.

The removal of vegetative cover by fire accelerates eolian processes. Erosion, transport, and deposition of sediment can be site-specific to regional in context, depending on the acreage burned. Fire, either natural or human-caused, can affect eolian processes for two or more years. Because fires can be a natural process, the effects of fire then fall within the natural range of variability. Under Alternative A, all fires except those in designated Wilderness would be suppressed, thereby limiting the area affected by fire. However, suppression involves the use of heavy equipment and the construction of fire lines, which would affect geological features locally. The acceleration of eolian processes by fire would result in a negligible adverse impact on geologic processes, but fire suppression activities could cause limited direct minor to moderate adverse impacts.

Grazing can also affect geological resources. Fencing is often lacking where young lava flows form the boundaries of Monument grazing allotments. However, experience indicates that because of limited forage and lack of water, livestock do not frequently wander onto young lava flows or features adjacent to grazing allotments. In addition, livestock may occasionally stray onto young lava flows or features during trailing, especially where the trail corridor is narrow. Under Alternative A, direct effects on lava features would be site-specific, adverse, long-term, and range from negligible to minor. Trailing livestock would also affect eolian processes (wind erosion, transport, and deposition), but in comparison to fire, such effects would fall within the range of natural variability. Therefore, the trailing of livestock would result in negligible long-term effects on geologic processes.

Removing cinders from materials sites in the Monument for road construction and maintenance would directly affect the geologic features from which they would be removed. Extraction would be site-specific and could result in minor to moderate adverse impacts in the short term. With long-term use of a material site (i.e., more than 50 years), the total loss of the feature (e.g., a small cinder cone) could result, constituting a potential site-specific major adverse impact. However, under all alternatives, new material sites would be limited to those required for administrative purposes only, and any closed sites would be reclaimed. This would result in a long-term indirect negligible beneficial effect on the Monument's geological features.

Sagebrush steppe restoration activities would be conducted on the older soil dominated areas of the Monument and not on the exposed lava. With the exception of occasional and very limited deposition

of dust during high winds, restoration activities would cause minimal impact on geologic resources.

Cumulative Impacts

There are no known past or future projects outside the Monument that would affect geologic resources in the Monument. However, over the life of the plan, Southern Idaho's population could increase substantially. A visitor center also may be built in the future in the Twin Falls area, which could increase visitation and consequently increase the likelihood of impacts on geologic features in the Monument. The effects, which would be site-specific or even feature-specific, could cover a broad range from negligible to potentially major adverse impacts.

The effect of the Monument expansion on the geology of the ESRP would be beneficial and would vary little by alternative. Monument expansion has withdrawn approximately 1,100 square miles or 750,000 acres of the area surrounding the Great Rift from extractive operations (with the exception of existing authorized materials sites in the Monument). Mechanized travel in the Monument is limited to roads. Outside the Monument, rock collecting and other extractive operations are permitted and travel is not as restricted; this is not expected to change. Further, as population grows, the demand for aggregate, landscape rock, etc., is likely to increase, leading to more and more loss of ESRP geologic resources outside of the Monument.

In contrast, almost all of the Great Rift, which is the best-developed example of a volcanic rift zone on the ESRP, lies in the Monument. In addition, of the eight geologically young lava fields found on the ESRP, the Monument encompasses the three youngest and therefore the least altered by natural processes, making them the best for observing geologic features. The Monument now includes almost all of the Craters of the Moon Lava Field, the largest young basaltic lava field in the lower 48 states.

Monument designation has resulted in a long-term major cumulative beneficial effect not only by protecting and preserving a sizeable chunk of the ESRP geology for future generations to enjoy, but also by preserving and protecting the best geologic examples. Therefore, this action, added to the negligible to potentially major adverse impacts associated with specific uses and locations in the Monument and the surrounding lands in the ESRP, would result in an overall long-term moderate beneficial effect on geological resources in the ESRP region.

Conclusion

Under Alternative A, geological resources would be affected by continued visitor access via roads and trails, as well as by wind erosion, fire, fire suppression, and grazing. These effects would be mainly direct and both short- and long-term in nature, ranging from negligible to potentially major levels. Indirect impacts would result from the deposition of dust and soils on geological features over time. The limitation on new mineral extraction sites would result in indirect long-term negligible beneficial effects on geological resources.

Although an individual geologic feature could suffer a major impact, in context of the entire Monument's geologic features/resources, the impacts would be quite localized (that is, the effect would cover only a small part of the entire Monument's land area or an individual type of geologic feature, of which there may be many).

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's geologic resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

Under Alternative B, improved roads and trails would result in greater access, development, and visitation than would occur under Alternative A. Adverse impacts such as direct damage to or removal of features caused by these changes would also be greater. Intensities, which would be site-specific (e.g., a lava tube near a road or trail) or feature-specific (e.g., a hornito) and cover the same broad range of negligible to potentially major adverse impacts, would have a greater likelihood of more severe impacts from increased visitation and access. Areas

of specific concern in Alternative B would include the following:

- South Grotto already has been moderately affected under existing and past management; there are several obvious social trails that mar the landform. The increased access under Alternative B could exacerbate this degradation, resulting in a long-term, potentially major adverse impact on the spatter cone or spatter rampart feature. Squeeze-ups present in Kings Bowl Lava Field are vulnerable to collection because of their small size. Increased ease of access and higher visitation under Alternative B could increase this vulnerability, representing a direct moderate to potentially major adverse impact over time.

- The shelly pahoehoe surrounding the Pillar Butte area of the Wapi Lava Field is extremely vulnerable to damage from foot traffic. Improved access into the Wapi Park area could increase visitation and resultant impacts on the shelly pahoehoe. Without estimates of how much visitation would increase, it is not possible to predict the exact intensity of such impacts, but moderate to possibly major impacts could occur because of the feature's vulnerability to breaking under the weight of a hiker.

- Road improvements would be likely to facilitate increased visitation to caves that are shown on maps to be close to the improved roads. This could lead to in direct and indirect minor to potentially major long-term adverse impacts on the caves due to damage, vandalism, speleothem collection, and poor caving practices.

As mentioned under Alternative A, unpaved roads and parking lots are more vulnerable to eolian processes than surrounding areas anchored by vegetation. Alternative B has 596 miles of Class B, C, and D roads inside the Monument that would be subject to eolian processes. Increased motorized traffic under Alternative B would exacerbate sediment erosion, transport, and, ultimately, deposition. In comparison to the aftermath of fire, these impacts would fall within the range of normal variability and therefore would result in a negligible effect on geologic processes.

As with Alternative A, accelerated erosion, transport, and deposition of sediment would result from the removal of vegetative cover by fire. Alternative B would include a greater potential for human-caused fire associated with improved access or more widespread visitation and a greater potential for suppression activities involving heavy equipment and fire line construction. The acceleration of eolian processes by fire and the potential direct damage to features caused by suppression activities would result in a negligible to moderate direct adverse impact on geologic resources.

Livestock use would be managed the same under all the alternatives. However, the area in the Passage Zone would be larger in Alternative B. This could lead to more livestock developments, which could cause impacts to nearby geologic features through deposition of dust or direct damage. The resulting adverse impacts would be negligible to minor and long-term.

Short-term effects on materials sites would be the same as those of Alternative A: adverse impacts would be minor to moderate and site-specific. However, the possibility of maintaining more roads to a higher standard in Alternative B could accelerate long-term effects at individual sites, constituting a potentially major site-specific adverse impact. As with Alternative A, the limits on new mineral sites would result in long-term negligible beneficial effects on geological resources.

Alternative B would involve the use of more informational, interpretive, and educational materials. These could increase public understanding and appreciation of geologic resources, leading indirectly to their protection. This could be a long-term minor to moderate beneficial effect on geologic resources throughout the ESRP.

Developing visitor use facilities would attract more people to the Kings Bowl area. This additional visitation could result in more vandalism and unauthorized collection of geologic features and the development of social trails. Long-term direct and indirect adverse impacts on geologic resources would range from minor to potentially major, depending on site-specific conditions and accessibility. However, the informational and educational emphasis might help to mitigate these impacts, keeping impact levels to less than major in most cases.

Designating primitive campsites in the Passage Zone under Alternative B could cause direct, site-specific long-term, minor adverse impacts on geologic resources from construction or clearing. Encouraging more people to stay in the Monument overnight could cause site-specific long-term minor to moderate adverse impacts on geologic resources from theft and vandalism.

Cumulative Impacts

The cumulative impacts on geologic resources from Alternative B would be similar to those described for Alternative A. Although Alternative B would involve more visitor access compared to the No Action Alternative, the related increased effects would not be substantially different. Therefore, the overall cumulative effects, considering all ESRP related actions and the protection provided by the Monument designation, would be long-term, moderate and beneficial.

Conclusion

Alternative B would have the most improved road access and the greatest number of improved roads and additional trail designations, which would result in the largest increase in visitation and/or access of all the alternatives. As a consequence, Alternative B could result in a slightly greater loss of geologic features or structures and a higher rate of degradation of geologic resources or damage from vandalism. Adverse impacts from increased access would range from negligible to potentially major, with specific concerns about direct major damage to features in the Kings Bowl and Wapi Lava Field areas. Increased fire suppression and continued grazing could result in minor to moderate adverse impacts, and small beneficial effects would result from the limits on new mineral extraction areas.

Although an individual geologic feature could suffer a major impact, in context of the entire Monument's geologic features/resources, the impacts would be quite localized (that is, the effect would cover only a small part of the entire Monument's land area or an individual type of geologic feature, of which there may be many).

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's geologic resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

Of all the alternatives, Alternative C would have the largest area of Pristine Zone, the fewest improved roads, and the greatest chance of road closures for resource protection. Therefore, it would result in slightly fewer adverse impacts on geologic resources than Alternative A. Impacts still could be caused by damage, vandalism, or theft. They would be site-specific or feature-specific and could range from negligible to potentially major. However, less access in this alternative would reduce the potential for major impacts.

There would be fewer impacts from eolian processes under Alternative C because this alternative would include fewer Class B, C, and D roads (532 total miles of B, C, and D roads inside the Monument and 12 miles outside the Monument). Impacts on geologic processes from wind erosion, transport, and deposition would be negligible and adverse.

The potential for human-caused fire would be less because of reduced access and presumably fewer visitations than in Alternative A. If fire occurred, wildland fire would occur in the Pristine Zone, which would minimize the amount of heavy equipment, fire line construction for suppression, and less damage overall related to fire. Overall, the adverse impacts on geologic resources from fire would be negligible.

Because grazing would not be managed any differently under this alternative, the same negligible to minor adverse impacts as described for Alternative A would result from the trampling of features and the development of trails.

The effects on materials sites under alternative C would be the same as those of Alternative A: minor to moderate site-specific adverse impacts in the short term, with long-term negligible beneficial effects. However, because of fewer miles of roads and less maintenance of roads in Alternative C, there

would be fewer long-term adverse impacts at individual sites; they would be only moderate because less material would be needed for road maintenance.

Cumulative Impacts

The cumulative impacts on geologic resources from Alternative C would be similar to those described for the No Action alternative, but in Alternative C, limited access would slightly decrease the potential for major impacts compared to the No Action Alternative. Therefore, the overall cumulative effects from alternative C (considering all ESRP related actions and the protection afforded by the Monument designation) would be long-term, moderate, and beneficial.

Conclusion

Alternative C would have the largest area of Pristine Zone, which would afford the most natural protection to geologic features through difficult or remote, foot-only access. The closure of non-essential roads and limited access would lead to the smallest amount of dust-related impacts. Impacts from visitor damage, theft, or vandalism would range from negligible to potentially major locally, but the probability of major impacts would be lower because of decreased visitor access. Negligible to minor adverse impacts from fire and grazing would continue, and there would be slight beneficial effects from limits on new mineral extraction sites. Overall, Alternative C would cause the fewest adverse impacts on geologic resources of all the alternatives.

Although an individual geologic feature could suffer a major impact, in context of the entire Monument's geologic features/resources, the impacts would be quite localized (that is, the effect would cover only a small part of the entire Monument's land area or an individual type of geologic feature, of which there may be many).

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's geologic resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

Under Alternative D, many roads would be maintained to enable access for restoration and fire management activities. Visitors could continue to use these roads, as in Alternative A, and impacts from damage, theft, and vandalism near roads and trails would be likely to be similar to those of Alternative A. The impacts, which would be site-specific or feature-specific, would be adverse and would range from negligible to potentially major.

Under Alternative D, 589 miles of Class B, C, and D roads inside the Monument would be subject to wind erosion, transport, and deposition onto geological features. The unpaved roads in Alternative D would cause the same negligible adverse impacts on geologic processes that were described for Alternative A.

The potential for human-caused fires under Alternative D could be less than in Alternative A because Alternative D would involve less accommodation of visitors in the expanded areas of the Monument through signs, developed recreation sites, and information. However, there would be more wildland fire use, thereby reducing certain impacts of wide-scale suppression activities. Prescribed burns under Alternative D for resource management would result in negligible effects on geologic resources. Overall, negligible to minor adverse impacts would occur, similar to Alternative A.

Grazing and associated trailing would result in the same negligible to minor adverse impacts described for the other alternatives, since grazing would not be managed any differently under this alternative.

The use of materials sites under Alternative D would also result in the same impacts as described for previous alternatives: minor to moderate site-specific adverse impacts in the short term and slight long-term beneficial effects from limits on new sites.

Alternative D would include more emphasis on encouraging visitors to seek licensed guides and outfitters to lead them on ventures in the Monument. Properly trained outfitters and guides might reduce impacts to geologic resources through instruction and monitoring of their clientele, resulting in regional minor to moderate long-term beneficial effects on geologic resources in the ESRP. Emphasizing off-site education under Alternative D could decrease visitation to the Monument, thus reducing the effects on

geologic resources. This could result in a long-term, site-specific to regional minor beneficial effect on geologic resources.

Cumulative Impacts

The cumulative effects on geologic resources from Alternative D would be similar to those described for the No Action Alternative. Although there would be some access improvements, generally these would not cause a great increase in visitor use, since the improvements would be limited to those needed for administrative uses. Therefore, the overall cumulative effects from Alternative D (considering all ESRP-related actions and the protection afforded by the Monument designation) would be long-term, moderate, and beneficial.

Conclusion

Alternative D, because of its aggressive restoration goals and emphasis on off-site experience, would result in beneficial effects because it would limit damage from visitors and result in the restoration of many features. The erosion of roads, fires, fire suppression, and grazing would result in site-specific, negligible to minor adverse impacts.

Although an individual geologic feature could suffer a major impact, in context of the entire Monument's geologic features/resources, the impacts would be quite localized (that is, the effect would cover only a small part of the entire Monument's land area or an individual type of geologic feature, of which there may be many).

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's geologic resources or values would not be impaired.

SOILS

METHODOLOGY AND ASSUMPTIONS

Information about soils and the response of soils to various actions was compiled from NRCS soil surveys, other agency maps and documentation, relevant literature, and resource experts. General soil types, erosion potential, structure, and function were discussed and impacts were analyzed. The analysis was based on reference information, anticipated effects of management prescriptions by alternative, and professional judgment.

The following threshold criteria to indicate intensity of potential impacts were established:

Negligible: The effects on soil productivity or fertility would be at or below the level of detection.

Minor: The effects on soil productivity or fertility would be small, as would the area affected. If mitigation was needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.

Moderate: The effect on soil productivity or fertility would be readily apparent and result in a change in the soil character over a relatively wide area. Mitigating measures probably would be necessary to offset adverse effects and would likely be successful.

Major: The effect on soil productivity or fertility would be readily apparent and long-term and would substantially change the character of the soils over a large area in and outside of the Monument. Extensive mitigating measures to offset adverse effects would be needed, and their success could not be guaranteed.

The area of analysis for cumulative effects on soils, which was defined as approximately 50 miles beyond the Monument boundary, is referred to as South-Central Idaho. This incorporates areas of soil loss and deposition that would affect the Monument.

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, roads would be maintained at current standards. Direct adverse impacts on soils from road maintenance and use would include road edge disturbance, isolated erosion, and compaction.

The effects on soils from soil displacement and dust production would be local, minor, and long-term. Trail maintenance and construction, as well as recreational use, would involve some soil loss, compaction, and erosion, resulting in site-specific negligible to minor long-term adverse impacts on soils.

Wildland fires would be suppressed in all areas except in designated wilderness, where some fires might be allowed for resource benefit. Direct impacts on soils from wildland fires would vary, depending on soil types and fire severity, but localized major impacts would occur from suppression activities, including fire line construction. Erosion resulting from decreased vegetation cover and wildland fire suppression activities would be likely to occur on most soil types until erosion control measures or revegetation could take place. Soil fertility could be positively affected by fire, which often increases nutrient cycling. High-intensity wildland fires in localized places could sterilize soil and reduce overall productivity; however, the overall adverse impacts would be minor.

Weed control by herbicides or by mechanical means, along with the active restoration of 40,000 acres of degraded sagebrush steppe areas, would cause negligible to minor short-term adverse impacts on soil chemistry, structure, productivity, and abundance through herbicide applications, equipment disturbance and compaction, and wind erosion. The long-term benefits of weed control and a restored sagebrush steppe community would include stabilized soils and improved or restored natural fertility, productivity, and function. Such beneficial effects would be long-term and moderate in intensity.

With continued livestock use under Alternative A, it is assumed that guidelines would be used to achieve rangeland health standards. Under this scenario, the effects on soils would include compaction, erosion, and changes to soil fertility and production. Soil compaction or soil erosion, or both, would occur in areas where livestock concentrate (e.g., watering areas, salt licks, fence lines, and corrals) and vegetation has been reduced or removed. Additional livestock developments could increase such impacts. However, some of these developments might mitigate more widespread adverse impacts on soils by concentrating livestock use in specific areas.

Livestock use could result in negative or positive effects on soil fertility and production. The nature of the effects would depend on changes in nutrient cycling (e.g., reduced litter accumulation; incorporation of manure), seedbed characteristics, abundance and type of soil biota or soil biological crusts, and soil moisture. Overall, livestock use would result in short- and long-term minor to moderate adverse impacts on soils.

Facility development, including expanding the Visitor Center, installing waysides at Kings Bowl, and maintaining kiosks, signs, and wayside exhibits would be site-specific and would cause localized long-term minor to moderate adverse impacts on soil. Wherever distinct soil disturbance and excavation would occur, best management practices (Bumps) such as those listed under "Mitigating Measures" in Chapter 2 would be implemented. For example, topsoil would be set aside and replaced to help retain the structure and fertility of soils and minimize impacts.

Cumulative Impacts

In the area surrounding the Monument, agricultural practices, including dryland farming, grazing, and ranching, have led to the erosion of soils by removing native vegetation and replacing it with plants not always suited to the local environment. This, along with tilling of the soil, periodic drought, and frequent wildfires, has left soils in the vicinity of the Monument exposed to erosion by wind. Agricultural and other land use activities, as well as development of homes, roads, and other developments, alter soil structure, productivity, and function.

Soil loss and movement resulting from the effects of these land management activities are the most notable adverse impacts inside and outside of the Monument. Stabilization and revegetation efforts by land management agencies and some private individuals help mitigate what could otherwise be described as major cumulative impacts for South Central Idaho during drought and wildfire years. Typically, however, such impacts, along with the effects of Alternative A, would be regional, moderate, adverse and long-term.

Conclusion

Soil disturbance, erosion, and compaction would be the primary adverse impacts associated with most management actions under Alternative A. Wildland

fire and suppression, restoration activities, road and trail maintenance and use, and livestock use are the management activities most likely to affect soils. Overall, short- and long-term adverse impacts on soils would be minor to moderate in intensity, with long-term moderate beneficial effects from the restoration program.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's soil resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

In addition to the effects discussed for Alternative A, improved road and trail access and more recreational and interpretation facilities or structures in Alternative B could result in increased direct adverse impacts on site-specific soils. It is assumed that improved roads, trails, and facilities would lead to increased public use and recreation. The adverse effects would be similar to those described for Alternative A; predominantly, they would comprise minor increases in soil disturbance, erosion, and compaction. Off-trailing due to more public use probably would affect additional areas.

The extent of the effects would vary, and quantifying the impacts exactly is not possible because the specific roads to be improved and the number of recreational facilities have not yet been specified. However, under Alternative B, Class B (gravel surface) roads in the Passage Zone would increase from 45 miles in Alternative A to 68 miles in Alternative B. Class C roads would increase from 14 miles to 162 miles inside the Monument. The resulting road improvements and use in the Passage Zone would result in direct long-term minor to moderate adverse impacts and indirect adverse impacts related to greater access to areas along roadways.

Restoring 45,000 acres in the Monument would be 5,000 acres more than in Alternative A. This would not result in a substantial change in the characterization of the impacts described for Alternative A. Mechanical disturbance, compaction, herbicide use, and wind erosion would negatively affect soils in the short term at minor levels; however, weed management and restoration activities would improve and restore soil conditions, resulting in moderate long-term beneficial effects. Under Alternative B, suppression activities would likely increase, causing minor to potentially major localized short-term adverse impacts on soils.

Because livestock management use would be similar in all alternatives, the effects on soils would be the same as those described for Alternative A. However, in Alternative B there would be a potential for more livestock developments in the Passage Zone due to the increase in access, and this would likely increase the magnitude of soils disturbance. This would result in short- and long-term minor to moderate adverse impacts on soils from grazing.

Facility development would be enhanced under this alternative, with a trail system and day use area in Kings Bowl and the potential to add to the Visitor Center facility. These actions would result in minor to moderate short-term construction-related adverse impacts, with the removal of soils and/or soil productivity in very limited areas, resulting in long-term localized moderate impacts.

Cumulative Impacts

As in Alternative A, the most notable long-term cumulative impact on soils from Alternative B would be soil erosion and displacement from the area in and around the Monument. There also would be a potential for more impacts from increased public use of the area, but the intensity of impacts still would be moderate.

Similar to Alternative A, in the area surrounding the Monument, agricultural practices, periodic drought, and frequent wildfires have left soils in the vicinity of the Monument exposed to erosion by wind. Agricultural and other land use activities, as well as the development of homes, roads, and other developments, can alter soil structure, productivity, and function and contribute to adverse soil impacts. The cumulative effects of these land management activities, in conjunction with the impacts of Alternative B, would be regional, moderate, adverse and long term.

Conclusion

Improved road and trail access, the development of recreation facilities, and increased visitor use of the Monument might increase the amount of soil area directly and indirectly affected. Additional construction of unpaved roads, trails, and day use areas and more extensive use of fire suppression would cause direct loss of soils locally, resulting in minor to moderate local adverse impacts. Grazing also would cause additional minor to moderate adverse impacts. Overall, the short- and long-term adverse impacts on soils from Alternative B would range from minor to moderate; the restoration program would result in long-term moderate beneficial effects.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's soil resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

An increase in short-term adverse impacts and long-term beneficial effects on soils would result from Alternative C from a larger proposed restoration area (55,000 total acres, compared to 40,000 acres in Alternative A). Mechanical disturbance, compaction, herbicide, and wind erosion all would negatively affect soils in the short term at minor levels. However, the weed management and restoration activities would stabilize soils and improve their structure and function, resulting in moderate long-term benefits.

There would be potential for more wildfire-influenced acreage under Alternative C because of reduced road access and increased response time on fewer miles of maintained roads. There would be less use of suppression and more emphasis on the use of fire for resource benefit, with fewer direct impacts from these activities. More soils could potentially be exposed to the effects of wildfire, including adverse impacts such as the erosion of exposed soil and sterilization in hot spots. There also could be typically beneficial effects such as increased soil fertility and nutrient cycling. Direct soil disturbance from roads and access would be reduced by a reduction in road maintenance, less recreation and other visitor uses, and potential road closures.

Effects from livestock use such as compaction and soil nutrient alteration would be similar to those of Alternative A: short- and long-term minor to moderate adverse impacts on soils. Developments in Alternative C would be minimal, so short-term adverse impacts on soil from construction and long-term adverse impacts from the removal of soil would be negligible to minor.

Cumulative Impacts

As with Alternative A, cumulative soil erosion and displacement in and around the Monument would be the most notable long-term impacts. There is potential for increased cumulative impact intensity from increased restoration acreage and wildfire potential, but the intensity level would still be considered moderate.

Periodic drought, frequent wildfires, agricultural practices, and development have left soils in the vicinity of the Monument exposed to erosion by wind and have affected structure, productivity, and function. The cumulative effect of these activities, in conjunction with affects of Alternative C, would result in regional moderate adverse long-term impacts on soils.

Conclusion

The effects of Alternative C on soils would be substantially the same as those of Alternative A, with slightly more short-term erosion potential and slightly fewer long-term soil impacts. Impacts from facility construction maintenance and fire suppression would be reduced, and adverse impacts from grazing would remain minor to moderate. Overall, the intensity of the short- and long-term adverse impacts would be minor to moderate, with more long-term beneficial effects from a slightly expanded restoration program.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natu-

ral or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's soil resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

The effects on soils from Alternative D would be similar to those described for Alternative A, with the exception of the effects from doubling the proposed restoration acreage (from 40,000 acres in Alternative A to 80,000 acres in Alternative D). The exposure of the soils over this acreage would result in increased wind erosion and potential nutrient loss, resulting in short-term minor to moderate adverse impacts. However, as described for Alternative A, the long-term effects on soils would be beneficial at a moderate to potentially major level under this alternative.

Roads would mostly be maintained at current standards in Alternative D, but improvements could be made to allow access for resource management. The effects would be similar to those of Alternative A, in that direct adverse impacts on soils from road maintenance and use would include road edge disturbance, isolated erosion, and compaction. These impacts would be minor and long-term. Trail maintenance and construction would involve site-specific negligible to minor long-term adverse impacts on soils such as compaction and altered fertility. Emphasis on off-site programs and commercial outfitters would help limit the impacts on soils.

Adverse impacts such as soil loss resulting from wildland fire, wildfire use, and any suppression activities under Alternative D would be minor because road access would be good, which would minimize response time and burned acreage. With wildland fire use in the Pristine Zone, the effects on soils exposed to fire typically would be beneficial - increased soil fertility and nutrient cycling.

As in Alternative A, livestock use under Alternative D would cause short- and long-term minor to moderate adverse impacts on soils. Developments under Alternative D would include a possible center run by multiple agencies at the southern end of the Monument. Expanding the Visitor Center, adding interpretation and trails in Kings Bowl, and installing wayside exhibits and signs would result in local minor to moderate long-term adverse impacts on soils, including direct soil loss, soil erosion, and local compaction.

Cumulative Impacts

The cumulative impacts on soils from Alternative D would be similar to those described for Alternative A. Agricultural practices, periodic drought, frequent wildfires. and development in the area would leave soils exposed to wind erosion, altering soil structure, productivity, and function. However, the greatly expanded restoration efforts of Alternative D would contribute substantial benefits in the long run, helping to balance the many smaller-scale adverse impacts in the area of analysis. Overall, the cumulative effects of all actions outside the Monument, in conjunction with the actions of Alternative D, would result in regional minor to moderate long-term adverse impacts.

Conclusion

The effects of Alternative D on soils would be similar to those of Alternative A, with more short-term erosion potential from road and trail use and maintenance, facility development, and fire. Long- and short-term minor to moderate adverse impacts could result from grazing and fire suppression. Overall, the short- and long-term adverse impacts would be minor to moderate. However, there would be moderate to major long-term beneficial effects on soils in the Monument, assuming successful restoration of the entire proposed acreage under this alternative.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's soil resources or values would not be impaired.

VEGETATION, INCLUDING SPECIAL STATUS SPECIES, AND FIRE MANAGEMENT

Vegetation is a fundamental and vitally important element among the Monument's biological resources. The effects on vegetation resulting from

any of the alternatives under consideration would also affect other resources. Adverse impacts can result in weed invasion and soil surface disturbance and can lead to changes in the composition of vegetation communities. These changes, in turn, can influence animal populations. Where vegetation cover is reduced and soil erosion results, archaeological, paleontological, and historic resources, as well as water and air quality, could be adversely affected.

METHODOLOGY AND ASSUMPTIONS

Effects on vegetation were assessed with the use of data about vegetation communities in the Monument and professional judgment. Effects on special status plants would be limited to BLM sensitive species, as there are no federally listed plants present in the Monument. The following categories were used to evaluate the potential impacts on vegetation:

Negligible: No native vegetation would be affected, or some individual native plants could be affected as a result of the alternative, but there would be no effect on native plant communities. The effects would be on a small scale. No special status plants would be affected.

Minor: The action would affect some individual native plants and would also affect a relatively minor portion of the plant community. The use of standard operating procedures to offset adverse impacts, including special measures to avoid affecting special status plants, would be required and would be effective.

Moderate: The action would affect numerous individual native plants and would also affect a sizeable segment of the plant community over a relatively large area. The use of standard operating procedures to offset adverse effects could be extensive but the procedures probably would be successful. Special status plants could be affected.

Major: The action would cause a considerable effect on native plant populations, including special status plants, and the effects would cover a relatively large area inside and outside of the Monument. The extensive use of standard operating procedures to offset the adverse effects would be necessary, and their success would not be guaranteed.

Direct effects on vegetation generally are caused by any construction activities; by the establishment, use, maintenance, closing, or removal of roads and trails; by livestock trampling and herbivory; and by fire ignitions and suppression actions, including blading of fire lines; herbicide treatments, as well as by seeding treatments and the introduction, spread, and treatment of noxious and invasive weeds. Indirect impacts can be lowered vigor or death of plants immediately adjacent to roads from dust accumulation; changes in plant abundance and/or species composition resulting from modified nutrient cycling due to soil compaction, the accumulation of urine and feces, erosion associated with livestock; and nutrient modification and soil loss or deposition associated with fire.

The area of analysis for cumulative effects on vegetation was defined as the Monument and a zone of approximately 50 miles radius extending out from the perimeter. This was considered to be the distance within which wind-blown weed seed dispersal, soil removal, and deposition, or fire-related impacts would be most likely to affect vegetation resources in the Monument. This influence would be greatest on the west side of the Monument because of the prevailing wind patterns.

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, no new roads or trails would be constructed, and maintenance would continue at current standards. Maintenance would result in minor adverse impacts resulting from dust deposition and occasion plant removal, with only the vegetation immediately adjacent to roads being affected. The maintenance of 588 miles of unpaved roads (Class B, C, and D) would continue.

The use of roads and trails would result primarily in short-term seasonal indirect minor adverse impacts on vegetation (which could include special status plants) primarily from the deposition of dust. This could cause a decrease in vigor and possibly result in the mortality of the affected plants. Trail users veering off the trail to avoid obstacles could cause long-term negligible to minor impacts by trampling vegetation and widening the trail. Long-term negligible to minor adverse impacts could result from soil compaction and erosion caused by illegal off-trail use. Road and trail use and maintenance could spread noxious weeds, with minor to moderate short- and long-term adverse impacts on native plant communities.

About 40,000 acres of degraded rangeland (31,000 acres of annual grassland and 9,000 acres of low-elevation sagebrush steppe, all currently in Fire Condition Class [FCC] 2 or FCC3) would be treated for proactive sagebrush steppe restoration and/or post-fire rehabilitation following wildland fire. The process of controlling invasive and noxious weeds would involve a combination of methods, usually herbicides, prescribed fire, and drill-seeding or aerial seeding with chaining. Thereafter the shrubs, perennial grasses, and forbs would be reestablished through seeding, with the management goal of moving the treated areas toward FCC1.

Sagebrush steppe restoration activities would result in a short-term minor adverse effect on some native plants and special status species due to mortality from prescribed burning, herbicide, or seeding (drilling) treatments. Successful projects would lead to long-term moderate to major beneficial effects. Project-level design would help limit off-site impacts such as effects on non-target vegetation. Herbicides would be selected for specific target species and applied in limited areas by certified applicators. Prescribed fire operations would follow pre-approved burn plans that would restrict when and where fire could be used.

Livestock use would not vary by alternative. There would be no change in the management of livestock use from the current situation. Livestock developments such as fences and watering troughs guide the movement of livestock and result in long-term minor to moderate adverse effects, including localized removal and trampling of vegetation and the spread of invasive and noxious weeds. Indirectly, soil erosion and compaction and the deposition of urine and feces result in alteration of nutrient cycles and negatively affect vegetation causing a minor long-term impact.

Impacts caused by livestock use can include the mortality of long-lived native plants due to changes in the soil environment and the enhancement of conditions that support exotic annual species such as cheatgrass, the removal of native species, and an abundance of excess nitrogen. However, all allotments must meet or be making progress toward meeting Idaho Standards for Rangeland Health, which would minimize these impacts by ensuring that the effects on vegetation and soils would not result in a downward trend. Livestock management in any allotment not meeting the standards would have to be changed to improve the health of soils and vegetation.

Wildland fire management under Alternative A would consist of full suppression in all parts of the Monument except in the designated wilderness. The existing NPS Monument Fire Management Plan (2000) allows for limited wildland fire use. Aggressive suppression would minimize the loss of key sagebrush communities and vegetation that protects the Little Cottonwood Creek watershed, but it would result in short-term moderate local impacts from fire line construction, including the use of heavy equipment. The new fire stations planned for the Carey and Kimama areas would reduce the response time.

Visitor facilities would remain in the current condition, except that the existing Visitor Center would be expanded and some modest trail rehabilitation would be carried out, and safety information would be posted in the Crystal Ice Cave and Kings Bowl area. Expanding the Visitor Center would result in negligible adverse impacts on native vegetation, because the area has already been altered from the natural state. However, plans to convert existing exotic lawn to landscaping with the use of native, drought-tolerant plants (xeriscaping) would result in a long-term indirect minor beneficial effect by educating the public on the values of water conservation and native vegetation and the hazards of invasive and noxious weeds.

Cumulative Impacts

Activities affecting vegetation outside the Monument could negatively affect vegetation resources both in and outside of the Monument. Noxious weed populations, including rush skeletonweed, diffuse knapweed, Russian knapweed, and leafy spurge are well established to the west of the Monument. Increased visitor use could increase the migration of noxious and invasive weeds into the Monument. This would necessitate extensive cooperation with county weed cooperatives and IDL, as well as educating users about noxious weed management. Aggressive weed management outside the Monument, in addition to the actions proposed in Alternative A, would result in a long-term negligible to moderate beneficial effect on vegetation by controlling the spread of noxious weeds.

Areas surrounding the Monument are affected by agricultural practices, including irrigated and dryland crop farming and livestock ranching. The primary impacts associated with agricultural use are (1) eliminating native vegetation through livestock grazing or by replacement by crops, (2) the drift of weeds; and (3) agricultural trespass, including the deposition of garbage or the removal of vegetation and planting crops on public lands adjacent to the Monument. The effects on vegetation from all the actions of Alternative A would be relatively minor, and overall, these actions would result in short- to long-term negligible to moderate adverse impacts. The movement of soil by wind is a constant process in the country in and around the Monument; this process would result in negligible cumulative long-term effects.

Under Alternative A, direction from the USRD Fire Management Direction Amendments (FMDA) would be used to guide treatment of lands both inside and outside of the Monument to convert areas dominated by cheatgrass to sagebrush with a perennial grass and forb understory. The restoration/rehabilitation treatments proposed in Alternative A could result in short-term negligible to moderate adverse effects from herbicide, prescribed fire, and seeding treatments. This would result in the loss of some native vegetation and possibly increased erosion. However, successful projects placed strategically over the landscape to protect and enhance vegetation in the Monument would result in a healthier, more resilient ecosystem, constituting long-term, large scale minor to major beneficial effects.

Overall, the benefits of the FMDA initiative, combined with the adverse impacts from various actions outside the Monument and all actions associated with Alternative A, would result in minor long-term cumulative adverse impacts on soils. The restoration program under Alternative A would contribute a sizeable amount to regional beneficial effects that would help offset various long-term adverse impacts.

Conclusion

Alternative A would result in both short- and long-term negligible to moderate adverse impacts on vegetation from continued use and maintenance of roads and trails, plus illegal off-road use, spread of noxious weeds, fire suppression and fire, and continued grazing. Restoration activities and construction of facilities would cause short-term negligible to minor direct adverse impacts, but they would result in long-term indirect minor to major beneficial effects as a result of vegetation restoration and public education that would accompany facility xeriscaping efforts.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's vegetation resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

Under Alternative B, Passage Zone acreage would increase from 4,800 to 69,000 acres and Primitive Zone acreage would decrease from 291,100 to 227,400 acres. There would be a corresponding increase in the mileage of roads that would be upgraded or maintained. Road and trail maintenance in the enlarged Passage Zone north of US 20/26/93, in Laidlaw Park, and in the vicinity of the Wapi Lava Field could cause the fragmentation of vegetation communities, including special status plant populations.

Depending on the density of roads, road and trail improvements under Alternative B would cause direct long-term minor to moderate adverse effects from the removal of vegetation. Maintenance would cause negligible to minor adverse impacts on vegetation adjacent to roads. Depending on the density of roads and the number of users, the use of roads and trails would result primarily in seasonal indirect short-term minor to moderate impacts on vegetation, including special status plants, primarily from the deposition of dust. This could cause a decrease in vigor and possibly result in mortality of the affected plants. Trail users that might veer off trails to avoid obstacles could trample vegetation and widen trails, causing long-term negligible to minor adverse impacts. Such impacts would be exacerbated by the use of trails by motorized vehicles such as OHVs. Long-term negligible to minor adverse impacts on vegetation could result from soil compaction and erosion caused by illegal off-trail use. Increased road and trail construction could result in the spread of noxious weeds, with minor to moderate short- and long-term adverse impacts on native plants.

Under Alternative B, about 45,000 acres of degraded rangeland (31,000 acres of annual grassland and 14,000 acres of low-elevation sagebrush steppe, all currently in FCC2 or FCC3) would be treated for proactive sagebrush steppe restoration and/or post-fire rehabilitation following wildland fire, a 5,000-acre increase over Alternative A. The process of controlling invasive and noxious weeds would involve a combination of methods, usually herbicides, prescribed fire, and drill-seeding or aerial seeding with chaining. Thereafter the shrubs, perennial grasses, and forbs would be reestablished through seeding, with the management goal of moving the treated areas toward FCC1. Fragmentation due to the greater density of roads and trails and increased access and maintenance would result in smaller blocks of restored vegetation than in Alternative A)

Sagebrush steppe restoration activities would result in some vegetation mortality from prescribed burning, herbicide, or seeding (drilling) treatments, a short-term minor adverse effect on some native plants and special status species. Successful projects would lead to long-term moderate to possibly major beneficial effects. Project-level design, as described for Alternative A, would minimize adverse impacts.

Limited prescribed fire (less than 500 acres over the life of the plan) would be used to improve areas in FCC2 or maintain areas in FCC1 in aspen, conifer, and mountain shrub vegetation types. Small projects to protect the Little Cottonwood Creek Watershed would not result in the loss of protective soil cover in erosion-prone areas. These projects would cause short-term minor effects consisting of vegetation removal by fire. The long-term results of this action would be a lower fuel load and plant communities with a greater diversity relative to structure and species composition, a moderate to major effect.

Since livestock use would not vary by alternative, there would be no change in the management of livestock use from the current situation under alternative B. Having the Passage Zone larger could lead to more livestock developments, which would result in long-term minor to moderate adverse effects, including localized removal and trampling of vegetation and the spread of invasive and noxious weeds. Other effects, including soil erosion and compaction, the alteration of nutrient cycles, and the enhancement of conditions that support exotic annual species would be the same as described for Alternative A, generally minor to long-term. As previously discussed, all allotments must meet or be making progress toward meeting the Idaho Standards for Rangeland Health, which would minimize these impacts.

Wildland fire management under Alternative B would consist of full suppression in all parts of the Monument except in the Wilderness and Preserve. Aggressive suppression would minimize the loss of key sagebrush communities and vegetation that protects the Little Cottonwood Creek watershed. The new fire stations planned for the Carey and Kimama areas would reduce the response time. The larger Passage Zone, which would allow better access to the Interior of the Monument, could result in more visitors, which in turn could increase the risk of fire from the ignition of vegetation adjacent to roads or in the center of two-track roads. This could be mitigated by education and by patrols during high-risk periods. The greater level of suppression under Alternative B would result in direct minor to moderate local adverse impacts from fire line construction and the use of heavy equipment.

Expanding the Visitor Center would cause negligible effects on native vegetation because the area

already has been altered from the natural state, and converting the existing exotic lawn to native xeriscaping would educate the public about the value of water conservation and native vegetation and the hazards of invasive and noxious weeds, resulting in an indirect beneficial effect. Adding kiosks and signs would cause little disturbance or removal of vegetation, resulting in negligible effects. Interpretive signs could cause a minor to moderate long-term beneficial effect by minimizing visitor impacts, including the trampling or removal of vegetation and the frequency of human-caused fires.

Cumulative Impacts

The cumulative effects on vegetation from Alternative B would be similar to those described for Alternative A. Impacts related to the agricultural practices in areas surrounding the Monument would be the same as those described for Alternative A, including the elimination of native vegetation, the drift of weeds, and agricultural trespass. These actions would result in short- to long-term negligible to moderate adverse impacts. The movement of soil due to wind would have negligible cumulative long-term effects.

As in Alternative A, under alternative B the direction from the USRD FMDA would be used to guide the treatment of lands both inside and outside of the Monument to convert areas dominated by cheatgrass to sagebrush with a perennial grass and forb understory. This would result in associated short-term negligible to moderate adverse effects and long-term large scale minor to major beneficial effects. Overall, all the above-described actions, combined with the effects of action specific to Alternative B, would result in minor long-term cumulative adverse impacts. The Alternative B restoration program would contribute a sizeable amount to cumulative benefits that would offset the various adverse impacts on soils in the region.

Conclusion

Alternative B would result in a greater possibility of fragmentation, increased risk of noxious weed spread, and greater risk of human-caused fire because of increased visitation and access and more road and trail maintenance. The effects on vegetation would be both short- and long-term, ranging from negligible to moderate, but they would be more widespread than in Alternative A. Facility development would cause some long-term negligible to minor negative impacts on vegetation, but increased public education (along with xeriscaping efforts)would result in minor to moderate long-term beneficial effects. Restoration acreage would be slightly greater than in Alternative A, with short-term minor adverse impacts and long-term moderate to major beneficial effects.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's vegetation resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

The Passage Zone acreage in Alternative C would decrease from 4,800 to 3,200 acres; the Primitive Zone would decrease from 291,100 to 201,700 acres; and the Pristine Zone would increase from 450,200 to 541,200 acres. There would be a corresponding decrease in access due to expansion of the Pristine Zone, with a higher potential for road closures and a reduced number of better-maintained roads.

Road and trail maintenance would cause negligible to minor impacts on vegetation adjacent to roads. The deposition of dust from the use of roads and trails would result in short-term, seasonal indirect minor to moderate impacts on vegetation, including special status plants. This could cause a decrease in vigor and possibly result in the mortality of the affected plants adjacent to roads and trails. The roads that were open to travel might be used more because there would be fewer opportunities for dispersal. Trail users might veer off the trail to avoid obstacles, possibly trampling vegetation and widening the trail, causing long-term negligible to minor impacts. Such impacts would be exacerbated by motorized vehicles such as OHVs being used on trails. Long-term negligible to minor adverse impacts could result from soil compaction and erosion

caused by illegal off-trail use. Decreased road density would reduce the opportunity for noxious weed dispersal, but it also would reduce the probability of detection and treatment by Monument staff. This would result in a minor to moderate adverse impact on the Monument's vegetation.

Under Alternative C, about 55,000 acres of degraded rangeland (31,000 acres of annual grassland and 24,000 acres of low-elevation sagebrush steppe, all currently in FCC2 or FCC3) would be treated for proactive sagebrush steppe restoration and/or post-fire rehabilitation, an increase of about 38 percent over the area targeted under Alternative A. The process of controlling invasive and noxious weeds would involve a combination of methods, usually herbicides, prescribed fire, and drill-seeding or aerial seeding with chaining. Thereafter the shrubs, perennial grasses, and forbs would be reestablished through seeding, with the management goal of moving the treated areas toward FCC1. Under this alternative the restoration would occur more slowly than in the other alternatives because lower-impact methods (such as reduced use of herbicides and seeding methods that reduce soil surface disturbance) would be used.

Sagebrush steppe restoration activities could cause mortality from prescribed burning, herbicide, or seeding treatments, resulting in short-term negligible to minor adverse effects on some native plants and special status species. Successful projects would cause long-term minor to major beneficial effects. It is unlikely that all acreage would reach FCC1 within the 15- to 20-year life of the plan because of slower implementation of projects and use of lower impact methods. Project-level design, as described for Alternative A, would minimize impacts.

Limited prescribed fire (on less than 500 acres over the life of the plan) would be used to improve areas in FCC2 or maintain areas in FCC1 in aspen, conifer, and mountain shrub vegetation types. Small projects that would not cause the loss of protective soil cover in erosion-prone areas would help to protect the Little Cottonwood Creek Watershed. These projects would result in a short-term minor effect on the removal of vegetation by fire. The long-term effects would consist of lower fuel load and plant communities with a greater diversity relative to structure and species composition; these effects would be moderate to major.

Since livestock use would not vary by alternative, there would be no change in the management of livestock use from the current situation under alternative C. Because developments such as fences and watering troughs guide the movement of livestock, such developments could result in long-term minor to moderate adverse effects, including localized removal and trampling of vegetation and the spread of invasive and noxious weeds. Other effects, including soil erosion and compaction, the alteration of nutrient cycles, and the enhancement of conditions that support exotic annual species also would occur. However, new facilities in Alternative C would be limited to those necessary for resource protection; therefore, the impacts from concentrations of livestock would be less widespread than in Alternative B. All allotments must meet or be making progress toward meeting Idaho Standards for Rangeland Health, which would minimize these impacts.

Wildland fire management under Alternative C would consist of full suppression in all parts of the Monument except in the Wilderness and Preserve. Aggressive suppression would minimize loss of key sagebrush communities and vegetation that protects the Little Cottonwood Creek Watershed. The new fire stations planned for the Carey and Kimama areas would reduce response time, but with more Pristine Zone acreage and less access, the chance of larger wildland fires would be greater in Alternative C.

In this alternative the enhancement of visitor facilities would be limited to expanding the Visitor Center. This would cause negligible impacts on native vegetation because the area has already been altered from the natural state. However, as in Alternative A, plans to convert existing exotic lawn to native xeriscaping would educate the public on the values of water conservation and native vegetation and the hazards of invasive and noxious weeds, an indirect beneficial effect. The interpretive displays in the Visitor Center, along with brochures and off-site signs, could help to minimize visitor impacts, including trampling or the removal of vegetation and the frequency of human-caused fire. This would be in a minor to moderate long-term beneficial effect.

Designating a 10,517-acre ACEC in North Laidlaw Park would eliminate the future livestock water developments in that area, thus maintaining livestock use at a low level (Appendix F). This would be a

long-term negligible to minor beneficial effect. To designate such an ACEC, an implementation-level management plan would have to be prepared. Such a plan would specifically guide proactive management for the vegetative community. This could offer a greater level of protection than the imposing the same management without the ACEC designation. Livestock management associated with the ACEC could result in the use of new or existing water facilities elsewhere in the Monument, thus concentrating that use in areas other than North Laidlaw Park, resulting in a negligible to minor negative effect on vegetation in those areas.

Cumulative Impacts

The cumulative impacts on vegetation from Alternative C would be similar to those described for Alternative A, but the adverse impacts would be fewer because accessibility and visitation would be less and there would be more restoration efforts. Impacts related to agricultural practices in areas surrounding the Monument would be the same as those described for Alternatives A and B, including the elimination of native vegetation, the drift of weeds, and agricultural trespass. These actions would result in short- to long-term negligible to moderate adverse impacts. The movement of soil by wind would cause negligible cumulative long-term adverse impacts.

As in Alternatives A and B, under Alternative C the direction from the USRD FMDA would be used to guide the treatment of lands both inside and outside of the Monument to convert areas dominated by cheatgrass to sagebrush with a perennial grass and forb understory. This would result in associated short-term negligible to moderate adverse impacts and long-term large-scale minor to major beneficial effects. Overall, the benefits of the FDMA restoration, combined with other adverse impacts of action inside and outside the Monument and the expanded restoration program in the Monument under Alternative C, would result in long-term cumulative negligible to minor adverse impacts on vegetation. The Alternative C restoration program plus the limits on access to more areas would contribute a sizeable amount to regional beneficial effects.

Conclusion

Alternative C would involve less opportunity for extensive visitor access, less access for fire suppression, less active management of noxious weeds, and a slower rate of restoration over a larger area than any other alternative. Adverse impacts on vegetation from access would be minor and limited, with few impacts from facility development and maintenance. Restoration and native xeriscaping efforts would cause long-term minor to major beneficial effects, but these would occur more slowly because fewer herbicides and low-impact methods would be used. Fires, fire suppression, and continued grazing would lead to minor to moderate adverse impacts.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's vegetation resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

The size of the Passage Zone in Alternative D would increase from 4,800 to 9,900 acres; the Primitive Zone would decrease from 291,100 to 283,700 acres; and the Pristine Zone would increase from 450,200 acres to 452,500 acres. There would be a slight increase in access from some expansion of the Passage Zone. The removal of vegetation for road and trail construction would cause direct minor to moderate adverse effects, depending on the density of roads.

Road and trail maintenance would cause negligible to minor impacts on vegetation adjacent to roads. The deposition of dust from road and trail use would result primarily in short-term, seasonal indirect minor to moderate impacts on vegetation, including special status plants. This could cause a decrease in vigor and possibly result in mortality of the affected plants. Trail users might veer off trails to avoid obstacles, trampling vegetation and widening the trial; this could cause long-term negligible to minor adverse impacts. The use of motorized vehicles on trails, such as OHVs, would exacerbate these adverse impacts. Long-term negligible to minor adverse impacts could result from soil compaction and erosion from illegal off-trail use. Greater road density

would increase the potential for the dispersal of noxious weeds, but this also would increase the probability of detection and treatment by Monument staff. This would result in minor to moderate short- and long-term negative impacts on native plants.

Under Alternative D, about 80,000 acres of degraded rangeland (31,000 acres of annual grassland and 49,000 acres of low-elevation sagebrush steppe, all currently in FCC2 or FCC3) would be treated for proactive sagebrush steppe restoration and/or post-fire rehabilitation, a 100 percent increase over the area targeted under Alternative A. This is the most aggressive restoration program of all the alternatives - all available methods would be used, and large areas would be treated within short timeframes. The process of controlling invasive and noxious weeds would involve a combination of methods, usually herbicides, prescribed fire, and drill-seeding or aerial seeding with chaining. Thereafter the shrubs, perennial grasses, and forbs would be reestablished through seeding, with the management goal of moving the treated areas toward FCC1. Sagebrush steppe restoration activities could cause mortality from prescribed burning, herbicide, or seeding (drilling and chaining) treatments, resulting in short-term minor adverse impacts on some native plants and special status species. Successful projects would lead to long-term moderate to major beneficial effects. Project-level design, as described for Alternative A, would minimize impacts.

Limited prescribed fire (on less than 500 acres over the life of the plan) would be used to improve areas in FCC2 or maintain areas in FCC1 in aspen, conifer, and mountain shrub vegetation types. Small projects that would not cause the loss of protective soil cover in erosion-prone areas would help to protect the Little Cottonwood Creek Watershed. These projects would result in short-term minor effects consisting of the removal of vegetation by fire. The long-term effects would consist of lower fuel load and plant communities with a greater diversity relative to structure and species composition; these effects would be moderate to major.

Since livestock use would not vary by alternative, there would be no change in the management of livestock use from the current situation under alternative D. Because developments such as fences and watering troughs guide the movement of livestock, such developments could result in long-term minor to moderate adverse effects, including localized removal and trampling of vegetation and the spread of invasive and noxious weeds. Other effects, including soil erosion and compaction, the alteration of nutrient cycles, and the enhancement of conditions that support exotic annual species also would be the same as those described for Alternative A, generally minor and long term..

In Alternative D, future livestock water developments would not be permitted in North Laidlaw Park or Bowl Crater; thus, livestock use would be maintained at a low level in those areas. This could result in the placement of new facilities or increased use of existing watering facilities elsewhere in the Monument, thus concentrating that use in other areas. However, all allotments must meet or be making progress toward meeting Idaho Standards for Rangeland Health, which would minimize grazing-related impacts.

Wildland fire management under Alternative D would consist of full suppression in all parts of the Monument except in the Wilderness and Preserve. Aggressive suppression would minimize the loss of key sagebrush communities and the vegetation that protects the Little Cottonwood Creek Watershed. The new fire stations planned for the Carey and Kimama areas and good access, particularly in remote areas, would reduce the response time and keep fires small to the highest degree in this alternative.

In Alternative D the enhancement of visitor facilities would be limited to expanding the Visitor Center and some minor development in the Kings Bowl and Crystal Ice Caves areas. Expanding the Visitor Center would result in negligible effects on native vegetation because the area has already been altered from the natural state. However, as in Alternatives A and C, plans to convert existing exotic lawn to native xeriscaping would educate the public on the values of water conservation and native vegetation and the hazards of invasive and noxious weeds, an indirect beneficial effect.

The interpretive displays in the Visitor Center, along with brochures and off-site signs, could help to minimize visitor impacts, including trampling or the removal of vegetation and the frequency of human-caused fire. This would be a minor to moderate long-

term beneficial effect. Constructing trails and installing a vault toilet and other primitive visitor facilities in the Kings Bowl area would cause minor adverse impacts. Increased visitor use could have minor adverse effects that could be mitigated by interpretive signs focused on resource protection.

Cumulative Impacts

The cumulative impacts from Alternative D would be similar to these described for Alternative A, but with a much greater beneficial effect from the aggressive and expanded restoration program (80,000 acres). As with the other alternatives, there would be impacts related to agricultural practices in Alternative D, including the elimination of native vegetation, the drift of weeds, and agricultural trespass. The long-term effects from the movement of soil by wind would be negligible.

As in the other alternatives, the direction from the USRD FMDA would be used to guide the treatment of lands both inside and outside of the Monument to convert areas dominated by cheatgrass to sagebrush with a perennial grass and forb understory. This would result in short-term negligible to moderate adverse impacts and long-term large-scale minor to major beneficial effects. Overall, the benefits of the FMDA initiative, plus the adverse impacts from various actions outside the Monument combined with the restoration program and all other actions under Alternative D, would result in long-term cumulative minor beneficial effects on soils in the region. The addition of the aggressive restoration program, plus the educational emphasis that would accompany the program, would contribute a large part to the overall cumulative beneficial effects.

Conclusion

In Alternative D would there would be more access for fire suppression and more aggressive noxious weed control and restoration programs. This would result in short-term minor to moderate adverse impacts but long-term moderate to major beneficial effects, occurring in a shorter time than in the other alternatives. Strategically placed restoration projects would increase the size and continuity of healthy vegetation patches and reduce the extent of poor quality vegetation. Adverse impacts from visitor access, fire and fire suppression, grazing, and facility development would be similar to those described for Alternative A, with both short- and long-term minor to moderate adverse impacts.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's vegetation resources or values would not be impaired.

WATER RESOURCES

METHODOLOGY AND ASSUMPTIONS

To assess the magnitude of water quality impacts on Monument waters under the various alternatives, state water quality standards governing the waters of the Monument were examined and baseline water quality data (where available) were examined. The effects on water resources were assessed with the use of available data and best professional judgment. The impact intensity thresholds used are as follows:

Negligible:	Any chemical, physical, or biological effects would not be detectable, would be well below water quality standards or criteria, and would be within historical or desired water quality conditions.
Minor:	Chemical, physical, or biological effects would be detectable but would be well below water quality standards or criteria and within historical or desired water quality conditions.
Moderate:	Chemical, physical, or biological effects would be detectable but would be at or below water quality standards or criteria; however, historical baseline or desired water quality conditions would be altered on a short-term basis.
Major:	Chemical, physical, or biological effects would be detectable and

would be frequently altered from the historical baseline or desired water quality conditions and/or chemical, physical, or biological water quality standards or criteria would be slightly and singularly exceeded on a short-term basis.

For water resources, impact duration was defined as follows:

Short-term: An effect that occurs in a short period of time (generally one or two days but no more than seven days).

Long-term: A change in a resource or its condition that lasts longer than seven days.

The area of analysis for cumulative impacts on water resources was defined as the surface water bodies both in the Monument and extending into or out of the Monument.

IMPACTS FROM ALTERNATIVE A

Analysis

The relative scarcity of surface water in the Monument means the effects of management actions would usually be localized to individual water bodies. Where surface waters do exist, recreational uses, livestock use, and facility developments would be the primary management activities affecting water resources in the Monument. Alternative A represents a continuation of most existing management activities that could affect water resources. Maintaining access and facilities in the current condition would not be likely to substantially increase recreational use or its effects on water resources beyond current levels, and new construction or maintenance would include measures to limit erosion and protect water quality where appropriate.

Recreational uses could contaminate waters or compete with wildlife at water sources found in ice caves. Easily accessible ice caves have been found to have higher levels of nutrients than caves located in remote areas. Fecal coliform bacteria and nutrient contamination of ice caves has been documented in heavily visited caves located in the original Monument (Falter 1996). However few ice caves are accessible to this degree, and recreational use of the vast majority appears to be very limited. Maintaining access and facilities in the current condition would not be likely to substantially increase recreational use or its effects on water resources beyond current levels. The effects on water quality from recreational use would be expected to remain short-term and range from negligible to moderate intensity in localized circumstances.

Livestock often concentrate in the vicinity of water sources. Livestock would contaminate surface water bodies with fecal coliform bacteria and nutrients from manure deposited in or near water bodies. Smaller water bodies have little capacity to dilute added nutrients. Most water bodies affected by livestock in the Monument would be ephemeral water bodies known as playa lakes located on BLM administered areas. Many of the naturally formed playas have been modified to increase their storage capacity for livestock watering.

Effects on water quality from livestock use would be expected to be long-term with intensity ranging from negligible to potentially major in local sites, depending on the concentration and duration of livestock use. However, because of the short seasonal periods during which standing water is present in playas, these impacts would be negated by the eventual disappearance of any surface water. Also, the Idaho Standards for Rangeland Health emphasize maintaining healthy riparian vegetation and water quality and compliance with Idaho water quality standards, thereby reducing impacts.

Cumulative Impacts

Past actions to divert portions of Little Cottonwood Creek to provide potable water for the development of recreational facilities, diversions of water from the Little Wood River, and modifications of many of the playas to enhance stock watering opportunities all have affected water resources up to the present time. In some instances, such as the Little Wood River, the effects of upstream water diversions are major and long-term. However, the limited extent of this surface stream in the Monument results in impacts that are localized to very small segments (total less than 400 yards) of the stream on the edge of the Monument boundary.

A future actions that may affect Monument water resources is a proposed project to replace irrigation channels that carry water from the Little Wood River to agricultural fields near Carey with an enclosed pipeline delivery system. The effect this action would have on wetlands or water resources just inside the western boundary of the Monument (parallel and in some cases including portions of the Little Wood River channel) is unknown.

The past, present, and future actions relating to water diversions, grazing and agricultural areas continue to result in adverse impacts on water quality. Impacts on the water quality in creeks and playas in the Monument that are related to these actions, in conjunction with the actions of Alternative A, would result in long-term minor adverse cumulative impacts. The actions of Alternative A would contribute a minuscule increment to the overall adverse impacts.

Conclusion

Implementing Alternative A would continue the current local long-term effects on water resources at intensity levels generally ranging from negligible to potentially major, although any major effects would be localized to small areas. The effects of intense recreational use on ice cave pools or from livestock watering on individual playas could create minor to moderate changes in nutrient concentrations, bacteria levels, and turbidity. The duration of effects would depend on the intensity of recreational use at each site. The effects would tend to be localized to the individual water bodies, because no surface waters connect them. The overall affect of livestock use on playas would be widespread and long-term and could range from minor to potentially major intensity, depending on the location.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's water resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

The effects on water quality from Alternative B would be similar to those described for Alternative A, with localized effects at negligible to potentially major intensities depending on the location and concentration of activity and livestock. The relative scarcity of surface water in the Monument means the effects of management actions would be limited to certain areas. Where surface waters do exist, recreational uses, livestock use, and facility developments would be the primary management activities affecting the Monument's water resources.

In addition to the effects discussed for Alternative A, improved road and trail access and potential new recreational facilities in Alternative B could result in an increase in recreational use of the area, which would lead to higher intensity impacts on ice cave water resources. These effects would be most likely to occur at ice caves more easily reached by improved roads. Class B (gravel surface) roads in the Passage Zone would be increased from 45 miles inside the Monument in Alternative A to 68 miles in Alternative B. Depending the numbers of people coming to ice caves and other water bodies via newly improved roads, the impacts would be likely to be short-term and of negligible to moderate intensity.

Because the management of livestock use would not vary among alternatives, the effects on water resources from Alternative B would be similar to those from Alternative A; that is, minor to moderate local impacts on ephemeral ponds and playas from trampling of shorelines and aquatic vegetation and from contaminants from fecal coliform and nutrients from manure. The larger area in the Passage Zone in Alternative B might accommodate new livestock developments. If developed, these water sources could distribute livestock to areas currently too remote from water to be grazed substantially, adversely affecting the water quality of any nearby playas. Proposed road improvements in this alternative (intended to facilitate recreation) could also facilitate recreational access or water hauling for livestock.

Cumulative Impacts

The cumulative effects on water quality from Alternative B would be similar to those described for

Alternative A. The offsite actions related to diversions and agricultural use, combined with the impacts expected from the actions of Alternative B, would result in long-term minor adverse impacts on water quality. The actions of Alternative B would contribute slightly more to the cumulative impact than under the no-action alternative because this alternative would lead to increased visitation and possibly to more livestock development.

Conclusion

The effects of Alternative B would be substantially the same as those of Alternative A, but with a somewhat higher likelihood of more indirect adverse effects on local ice caves and playas resulting from road improvements and increased recreational use, plus a possible increase in livestock developments. Impacts would generally range from negligible to potentially moderate, but they would be localized. Depending on the site-specific circumstances, the effects could be either short term or long term.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's water resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

Alternative C, which would involve fewer maintained access roads and less facility development than Alternative B, could limit recreational use. The effects on water resources from recreational use and livestock use in this alternative would be similar to those described for Alternative A (negligible to potentially moderate adverse impacts from bacterial and nutrient contamination and from trampling of wetland/water resources). However, because of the reduced recreational access, moderate impacts could be less frequent. Class B (gravel surface) roads inside the Monument in Alternative B would total 37 miles, compared to 45 for Alternative A. With much less scheduled maintenance and reduced road standards, the indirect impact of recreational uses on water resources in the immediate vicinity of those roads might increase under Alternative C.

The larger area zoned as Primitive could affect the number and type of new livestock developments allowed in the Primitive and Pristine Zones. Within these zones, the tendency of livestock to concentrate near livestock developments would reduce the adverse effects on nearby surface waters.

Cumulative Impacts

The cumulative effects on water quality from Alternative C would be similar to those described for Alternative A. The offsite actions related to diversions and agricultural use, combined with the effects caused by the actions of Alternative C, would result in long-term minor adverse impacts on water quality. The reduced road access under Alternative C possibly would limit the direct impacts on ice caves and other water bodies.

Conclusion

The effects of Alternative C could be substantially the same as those of Alternative A because there still would be a chance that recreational use could affect ice caves, and there could be limited impacts from grazing. However, moderate adverse impacts would potentially be less widespread or frequent because road access would be reduced.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's water resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

The effects on water resources from recreational use and livestock use under Alternative D would be similar to those of Alternative A. Road improvements intended to facilitate response to wildfires and vegetative restoration projects in this alternative also could facilitate recreational access or water hauling

for livestock. Increased recreational use would not be as likely in this alternative as in Alternative B because few other recreational facilities would be added in this alternative. Improved access roads could facilitate water hauling for livestock, indirectly leading to a greater percentage of allowable AUMs than the current number.

Having a larger area of Passage Zone than in Alternatives A and C could accommodate more livestock water developments. If developed, these water sources could distribute livestock to areas currently too remote from water to receive substantial livestock grazing; this would adversely affect water quality in any nearby playas.

Cumulative Impacts

The cumulative impacts on water quality from Alternative D would be similar to those described for Alternative A. The off-site actions related to diversions and agricultural use, combined with the impacts from Alternative D, would result in long-term minor adverse impacts on water quality. The actions under Alternative D would contribute slightly more to the cumulative adverse impacts than would those of the No Action Alternative because the road maintenance for administrative purposes would also allow visitor access to many areas, and livestock development could be greater in the Passage Zone.

Conclusion

The effects on water resources from Alternative D would be much the same as Alternative A, with localized long-term effects at negligible to major intensities, depending on site location (proximity of ice caves to roads) or concentration of livestock. Implementing Alternative D could cause local long-term effects on water resources at intensity levels ranging from negligible to potentially major. Intense recreational use could affect ice cave pools, and livestock watering could affect individual playas, causing minor to moderate changes in nutrient concentrations, bacteria levels, and turbidity. The effects would tend to be localized to individual water bodies because no surface waters connect them.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's water resources or values would not be impaired.

WILDLIFE, INCLUDING SPECIAL STATUS SPECIES

METHODOLOGY AND ASSUMPTIONS

The available information used in this analysis was obtained from relevant scientific literature, wildlife databases, consultation with other biologists, interdisciplinary team meetings, and site visits. The impacts were assessed with the use of this information, knowledge of the Monument, and professional judgment.

The following impact thresholds were used for analyzing the intensity of effects on wildlife-related resources:

Negligible:	Wildlife would not be affected, or the effects would be at or below the level of detection, and the changes would be so slight that they would not be of any measurable or perceptible consequence to the population of any wildlife species.
Minor:	The effects on wildlife would be detectable but localized, small, and of little consequence to the population of any species. Mitigating measures, if needed to offset adverse effects, would be simple and successful.
Moderate:	The effects on wildlife would be readily detectable and localized, with consequences at the population level. Mitigating measures, if needed to offset adverse effects, would be extensive and probably would be successful.
Major:	The effects on wildlife would be obvious and would result in substan-

tial consequences to the populations in the region. Extensive mitigating measures would be needed to offset adverse effects, and their success would not be guaranteed.

For wildlife, impact duration was defined as follows:

Short-term: An effect that generally would last less than a single year or season.

Long-term: A change in a resource or its condition that would last longer than a single year or season.

The area of analysis for cumulative effects on wildlife was defined as the Monument and the five-county area surrounding the Monument, which contains habitat that may be used by Monument wildlife and may also support the same species of special concern.

IMPACTS FROM ALTERNATIVE A

Analysis

Four classes of roads would be maintained in the Monument under Alternative A. This use and related maintenance activities could continue to disturb wildlife species. The use of some higher standard roads such as US 20/26/93 would continue to result in road-killed animals and could adversely affect migration corridors for some species, including mule deer, pronghorn, and sage grouse. The use of secondary roads, especially Class B roads adjacent to sensitive wildlife areas, could cause periodic disturbance ranging from minor to moderate intensity.

Substantial vehicle traffic in mornings in April and early May could continue to adversely affect sage grouse through disturbance and road kill. Many large mammals, including cougar, deer, elk, pronghorn, and bears, respond negatively to vehicle traffic. The presence of higher standard roads could lead to increased use and disturbance. There could be higher losses of some species, including marmots, near these roads. Better access could also lead to greater hunting pressure on animal populations in those areas. Most of these adverse impacts would be seasonal and of negligible to minor intensity. There is a potential for short-term moderate adverse impacts on some species in high use areas.

This alternative would involve the implementation of statewide sage grouse habitat guidelines for vegetation management. The State of Idaho's sage grouse guidelines have been implemented throughout the state, and the continued implementation should continue to improve the habitat in the Monument. These guidelines include protecting quality grouse habitat and restoring potential habitat where feasible. Existing high-quality habitat would be a priority for protection.

To achieve a mosaic of shrubs, forbs, and grasses capable of sustaining native animal populations, 40,000 acres of degraded sagebrush steppe habitats would be restored. Although there would be short-term minor adverse impacts on certain species from the clearing and burning associated with the initial stages, sagebrush steppe restoration should eventually provide an increase in forage and cover for many wildlife species. Shrub steppe associated animal populations should eventually increase in areas of habitat restoration. This would be especially beneficial for 19 sensitive sagebrush steppe species that are declining throughout the region. The long-term beneficial effect of habitat restoration would be minor to moderate for most animal species and moderate to major for sagebrush steppe-associated species. Two species that have been petitioned for listing under the Endangered Species Act, pygmy rabbit and greater sage grouse, should particularly benefit from sagebrush steppe restoration and the improvements in both food and cover.

Alternative A would use Integrated Weed Management principles to control or eradicate existing populations and to prevent the establishment of new populations of exotic and invasive plants. Communities of such plants generally are used by a much smaller complement of native animal species than are native habitats. Eliminating invasive plant species might have very short-term adverse affects on some animal species. However, these effects would be negligible for nearly all native animal populations. The long-term effects of invasive species control would be beneficial and would range from minor to major, depending on the extent of the infestation and the species involved. These effects would be particularly noticeable for species that use riparian and sagebrush steppe ecosystems, which are highly susceptible to weed invasions.

Fire management under this alternative would involve suppression of wildland fires in most areas, with wildland fire use limited to the Wilderness area. Outside of Wilderness, fire would be managed to maintain vegetative communities in their current successional progress. Suppression would protect habitat for species that occupy climax habitats, including most shrubsteppe species. Allowing wildland fire use would supply habitat for species that need early successional habitat and species that use burned habitats. Regardless of whether a fire was suppressed or allowed to burn for resource benefit, some species would be affected adversely and others would benefit.

Many sensitive sagebrush steppe species (pygmy rabbits, sage grouse, sage sparrow, and others) would benefit from fire suppression in sagebrush steppe (Welch 2002). Some sensitive woodland species (Lewis' woodpecker, red-naped sapsucker, and others) would be adversely affected by the same activity in aspen or pine habitats. Some sensitive species that use grasslands (grasshopper sparrow, long-billed curlew, and others) might also be negatively affected by suppression if open grasslands were not created or maintained (Welch 2002). The degree of the adverse effects can range from negligible to major, depending the size of fires in a given year. Rehabilitating burned sagebrush steppe should result in long-term beneficial effects in a manner similar to the restoration efforts discussed previously.

Riparian areas and wetlands in the planning area would be maintained, restored, or enhanced. Riparian woodlands, shrubs, and wetland vegetation used by animals for food and shelter would be maintained or increased, increasing forage and cover for riparian and wetland species. This would result in minor to moderate long-term beneficial effects on many riparian/wetland species, including 11 BLM sensitive species and many species of migratory birds.

Livestock use would continue, but the distribution of livestock could change, depending on the distribution of any new livestock developments. Livestock use would be managed in accordance with the Idaho Standards for Rangeland Health and Guidelines for Grazing Management. Adverse effects on wildlife resulting from competition for forage would be long-term, and for some grazers the effects could be locally moderate. Many species of migratory birds and small mammals would be adversely affected by the removal of cover and forage, and grazing could remove nesting cover for sage grouse (Connelley et al. 2000). Several ground-nesting species could be trampled when grazing coincides with the breeding season.

Water development associated with grazing could also affect wildlife. The presence of abundant water could increase animal density around water sources. The increased density would change the normal distribution of desert animals. Birds and bats might suffer direct mortality from drowning in some types of water developments. The migration routes of large animals could be altered if the animals used the artificial water sources. These adverse impacts would be minor to moderate and long-term.

Wildlife habitat would continue to be fragmented by roads, trails, and facilities, and wildlife habits and movements would continue to be altered by employees and visitors. People concentrate at the developed area in the original Monument, disturbing wildlife by their physical presence and associated noise. These intermittent adverse impacts would continue to be minor, but long-term. Visitors to less-used sites, such as Carey Kipuka Trail, Wapi Park, Wood Road Trail, and backcountry areas, would continue to cause intermittent minor disruption of wildlife. If the increases in visitation were only modest, this intermittent adverse impact would be long-term but of negligible intensity. The intensity of this impact would increase if the increases in visitation were greater.

The adverse impacts on wildlife from the management of geologic features would be negligible. For many species, the disturbance would be negligible to minor and short-term. For other species, including five species of bats and the blind cave beetle (which are sensitive species and regionally or nationally declining), the effects could be moderate to potentially major if the disturbance occurred at a sensitive time or place, such as during hibernation or at maternity sites, disrupting breeding or other life-cycle functions. However, the adverse impacts would be reduced or eliminated by restricting access to certain important caves either permanently or seasonally during the times of the year when particular sites are important. This could reduce the adverse impacts to minor levels, at most.

Two species listed as threatened or endangered are in the Monument area. Both the bald eagle and the gray wolf, which are occasionally found in the Monument, are peripheral species, and the impacts on them from any actions of Alternative A probably would involve short-term minor disruption of their activities in the Monument, resulting in negligible to minor adverse effects.

Cumulative Impacts

Agriculture, including both irrigated and dryland farming and ranching, has greatly reduced native animals in the area around the Monument. Animals perceived as pests have been displaced or killed, and habitat has been lost through agriculture and the introduction of nonnative animals.

Future development of private lands such as those near Carey for residential, tourist-related, or other uses could alter wildlife habitat and habits and cause a loss of wildlife in areas adjacent to the Monument. Habitat loss due to conversion to agriculture or residential and urban development has been identified as one of the leading causes of declines in sagebrush steppe wildlife in the region (Wisdom et al. 2000). Such habitat modifications are expected to continue at a regional level. Water use in these developments (or for other purposes) could reduce the amount of water available to wildlife, particularly in the Little Wood River or Huff Creek. Road kill of small mammals, large mammals, and birds would increase because the expected development of private lands would increase traffic.

Under direction from the ICBEMP and the BLM Sagebrush Steppe Restoration Program, lands both inside and outside of the Monument would be treated to convert areas dominated by cheatgrass to sagebrush with a perennial grass and forb understory. This could cause short-term negligible to moderate adverse effects from herbicide, prescribed fire, and seeding treatments, which could cause the loss of some native habitat. Successful projects placed strategically over the landscape, resulting in a healthier, more resilient ecosystem, would constitute long-term, large scale, minor to major beneficial effects on many sagebrush steppe species. BLM is developing a national and an Idaho Sage Grouse Habitat Conservation Strategy. When these plans are finalized and implemented, they should lead to a long-term beneficial effect on grouse throughout the region, including the Monument. Many other sagebrush steppe species, including several sensitive species, should benefit from these strategies.

Agriculture and ranching can adversely affect wildlife in large areas of the Monument. Competition for forage from domestic livestock and past and continuing use of water from Lava Lake, Huff Creek, and the Little Wood River have contributed to adverse impacts on wildlife. Many habitats for native species have been lost or highly fragmented as lands have been converted to agricultural or other uses. The effects on wildlife from current and anticipated future actions outside the Monument, along with the actions of Alternative A, would be moderate, long-term, and adverse. Most of the impacts would result from development outside the Monument, and the impacts might or might not be mitigated. The actions of Alternative A would contribute a small increment to the overall cumulative impact.

Conclusion

Under Alternative A, which would continue current conditions, the effects on wildlife would continue to result primarily from conflicts with human uses of the Monument, including disturbance by people and vehicles and conflicts and competition with livestock use. Access and roads and associated visitor recreation would result in minor long-term adverse impacts, plus short-term moderate local adverse impacts on some species in high use areas. Sagebrush steppe restoration and weed management actions would cause some short-term minor impacts, with minor to major beneficial impacts over the long-term, depending on the species involved. Similarly, fire and suppression of fire would benefit some species but adversely affect others. The 50 sensitive species, which all use major habitats in the Monument and have a variety of life histories, would experience the same range of impacts as other wildlife.

The bald eagle and the gray wolf, which are listed as threatened and endangered, are occasionally found in the area of the Monument, but both are peripheral species, and the impacts on them would be negligible to minor.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) nec-

essary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's wildlife resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

The effects on wildlife from Alternative B generally would be similar to those from Alternative A. Some activities, such as transportation and vegetation management, would take place at different levels in this alternative, leading to corresponding changes in the impacts.

More roads in the Monument would be maintained under Alternative B, which would result in greater use and more visitor access. This use would continue to disturb wildlife species in the manner described for Alternative A. There would potentially be high numbers of road-killed animals along high-use highway corridors. Secondary roads, especially Class B roads adjacent to sensitive wildlife areas, could cause periodic minor to moderate disturbance. The presence of more high quality roads would increase disturbances not directly resulting from motor vehicles, and there probably would be greater hunting pressure on animal populations in those areas under this alternative. These effects would be seasonal and negligible to minor, with a potential for moderate impacts on some species in high use areas. A larger Passage Zone and the possibility of improved access and more motor vehicles in that zone could result in more adverse impacts than those described for Alternative A

The effects of shrubsteppe restoration should be similar to those described for Alternative A. With about 5,000 more acres targeted for restoration under Alternative B, there would be a corresponding increase in beneficial effects on wildlife habitat.

Fire management under this alternative would involve suppression of fires in most areas, with fire for resource benefit in the Pristine Zone. The greater emphasis on suppression to ensure public safety would protect existing habitat for species that occupy climax sagebrush habitats. Allowing burning for resource benefit would provide habitat for species that need early successional habitat and species that use burned habitats.

As described under Alternative A, regardless of whether a fire would be suppressed or allowed to burn for resource benefit, there would be adverse effects on some species and beneficial effects on others. Greater emphasis on rehabilitating burned sagebrush steppe would result in long-term beneficial effects, as was discussed previously. The possibility of burns for resource benefit in the Pristine Zone would allow greater flexibility for case by case habitat improvement than in Alternative A.

Livestock use would be managed in accordance with the Idaho Standards for Rangeland health and Guidelines for Grazing Management, as described under Alternative A, but a larger Passage Zone in Alternative B could lead to more concentrated livestock developments. The effects from competition for forage, removal of cover, and water distribution would be minor to moderate, long term, and limited to areas heavily used for grazing.

As in Alternative A, wildlife habitat would continue to be fragmented by roads, trails, and facilities, and wildlife habits and movements would continue to be altered by employees and visitors. People would concentrate at the developed area in the original Monument, disturbing wildlife and degrading habitat. Newly developed areas in Kings Bowl and at designated primitive campsites would cause more disturbances. These adverse impacts would be minor and generally long-term, with short-term minor to moderate impacts during the construction and development of new visitor use areas.

Cumulative Impacts

The cumulative effects from Alternative B would be essentially the same as those from Alternative A, with a slightly higher possibility of visitor-related disturbances and road kills. The cumulative effects of agricultural use and ranching and other actions outside the Monument, along with the actions of Alternative B, would be moderate, long-term, and adverse. Most of the impacts would result from development actions outside the Monument, which might or might not be mitigated. The actions of Alternative B would contribute a small increment to the overall cumulative impact.

Conclusion

The impacts on wildlife from Alternative B would largely be the same as those of Alternative A, but the slight increase in acres restored would result in a related increase in improved habitat for sagebrush steppe species, a long-term minor to major beneficial effect. There could be a modest increase in adverse impacts from traffic disturbance in the larger Passage Zone area and the potential for increased or improved access to motor vehicles in that zone, as well as the development of a visitor use area in Kings Bowl and multiuse trails. The effects on wildlife would vary from species and species, but most effects would be long-term, minor to moderate, and localized.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's wildlife resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

The effects on wildlife from Alternative C would generally be similar to those described for Alternative A. Some activities, including transportation and vegetation management, would occur at different levels, with corresponding changes to the impacts.

Alternative C, would involve be the fewest miles of maintained roads, with most in the Primitive Zone. Any use of roads and trails would continue to disturb wildlife species, but the disturbance from road use and associated visitor access would be less than in Alternative A. Hunting pressure might decline in certain areas not served by highly maintained roads. These effects would be seasonal and negligible to minor, with the potential for moderate impacts on some species in high use areas and with a modest decrease in adverse impacts from those described for Alternative A because the Primitive Zone would be larger in Alternative C, with a corresponding decrease in the potential for more motor vehicle access in that zone.

About 55,000 acres would be targeted for restoration in Alternative C (15,000 more acres than in Alternative A), with less intrusive methods being used than in Alternative A. Thus, there would be fewer initial adverse impacts from site clearing and preparation; they would be reduced to minor levels. The greater acreage to be restored in Alternative C would lead to a related increase in improved habitat for sagebrush steppe species, but the time in which the beneficial effect would be achieved might be extended.

Fire management in Alternative C would involve suppressing wildfires in all areas except the Pristine Zone, where fire might be used for resource benefit. This is the same policy as in Alternative B, so the effects should be similar. As with Alternative A, wildlife habitat would continue to be fragmented by roads, trails, and facilities, and wildlife habits and movements would continue to be altered by employees and visitors. However, this impact would be less under Alternative C because it would have the fewest maintained roads, with a corresponding decrease in visitor use. People would continue to concentrate at the developed area in the original Monument, disturbing wildlife somewhat. These intermittent adverse impacts would be minor and long-term.

Cumulative Impacts

The cumulative impacts from Alternative C would be similar to those from Alternative A, with slightly more beneficial effects from the expanded reclamation program and the limited access to many areas. The cumulative impacts on wildlife from current and anticipated future actions outside the Monument, along with the actions under Alternative C, would be moderate, long-term, and adverse. Most of the impacts would result from development actions outside the Monument, which might or might not be mitigated. The actions of Alternative C would contribute a small increment to the overall cumulative effects.

Conclusion

The effects on wildlife from Alternative C would largely be the same as those described for Alternative A, but 15,000 more acres would be restored in Alternative C, resulting in more improved habitat for sagebrush steppe species. There would be fewer

adverse impacts from traffic disturbance because the Passage Zone would be smaller in Alternative C, and the Primitive Zone would be larger. These designations would include the potential for decreased access for motor vehicles and related recreational use overall, resulting in fewer direct and indirect adverse impacts on all wildlife species.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's wildlife resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

The effects on wildlife from Alternative D would generally be similar to those of the other alternatives, but an expanded restoration program in Alternative D would lead to a greater benefit. Some activities, including transportation and vegetation management, would occur at different levels, with corresponding changes in the effects.

Selected roads in the Passage Zone would be upgraded and maintained for restoration and administration use under Alternative D,. The use of these roads would continue to disturb wildlife species, possibly severing some migration corridors for some species, including mule deer, pronghorn, and sage grouse, and there would be road kill along high use corridors. Better access would lead to greater hunting pressure on animal populations in those areas. These seasonal impacts would be negligible to minor with a potential for moderate impacts on some species in high use areas. Modest changes in the adverse impacts should result from changes in the Passage Zone and in the potential for increased or improved access for motor vehicles in that zone.

An aggressive program to restore 80,000 acres of sagebrush steppe habitat would be carried out in Alternative D. The effects on wildlife from this program would be similar to those from Alternative A, but with a substantially larger acreage slated for restoration, there also would be more improved habitat for sagebrush steppe species, a major long-term beneficial effect. Fire management under this alternative would involve suppressing fires in all areas except the Pristine Zone, where fires might be allowed to continue burning for resource benefit. This is the largely the same as Alternative B, and the effects should be similar.

As in Alternative A, wildlife habitat would continue to be fragmented by roads, trails, and facilities, and wildlife habits and movements would continue to be altered by employees and visitors. People would concentrate at the developed area in the original Monument, disturbing wildlife and degrading habitat. However, emphasizing the use of outfitters and guides might educate visitors, reducing widespread human-caused impacts, a beneficial effect. Adverse impacts would be minor but long-term.

Cumulative Impacts

The cumulative effects of Alternative D would be similar to those described for Alternative A, but the overall intensity would be slightly lower because the effects of the restoration would be highly beneficial. The cumulative effects on wildlife from current and anticipated future actions outside the Monument, along with the actions of Alternative D, would be minor, long-term, and adverse. Most of the impacts would result from development actions outside the Monument, which might or might not be mitigated. The actions of Alternative D would contribute a substantial amount to the beneficial cumulative effects.

Conclusion

The effects on wildlife from Alternative D would be largely the same as those described for Alternative A, but twice as much acreage would be restored in Alternative D, resulting more improved habitat for sagebrush steppe species, a major long-term beneficial effect. Modest changes in the adverse impacts could result from increases in the Passage Zone roads for restoration and administration uses and in the potential for increased or improved access for motor vehicles in that zone.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natu-

ral or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's wildlife resources or values would not be impaired.

AIR RESOURCES

METHODOLOGY AND ASSUMPTIONS

To assess air quality impacts, air quality standards and designations for the surrounding area were determined, and the results from nearby air monitoring sites were examined. Any reductions in pollutants resulting from implementing control strategies were taken into account. The effects on air quality from each alternative were assessed by considering existing air quality levels and the air quality related values present, with the use of available data and best professional judgment, and with modeling where possible.

For assessing emissions from fires, the quantity of particulate matter was based on the First Order Fire Effects Model. The annual area treated with prescribed fire was based on an annual average of total area targeted for restoration over a period of 15 years and an assumption that burning sagebrush produces 62.5 pounds per acre (lbs/acre) of PM10 particles and 53.0 lbs/acre of PM2.5 particles (First Order Fire Effects Model 5.1 2002).

The following impact thresholds were used for analyzing the intensity of effects on human health and air quality related values.

Negligible: No changes would occur, or changes in air quality would be below or at the level of detection and if detected, the effects would be considered slight.

Minor: Changes in air quality would be measurable, although the changes would be small and local. No air quality mitigating measures would be necessary.

Moderate: Changes in air quality would be measurable and would have appreciable consequences, although the effect would be relatively local. Air quality mitigating measures would be necessary, and they probably would be successful.

Major: Changes in air quality would be measurable, would have substantial consequences, and would be noticed regionally. Air quality mitigating measures would be necessary, and their success would be uncertain.

For air quality, the duration of impacts was defined as follows:

Short-term: An effect that would last a short period of time (generally one or two days but no more than seven days).

Long-term: A change in a resource or its condition that would last longer than seven consecutive days.

The area of analysis for the cumulative effects on air quality was defined as the Monument and BLM's USRD, including Southeast and South Central Idaho.

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, the primary air pollutants would come from fires and from vehicles using roads and trails. The continued use and management of roads at current standards would result in the creation of fugitive dust. There would be 588 miles of unpaved roads inside the Monument, and road disturbance would result in soil displacement and dust production, which could adversely affect air quality and selected air quality related values such as visibility.

The amount of particulate matter emissions (smoke) produced from both prescribed fire and wildland fire use was predicted for Alternative A. The prediction was based on an annual average area burned with prescribed fire over the previous 15 years and the estimated number of acres in Craters of the Moon Wilderness burned in the previous 15 years (Table 29). The actual amount of PM10 and PM2.5 particles produced from fire would be higher in areas where limber pine or junipers are interspersed with brush. This applies only to wildland use

Table 29
Summary of Emissions Produced from Prescribed and Wildland Use Fires by Alternative

TYPE OF FIRE BURNING IN SAGEBRUSH	AVERAGE AREA BURNED/YEAR (Acres)	PM10 EMISSIONS PRODUCED (Lbs)	PM2.5 EMISSIONS PRODUCED (Lbs)
Alternative A			
Prescribed fire (maximum potential)	2,666	166,666	141,333
Wildland Use Fire	200	12,500	10,600
Alternative B			
Prescribed fire (maximum potential)	3,000	187,500	159,000
Wildland Use Fire (maximum potential should all fires in Pristine Zone be managed for resource benefit)	1,250	78,125	66,250
Alternative C			
Prescribed fire (maximum potential)	3,666	229,166	194,298
Wildland Use Fire (maximum potential should all fires in Pristine Zone be managed for resource benefit)	1,250	78,125	66,250
Alternative D			
Prescribed fire (maximum potential)	5,333	333,333	282,649
Wildland Use Fire (maximum potential should all fires in Pristine Zone be managed for resource benefit)	1,250	78,125	66,250

fires because no restoration treatments are proposed in areas with limber pine or juniper. The actual acreage burned annually would vary depending on the severity of wildland fire conditions and available funding. Fugitive dust could be generated from burned areas until sufficient vegetation recovered to hold the soil in place. Fugitive dust from wildland use fire probably would be negligible because soil development in the lava fields is limited to small areas such as those found within kipukas.

As shown in Table 29, Alternative A would produce the fewest emissions of smoke from prescribed and wildland use fires of all the alternatives considered. With the exception of the Wilderness Area, wildfires would be suppressed through the Monument. Prescribed fires to meet restoration objectives would continue, but at the lowest acreage level of all the alternatives.

The effects from road-related fugitive dust would be short-term, negligible, and limited to areas near roads and vehicle traffic. Impacts due to smoke from planned burns for restoration would be short-term (1 to 2 days) but could be of moderate intensity in areas in the immediate vicinity of the fire, diminishing rapidly downwind. The effects on air quality from wildland use fires would potentially be of longer duration (up to 7 days) than planned ignitions, depending on the vegetation types involved. Smoke impacts would be an important factor in decisions to initiate or terminate a wildland use fire; therefore, the effects on air quality would also be of moderate to potentially major intensity in areas in the immediate vicinity of the fire, but diminishing rapidly downwind. In Alternative A, wildland fire use could be used only for natural fire ignitions (such as lightning) in the designated Wilderness Area, which would limit potential major impacts.

Cumulative Impacts

Other sources of smoke and dust in the region are wildfires and prescribed fires on public and private lands, fugitive dust from nearby roads, recently

burned lands, and agricultural fields after tilling. Wildfires have burned a total of 730,759 acres in the USRD since 1996. BLM fire management activities (fire for resource benefit and prescribed fire) alone could produce up to 52,512 tons of PM10 particulate matter in the USRD over a 10-year period (BLM USRD Fire Plan Amendment, 2003 - in draft). Other haze-causing pollutants (mostly fine particles) are emitted into the atmosphere by activities such as electric power generation; various industrial and manufacturing processes; truck and auto emissions; forest fires, and construction at considerable distances from the Monument. Off-site sources, added to the sources of air pollution caused by the actions of Alternative A, would create negligible to minor long-term adverse effects and moderate short-term adverse effects over the entire area. This would be similar for all alternatives.

Conclusion

Prescribed fire, wildland use fire, and fugitive dust from roads result in smoke or dust containing particles that adversely affect human health and air quality related values such as visibility. The effects on air quality from smoke and dust caused by the management activities of Alternative A typically would be short-term and local. The intensity of effects could range from negligible to moderate, depending on weather conditions and the location and size of fires. Most prescribed and wildland use fires would cause minor short-term effects. Fugitive dust from roads with current traffic use would produce short-term local adverse effects of negligible intensity.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's air resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

The effects on air quality from Alternative B would be similar to those described for Alternative A, but with somewhat greater intensity. Under Alternative B, higher standard roads would be added to the expanded the Passage Zone. Therefore, vehicle traffic and vehicle speed could increase, resulting in a proportional increase in fugitive dust, a negligible to minor short-term local adverse impact.

The particulates (smoke) that would be produced by prescribed fire and wildland fire use was predicted for Alternative B with the use of the same assumptions as were described for Alternative A. More emissions of smoke would be produced under Alternative B than in Alternative A because a slightly larger area would be burned in Alternative B (see Table 29). Some naturally ignited fires in the Pristine Zone would be managed for resource benefit; these would be more likely to generate smoke over a longer period of time than if the fire was suppressed aggressively. Prescribed fires to meet restoration objectives could increase to a maximum of 45,000 acres over the life of the plan.

The effects from road-related fugitive dust could be higher in Alternative B than in Alternative A, but those effects still would be short-term, negligible, and localized to areas near road traffic. The effects from planned burns for restoration would be short-term (1 to 2 days) and of moderate intensity in areas in the immediate vicinity of the fire, diminishing rapidly downwind. The effects on air quality from wildland use fires would potentially last longer (up to 7 days) than planned ignitions, depending on the vegetation types involved. Smoke impacts would be an important factor in decisions to initiate or terminate a wildland use fire; therefore, the impacts on air quality would be moderate to major in areas in the immediate vicinity of the fire but diminishing rapidly downwind. In Alternative B, potential wildland fire use could be expanded to most of the Preserve (400,000 acres).

Cumulative Impacts

The cumulative effects on air quality from other sources of smoke and dust in the area would be the same as those described for Alternative A: particulates from wildfires and prescribed fires on public and private lands in the region, fugitive dust from nearby roads, recently burned lands, agricultural fields following tilling, and industrial and construction activities plus regional truck and auto emissions.

Off-site sources, added to the sources of air pollution from the actions of Alternative B, would create negligible to minor long-term effects and moderate short-term effects over the entire area; this would be similar for all the alternatives.

Conclusion

The adverse effects on air quality from the management actions of Alternative B typically would be short term and limited to the local region. The intensity of effects would range from negligible to moderate, with most prescribed and wildland use fires having minor effects. Fugitive dust from roads with potentially increased vehicle traffic use on unpaved roads would produce short-term local effects of negligible to minor intensity. A substantial increase in traffic would be required to elevate this impact to the moderate levels.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's air resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

Alternative C would involve fewer high standard roads that Alternative B; therefore, vehicle traffic and speed would remain the same as in Alternative A or possibly decrease, with a proportional decrease in fugitive dust from this source, resulting in negligible short-term local impacts on air quality and visibility.

The particulates (smoke) that would be produced by prescribed fire and wildland fire use was predicted for Alternative C with the use of the same assumptions as were described for Alternative A. More emissions of smoke would be produced under Alternative C than in Alternatives A or B because a there would a slightly larger area of prescribed fires (see Table 29). Some naturally ignited fires in the Pristine Zone would be managed for resource benefit; these would be more likely to generate smoke over a longer period of time than if the fire was suppressed aggressively. Prescribed fires to meet restoration objectives could increase to a maximum of 55,000 acres over the life of the plan.

Cumulative Impacts

The cumulative effects on air quality from other sources of smoke and dust in the area would be the same under Alternative C as those described for Alternative A: particulates from wildfires and prescribed fires on public and private lands in the region, fugitive dust from nearby roads, recently burned lands, agricultural fields following tilling, and industrial and construction activities plus regional truck and auto emissions. Off-site sources, added to the sources of air pollution from the actions of Alternative C, would create negligible to minor long-term effects and moderate short-term effects over the entire area; this would be similar for all the alternatives.

Conclusion

The adverse effects on air quality from Alternative C typically would be short term and limited to the local region. The intensity of effects would range from to negligible to moderate, with most prescribed and wildland use fires causing minor effects. Fugitive dust from roads with decreased traffic use and vehicle speeds would produce short-term local effects of negligible intensity.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's air resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

Unpaved roads would be maintained to a high standard under Alternative D to facilitate restoration and fire-related activities. Overall, increases in vehicle traffic and speed could be similar to those described for Alternative B, resulting in more road-related fugitive dust. Short-term increases in local areas could result from vehicle traffic from restora-

tion projects. The adverse effects on air quality would be short-term, negligible, and localized.

The particulates (smoke) that would be produced by prescribed fire and wildland fire use was predicted for Alternative D with the use of the same assumptions as were described for Alternative A. More emissions of smoke would be produced under Alternative D than in any of the other alternatives because a there would more prescribed fires (see Table 29). Some naturally ignited fires in the Pristine Zone would be managed for resource benefit; these would be more likely to generate smoke over a longer period of time than if the fire was suppressed aggressively. Prescribed fires to meet restoration objectives could increase to a maximum of 80,000 acres over the life of the plan.

Cumulative Impacts

The cumulative effects on air quality from other sources of smoke and dust in the area would be the same under Alternative C as those described for Alternative A: particulates from wildfires and prescribed fires on public and private lands in the region, fugitive dust from nearby roads, recently burned lands, agricultural fields following tilling, and industrial and construction activities plus regional truck and auto emissions. Off-site sources, added to the slightly increased sources of air pollution from the actions of Alternative D, would create negligible to minor long-term effects and moderate short-term effects over the entire area; this would be similar for all the alternatives.

Conclusion

The adverse effects on air quality from the actions of Alternative D typically would be short term and limited to the local region. The intensity of effects would range from negligible to moderate, with most prescribed and wildland use fires causing minor effects. Fugitive dust from roads with current traffic use would produce short-term local effects of negligible intensity. The addition of non-Monument sources occurring during the same time period could produce more intense but still moderate effects throughout the Monument.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's air resources or values would not be impaired.

CULTURAL RESOURCES (ARCHAEOLOGICAL AND HISTORIC RESOURCES)

METHODOLOGY AND ASSUMPTIONS

The impact analysis for cultural resources is limited to the effects on archaeological and historic resources, since other cultural resource areas were dismissed from detailed analysis (see Chapter 1). The NHPA requires agencies to take into account the effects of their actions on properties listed or eligible for listing on the National Register of Historic Places (NRHP). The process begins with identification and evaluation of cultural resources for NRHP eligibility, followed by an assessment of effects on eligible resources. The process concludes after consultation. If an action could change in any way the characteristics that qualify the resource for inclusion on the NRHP, it is considered to have an effect. No adverse effect means there could be an effect, but the effect would not be harmful to the characteristics that qualify the resource for inclusion on the NRHP. Adverse effect means the action could diminish the integrity of the characteristics that qualify the resource for the NRHP.

To analyze the effects of the alternatives on archaeological and historic resources, all available information on known sites was compiled. Map locations of archaeological sites were compared with the locations of proposed developments and modifications to existing facilities. Certain assumptions were made regarding the management of cultural resources in the future, as follows:

- A Section 106 inventory would be conducted for all proposed development projects as required by FLPMA under each alternative.
- NRHP listed and eligible sites would be monitored for vandalism and protected/stabilized as necessary.
- Some proactive Section 110 inventory (i.e., non-project-related inventory) would be completed in the Monument each year.

Archaeological sites are continually deteriorating primarily from the effects of weather and gravity. Left alone, sites will inevitably degrade over time. Impacts from human and livestock visitation and use can contribute to the effects to natural agents of deterioration, and they can substantially increase the rate of site deterioration in areas such as parking lots, livestock water troughs, trailheads, and corrals. In general, it is not possible to control the deterioration caused by natural elements. In contrast, it is possible to control the effects of human impacts through careful planning of activities and new developments, by educating visitors and agency staff, and by limiting or directing locations of human activity in and around archaeological sites.

If the effects caused by deliberate vandalism or artifact collection are excluded, most impacts resulting from visitor use are relatively minor when considered on an individual basis. However, for the purpose of this plan, it is necessary to consider the effects caused by large numbers of visitors at a given location over the life of this plan. For example, although a single hiker might cause a negligible effect on site integrity, the cumulative impact of many hikers over 15 to 20 years can be substantial. In the following section, the analysis of the impacts of each alternative is based on the numbers of sites that would be affected, in conjunction with the effects of various types of activities over the life of the plan. For the purposes of this analysis, the levels of impacts on archaeological and historic resources were defined as follows:

Negligible: The effect on archaeological or historic sites would be at the lowest levels of detection - barely measurable with any perceptible consequences, either beneficial or adverse, on archaeological resources. For purposes of Section 106, the site's NRHP eligibility would not be threatened, and the determination of effect would be *no adverse effect*.

Minor: The adverse effect on archaeological or historic sites would be measurable or perceptible, but it would be slight and localized within a relatively small area for a site or group of sites. The action would not affect the character or diminish the features of a NRHP eligible or listed archaeological site and would not have a permanent effect on the integrity of any archaeological sites. For the purposes of Section 106, the site's NRHP eligibility would remain intact, and the determination of effect would be *no adverse effect*.

A beneficial minor effect would involve the maintenance and preservation of sites. For purposes of Section 106, the determination of effect would be no adverse effect.

Moderate: The adverse impact would be measurable and perceptible. The action would change one or more character-defining features of an archaeological resource, but it would not diminish the integrity of the resource to the extent that its NRHP eligibility would be jeopardized. For purposes of Section 106, the site's NRHP eligibility would be threatened, and the determination of effect would be *adverse effect*.

A beneficial moderate effect would involve site stabilization. For purposes of Section 106, the determination of effect would be *no adverse effect*.

Major: The adverse impact on archaeological or historic sites would be substantial, noticeable, and permanent. For NRHP eligible or listed archaeological sites, the action would change one or more character defining features of an archaeological resource, diminishing the integrity of the resource to the extent that it no longer would be eligible for listing in the NRHP. For purposes of Section 106, the site's NRHP eligibil-

ity would be lost, and the determination of effect would be *adverse effect*. A beneficial major effect would involve active intervention to preserve and improve sites. For purposes of Section 106, the determination of effect would be no adverse effect.

The area of analysis for cumulative effects on Cultural Resources was defined as south central and eastern Idaho.

IMPACTS FROM ALTERNATIVE A

Analysis

Cultural resource management in the Monument would continue under current laws, policies, and regulations under Alternative A. The cultural resource database for this area would expand slowly each year as data were collected from Section 106 projects and Section 110 inventory, a moderate beneficial effect on cultural resources.

Roads in the Monument would remain in their current condition at current maintenance levels. Remote areas of the Monument would remain difficult to reach by vehicle, and most areas would be inaccessible by sedan. The broad network of repetitive, two-track Class D roads would remain open. Travel on poorly maintained Class D roads could increase erosion that could affect nearby sites. Difficult travel would keep most visitors out of the most remote areas and away from many cultural resources. There could be long-term minor adverse impacts on cultural resources from erosion due to vehicle traffic. There would be a long-term minor beneficial effect from keeping many cultural resources inaccessible.

Under this alternative, 40,000 acres would be targeted for sagebrush steppe restoration, which would involve the use of prescribed fire and drill seeding to return the vegetation to a mix of perennial plants and shrubs. Any fire, wild or prescribed, exposes cultural resources on the ground surface, placing them at risk for unauthorized collection and increased soil erosion. Any restoration projects would be subject to Section 106 inventory as they arose to ensure that cultural resources would not be impacted. Flagging cultural resources for avoidance often can attract attention to those sites, increasing the risk of unauthorized collection. Sagebrush steppe restoration activities would result in a short-term minor adverse effect on cultural resources resulting from flagging, but the long-term stabilization of the soils and the reduced potential for wildfire would result in a long-term moderate beneficial effect.

Wildfire management under this alternative would consist of full suppression on all lands outside designated wilderness. Full suppression would reduce the number of acres that would burn, limiting the acreage of ground surface exposed. This would protect cultural resources from increased risk of unauthorized collection. Intense short-term vehicle traffic during active fire suppression activities would affect cultural resources, as would possible heavy equipment used to construct fire lines. This could constitute a short-term moderate adverse impact during suppression activities. Overall, full suppression of wildfire would result in a long-term major beneficial effect on cultural resources.

There would be no change in livestock use management under Alternative A. Livestock cause some erosion at playa sites and water trough locations, which may impact cultural resources. Fence construction could cause livestock to congregate in certain areas. Livestock could also create trails and denude areas of vegetation where they congregate, adding to surface soil erosion. This could directly damage cultural resources in the area. Livestock use (at a temporary water trough, for example), could cause short-term, site-specific minor to moderate adverse effects on cultural resources.

Visitor facilities would be unchanged in Alternative A, except that some improvements would be made to the Visitor Center. This would result in limited negative to minor adverse impacts, if any. Expanding the existing NRHP-eligible Mission 66-style Visitor Center would be undertaken with the State Historic Preservation Officer to ensure that the expansion would not adversely affect its unique architectural qualities. The interpretation of cultural resources at specific locations at the north end of the Monument would be continued under this alternative, as would some minor maintenance of existing trails. Some safety information would be posted on waysides in the Crystal Ice Cave/Kings Bowl area.

Keeping most visitors on developed trails and offering interpretive materials at specific locations would minimize the amount of foot traffic, unautho-

rized collection, and vandalism at most cultural resource sites in the Monument. At locations where interpretive materials are available, there would be a long-term minor adverse effect from foot traffic, unauthorized collection, and vandalism. Interpretive materials could stress resource protection, which might help to reduce damage to cultural resources. There would be a long-term minor beneficial effect on cultural resources away from trails without interpretive waysides because visitors would not be drawn to those areas.

The Monument includes all four VRM classifications (Classes I through IV). This allows for a relatively wide range of developments outside WSAs and Wilderness Areas. To prevent adverse impacts on sites, a case-by-case Section 106 inventory would be required, but over time more developments in the Monument could increase the amount of visual intrusion, which could result in an indirect impact on cultural resources. Class III and IV VRM designations in the Monument would cause a long-term minor adverse impact on cultural resources.

Cumulative Impacts

The use of adjacent federal lands outside the Monument generally would result in impacts on cultural resources similar to those described above. At current staffing levels for these lands, the amount of proactive cultural resource inventory and monitoring would be limited, and site looting in backcountry areas could be undetected. Use outside the Monument could cause impacts similar to those caused by grazing in the Monument, including site-specific soil erosion and damage. Other potential construction-related impacts could be caused by projects planned in the area, including the South Center Idaho Visitor Center and the US 93 alignment. However, these projects would include mitigation to reduce impacts to less than major levels.

It is possible that information distributed in visitor centers in the neighboring communities, such as Twin Falls and Idaho Falls, would attract more Monument visitors, but this seems unlikely given the current visitation levels. Increased visitation could increase the pressure on cultural resources from foot and vehicle traffic, as well as unauthorized collection and vandalism. This could result in a long-term negligible to minor adverse impact on cultural resources. Overall, the cumulative impacts on cultural resources from actions outside the Monument boundary, added to the actions of Alternative A, would result in long term and generally adverse impacts ranging from minor to moderate.

Conclusion

Alternative A would cause a negligible to minor adverse impact on maintaining the long-term integrity of most of the archaeological resources in the Monument. The restoration program and fire suppression would result in a long-term moderate beneficial effect, but the initial restoration, suppression actions, grazing, and vehicle travel would result in short-term minor to moderate adverse impacts.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's cultural resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

Cultural resource management and associated inventories in the Monument would continue under current laws, policies, and regulations under Alternative B, as in Alternative A, resulting in a moderate beneficial effect on cultural resources. Increased recreation use would require more intense monitoring of cultural resources in the Passage Zone to prevent or minimize damage.

The Monument's road and trail system in Alternative B would offer more access to a wide variety of destinations, recreation activities, and both motorized and non-motorized trails. Improved access to remote regions of the Monument could increase visitation to those areas, leading to more vehicle and foot traffic, unauthorized collections, and vandalism. More vehicle access also could lead to more wildfires, leaving cultural resources exposed to vandalism, illegal collection, and excessive erosion. This alternative would have the largest Passage Zone, with more opportunities for trail development

in that zone. The educational materials available from kiosks and the Visitor Center would mitigate impacts; however, there would be a long-term minor to moderate adverse effect on cultural resources under this alternative.

Under this alternative 45,000 acres would be targeted for sagebrush steppe restoration, which would involve the use of prescribed fire and drill seeding to return the vegetation to a mix of perennial plants and shrubs. As in Alternative A, any fire, wild or prescribed, exposes cultural resources on the ground surface, placing them at risk for unauthorized collection and increased soil erosion. Any restoration projects would be subject to Section 106 inventory as they arose to ensure that cultural resources would not be impacted. Flagging cultural resources for avoidance often can attract attention to those sites, increasing the risk of unauthorized collection. Sagebrush steppe restoration activities would result in a short-term minor adverse effect on cultural resources resulting from flagging, but the long-term stabilization of the soils and the reduced potential for wildfire would result in a long-term moderate beneficial effect.

Wildfire management under this alternative would consist of full suppression on all lands outside the Pristine Zone, especially those containing healthy sagebrush steppe. Full suppression would reduce the number of acres that would burn, limiting the acreage of ground surface exposed. This would protect cultural resources from increased risk of unauthorized collection. Intense short-term vehicle traffic during active fire suppression activities would affect cultural resources, as would possible heavy equipment used to construct fire lines. This could constitute a short-term moderate adverse impact during suppression activities. Overall, full suppression of wildfire would result in a long-term major beneficial effect on cultural resources in the areas outside the Pristine Zone.

Alternative B would involve few new livestock developments, but there could be new livestock water facilities in the Passage Zone. Livestock tend to congregate around water sources, which could result in trampling and increased soil erosion, causing long-term site-specific minor to moderate adverse effects on cultural resources that are near water sources.

Visitor facilities would be expanded under Alternative B, with cultural resource interpretation at specific locations, new trail designations, and interpretive/safety information posted on waysides at the Crystal Ice Cave/Kings Bowl area. Expanding the existing NRHP-eligible Mission 66-style Visitor Center would be undertaken in consultation with the SHPO to ensure that the expansion would not adversely affect its unique architectural qualities. Increasing the number of designated, developed trails and offering more interpretive materials at specific locations would increase the potential for vehicle and foot traffic, unauthorized collection, and vandalism at cultural resource sites in the Passage Zone. This could lead to a long-term minor adverse impact at locations with interpretive materials. Interpretive materials stressing resource protection might help to reduce the amount of damage to cultural resources. There would be a long-term minor beneficial effect on cultural resources away from trails without interpretive waysides because visitors would not be attracted to those areas.

In Alternative B, all lands in the Monument would be designated VRM Class I or II. This would minimize the visual intrusion of possible developments outside WSAs and Wilderness Areas. To prevent adverse impacts on sites, a case-by-case Section 106 inventory would be required, but over time Over time, less intrusive developments resulting from more restrictive VRM classes in the Monument would result in a long-term negligible to minor beneficial effect on cultural resources.

Cumulative Impacts

The cumulative impacts on archaeological and historic resources under Alternative B would be similar to those described for Alternative A: impacts from the use of adjacent federal lands outside the Monument and from grazing and agriculture. Archeological resources could be affected by various construction-related projects in the region, and information distributed in visitor centers in the neighboring communities might attract more visitors to the Monument, increasing the pressure on cultural resources from foot and vehicle traffic and leading to unauthorized collection and vandalism. This could lead to a long-term negligible to minor adverse impact on cultural resources. More proactive cultur-

al resource inventory, interpretation, and monitoring under this alternative would help minimize that impact. Overall, actions outside the Monument boundary, added to the actions of Alternative B, would result in long-term cumulative adverse impacts on cultural resources ranging from minor to moderate.

Conclusion

Alternative B, in which recreational opportunities and vehicle access would be emphasized, would result in a moderate adverse effect on maintaining the long-term integrity of most of the Monument's archaeological resources. The restoration program and fire suppression would result in a long-term, moderate beneficial effect, but the initial restoration and suppression actions, grazing, and vehicle travel, would result in short-term minor to moderate adverse impacts.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's cultural resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

Cultural resource management and associated inventories in the Monument would continue under current laws, policies, and regulations under Alternative C, as in Alternative A, resulting in a moderate beneficial effect on cultural resources. Fewer roads in the Monument would be maintained to a high standard, and more roads would be closed. Decreased access to the more remote regions of the Monument would decrease visitation to those areas, concurrently reducing the impacts of vehicle and foot traffic, unauthorized collections, and vandalism. Decreased vehicle access might lead to a decrease in human-caused wildfires, which would protect cultural resources from exposure and erosion. This alternative would have the largest Pristine Zone, with fewer opportunities for trail development. There would be a long-term minor beneficial effect on cultural resources under this alternative.

Under this alternative 55,000 acres would be targeted for sagebrush steppe restoration, which would involve the use of prescribed fire and drill seeding to return the vegetation to a mix of perennial plants and shrubs. As in Alternatives A and B, any fire, wild or prescribed, exposes cultural resources on the ground surface, placing them at risk for unauthorized collection and increased soil erosion. Any restoration projects would be subject to Section 106 inventory as they arose to ensure that cultural resources would not be impacted. Sagebrush steppe restoration activities would result in a short-term minor adverse effect on cultural resources resulting from flagging, but the long-term stabilization of the soils and the reduced potential for wildfire would result in a long-term moderate beneficial effect.

As in Alternative B, wildfire management under Alternative C would consist of full suppression on all lands outside the Pristine Zone, especially those containing healthy sagebrush steppe. Active fire suppression activities would adversely affect cultural resources, but suppression itself would limit damage to cultural resources. There would be a short-term moderate adverse impact on cultural resources during suppression activities, but overall, full suppression of wildfire would cause a long-term major beneficial effect on cultural resources.

The most likely addition of new livestock water facilities in Alternative C would be in the Passage Zone, but few new developments would be expected, and this alternative would have a smaller Passage Zone that the other alternatives. Livestock tend to congregate around water sources, which could result in trampling and increased soil erosion, causing long-term site-specific minor to moderate adverse effects on cultural resources that are near water sources.

Visitor facilities would be minimal under Alternative C, with cultural resource interpretation at a few specific locations, no new trail designations, and interpretive/safety information posted on waysides at the Crystal Ice Cave/Kings Bowl area. Effects on the historic nature of the Visitor Center from any improvements there would be the same as Alternative A; that is, there would be limited minor adverse effects, if any. Vehicle and foot traffic, unau-

thorized collection, and vandalism could take place at locations offering interpretive materials, which could lead to a long-term minor adverse effect. Interpretive materials stressing resource protection might help to reduce the amount of damage to cultural resources. There would be a long-term minor beneficial effect on cultural resources away from trails without interpretive waysides because visitors would not be drawn to those areas.

As in Alternative B, in Alternative C all lands in the Monument would be designated VRM Class I or II. This would minimize the visual intrusion of possible developments outside WSAs and Wilderness Areas. To prevent adverse impacts on sites, a case-by-case Section 106 inventory would be required, but over time Over time, less intrusive developments resulting from more restrictive VRM classes in the Monument would result in a long-term negligible to minor beneficial effect on cultural resources.

Cumulative Impacts

The cumulative impacts on archaeological and historic resources under Alternative C would be similar to those described for Alternatives A and B: impacts from the use of adjacent federal lands outside the Monument and from grazing and agriculture. Archeological resources could be affected by various construction-related projects in the region, and information distributed in visitor centers in the neighboring communities might attract more visitors to the Monument, increasing the pressure on cultural resources from foot and vehicle traffic and leading to unauthorized collection and vandalism. This could lead to a long-term negligible to minor adverse impact on cultural resources. More proactive cultural resource inventory, interpretation, and monitoring under this alternative would help minimize that impact. Overall, actions outside the Monument boundary, added to the actions of Alternative C, would result in long-term cumulative adverse impacts on cultural resources ranging from minor to moderate.

Conclusion

Alternative C, in which human and vehicle access into the Primitive and Pristine Zones would be minimized, would result in a minor beneficial effect on maintaining the long-term integrity of most of the Monument's archaeological resources.. The restoration program, fire suppression, and restricted access all would contribute to long-term minor to moderate beneficial effects, but the initial restoration actions, grazing, and limited vehicle traffic would result in short-term minor to moderate adverse impacts.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's cultural resources or values would not be impaired.

IMPACTS FROM ALTERNATIVE D
Analysis

Cultural resource management and associated inventories in the Monument would continue under current laws, policies, and regulations under Alternative D, as in Alternative A, resulting in a moderate beneficial effect on cultural resources. Increased recreation use would require more intense monitoring of cultural resources in the Passage Zone to prevent or minimize damage.

The Monument's existing Class B and C roads would remain open under Alternative D, their maintenance driven by natural resource management needs, primarily fire suppression, weed management, and restoration activities. Many Class D roads in the Primitive and Pristine Zones would be converted to trails or closed for resource protection. The restrictions on Class D roads could decrease visitor use in the Pristine and Primitive Zones, thereby decreasing the risk of cultural resource vandalism and illegal collection and possibly also decreasing human-caused wildfires, reducing the risk of the erosion of cultural resource sites. Upgrading the primary access routes (Arco-Minidoka, Carey-Kimama, Kings Bowl) to a consistent B classification might attract more visitors to the Passage Zone, increasing the pressure on cultural resources in that zone. Transportation under this alternative would lead to a long-term minor beneficial effect on cultural resources.

In Alternative D, 80,000 acres would be targeted for sagebrush steppe restoration, substantially more than in the other alternatives. This would involve the use

of prescribed fire and drill seeding to return the vegetation to a mix of perennial plants and shrubs. As in the other alternatives, any fire, wild or prescribed, exposes cultural resources on the ground surface, placing them at risk for unauthorized collection and increased soil erosion, and any restoration projects would be subject to Section 106 inventory as they arose to ensure that cultural resources would not be impacted. Sagebrush steppe restoration activities would result in a short-term minor to possibly moderate adverse effect on cultural resources resulting from flagging, plus the size of the area and the aggressive program which would expose more area at any one time. However, the long-term stabilization of the soils and the reduced potential for wildfire would result in a long-term moderate beneficial effect.

As in Alternatives B and C, wildfire management under Alternative D would consist of full suppression on all lands outside the Pristine Zone, especially those containing healthy sagebrush steppe. Active fire suppression activities would adversely affect cultural resources, but suppression itself would limit damage to cultural resources. There would be a short-term moderate adverse impact on cultural resources during suppression activities, but overall, full suppression of wildfire would cause a long-term major beneficial effect on cultural resources.

The most likely addition of new livestock water facilities in Alternative D would be in the Passage Zone, but few new developments would be expected. Because livestock tend to congregate around water sources, there could be trampling and increased soil erosion, causing long-term site-specific minor to moderate adverse effects on cultural resources that are near water sources.

In Alternative D, visitor facilities would be primarily outside the Monument. Vehicle and foot traffic, unauthorized collection, and vandalism could take place at cultural resource locations with interpretive materials, causing long-term minor adverse effects. Interpretive materials stressing resource protection might help to reduce the amount of damage to cultural resources. There would be a long-term, minor beneficial effect for cultural resources away from roads and trails without interpretive waysides because visitors would not be attracted to those areas. Any adverse effects on the Mission 66 era Visitor Center from any expansion would be negligible to minor, as described for Alternative A.

As in Alternatives B and C, this alternative would include the designation of all lands in the Monument as VRM Class I or II, which would minimize the visual intrusion of possible developments outside WSAs and Wilderness Areas. A case by case Section 106 inventory would be required to prevent adverse impacts on development sites. Over time, less intrusive developments resulting from more restrictive VRM classes in the Monument would result in a long-term negligible to minor beneficial effect on cultural resources.

Cumulative Impacts

The cumulative effects from Alternative D would be similar to those described for Alternative A, but with benefits from restoring a large number of acres and the accompanying inventory required. The use of adjacent federal lands outside the Monument would contribute effects on cultural resources similar to those described above. It is possible that information distributed in visitor centers in the neighboring communities, such as Twin Falls and Idaho Falls, might attract more visitors to the Monument, increasing the pressure on cultural resources from foot and vehicle traffic and unauthorized collection and vandalism. Increased visitation would cause long-term negligible to minor adverse impacts on cultural resources. Increased proactive cultural resource inventory, interpretation, and monitoring under this alternative would help minimize those effects. Overall, the cumulative effects on cultural resources from actions outside the Monument boundary, added to the actions of this alternative, would result in long-term generally adverse effects ranging from minor to moderate.

Conclusion

Alternative D, in which off-site interpretation, visitor services, and aggressive range restoration would be emphasized, would result in a moderate beneficial effect on maintaining the long-term integrity of most of the Monument's archaeological resources. Short-term minor to moderate adverse impacts would result from vehicle travel, initial restoration activities, suppression actions, and grazing.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) nec-

essary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's cultural resources or values would not be impaired.

AMERICAN INDIAN RIGHTS AND INTERESTS (ETHNOGRAPHIC RESOURCES, RESOURCE AND PUBLIC LAND VALUES, TREATY RIGHTS)

METHODOLOGY AND ASSUMPTIONS

Federal agencies are required to take into account the effects of their actions on Native American values such as tribal treaty right uses, ethnographic resources, access to traditional use areas and/or religious/sacred sites, the preservation of archaeological sites, the handling of Native American Graves Protection and Repatriation Act (NAGPRA) materials, and the maintenance of suitable habitat for subsistence species of importance to tribes.

To analyze the effects of the alternatives on Native American rights and interests, planning team members met several times with interested tribal staff to hear their comments on the alternatives. On the basis of these comments and BLM/NPS commitment, certain understandings were defined regarding Native American rights and interests in the Monument, as follows:

- Section 106 archaeological inventory would be conducted for all proposed development projects as required by the National Historic Preservation Act (NHPA) under each of these alternatives. The agencies would undertake tribal consultation if it was determined that any proposed development would result in adverse effects on cultural resources or Native American rights and interests.

- Tribes regulate their own members' hunting on the Preserve and the expanded areas of the Monument; however, no hunting is permitted in the original NPS Monument.

- BLM and NPS staff will continue to meet with interested tribal staff on a regular basis to discuss and address issues of concern as they arise. Government-to-government consultation between BLM/NPS managers and the respective Tribal Council will be carried out after appropriate staff-level discussions and before a final decision.

- The current road network provides sufficient access to traditional use areas for tribal members.

For the purposes of this analysis, the intensity of impacts on Native American rights and interests were defined as follows:

Negligible:	The impact on Native American values would be at the lowest levels of detection - barely measurable with any perceptible consequences, either beneficial or adverse.
Minor Adverse:	The impact on Native American rights and interests would be measurable or perceptible, but it would be slight and localized in a relatively small area. The action would not affect the character or diminish the features of ethnographic resources, traditional use areas, or the exercise of treaty rights, and it would not have a permanent effect on the integrity of any ethnographic resource, traditional use area, or treaty right.
Minor Beneficial:	The action would involve the maintenance and preservation of traditional use areas, ethnographic resources, and/or habitat for species associated with treaty right uses or subsistence purposes.
Moderate Adverse:	The impact would be measurable and perceptible. The action would change one or more characteristics or defining features of ethnographic resources, traditional use areas, or

	treaty right uses, but it would not diminish the integrity of the resource to the extent that it would be jeopardized.
Moderate Beneficial:	The action would involves the stabilization of ethnographic resources, traditional use areas, and/or habitat for species associated with treaty right uses or subsistence purposes.
Major Adverse:	The impact on Native American values would be substantial, noticeable, and permanent. The action would change or affect one or more character defining features of ethnographic resources, traditional use areas, or treaty resources, diminishing the integrity of the resource to the extent that it no longer would be able to sustain traditional uses or support the exercise of treaty rights.
Major Beneficial:	The action would involve active intervention to preserve ethnographic resources or traditional use areas, and/or it would enhance habitat for treaty species.

The area of analysis of the cumulative impacts on Native American rights and interests was defined as the Eastern Snake River Plain.

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, the roads in the Monument would remain in their current condition at current maintenance levels. Remote areas of the Monument would remain difficult to reach by vehicle, and most areas would be inaccessible by sedan. The broad network of two-track Class D roads would remain open. Because tribal members have not identified any existing access concerns, for the purpose of this analysis the agencies assume the existing road network is adequate for tribal access to traditional use areas. There would be no change in Native American values from the status quo relative to access.

Under this alternative, 40,000 acres would be targeted for sagebrush steppe restoration, which would involve using prescribed fire and drill seeding to return the vegetation to a mix of native plants and shrubs. Any fire, wild or prescribed, temporarily would displace wildlife and might change the character of traditional use areas. Sagebrush steppe restoration activities could cause a short-term minor adverse effect on ethnographic resources, traditional use areas, and the exercise of treaty rights, but the long-term improvement in habitat and the reduced potential for wildfire would lead to a long-term moderate beneficial effect on Native American values.

Wildfire management in Alternative A would consist of full suppression on all lands outside the Pristine Zone. Full suppression would reduce the number of acres that would burn, thereby protecting traditional use areas from the loss of habitat for tribally significant species. There could be intense, short-term vehicle traffic in traditional use areas during active fire suppression activities, and the use heavy equipment to construct firebreaks also might affect such areas. However, where the presence of tribally significant resources is known, suppression activities would be consistent with the long-term protection of these resources. Suppression activities could cause a short-term moderate adverse impact. Overall, the full suppression of wildfires would result in a long-term minor beneficial effect on ethnographic resources, traditional use areas, and resources associated with treaty uses.

The Monument currently includes all four Visual Resource Management (VRM) classifications (Classes I through IV), allowing for a wide range of developments outside WSAs and Wilderness areas. Over time, Class III and IV area developments in the Monument could increase the amount of visual intrusion, which could have an indirect adverse impact on the character and integrity of ethnographic resources and traditional use areas. Class III and IV VRM designations in the Monument could cause a long-term negligible to minor adverse impact on Native American rights and interests.

Cumulative Impacts

For the most part, tribal treaty rights exercised on adjacent federal lands outside the Monument would be consistent with those exercised in the expanded Monument and Preserve. Information distributed in existing visitor centers in the neighboring communities such as Twin Falls and Idaho Falls might attract

more visitors to the Monument, but this seems unlikely given the current visitation levels. Increased visitation, in conjunction with the impacts already occurring and those associated with Alternative A, could cause a long-term negligible to minor adverse impact on ethnographic resources and any traditional use areas.

Conclusion

The No Action Alternative (Alternative A) would result in a negligible to minor beneficial effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's ethnographic resources, Native American values, tribal treaty rights, and traditional use areas would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

Under Alternative B, the road and trail system would provide a high level of access to a wide variety of destinations, interpretive opportunities, and recreation activities. Improved access to the more remote regions of the Monument could increase visitation to those areas, also increasing the impacts of vehicle and foot traffic, unauthorized collections, and vandalism to cultural and/or ethnographic resources. Increased vehicle access also could lead to an increase in wildfires. This alternative would have the largest acreage in the Passage Zone, providing more opportunities for trail development in that zone. This could result in a long-term minor adverse effect on ethnographic resources and traditional use areas.

With more acreage in the Passage Zone under Alternative B, there would be an increased area of potential livestock facility development. Livestock-caused erosion at water trough locations and water pipeline developments would be confined to the Passage Zone. Concentrations of livestock could increase the pressure on any ethnographic resources and traditional use areas in that zone. Livestock grazing in this alternative B would cause a long-term site-specific minor adverse effect on ethnographic resources and traditional use areas in the Passage Zone. The short-term effects on ethnographic resources and traditional use areas in the Frontcountry, Primitive, and Pristine Zones from livestock grazing would be negligible to minor and adverse.

Visitor facilities would be expanded under Alternative B, with natural and cultural resource interpretation at specific locations, new trail designations, and interpretive/safety information posted on waysides at recreation areas. Increasing the number of designated, developed trails and providing more interpretive materials at specific locations would increase the potential for vehicle and foot traffic in the Passage Zone. In locations with increased recreational use, there could be a long-term minor adverse effect from vehicle and foot traffic, unauthorized collection, and vandalism. Interpretive materials stressing resource protection might help to reduce the amount of damage to natural and cultural/ethnographic resources in traditional use areas.

Under this alternative 45,000 acres would be targeted for sagebrush steppe restoration, which would involve the use of prescribed fire and drill seeding to return the vegetation to a mix of native plants and shrubs. As in Alternative A, any fire, wild or prescribed, would temporarily displace wildlife and could change the character of traditional use areas. Sagebrush steppe restoration activities could cause a short-term minor adverse effect on ethnographic resources, traditional use areas, and the exercise of treaty rights, but the long-term improvement in habitat and the reduced potential for wildfire would lead to a long-term moderate beneficial effect on values associated with Native American rights and interests.

Wildfire management in Alternative B would consist of full suppression on all lands outside the Pristine Zone, especially those containing healthy sagebrush steppe. Full suppression would reduce the number of acres that would burn, thereby protecting traditional use areas from loss of habitat for tribally significant species. Resources that benefit from fire would benefit when fire occurred. During active fire

suppression activities, traditional use areas might be subject to intense short-term vehicle traffic and possible impacts from the use of heavy equipment to construct firebreaks. This could constitute a short-term moderate adverse impact. Overall, the full suppression of wildfire would result in a long-term minor beneficial effect on ethnographic resources, traditional use areas, and habitat for tribally significant species.

All lands in the Monument would be designated VRM Class I or II under Alternative B. This would minimize the visual intrusion of possible developments outside WSAs and Wilderness Areas. Over time, less intrusive developments resulting from more restrictive VRM classes in the Monument would lead to a long-term negligible to minor beneficial effect on the character and integrity of ethnographic resources and traditional use areas.

Cumulative Impacts

The cumulative effects on tribal treaty rights and ethnographic resources from Alternative B would be similar to those described for Alternative A. Tribal treaty rights exercised on adjacent federal lands outside the Monument would be mostly consistent with those exercised in the expanded Monument and Preserve. Information distributed in existing visitor centers in the neighboring communities such as Twin Falls and Idaho Falls, along with the proposed road improvements, might attract more visitors to the Monument. This could increase the pressure on traditional use areas from foot and vehicle traffic and possibly result in conflicts between tribal members and the public. This increased visitation, in conjunction with the actions of Alternative B, would result in a long-term negligible to minor adverse impact on ethnographic resources, traditional use areas, and the exercise of tribal treaty rights.

Conclusion

By emphasizing recreational activities and vehicle access, Alternative B would result in a minor to moderate adverse effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's ethnographic resources, Native American values, tribal treaty rights, and traditional use areas would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

Under Alternative C, fewer roads in the Monument would be maintained to a high standard and more roads would be closed. Decreased access to the more remote regions of the Monument might decrease the amount of visitation to those areas. Decreased vehicle access also might lead to a decrease in human-caused wildfires, which would protect traditional use areas. Road closures might make access to ethnographic resources, traditional use areas, or sacred sites difficult for tribal elders, who might not be able to walk long distances over rough terrain. This alternative would have the largest acreage in the Pristine Zone, which would mean there would be fewer opportunities for trail development in the Monument. There would be a long-term minor beneficial effect on traditional use areas and habitat for treaty species under this alternative, but there also might be a minor long-term adverse impact on Native Americans resulting from decreased vehicle access.

A larger Pristine Zone under Alternative C would mean a decreased area for potential livestock facility development. Livestock-caused erosion at water trough locations and water pipeline developments would be confined to the relatively small Passage Zone. The concentration of livestock in the Passage Zone could increase pressure on traditional use areas in that zone, but the pressure on traditional use areas would be less in the Primitive and Pristine zones. Livestock grazing under Alternative C would cause a long-term site-specific minor to moderate adverse effect on traditional use areas in the Passage Zone. and a short-term negligible to minor adverse effect on ethnographic resources and traditional use areas in the Frontcountry, Primitive, and Pristine Zones.

A total of 55,000 acres would be planned for sagebrush steppe restoration under Alternative C. This restoration would involve the use of prescribed fire and drill seeding to return the vegetation to a mix of native plants and shrubs. As with Alternative A, any fire, wild or prescribed, would temporarily displace wildlife and might change the character of ethnographic resources and traditional use areas. Sagebrush steppe restoration activities could result in a short-term minor adverse effect on traditional use areas and tribally significant resources, but the long-term improvement in habitat and the reduced potential for wildfire would lead to a long-term moderate beneficial effect on Native American values.

As in Alternative B, wildfire management under Alternative C would consist of full suppression on all lands outside the Pristine Zone. Similar actions would be taken that would adversely affect tribal treaty rights, and suppression itself would help to protect ethnographic resources and traditional use areas from the loss of habitat for tribally significant species. There could be short-term moderate adverse impacts during suppression activities, but the full suppression of wildfire would cause a long-term minor beneficial effect on ethnographic resources, traditional use areas, and habitat for tribally significant species.

As in Alternative B, in Alternative C all lands in the Monument would be designated VRM Class I or II, which would minimize the visual intrusion of potential developments outside WSAs and Wilderness areas. Over time, less intrusive developments resulting from more restrictive VRM classes in the Monument would lead to a long-term negligible to minor beneficial effect on the character and integrity of ethnographic resources and traditional use areas.

Cumulative Impacts

The cumulative impacts from Alternative C would be about the same as those listed for Alternative A. Tribal treaty rights exercised on adjacent federal lands outside the Monument would be mostly consistent with those exercised in the expanded Monument and Preserve. Information distributed in existing visitor centers in neighboring communities such as Twin Falls and Idaho Falls might attract more visitors to the Monument, but the decrease in visitor facilities and the road network would confine most visitors to the Passage Zone. Any increased visitation, in conjunction with other impacts and the actions of Alternative C, could result in a long-term negligible to minor adverse impact on ethnographic resources and traditional use areas in the Passage Zone.

Conclusion

By minimizing the amount of human and vehicle traffic into the Primitive and Pristine Zones, Alternative C would result in a minor beneficial effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument. However, by limiting vehicle access, it also could cause some hardship for elderly tribal members.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's ethnographic resources, Native American values, tribal treaty rights, and traditional use areas would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

Under Alternative D, existing Class B and C roads would remain open and their maintenance would be driven by natural resource management needs, primarily fire suppression, weed management, and restoration activities. Many Class D roads in the Primitive and Pristine Zones would be converted to trails or closed for resource protection. The restrictions on Class D roads could decrease visitation to the Pristine and Primitive Zones, decreasing impacts on ethnographic resources and traditional use areas. The occurrence of vehicle-caused wildfires could also decrease, lowering the risk of habitat loss. Upgrading the primary access routes (Arco-Minidoka, Carey-Kimama, and Kings Bowl) to a consistent Class B classification might encourage more visitation to the Passage Zone, increasing the pressure

on ethnographic resources and traditional use areas in that zone. Overall, there would be a long-term minor beneficial effect on ethnographic resources and traditional use areas from this alternative.

With a larger Passage Zone, there would be an increased area of potential livestock facility development. Livestock-caused erosion at water trough locations and water pipeline developments would be confined to the Passage Zone. The concentration of livestock in the Passage Zone under Alternative D could increase the pressure on ethnographic resources and traditional use areas in that zone, resulting in a long-term site-specific minor to moderate adverse effect on traditional use areas in the Passage Zone. Livestock grazing in the Frontcountry, Primitive, and Pristine Zones would cause a short-term negligible to minor adverse effect on ethnographic resources and traditional use areas.

This alternative would involve more visitor facilities and information outside the Monument boundary, near highways. This could help to educate a large public audience about Monument resources and preservation without having increased visitor pressure on Monument resources. The increased visibility probably would increase visitation to the Monument, but most of the public would be satisfied with a short stop at a convenient visitor center outside the Monument. This alternative would result in a long-term minor beneficial effect on maintaining the character and integrity of ethnographic resources and traditional use areas by satisfying the public's interest with off-site visitor facilities.

A total of 80,000 acres would be planned for sagebrush steppe restoration under Alternative D. This restoration would involve the use of prescribed fire and drill seeding to return the vegetation to a mix of native plants and shrubs. As in Alternative A, any fire, wild or prescribed, would temporarily displace wildlife and might change the character of ethnographic resources and traditional use areas. Sagebrush steppe restoration activities could result in a short-term minor adverse effect on traditional use areas, tribally significant resources, and resources associated with the exercise of treaty rights, but the long-term improvement in habitat and the reduced potential for wildfire would lead to a long-term moderate beneficial effect on Native American values.

Wildfire management under Alternative D would consist of full suppression on all lands outside the Pristine Zone, as in Alternative B. Similar actions would be taken that would adversely affect tribal treaty rights, and suppression itself would help to protect ethnographic resources and traditional use areas from the loss of habitat for tribally significant species. There could be short-term moderate adverse impacts during suppression activities, but the full suppression of wildfire would cause a long-term minor beneficial effect on ethnographic resources, traditional use areas, and habitat for tribally significant species.

As in Alternatives B and C, In Alternative D all lands in the Monument would be designated VRM Class I or II. This would minimize the visual intrusion of potential developments outside WSAs and Wilderness areas. Over time, less intrusive developments resulting from more restrictive VRM classes in the Monument would result in a long-term negligible to minor beneficial effect on the character and integrity of ethnographic resources and traditional use areas.

Cumulative Impacts

The cumulative effects on tribal treaty rights and ethnographic resources from Alternative C would be similar to those described for Alternative A. Tribal rights and interests on adjacent federal lands outside the Monument would be consistent with those in the expanded Monument and Preserve. Information distributed in proposed off-site visitor centers along major highways could attract more visitors to the Monument, but most of the public probably would not visit the actual Monument. This could decrease the pressure on ethnographic resources and traditional use areas from foot/vehicle traffic and potential conflicts between tribal members and the public. The emphasis on off-site visitor services, in conjunction with other impacts and the actions of Alternative D, would result in a long-term negligible to minor adverse impact on ethnographic resources, traditional use areas, and the exercise of tribal treaty rights.

Conclusion

By emphasizing off-site interpretation, off-site visitor services, and range restoration, Alternative D

would result in a minor to moderate beneficial effect on maintaining the long-term integrity of ethnographic resources and traditional use areas in the Monument.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to the natural or cultural integrity of the Monument or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the Monument's ethnographic resources, Native American values, tribal treaty rights, and traditional use areas would not be impaired.

LAND USE AND TRANSPORTATION

TRAVEL AND ACCESS

METHODOLOGY AND ASSUMPTIONS

Road system standards and maintenance influence the amount and type of access to a given area. Use generally increases when road conditions improve and decreases as conditions degrade.

To analyze the effects of the alternatives on access and travel, available information on existing roads and trails in the Monument was compiled. Certain assumptions were made regarding the management of access and travel in the future, as follows:

- A Comprehensive Travel Management Plan would be prepared for the Monument and made available to the public. The plan would include a map portraying the Management Zones, road classifications, and permanent or seasonal restrictions and a road maintenance schedule.
- There would be no net increase in road mileage in the Monument.
- The road system in the planning area would provide access for visitors, permittees, nonfederal landowners, and for administrative needs without adversely affecting the resources and values that the Monument was established to preserve.
- The agencies would coordinate road management inside and outside of the Monument cooperatively with local government agencies so that the transportation system would be managed in a comprehensive, logical manner.
- The agencies also would work cooperatively with local government agencies to provide appropriate access to the Monument and private land within the Monument.

The road standard classifications that were developed for the purpose of identifying and defining roads at Craters of the Moon National Monument and Preserve are described in the Affected Environment section.

For the purposes of this analysis, the intensity of impacts on access and travel were defined as follows:

Negligible:	The effects would not be detectable and would have no discernible effect on traffic flow and/or road conditions.
Minor:	The effects would be slightly detectable but there would not be an overall effect on traffic flow and/or road conditions.
Moderate:	The effects would be clearly detectable, and the action could have an appreciable effect on traffic flow and/or road conditions.
Major:	The effects would be substantial, with a highly noticeable influence, and the traffic flow and/or road conditions could be permanently altered.

The area of analysis for cumulative impacts was defined as the Monument and the surrounding 50-mile radius.

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, the roads n the Monument would remain in their current condition at current

maintenance levels. The majority of the road network consists of Class C and D roads in the Primitive Zone, with some higher standard Class B roads in the Passage Zone. Class A roads are restricted to the Frontcountry Zone, and Class 1 (non-motorized trails) are mainly found in the Primitive Zone (see Table 3 for mileage). Remote areas of the Monument would remain difficult to reach by vehicle, and most areas would be accessible only to high clearance vehicles. The broad network of two-track roads would remain open. Difficult travel would keep most visitors out of the most remote areas. Vehicle traffic could cause erosion on access routes, a long-term minor adverse impact on visitors desiring better access.

Under this alternative, 40,000 acres of degraded rangeland would be proactively treated for sagebrush steppe restoration, which would involve the use of herbicides, prescribed fire, drill seeding, and other methods. These activities could cause short-term minor disruptions to access and travel in the Monument if certain areas or roads were restricted during the activities. However, the reduced potential for large wildfires would result in a long term moderate beneficial effect by reducing the amount of road use by firefighting equipment.

Wildfire management in Alternative A would consist of full suppression on all lands outside the designated wilderness. There could be intense, short-term vehicle traffic on access routes during active fire suppression activities, and the use of heavy equipment to construct firebreaks also might affect such routes. Fire management impacts on roads, whether from suppression or prescribed burning, would include heavy use of roads by large fire engines, small fire engines, pickup trucks and SUVs, equipment transport (low-boys) and bulldozers, as well as bulldozing and widening existing roads for use as fuel breaks. Suppression activities could cause a short-term moderate adverse impact. This could constitute a short-term moderate adverse impact during and immediately after suppression activities.

There would be no change in the management of livestock use under Alternative A. Permittees would continue to haul water to troughs on the existing road network and to trail livestock along road corridors. This would result in a long-term minor adverse effect on access roads, and periodic maintenance would be necessary retain existing conditions.

Visitor facilities would remain as they are at present, with interpretation at specific locations at the original NPS Monument, some minor trail maintenance of existing trails, and some safety information posted on waysides at the Crystal Ice Cave/Kings Bowl area. Visitor use would cause a negligible effect on access and transportation routes with interpretive waysides.

New mineral material permits would be authorized inside the Monument only for administrative use, but the existing pits would continue to be used until expended.

Road maintenance efforts would cause minor short-term adverse impacts on road conditions but would result in a long term minor beneficial effect on road conditions. When mineral material pits were closed, reclamation efforts would cause minor short-term adverse impacts from heavy equipment and work on the ground. Obliterating short material-site access roads during reclamation efforts would cause a negligible to minor adverse impact on access.

Cumulative Impacts

Access and transportation management on adjoining federal lands outside the Monument would affect the numbers of visitors able to reach the expanded portion of the Monument. The planned realignment of U.S. Highway 93 would straighten some curves in the Highway, making this access route safer for motorists. It is possible that information distributed in Visitor Centers in neighboring communities such as Twin Falls and Idaho Falls would attract more visitors to the Monument. Informational kiosks at access point to the Monument also could increase visitation. All these factors could potentially increase the pressure on access routes in the Monument, necessitating more road maintenance. Increased visitation, in conjunction with the impacts already occurring under Alternative A, would result in a long-term negligible to minor adverse impact on access and transportation.

Conclusion

Actions under Alternative A would cause minor adverse impacts on access and travel in the Monument, with long-term minor beneficial effects resulting from completed restoration and road maintenance activities.

IMPACTS FROM ALTERNATIVE B

Analysis

Alternative B would involve more opportunities over the life of the plan for improving access to the Monument both inside and outside of the Monument boundary. With emphasis on providing greater access for recreation, the subsequent increase in Passage Zone acreage could result in higher maintenance costs, as could the expense of converting some Class D roads to Class 1 and 2 trails. The recommended improvement of the Arco-Minidoka Road could result in an upgrade of approximately 25 miles from Class C to Class B inside the Passage Zone (see Table 5 for mileage). This improved access would cause minor to moderate long-term adverse impacts on access and travel by attracting more visitors and increasing the frequency and level of needed maintenance. Alternative B would result in substantial increases in road upgrade/reconstruction costs for the agencies, counties, and local Highway Districts, as well as increasing annual road maintenance costs.

Improved access and more emphasis on road signs and interpretive signs in the Passage Zone would result in moderate long- and short-term beneficial effects by increasing visitor access to the Monument and by offering visitors more orientation and direction. Remote areas of the Monument still would be difficult to reach by vehicle, but some areas might become more accessible for lower clearance type vehicles. The broad network of existing Class D roads would remain, providing access to the Pristine Zone.

Multiple use trails developed under this alternative could improve access for forms of travel other than cars and trucks, leading to minor to moderate beneficial effects. However, erosion and more use of multiple use trails would degrade such trails, necessitating more maintenance. This would result in minor to moderate short- and long-term adverse impacts.

Designating the Carey-Kimama and Arco-Minidoka roads Backcountry Byways would cause moderate long-term adverse impacts from more visitor use and related increases in maintenance.

Treating about 45,000 acres of degraded rangeland would be treated for proactive sagebrush steppe restoration under Alternative B would be a 5,000-acre increase over Alternative A. As in Alternative A, the sagebrush steppe restoration process would cause a short-term minor disruption of access and transportation. However, the reduced potential for large wildfires would reduce the amount of road use by firefighting equipment, a long term moderate beneficial effect.

Wildfire management in Alternative B would consist of full suppression on all lands outside the Pristine Zone. During active fire suppression activities, access routes might be subject to intense short-term vehicle traffic and possible impacts from the use of heavy equipment to construct fire lines. The effects on roads from fire management, whether suppression or prescribed burning, would be caused by heavy use of roads by large fire engines, small fire engines, pickup trucks, and SUVs, equipment transport (low-boys) and bulldozers, as well as bulldozing and widening existing roads for use as fuel breaks. Active fire suppression would result in temporary road closures, a short-term moderate adverse effect on access and transportation.

More livestock developments (such as water troughs) in the expanded Passage Zone could increase the use of the road network to reach these sites, causing minor to moderate short- and long-term adverse impacts on transportation and access. More water-truck traffic would create the potential for road congestion and could create dusty conditions on roads during the grazing season, resulting in a long-term minor to moderate adverse effect on access routes.

Placing interpretive waysides in the Passage Zone under Alternative B would cause negligible effects on travel and access. Constructing designated primitive campsites would increase visitor use, leading to increased needs for road maintenance. This would be a negligible to minor long-term adverse impact. Designating dispersed campsites would concentrate visitation in specific areas, relieving pressure on the overall transportation system, a long-term negligible to minor beneficial effect.

Improved access to destination sites in the Monument such as Baker Caves and Kings Bowl would lead to increased visitation, resulting in a long-term minor beneficial effect on visitor access. Increased road maintenance and traffic could create short-term minor adverse impacts on transportation safety.

New mineral material sites could be authorized inside the Monument for administrative use only,

but the existing pits would continue to be used until expended. New mineral material pits might be necessary to complete the road upgrades and resulting maintenance in this alternative. Using heavy equipment to maintain Monument roads would cause minor short-term adverse impacts on transportation safety, but there would be a long-term minor beneficial effect from such maintenance efforts. When mineral material pits were closed, reclamation efforts would result in minor short-term adverse impacts from heavy equipment and work on the ground. Obliterating short material-site access roads during reclamation efforts would cause negligible to minor adverse impacts on access.

Cumulative Impacts

The principal access routes outside the Monument would be upgraded and maintained in conjunction with counties and other BLM offices, causing minor to moderate long-term benefits by improving access to and from gateway sites around the Monument. The planned realignment of US 93 would straighten some curves in the Highway, making this access route safer for motorists. This realignment would increase visitation to the Monument, necessitating more road maintenance. This would cause minor to moderate long-term adverse impacts on transportation safety in the Monument. All these factors, along with the emphasis on visitor use of the Monument under this alternative, would result in a long-term minor beneficial effect on visitor access.

Conclusion

By emphasizing recreational opportunities and increased access, Alternative B would cause a long term minor to moderate adverse effect on road conditions in the Monument, but it also would lead to have a long-term moderate beneficial effect on the availability of access and ease of travel to many locations in the Monument.

IMPACTS FROM ALTERNATIVE C

Analysis

Alternative C would involve reducing access to and within the Monument over the life of the plan because the Pristine Zone would be larger, and this would result in closing or converting to trails approximately 50 miles of Class C and D roads. Fewer miles of roads in the Passage Zone would be maintained to Class B and C standards (see Table 7 for mileage). The road closures and possible road removal would be a potential loss of access, a long-term minor to moderate adverse impact. Having fewer miles of roads maintained under Alternative C would cause minor to moderate adverse impacts on Monument access because a smaller range of vehicles would be accommodated by the transportation system. Over time, this alternative would result in a reduction in road maintenance expenses for the agencies, counties, and local Highway Districts.

Placing interpretive facilities off-site would reduce the number of visitors to the Monument, resulting in long-term minor beneficial effects on transportation safety. Less visitation would result in less erosion, degradation, and other forms of damage to roads, thereby reducing the need for road maintenance.

The large land area in the Pristine Zone in this alternative would include some roads along lava edges and in sagebrush steppe areas. Alternative C would close the two-track roads by signing and blocking, ripping and seeding, or converting them to Class 1 trails. This would result in moderate long-term adverse impacts on motorized access and a moderate long-term beneficial effect on foot/horse access.

A total of 55,000 acres of degraded rangeland would be proactively treated for sagebrush steppe restoration under Alternative C, 15,000 more acres than in Alternative A. As in Alternative A, the restoration activities would result in a short-term minor adverse effect on access and travel, but in this alternative possibly over a larger area or for a longer time. However, the reduced potential for large wildfires would reduce the amount of road used by firefighting equipment, a long term moderate beneficial effect.

As in Alternative B, wildfire management under Alternative C would consist of full suppression on all lands outside the Pristine Zone. During active fire suppression activities, access routes might be subject to intense short-term vehicle traffic and possible impacts from the use of heavy equipment to construct fire lines. The effects on roads from fire management, whether suppression or prescribed burning, would be caused by heavy use of roads by large fire engines, small fire engines, pickup trucks, and SUVs, equipment transport (low-boys) and bulldoz-

ers, as well as bulldozing and widening existing roads for use as fuel breaks. Active fire suppression would result in temporary road closures, a short-term moderate adverse effect on access and transportation.

Existing livestock developments would remain, with the possibility of some closures. Closing livestock facilities would cause long-term minor beneficial effects on access and transportation safety. Fewer water hauling vehicles would use the transportation system, reducing traffic, damage to roads, and the frequency of needed maintenance.

Using heavy equipment to maintain Monument roads would cause minor short-term adverse impacts on transportation safety, but there would be a long-term minor beneficial effect from such maintenance efforts. When mineral material pits were closed, reclamation efforts would result in have minor short-term adverse impacts from heavy equipment and work on the ground. Obliterating short material-site access roads during reclamation efforts would cause negligible to minor adverse impacts on access.

Existing mineral material sites in the Monument would be used until expended, and no new material sites would be developed. Having fewer miles of maintained road under this alternative would reduce the presence of heavy equipment on roads and congestion in the transportation system, resulting in minor to moderate long-term beneficial effects on travel safety in the Monument. Travel on lower standard maintained roads in the Monument could cause long term minor to moderate adverse impacts on travel safety.

Cumulative Impacts

Access and transportation management on adjoining federal lands outside the Monument would affect the numbers of visitors who could reach the Primitive and Pristine Zones of the Monument. The planned realignment of U.S. Highway 93 would straighten some curves in the highway, making this route safer for motorists. Visitor travel on roads maintained to a lower standard would result in minor to moderate long-term adverse impacts the road network in the Monument. Placing interpretive materials such as waysides and printed products outside the Monument boundaries would cause minor to moderate beneficial effects because fewer visitors would actually enter the Monument and use the transportation network. Overall, the effects of these actions, along with the effects from the actions of Alternative C, would result in long-term minor adverse impacts on travel and access.

Conclusion

By closing more miles of road in the Monument, Alternative C would cause minor to moderate adverse impacts on access. Reduced vehicle traffic could result in minor beneficial effects on transportation safety, but there also might be minor adverse impacts on travel safety from visitors using lower standard roads.

IMPACTS FROM ALTERNATIVE D

Analysis

Under Alternative D, the main purposes of the road network would be to protect resources and to facilitate fire suppression. This alternative would allow opportunities for modest improvements in existing Monument access over the life of the plan by increasing road maintenance in the Passage and Primitive zones (see Table 9 for mileage). This would improve public access and road quality, creating a long-term minor beneficial effect on access and transportation. Some two-track roads in the Primitive Zone could be closed for resource benefit, resulting in long-term negligible to minor adverse impacts on access. There would be modest increases in road maintenance costs for the agencies, the counties, and the Highway Districts.

Most Monument roads would be maintained at current levels, with some minor improvements to protect resources and improve the response time for fire suppression. In places where maintenance is currently lacking, this could result in minor adverse impacts from continued degradation of the roadways and access. In areas where roads are currently well maintained, this would prevent the degradation of roadways and access from possible higher levels of use, a minor beneficial effect.. The use of heavy equipment for temporary road improvements, along with short-term road closures associated with restoration efforts, would cause minor short-term impacts on access and transportation.

A total of 80,000 acres of degraded rangeland would be proactively treated for sagebrush steppe

restoration under Alternative C, double the acreage planned for Alternative A. These more extensive sagebrush steppe restoration activities would cause a short-term minor to moderate adverse effect on access and travel, but the reduced potential for large wildfires in this alternative would reduce the amount of road used by firefighting equipment, a long term moderate beneficial effect.

As in Alternatives B and C, wildfire management under Alternative D would consist of full suppression on all lands outside the Pristine Zone. Naturally ignited fires in the Pristine Zone could be allowed to burn when and where suitable conditions existed. During active fire suppression activities, access routes might be subject to intense short-term vehicle traffic and possible impacts from the use of heavy equipment to construct fire lines. The effects on roads from fire management, whether suppression or prescribed burning, would be caused by heavy use of roads by large fire engines, small fire engines, pickup trucks, and SUVs, equipment transport (lowboys) and bulldozers, as well as bulldozing and widening existing roads for use as fuel breaks. Access roads in the Monument would be maintained under this alternative for fire suppression, a minor long-term beneficial effect on Monument access.

Offering off-site interpretation would reduce the number of visitors using the Monument's transportation network, a long-term minor beneficial effect. Placing some visitor facilities outside the Monument would reduce pressure on the transportation network, a long-term minor beneficial effect. Rehabilitating Kings Bowl could involve temporary road closures and the use of heavy equipment, resulting in a negligible to minor short-term adverse impact.

New mineral material sites could be authorized inside the Monument for administrative use only, but the existing pits would continue to be used until expended. New mineral material pits might be necessary to complete the road maintenance required in this alternative. Using heavy equipment to maintain Monument roads would cause minor short-term adverse impacts on transportation safety, but there would be a long-term minor beneficial effect from such maintenance efforts. When mineral material pits were closed, reclamation efforts would result in minor short-term adverse impacts from heavy equipment and work on the ground. Obliterating short material-site access roads during reclamation efforts would cause negligible to minor adverse impacts on access.

Cumulative Impacts

Access and transportation management on adjoining federal lands outside the Monument would affect the numbers of visitors who could reach the Primitive and Pristine Zones of the Monument. The planned realignment of U.S. Highway 93 would straighten some curves in the highway, making this route safer for motorists. Distributing information in Visitor Centers in neighboring communities such as Twin Falls and Idaho Falls might attract more visitors to the Monument. Informational kiosks now at access points to the Monument also could attract more visitors, increasing the pressure on access routes within the Monument. Placing interpretive materials such as waysides and printed products outside the Monument boundaries would cause minor to moderate beneficial effects because fewer visitors would actually enter the Monument and use the transportation network. Overall, the effects of these actions, along with the effects from the actions of Alternative D, would result in long-term negligible to minor beneficial effects on travel and access.

Conclusion

By emphasizing off-site interpretation, visitor services, and long-term range restoration, Alternative D would cause long term minor beneficial effects on access and road conditions in the Monument.

LIVESTOCK GRAZING

METHODOLOGY AND ASSUMPTIONS

Available information was obtained through relevant literature, Best Management Practices, standards and guidelines assessments, monitoring, existing land use plans, and consultation with the public, permittees, and interdisciplinary teams. Impacts were assessed using best professional judgment and the following criteria to define impact intensities:

Negligible	Grazing operations would not be appreciably affected.
Minor	The effect would be perceptible, and the action would result in a slight

	change in grazing operations, but the change would be localized.
Moderate	The effects would be apparent, and the action would result in a limited change in grazing operations.
Major	The effects would be readily apparent or widespread, and the action would result in a substantial change in grazing operations.

The area of analysis for cumulative impacts was defined as Craters of the Moon National Monument and Preserve and the surrounding communities within approximately 50 miles.

IMPACTS FROM ALTERNATIVE A

Analysis

Under this alternative about 40,000 acres of degraded rangeland would be targeted for proactive sagebrush steppe restoration. The restoration would involve a combination of combination of manipulation techniques such as herbicides, prescribed fires, and seeding to return the plant communities to proper functioning condition. Natural wildfires generally would be suppressed, but some fires would occur throughout the Monument, disrupting to grazing. The restoration and fire-related activities could result in closure to grazing for two years or more. Such a substantial change in grazing operations would result in a short-term moderate adverse impact. In addition to the allotment directly affected by the closure, adjacent allotments might be indirectly affected by the redistribution of displaced livestock. Such changes might include altering the number of grazing livestock, the season of use, or the duration of grazing. However, the long-term effects would be moderate and beneficial because restoration would improve rangeland health.

In this alternative the Frontcountry Zone would cover approximately 2,300 acres; the Passage Zone, 4,800 acres; the Primitive Zone, 291,100 acres; and the Pristine Zone, 450,200. Road upgrading and facility development would be allowed in The Passage Zone. This would cause short- and long-term minor beneficial effects on livestock use. Road improvements would benefit livestock permittees by facilitating and reducing the cost of water hauling, facility development, and maintenance. New livestock developments in the Passage Zone could improve livestock distribution. The size of the Pristine Zone could result in short- and long-term moderate adverse impacts on permittees by increasing the cost of grazing and limiting access through potential road closures, a lack of road maintenance, and not allowing new livestock developments.

Over time, increased recreational use in the Frontcountry and Passage Zones could cause minor to moderate adverse impacts on livestock operations. More recreational use could create conflicts with livestock or livestock-associated equipment on the roads, at camping or parking locations, at livestock watering sites, and at popular recreation locations.

Cumulative Impacts

The BLM would continue to assess all livestock use allotments in Idaho, using the Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management. These standards are designed to provide resource measures and guidance needed to ensure healthy, functional rangelands. Livestock allotments are evaluated to determine if standards and guidelines are being met or if significant progress is being made toward meeting them. If the standards are not being met, the BLM is required to make changes that would help achieve these standards in the future. Required changes could affect allotments both inside and adjacent to the Monument by reducing or increasing livestock numbers, season of use, allocated AUMs, and livestock-associated developments.

The ICBEMP has coordinated an extensive study of the Interior Columbia Basin, including District lands. This study has determined that the sagebrush steppe ecosystem is at risk due to several past and existing impacts. These include grazing, road construction, human development, and disturbance-related invasion of exotic plant species. These disturbances would be likely to continue to contribute cumulatively to the impacts on vegetation communities in southern Idaho. The BLM has entered into a 2003 MOU to implement the ICBEMP. The implementation strategy includes direction to federal agencies to update or develop land-use plans to provide direction to address the major issues.

The economic status of surrounding local communities directly impacts livestock use within the 50-mile radius. Economic changes can affect the livelihood of the livestock permittees and their employees. Dramatic economic changes could potentially increase the number of people and available jobs or force people in the surrounding communities to find employment elsewhere or even move out of the area. Overall, the effects of the actions that would or could occur on adjacent lands, combined with the actions of Alternative A, would result in negligible to minor adverse impacts on grazing.

Conclusion

Restoration activities and restrictions in the Pristine Zone in Alternative A could restrict grazing operations and/or increase costs associated with grazing, resulting in short- and long-term minor to moderate adverse impacts. The use of the Passage Zone for potential road improvement and facility development would result in short- and long-term minor beneficial effects, but the potential increased recreational use of this area could cause minor to moderate adverse impacts. Alternative A would have the third largest Pristine Zone, which could restrict or increase the costs associated with grazing.

IMPACTS FROM ALTERNATIVE B

Analysis

Under this alternative about 45,000 acres of degraded rangeland would be treated for sagebrush steppe restoration, a 5,000-acre increase from Alternative A. Wildfires would be suppressed in all areas except in the Pristine Zone, where wildland fire use would be prescribed. As in Alternative A, the restoration and actions for fire suppression and the recovery of burned areas could result in closure to grazing for two years or more, which could result in a substantial change in grazing operations, causing a short-term moderate adverse impact. In addition to the allotment directly affected by the closure, adjacent allotments might be indirectly affected by the redistribution of displaced livestock. Such changes might include altering the number of grazing livestock, the season of use, or the duration of grazing. However, the long-term effects would be moderate and beneficial because restoration would improve rangeland health.

In this alternative the Frontcountry Zone would cover approximately 2,300 acres; the Passage Zone, 69,000 acres; the Primitive Zone, 227,400 acres; and the Pristine Zone, 449,500. Road upgrading and facility development would be allowed in The Passage Zone. This would cause short- and long-term minor to moderate beneficial effects on livestock use because the acreage in the Passage Zone would be greater in this alternative than in all the other alternatives. Road improvements would benefit livestock permittees by facilitating and reducing the cost of water hauling, facility development, and maintenance, but there could be conflicts between road users and livestock. New livestock developments in the Passage Zone could improve livestock distribution. The size of the Pristine Zone, although it would be slightly smaller than in Alternative A, could result in short- and long-term moderate adverse impacts on permittees by increasing the cost of grazing and limiting access through potential road closures, a lack of road maintenance, and not allowing new livestock developments.

Over time, increased recreation use in the Frontcountry and adjacent Passage Zone areas could cause minor to moderate adverse impacts on livestock operations. More recreation could create conflicts with livestock or livestock-associated equipment on the roads, at camping or parking places, at livestock watering sites, and at popular recreation settings. The larger Passage and Frontcountry Zones probably would increase the amount of recreational use.

Cumulative Impacts

The cumulative effects of Alternative B on livestock grazing would be similar to those described for Alternative A, with both more beneficial effects and more adverse impacts from the additional access available in the expanded Passage Zone. Overall, the effects of the actions that would occur on adjacent lands, combined with the actions of Alternative B, would result in negligible to minor adverse impacts on grazing.

Conclusion

Restoration activities and restrictions in the Pristine Zone under Alternative B could restrict or increase the costs of grazing operations, resulting in short- and long-term moderate adverse impacts in

grazing, but larger Passage Zone areas and the development of good access could result in road improvement and facility development, which would cause short- and long-term minor to moderate beneficial effects. The increased recreational use and access in this area could cause minor to moderate adverse impacts.

IMPACTS FROM ALTERNATIVE C

Analysis

A total of 55,000 acres of degraded rangeland would be proactively treated for sagebrush steppe restoration under Alternative C, 15,000 more acres than in Alternative A. Natural wildfires would be managed for resource benefit in the Pristine Zone, which would be much larger in this alternative than in Alternatives A or B. As in Alternative A, the restoration and related actions could result in closure to grazing for two years or more, which could result in a substantial change in grazing operations, causing a short-term moderate adverse impact. In addition to the allotment directly affected by the closure, adjacent allotments might be indirectly affected by redistribution of displaced livestock. Such changes might include altering the number of grazing livestock, the season of use, or the duration of grazing. The long-term effects would be moderate and beneficial because restoration would improve rangeland health.

In this alternative the Frontcountry Zone would cover approximately 2,300 acres; the Passage Zone, 3,200 acres; the Primitive Zone, 201,700 acres; and the Pristine Zone, 541,200. Road upgrading and facility development would be allowed in The Passage Zone. The Passage Zone would be smaller than in Alternative A, but road upgrading and facility development still would be possible. Having a somewhat reduced Passage Zone would result in negligible to minor beneficial effects on livestock use. Road improvements would benefit livestock permittees by facilitating and reducing the cost of water hauling, facility development, and maintenance, but there could be conflicts between road users and livestock. New livestock developments in the Passage Zone could improve livestock distribution. The large Pristine Zone could result in could result in short- and long-term moderate adverse impacts on permittees by increasing the cost of grazing and limiting access through potential road closures, a lack of road maintenance, and not allowing new livestock developments.

Over time, increased recreational use could cause minor adverse impacts on livestock operations. More recreation could create conflicts with livestock or livestock-associated equipment on the roads, at camping or parking places, at livestock watering sites, and at popular recreation settings. Because of the smaller amount of Passage Zone in Alternative C, there would not be a large increase in the amount of recreational use.

Cumulative Impacts

The cumulative effects of Alternative C on livestock operations would be similar to those described for Alternative A, with some additional adverse impacts from the expanded restoration activities. Overall, the effects from the actions that could occur on adjacent lands, combined with the actions of Alternative C, would result in minor adverse impacts on grazing.

Conclusion

Restoration activities and restrictions in the Pristine Zone under Alternative C could restrict or increase the costs associated with grazing, resulting an moderate short- and long-term adverse impacts on grazing. The smaller number of areas in the Passage Zone would allow for some access and facility development, a negligible to minor beneficial effect, but any increased recreational use would cause minor adverse impacts on grazing operations. The large amount of Pristine Zone could increase costs and limit access, causing moderate adverse impacts on grazing.

IMPACTS FROM ALTERNATIVE D

Analysis

A total of 80,000 acres of degraded rangeland would be proactively treated for sagebrush steppe restoration under Alternative D. This is twice as much acreage as in Alternative A and the largest amount proposed for restoration in any alternative. As in Alternative C, natural wildfires would be managed for resource benefit in the Pristine Zone, and various land use treatments would be similar. The restoration and fire-related actions could result in closure to

grazing for two years or more, and the restoration program would be accelerated in this alternative. Closure to grazing could cause a short-term moderate adverse impact. In addition to the allotment directly affected by the closure, adjacent allotments might be indirectly affected because livestock numbers could be reduced, or they might go to adjacent allotments to graze. Such a substantial change in grazing operations would cause a short-term moderate adverse impact. There could be changes in livestock numbers, the season of use, or the duration of grazing. The long-term effects would be substantial and beneficial because restoration would improve rangeland health over a large acreage.

In this alternative the Frontcountry Zone would cover about 2,300 acres; the Passage Zone, 9,900 acres; the Primitive Zone, 283,700 acres; and the Pristine Zone, 452,500. A larger Passage Zone and emphasis on maintaining good access for restoration and resource management in that zone would allow for road upgrading and facility development, which would result in short- and long-term beneficial effects on livestock operations. Road improvements would benefit livestock permittees by facilitating and reducing the cost of water hauling, facility development, and maintenance, but there could be conflicts between road users and livestock. New livestock developments in the Passage Zone could improve livestock distribution. As in Alternative A, the large Pristine Zone could result in could result in short- and long-term moderate adverse impacts on permittees by increasing the cost of grazing and limiting access through potential road closures, a lack of road maintenance, and not allowing new livestock developments.

A larger Passage Zone in this alternative probably would result in more recreational use. Increased recreational use could cause minor to moderate adverse impacts on livestock operations. More recreation could result in conflicts with livestock or livestock-associated equipment on the roads, at camping or parking places, at livestock watering sites, and at popular recreation settings. Because of the smaller amount of Passage Zone in Alternative C, there would not be a large increase in the amount of recreational use.

Cumulative Impacts

The cumulative effects of Alternative D on livestock operations would be similar to those described for Alternative A. The most long-term beneficial effects would result from the eventual restoration of rangeland and the improved access for administrative purposes. Overall, the effects from the actions that could occur on adjacent lands, combined with the actions of Alternative D, would result in negligible to minor adverse impacts on grazing.

Conclusion

Alternative D would involve the largest acreage identified for restoration; this would cause short-term moderate adverse impacts on grazing operations, but the long-term effects would be beneficial. The use of an expanded Passage Zone for potential road improvement and facility development and potentially more recreation use would result in minor to moderate beneficial effects from increased access and more ability to create new facilities. The Pristine Zone could restrict or increase the costs associated with grazing, a moderate adverse impact.

OTHER LAND USES (ADMINISTRATIVE FACILITIES, REALTY, AND MINERALS)

METHODOLOGY AND ASSUMPTIONS

To analyze the effects of the alternatives on various land uses, such as the existing NPS Visitor Center facility, realty actions, and mineral material sites, all available information on these land uses in the Monument was compiled, and the following assumptions were made about the management of these land uses in the future:

- The existing NPS Visitor Center, including the previously approved expansion and renovation, would continue to offer visitor services to the public.

- No new mineral material sites would be authorized except for administrative use within the Monument because Proclamation 7373 withdrew all Monument lands from location, entry, and patent under the mining laws, mineral leasing laws, and mineral material laws.

- The agencies would seek to exchange lands with or purchase private and state inholdings in the Monument from willing sellers.

For the purposes of this analysis, the levels of effects on administrative facilities, realty, and minerals were defined as follows:

Negligible:	The effect would be barely detectable, and/or the public would not be affected.
Minor:	The effect would be slight, but detectable, and/or the public might be affected.
Moderate:	The effect would be readily apparent and/or the public would be affected.
Major:	The effect would be severely adverse or exceptionally beneficial and/or the public would be affected.

The area of analysis for cumulative impacts is defined as the Monument boundary and the surrounding 50-mile radius.

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, the existing administrative facilities would undergo some enlargement and reconstruction as planned, and the costs of doing day-to-day business would not change from what is currently budgeted. This alternative would result in a negligible impact on administrative facilities.

Realty actions would continue to be processed on demand, as at present. There would be no effects on valid existing rights such as the existing emergency airstrips and county road rights-of-way. Retaining the existing utility corridors would accommodate existing utilities and encourage the placement of future utilities within them. Granting utility rights-of-way where in conformance with constraints would accommodate the demand for such services along the US 93 corridor. Considering the acquisition of private lands in the Monument would improve the ability of private property owners to dispose of their property with appropriate compensation and would reduce the number of inholdings. For Monument lands outside WSAs, considering and granting rights-of-way case by case would accommodate the limited demand on public lands while allowing for reasonable access and services on private lands. This alternative would result in a negligible effect on realty.

Proclamation 7373 closed Monument lands to new mineral material leases. The Idaho Transportation Department (ITD) currently holds several old rights-of-way for material sources along US 93. The agencies would work with ITD on the relinquishment of those rights-of-way. The agencies would continue to use existing mineral sources for maintaining Monument roads at current levels as necessary. This alternative would cause long-term minor beneficial effects on mineral materials.

Cumulative Impacts

Few actions within the area of analysis would affect Monument facilities, realty, and minerals. Per Proclamation 7373, agencies or private entities without prior existing rights would have to look elsewhere for mineral materials. ITD might or might not feel the need to use its existing mineral rights-of-way in the Monument, depending on proposed highway improvements in the area. This would not affect Monument minerals because ITD normally needs higher quality gravel than is available from Monument sources. The agencies also might have to look outside the Monument for higher quality gravel. Given the remote nature of the area, few realty actions are foreseeable within the area of analysis. Overall, these limited actions, along with the effects of Alternative A, would result in long-term negligible cumulative adverse impacts on administrative facilities, realty, and minerals.

Conclusion

The No Action Alternative would result in negligible impacts on administrative facilities, realty, and minerals in the Monument.

IMPACTS FROM ALTERNATIVE B

Analysis

Under Alternative B, the existing administrative facilities might have to be expanded to serve more visitors, which would increase the day-to-day cost of doing business and maintenance. This alternative would cause a long-term minor adverse impact on administrative facilities.

As in Alternative A, this alternative would not affect valid existing rights. Retaining the existing utility corridors would accommodate existing utilities

and encourage placing utilities in them in the future. Granting utility rights-of-way (where in conformance with constraints) would accommodate the demand for such services along US 93. Considering the acquisition of private lands in the Monument would improve the ability of private property owners to dispose of their property with appropriate compensation and would reduce the number of inholdings. For Monument lands outside WSAs, considering and granting rights-of-way case by case would accommodate the limited demand on public lands while allowing for reasonable access and services on private lands.

An improved transportation system might lead to a slight increase in unauthorized use and a potential for conflicts between leaseholders and recreational visitors. Increased potential for wildfires might cause short-term adverse impacts on existing rights-of-way. This alternative would cause a negligible impact, with the possibility of some short-term minor adverse impacts on realty.

Proclamation 7373 closed Monument lands to new mineral material leases. The ITD holds several old rights-of-way for material sources along US 93. The agencies would work with ITD on the relinquishment of those rights-of-way. The agencies would continue to use existing mineral sources for maintaining Monument roads as necessary. Because there would be more high-standard, maintained miles of road in the Monument in this alternative, the use of more mineral materials would be necessary, and new cinder pits might be required to meet that need. The Monument contains a high volume of cinder material; therefore, this alternative would result in negligible impacts on mineral materials. If higher quality gravel was needed for Monument road maintenance, it would have to be obtained from a source outside the Monument.

Cumulative Impacts

The cumulative effects from Alternative B on administrative facilities, realty, and minerals would be similar to those described for Alternative A. The maintenance of more high-standard roads in the Monument would increase the administrative use of existing mineral material sites. The limited actions that would affect these other land uses, plus the actions of Alternative B, would result in cumulative long-term negligible to minor adverse impacts on administrative facilities, realty, and minerals.

Conclusion

Alternative B would cause negligible effects on realty and minerals in the Monument and a minor adverse impact on administrative facilities.

IMPACTS FROM ALTERNATIVE C

Analysis

Under Alternative C, the existing administrative facilities would be unchanged, and the day-to-day cost of doing business would be unchanged because there would be no added expenses beyond the current foreseeable levels. This alternative would result in negligible effects on administrative facilities.

Realty actions would continue to be processed on demand, as at present. There would be no effects on valid existing rights such as the existing emergency airstrips and county road rights-of-way. Retaining the existing utility corridors would accommodate existing utilities and encourage the placement of future utilities within them. Granting utility rights-of-way where in conformance with constraints would accommodate the demand for such services along the US 93 corridor. Considering the acquisition of private lands in the Monument would improve the ability of private property owners to dispose of their property with appropriate compensation and would reduce the number of inholdings. For Monument lands outside WSAs, considering and granting rights-of-way case by case would accommodate the limited demand on public lands while allowing for reasonable access and services on private lands. Having fewer miles of high-standard, maintained roads in the Monument could result in less unauthorized use. This alternative would result in a negligible to minor long-term beneficial effect on realty.

Proclamation 7373 closed Monument lands to new mineral material leases. The ITD holds several old rights-of-way for material sources along US 93. The agencies would work with ITD on the relinquishment of those rights-of-way. The agencies would continue to use existing mineral sources for maintaining Monument roads as necessary. Maintaining fewer miles of high-standard roads might decrease the use of mineral materials. This alternative would result in long-term minor beneficial effects on mineral materials.

Cumulative Impacts

The cumulative effects from Alternative C on administrative facilities, realty, and minerals would be similar to those described for Alternative A, but the demand for minerals would be slightly reduced because less road maintenance would be needed. Overall, the limited actions that would affect other land uses, plus the actions of Alternative C, would result in negligible cumulative effects on administrative facilities, realty, and minerals.

Conclusion

By minimizing the amount of human and vehicle traffic into the Primitive and Pristine Zones, Alternative C would cause long-term minor beneficial effects on administrative facilities, realty, and minerals in the Monument.

IMPACTS FROM ALTERNATIVE D

Analysis

Under Alternative D, the existing administrative facilities would remain, and a new multiagency/private sector visitor center would be built along the I-84 corridor outside the Monument. The agencies would actively promote public education about the Monument at this new visitor center, possibly alleviating some visitor pressure on the Monument itself. This alternative would result in a negligible effect on administrative facilities in the Monument.

Realty actions would continue to be processed on demand, as at present. There would be no effects on valid existing rights such as the existing emergency airstrips and county road rights-of-way. Retaining the existing utility corridors would accommodate existing utilities and encourage the placement of future utilities within them. Granting utility rights-of-way where in conformance with constraints would accommodate the demand for such services along the US 93 corridor. Considering the acquisition of private lands in the Monument would improve the ability of private property owners to dispose of their property with appropriate compensation and would reduce the number of inholdings. For Monument lands outside WSAs, considering and granting rights-of-way case by case would accommodate the limited demand on public lands while allowing for reasonable access and services on private lands. This alternative would result in negligible effects on realty.

Proclamation 7373 closed Monument lands to new mineral material leases. The ITD holds several old rights-of-way for material sources along US 93. The agencies would work with ITD on the relinquishment of those rights-of-way. The agencies would continue to use existing mineral sources for maintaining Monument roads as necessary. Maintaining fewer miles of high-standard roads might decrease the use of mineral materials. This alternative would result in long-term minor beneficial effects on mineral materials. Because there would be more high-standard, maintained miles of road in the Monument in this alternative, the use of more mineral materials would be necessary, and new cinder pits might be required to meet that need. The Monument contains a high volume of cinder material; therefore, this alternative would result in negligible impacts on mineral materials. If higher quality gravel was needed for Monument road maintenance, it would have to be obtained from a source outside the Monument.

Cumulative Impacts

The cumulative effects from Alternative D on administrative facilities, realty, and minerals would be similar to those described for Alternative A, with administrative facility impacts occurring both inside and outside the Monument. Overall, the actions that would affect these other land uses, plus the actions of Alternative D, would result in cumulative long-term negligible impacts on administrative facilities, realty, and minerals.

Conclusion

Because of its emphasis on off-site interpretation and visitor services, Alternative D would result in negligible effects on administrative facilities, realty, and minerals in the Monument.

SPECIAL DESIGNATION AREAS (Wilderness, Wilderness Study Areas, Research Natural Area/Areas of Critical Environmental Concern)

METHODOLOGY AND ASSUMPTIONS

The characteristics of each area that qualified it to receive a special designation and the purpose of the designation were examined. The locations of areas with special designations were compared to the locations of proposed actions, when possible. The potential impacts of each alternative on the areas were

then evaluated, including pertinent issues identified during the scoping process. Predictions about short- and long-term impacts were based on past studies of land use and visitor impacts on the regional ecosystem, including some studies at the Monument. The predicted intensity of impacts was assessed according to the following criteria:

Negligible: A change to the characteristics of the area that supported its designation could occur, but the change would be so small that it would not be of any measurable or perceptible consequence.

Minor: Changes to the characteristics of the area that supported its designation would occur, but they would be small and, if measurable, would be very localized.

Moderate: Changes to the characteristics of the area that supported its designation would occur. The changes would be measurable but would remain localized.

Major: Changes to the characteristics of the area that supported its designation would occur. The changes would be perceptible, measurable, and widespread.

The area of analysis for cumulative impacts was defined as the specially designated area and all surrounding lands affecting the special designation, including those beyond the Monument boundary.

IMPACTS FROM ALTERNATIVE A

Analysis

Special designation areas are affected primarily by the continuation of current management actions related to off-highway vehicle use, road system maintenance, and livestock use. These primarily affect portions of WSAs that are near roads and, in some cases, where they are allotted for livestock use. The wilderness area and the RNAs are isolated from most roads.

Off-highway vehicles, by design, have greater capability than standard highway vehicles to leave existing routes and create new routes. Unauthorized vehicle use could lead to the creation of new travel routes in WSAs emanating from existing routes or ways. Vehicle use of both authorized and unauthorized ways could spread invasive weeds from infested areas into currently uninfested areas, altering natural conditions if not controlled. The direct effect of illegal vehicle use on natural conditions would be local, with the intensity and duration varying depending on the frequency of use. In general, the level of illegal off-road use would be higher near existing roads. Depending on the site, these impacts would vary from negligible to moderate and from short term to long term, but they could potentially be widespread in the vicinity of roads.

Road system maintenance influences the amount and type of access to a given area. Road use generally increases as road standards improve and decreases if road standards degrade. The level of use and any associated effects decrease with distance from roads. Road standards, use levels, and effects on WSAs in this alternative would remain the same. Existing recreational use in of the WSA would remain low and would not require substantial management restrictions that would limit opportunities for unconfined primitive recreation. Dust plumes from vehicles traveling on roads through Little Park and the northern end of Laidlaw Park and the sight and sounds of truck traffic on US 93 would continue to be noticeable from many locations in the wilderness area. The amount of traffic through Little Park and Laidlaw Park would remain light, resulting in short-term negligible effects on opportunities for solitude.

Livestock use affects wilderness characteristics in WSAs by altering natural animal and plant communities. These characteristics also are affected by the continued maintenance of livestock developments (such as fences and watering sites) and motor vehicle routes to manage livestock and related developments. Natural animal populations and distribution are altered when livestock compete with native wildlife for forage and when predator control activities are undertaken to protect livestock. The effects vary, since livestock do not use the WSA lands uniformly. Livestock use is authorized only on the WSA lands administered by BLM (15 percent of the total

WSA acreage). Even within that 15 percent, the use of the lands by livestock is not uniform.

Vegetative cover in sheep bed grounds can be substantially altered by repeated annual use, and many areas near the edge of the lava field are grazed only lightly, if at all. Therefore, the adverse effects would range from negligible to moderate, depending on location. Most effects would be short-term, but potential changes to sagebrush steppe plant and animal communities through the spread of exotic annual grasses could be long-term and difficult to reverse. The presence of temporary roads and livestock developments would not disqualify the area from potential legislative designation as wilderness.

Cumulative Impacts

Changes in the county or state road standards in or adjacent to the Monument could influence the use patterns, increasing or decreasing use, depending on the location and nature of each change. Improvements to the Arco-Minidoka Road would be likely to increase the use of Great Rift WSA portions just west of the road. Population growth in Blaine County would includes growth in the area in and around the city of Carey. This could result in increased use of the Raven's Eye WSA just east of Carey. The impact of illegal off-road vehicle use emanating from state, county, and private roads inside and outside of the Monument would be similar to the effects resulting from the management of NPS and BLM roads within the Monument boundaries. In general, the level of illegal off-road use would be higher near access roads. These adverse impacts would vary from negligible to moderate and from short term to long term, depending on the site, but they could be widespread near roads.

Existing or future development of communication towers could affect the views of natural conditions and the perceptions of solitude within the wilderness area by adding constructed structures to the skyline. Outdoor lights on these and other structures would alter natural night sky conditions. The effects of such developments on opportunities for solitude and natural conditions in the wilderness area could be negligible to minor, but their duration could be long term over large areas.

The effects of the actions outside the Monument described above would be adverse. These impacts, in conjunction with the impacts from the actions of Alternative A, would result in cumulative long-term negligible to moderate adverse impacts on Special Designation Areas, primarily WSAs.

Conclusion

The effects on the characteristics and purposes of special designation areas from Alternative A would be primarily negligible to minor and short term, but the effect of livestock use on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and the vegetative structure would be altered for long periods of time (5+ years). Road system management and limited regulation of off-highway vehicle use could cause negligible to moderate adverse indirect effects through the spread of invasive weeds and the creation of unauthorized routes.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to its natural or cultural integrity or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the resources or values of the Monument's special designation areas would not be impaired.

IMPACTS FROM ALTERNATIVE B

Analysis

Improvements to the road system through Paddelford Flat, Little Park, Laidlaw Park, and the Kings Bowl area could result in more use and a higher level of indirect effects on WSA lands than would occur in Alternative A. Since the specific road segments that would be improved are not identified at the current level of planning, detailed effects cannot be described accurately; however, the impacts probably would vary from negligible to moderate and from short term to long term, depending on the site, but they could be widespread in the vicinity of roads.

Livestock use would affect the wilderness characteristics of WSAs, as described for Alternative A. However, Alternative B would have more acreage in the Passage Zone, and there would be more opportunities to develop livestock facilities. This could result in beneficial effects on special designation areas because grazing might be concentrated in a

limited area outside of WSAs. However, there might be more adverse impacts on WSA areas bordering Passage Zone areas with new livestock developments, leading to minor adverse long-term impacts.

Cumulative Impacts

The cumulative impacts on special designation areas from Alternative B would be similar to those described for Alternative A relating to changes in the county or state road standards undertaken in or adjacent to the Monument, including improvements to the Arco-Minidoka Road. The effects from population growth in Blaine County and the effect of illegal off-road vehicle use from the management of state, county, and private roads inside and outside of the Monument would be similar to those described for Alternative A. In general, the level of illegal off-road use would be higher near access roads. These effects would vary from negligible to moderate and from short term to long term, depending on the site, but they could be widespread near roads.

As in Alternative A, existing or future development of communication towers would affect views of natural conditions and perceptions of solitude from within the wilderness area. This could result in effects of negligible to minor intensity, but with long-term duration and affecting large areas.

The effects of the actions outside the Monument described above would be adverse. Current and future outside actions, in conjunction with the actions of Alternative B, would result in cumulative long-term minor to moderate adverse impacts on Special Designation Areas, primarily WSAs.

Conclusion

The effects on the characteristics and purposes of special designation areas from Alternative B would be primarily negligible to minor and short term, but the effects from livestock use on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods of time (5+ years). The improvements to the road system could cause higher levels of adverse indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to its natural or cultural integrity or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the resources or values of the Monument's special designation areas would not be impaired.

IMPACTS FROM ALTERNATIVE C

Analysis

In the Primitive and Pristine Zones, some spur roads adjacent to or inside WSAs could be closed to motorized vehicles under Alternative C. This could decrease the incidence of unauthorized OHV routes and the spread of invasive weeds in those specific areas. Because the specific road segments that might be closed under this alternative have not been identified at the current level of planning, detailed effects cannot be described, but the effects probably would vary from negligible to moderate and from short term to long term, depending on the site. They could potentially be widespread near roads. The effects of livestock use would be similar to those described for Alternative A, but in Alternative C the Passage Zone would be smaller and the Pristine Zone would be larger, and there would be fewer opportunities for adding livestock developments in the vicinity of the WSAs.

As part of this management plan, the potential for an ACEC designation in Laidlaw Park was investigated. The purpose of an ACEC designation would be to focus management attention on special resources in the area. The BLM used a screening process - the ACEC Criteria Review Checklist (see Appendix G) - as an initial evaluation to determine if the nominated area met the basic relevance and importance criteria for designation. The BLM considered the appropriate amount of land needed to protect the resource values reflected in the nomination. The ACEC evaluation was based on guidance provided by 43 CFR 1610.7-2 and BLM Manual Section 1613, which state that potential ACECs must meet specified criteria for relevance and importance. Relevance is based on the presence of a significant

- Historic, cultural, or scenic value;
- Fish or wildlife resource or other natural system or process; or
- Natural hazard.

Upon meeting the relevance criteria, a nominated site must then have substantial significance and values that meet one or more of the following "importance" criteria:

- Has more than locally significant qualities that give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of FLPMA.
- Has qualities that warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- Poses a significant threat to human life and safety or to property.

North Laidlaw Park met the relevance criteria for scenic values, wildlife resources, and natural process or system and importance criteria for scenic values and wildlife resources. In Alternative C, 11,034 acres encompassing North Laidlaw Park, north of the Turnbull Fence, would be designated as an ACEC. The following actions would be implemented to protect the high quality native vegetation, wildlife habitat, and scenic values of the area:

a) Develop standards and indicators for vegetation health that would allow for natural disturbance and processes while ensuring that degradation due to invasion of invasive or noxious weeds would not occur.

b) Develop a low-use transportation network with no new routes, trails, or signs.

c) Limit new development of livestock watering facilities to ensure that the existing light use of the area would continue.

d) Use off-site interpretive resources such as brochures and displays in the Visitor Center to highlight the grazing management, native vegetation, and scenic qualities of the area.

The ACEC designation under Alternative C would constitute a long-term minor beneficial effect. It is uncertain that ACEC designation would be necessary to provide special management for the identified resources or values because current management, regulation, and law provide sufficient protection for the values identified. Therefore, ACEC designation may not be necessary. In any case, other actions under Alternative C, including grazing and road use/access, would result in minor adverse impacts on the ACEC, similar to effects noted for other special designated areas.

Cumulative Impacts

The cumulative effects on special designation areas from Alternative C would be similar to those described for Alternative A relating to changes in the county or state road standards undertaken in or adjacent to the Monument, including improvements to the Arco-Minidoka Road. The effects from population growth in Blaine County and the effect of illegal off-road vehicle use from the management of state, county, and private roads inside and outside of the Monument would be similar to those described for Alternative A. In general, the level of illegal off-road use would be higher near access roads. These effects would vary from negligible to moderate and from short term to long term, depending on the site, but they could be widespread near roads.

As in Alternative A, existing or future development of communication towers would affect views of natural conditions and perceptions of solitude from within the wilderness area. This could result in effects of negligible to minor intensity, but with long-term duration and affecting large areas.

The effects of the actions outside the Monument described above would be adverse. Current and future outside actions, in conjunction with the actions of Alternative C, would result in cumulative long-term minor adverse impacts on Special Designation Areas, primarily WSAs.

Conclusion

The adverse effects on the characteristics and purposes of special designation areas from most actions

under Alternative C would be primarily negligible to minor and short term. The effect of livestock on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods of time (5+ years). The lack of access and limited Passage Zone acreage could cause indirect adverse effects if grazing was expanded to certain areas, with potential indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes. Designating a new ACEC in North Laidlaw Park would lead to minor beneficial effects on the adjacent Craters of the Moon Wilderness and Great Rift WSA.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to its natural or cultural integrity or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the resources or values of the Monument's special designation areas would not be impaired.

IMPACTS FROM ALTERNATIVE D

Analysis

In alternative D, Some roads in the Passage Zone might be improved to speed up the response time for wildland fire suppression. Such road improvements might lead to more recreational use and indirectly to more use of adjacent WSAs. Because the specific road segments that would be improved would not be identified at the current stage of planning, the effects cannot be described in more detail. Vegetative restoration projects could improve the natural conditions in the WSA, but it is not indicated where the projects would occur in this alternative, so the exact impacts that would result are not known. Aggressive noxious weed control could prevent the spread of weeds into the WSA, thereby preserving natural conditions. The effects on special designation areas from Alternative D would be the same as those described for Alternative A.

Cumulative Impacts

The cumulative effects on special designation areas from Alternative D would be similar to those described for Alternative A relating to changes in the county or state road standards undertaken in or adjacent to the Monument, including improvements to the Arco-Minidoka Road. The effects from population growth in Blaine County and the effect of illegal off-road vehicle use from the management of state, county, and private roads inside and outside of the Monument also would be similar to those described for Alternative A. In general, the level of illegal off-road use would be higher near access roads. These effects would vary from negligible to moderate and from short term to long term, depending on the site, but they could be widespread near roads.

As in Alternative A, existing or future development of communication towers would affect views of natural conditions and perceptions of solitude from within the wilderness area. This could result in effects of negligible to minor intensity, but with long-term duration and affecting large areas.

The effects of the actions outside the Monument described above would be adverse. Current and future outside actions, in conjunction with the actions of Alternative D, would result in cumulative long-term minor to moderate adverse impacts on Special Designation Areas, primarily WSAs.

Conclusion

The effects on the characteristics and purposes of special designation areas from Alternative D would be mostly negligible to minor and short-term, with potential for more intense effects if restoration activities took place in or near any of the areas. The effect of livestock on natural conditions in WSAs could be moderate in some local areas where livestock concentrate, and vegetative structure would be altered for long periods (5+ years). Road system management and limited regulation of off-highway vehicle use could cause indirect adverse effects through the spread of invasive weeds and the creation of unauthorized routes.

Because there would be no major adverse impacts on a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Craters of the Moon National Monument; (2) key to its natural or cultural integrity or to opportunities for its enjoyment; or (3) identified as a goal in its management plan or other relevant NPS planning documents, the resources or values of the Monument's special designation areas would not be impaired.

VISITOR EXPERIENCE

The following discussions of effects on the visitor experience cover the effects on visitor understanding of the Monument's resources (interpretation), recreation, visual resources, and soundscape.

METHODOLOGY AND ASSUMPTIONS

To evaluate the potential impacts on the visitor experience from each alternative, information gathered from the Visitor Services Project Report (Craters of the Moon, NPS 1989) was used, along with public input during the planning process. For analysis purposes, impact intensities for all visitor experience topics were defined as follows:

Negligible:	The impact would be barely detectable, affecting the experience of few visitors in the applicable setting.
Minor:	The impact would be detectable, affecting the experience of many visitors in the applicable setting.
Moderate:	The impact would be readily apparent, affecting the experience of the majority of visitors in the applicable setting.
Major:	The impact would be severely adverse or exceptionally beneficial, affecting the experience of nearly all visitors in the applicable setting.

The area of analysis for cumulative impacts was defined as the Monument and approximately 50 miles beyond the Monument boundary, considering other nearby areas that could affect or contribute to visitor experience within the Monument.

INTERPRETATION AND VISITOR UNDERSTANDING

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, posting information and orientation materials at all primary backcountry access points and at proposed fire stations in Carey and Kimama would mean that visitors would be exposed to this interpretive information before entering the Monument and when leaving; this would result in a long-term minor beneficial effect.

Continuing to focus educational programs for schools and other groups on site at the original NPS Monument would result in continued long-term minor beneficial effects.

In addition, in Alternative A, a variety of interpretive media would continue to be developed for on- and off-site use, interpretive programs still would be offered, and exhibits and waysides would be available. Visitor safety and resource protection still would be emphasized, and some interpretation of archaeological and historic sites would continue. All these actions would result in long-term minor beneficial effects.

Modest development of the Kings Bowl area, with the installation of previously approved signs and wayside exhibits, would emphasize safety and resource protection. This would result in long-term minor beneficial effects.

The existing visitor center and administrative building would be enlarged and undergo reconstruction, as previously approved. This would enable Monument visitors to benefit from a greater variety of interpretive materials and programs, a long-term major beneficial effect on visitors' understanding of the Monument.

When practicable, NPS and BLM facilities and staff would help qualified researchers and educational institutions to conduct authorized studies or field classes. Both agencies would facilitate the transfer of research information to the public. These actions would result in long-term minor beneficial effects.

Cumulative Impacts

The five Cooperative Weed Management Areas that include lands in the Monument facilitate weed management activities cooperatively among counties, private landowners, and government agencies, including the BLM and NPS. An important component of those activities is educating the public about the threats posed by invasive weeds. Typically, the Cooperative Weed Management Areas use a variety of print and other media to disseminate information about identifying and controlling the spread of

weeds. These educational materials and programs, combined with the interpretive media, programs, exhibits, and waysides in Alternative A that would emphasize resource protection, would result in cumulative long-term minor beneficial effects on interpretation.

Conclusion

Posting information at backcountry access points and fire stations, offering school programs at the original NPS Monument, interpreting cultural resources, adding interpretive media, programs, exhibits, and waysides, and modest development in the Kings Bowl area would cause long-term minor beneficial effects on interpretation and visitor understanding, as would agency assistance to research and educational institutions. In addition, long-term major benefits would result from expanding the existing Monument Visitor Center.

IMPACTS FROM ALTERNATIVE B

Analysis

Adding interpretive facilities along the corridor of US 20/26/93 and at sites in the Passage Zone and upgrading interpretive kiosks, wayside exhibits, and the associated trail system and day-use area at Kings Bowl under Alternative B would result in long-term moderate beneficial effects on interpretation and visitor understanding.

Designating the Carey-Kimama and Arco-Minidoka roads as "Backcountry By-Ways" under Alternative B would upgrade the maintenance of these roadways. Designating single-use and multi-use trails and improving the trail system at Kings Bowl also would constitute transportation system upgrades. Increased visitation resulting from these improvements would enlarge the target audience for gateway and on-site interpretive materials, resulting in long-term minor beneficial effects. More visitation could cause proportional increases in vandalism of interpretive resources, resulting in short-term negligible adverse impacts.

Continuing to focus educational programs for schools and other groups on site at the original NPS Monument and expanding these programs under Alternative B would help to increase public education. Greater public understanding of cultural resources would result from offering interpretation of such resources at various dispersed recreation sites. These actions would result in continued long-term minor beneficial effects.

As in Alternative A, continuing to develop a variety of interpretive media for on- and off-site use and continuing to offer interpretive programs and to display exhibits and waysides emphasizing visitor safety and resource protection would result in long-term minor beneficial effects. Developing a variety of portable media to interpret the expanded portion of the Monument (such as maps, tapes, and guidebooks) also would result in long-term minor beneficial effects.

Expanding the NPS Headquarters Visitor Center under Alternative B or developing new facilities beyond the previously approved plan (to accommodate more visitation) would give Monument visitors access to an even greater variety of interpretive materials and programs, resulting in long-term major beneficial effects.

Help offered by NPS and BLM staff to qualified researchers and educational institutions (when practicable) in conducting authorized studies or field classes would result in long-term minor beneficial effects, as would facilitating the transfer of research information to the public by both agencies.

Initiating a restoration program to remove cave graffiti and foster public understanding of the need to protect these resources under Alternative B would result in long-term minor beneficial effects.

Restoration projects would give staffs the opportunity to interpret the decline of sagebrush steppe and the efforts to restore this dwindling resource. In addition, integrated weed management would include an education and interpretation component to increase visitor understanding of the treatment, containment, and prevention of weed infestations in the Monument. These efforts would result in long-term minor beneficial effects.

Cumulative Impacts

The cumulative effects on interpretation and visitor understanding from Alternative B would be similar to those described for Alternative A. The five Cooperative Weed Management Areas that include lands in the Monument would disseminate educational materials to the public. These educational materials and programs, combined with additional

interpretive media, programs, exhibits, and waysides in Alternative B, would result in cumulative long-term minor beneficial effects on interpretation.

Conclusion

Upgrading the Carey-Kimama and Arco-Minidoka Roads, offering school programs at the original NPS Monument, interpreting cultural resources, adding interpretive media, programs, exhibits, and waysides, and developing portable interpretive media would result in long-term minor beneficial effects on interpretation, as would agencies assisting research and educational institutions, developing a cave restoration program, and interpreting sagebrush steppe restoration and integrated weed management. Short-term negligible adverse impacts would result from upgrading the Carey-Kimama and Arco-Minidoka Roads. Long-term minor beneficial effects on interpretation would result from adding interpretive facilities along US 20/26/93, at significant sites within the Passage Zone, and at Kings Bowl. Long-term major beneficial effects would come from expanding and developing new facilities at the existing Visitor Center.

IMPACTS FROM ALTERNATIVE C

Analysis

Posting information and orientation materials at all primary backcountry access points and at proposed fire stations in Carey and Kimama would mean that visitors would be exposed to this interpretive information before entering the Monument and when leaving. This would result in long-term minor beneficial effects on interpretation and visitor understanding.

Continuing to focus educational programs for schools and other groups on site at the original NPS Monument would result in continued long-term minor beneficial effects.

Developing a variety of portable media such as maps, tapes, and guidebooks to interpret the expanded part of the Monument would result in long-term minor beneficial effects.

As in Alternative A, the existing visitor center and administrative building would be enlarged and undergo reconstruction, as previously approved. This would enable Monument visitors to benefit from a greater variety of interpretive materials and programs, a long-term major beneficial effect on visitors' understanding of the Monument.

Help offered by NPS and BLM staff to qualified researchers and educational institutions (when practicable) in conducting authorized studies or field classes would result in long-term minor beneficial effects, as would facilitating the transfer of research information to the public by both agencies.

Initiating a restoration program to remove cave graffiti and foster public understanding of the need to protect these resources under Alternative C would result in long-term minor beneficial effects.

Cumulative Impacts

The cumulative effects on interpretation and visitor understanding from Alternative C would be similar to those described for Alternative A. The five Cooperative Weed Management Areas that include lands in the Monument would disseminate educational materials to the public. These educational materials and programs, combined with additional interpretive media, programs, exhibits, and waysides in Alternative C, would result in cumulative long-term minor beneficial effects on interpretation.

Conclusion

Posting information posted at backcountry access points and fire stations, offering school programs at the original NPS Monument, developing portable interpretive media, and establishing a limited cave restoration program under Alternative C would result in long-term minor beneficial effects on interpretation. There would be cumulative effects from Cooperative Weed Management Area programs. Long-term, major, benefits would result from expanding the existing Visitor Center.

IMPACTS FROM ALTERNATIVE D

Analysis

Adding interpretive signs along the corridor of US 20/26/93 and placing safety and resource protection information at Monument access points under Alternative D would result in long-term minor beneficial effects on interpretation and visitor understanding.

To facilitate dispersing information and orientation materials about recreation, safety, and resource concerns in gateway communities around the

Monument, one or more proposed visitor centers would be operated in cooperation with local partners within the I-84 corridor. Forming partnerships with communities and organizations to develop new interpretive and educational materials and programs, along with the materials and programs mentioned above, would give many more people interpretive information about the Monument, resulting in long-term moderate beneficial effects.

In addition to the programs provided at the original NPS Monument, educational programs for schools and other groups would be expanded to include off-site locations, and public education and understanding of cultural resources would be increased through various interpretation methods at several sites. These actions would result in long-term minor beneficial effects.

As in Alternative A, a variety of interpretive media would be developed for on- and off-site use, interpretive programs would be offered, and exhibits and waysides would be available. Visitor safety and resource protection would be emphasized, and a variety of portable media (such as maps, tapes, and guidebooks.) would be developed to interpret the expanded part of the Monument. Interpretive publications, web sites, and other off-site media also would be used. All these actions would result in long-term minor beneficial effects.

As in Alternative A, modest development of the Kings Bowl area, with the installation of previously approved signs and wayside exhibits, would emphasize safety and resource protection. This would result in long-term minor beneficial effects. The existing visitor center and administrative building would be enlarged and undergo reconstruction, as previously approved. As in Alternative A, this would enable Monument visitors to benefit from a greater variety of interpretive materials and programs, a long-term major beneficial effect on visitors' understanding of the Monument.

When practicable, NPS and BLM facilities and staff would help qualified researchers and educational institutions to conduct authorized studies or field classes. Both agencies would facilitate the transfer of research information to the public. These actions would result in long-term minor beneficial effects.

Initiating an intensive restoration program to remove cave graffiti and foster public understanding of the need to protect these resources under Alternative D would result in long-term minor beneficial effects.

Encouraging commercial outfitters and guides to offer a range of guided experiences would enable visitors who otherwise might not have appropriate knowledge, vehicles, or preparation to experience the interior of the Monument, gaining first-hand knowledge of its resources. Such activities would be readily apparent, affecting not only the experience of the people engaged in the guided services, but also the experience of those visiting the interior of the Monument without a guide. The resulting effects would be minor and either beneficial or adverse, depending on the expectations of the visitor.

Cumulative Impacts

The cumulative effects on interpretation and visitor understanding from Alternative D would be similar to those described for Alternative A. The five Cooperative Weed Management Areas that include lands in the Monument would disseminate educational materials to the public. These educational materials and programs, combined with additional interpretive media, programs, exhibits, and waysides in Alternative C, would result in cumulative long-term minor beneficial effects on interpretation. Proposals for two multiagency visitor centers in south central Idaho, one near Twin Falls and another near the junction of I-84 and I-86, would enable chambers of commerce, tourism development organizations, and other government agencies to contact and provide information to area visitors. The multiagency visitor centers would reach a broad audience of potential Monument visitors. The effect of information made available outside of the Monument, combined with the interpretive media and programs of Alternative D, would result in cumulative long-term moderate beneficial effects on interpretation.

Conclusion

Long-term minor beneficial effects on interpretation under Alternative D would result from placing interpretive signs and information along the US 20/26/93 corridor and at access points, offering school programs (including off-site efforts) and off-site interpretation of cultural resources, from posting interpretive media, programs, exhibits and way-

sides, from developing portable off-site interpretive media, and from modest development in the Kings Bowl area. Agency assistance to research and educational institutions and an intensive cave restoration program also would cause long-term minor beneficial effects.

Long-term moderate beneficial effects would come from placing interpretive materials, facilities, and programs outside the Monument, in gateway communities, and at a visitor center along the I-84 corridor, as well as from offering commercially guided services in the Monument. Long-term major benefits would accrue from expanding the existing Visitor Center.

Commercial guide services could cause long-term minor adverse impacts on people visiting the interior of the Monument without a guide.

RECREATION AND PUBLIC SAFETY

IMPACTS FROM ALTERNATIVE A

Analysis

Under Alternative A, efforts to protect geologic features would increase, in part, through interpretation efforts. Curbing vandalism and other forms of resource damage would improve recreational experiences associated with geologic formations such as viewing, nature study, hiking, and photography. This would result in long-term moderate beneficial effects in the original NPS Monument and long-term minor beneficial effects in the expanded part of the Monument. Interpretation efforts would also emphasize safety, resulting in improvements in safety, a long-term minor beneficial effect on recreational visitors.

Rehabilitating or restoring 40,000 acres of sagebrush steppe communities and controlling weed infestations would return vegetated areas to a more natural, healthy state, contributing to improved photography, nature study and other experiences. The restoration activities also would contribute to better opportunities for primitive and unconfined experiences free of human influence. This would result in long-term minor beneficial effects, but initial restoration treatment might cause short-term major adverse impacts on recreational users if certain areas were closed or restricted. These restoration efforts would improve habitat for game species, resulting in indirect long-term moderate beneficial effects on hunting experiences.

The suppression of wildland fire would continue in almost all areas under Alternative A. This would result in short-term minor beneficial effects. Fast and effective response to wildland fire would cause less fire-related interference with recreation opportunities. Reduced smoke and fewer area closures (which can interfere with recreational users' experiences) would result in short-term minor beneficial effects in or near burned areas.

Nearly all roads would remain open to motorized use under Alternative A, but some roads could be closed individually to protect resources. This continued level of access to Monument features and destinations would lead to long-term minor beneficial effects. However, this level of access, and its associated use, would result in long-term minor adverse effects on visitors seeking solitude. A few new Class I and Class II trails might be developed in certain areas, and trails in the Kings Bowl area would be rehabilitated or maintained; these actions would result in long-term minor beneficial effects.

Continuing livestock operations in the BLM part of the Monument would result in the presence of cattle and sheep and the attendant facilities and equipment. This could interfere with many types of recreational experiences such as driving (cars and OHVs) for pleasure, hunting, solitude, or sightseeing. Ongoing livestock operations would cause long-term minor to moderate adverse impacts on these experiences, particularly in locations where livestock operations and recreation activities occur in the same area at the same time.

Livestock operations and the concept of "open range" appeal to some Monument visitors. Given the long cultural history of livestock operations on public lands, some opportunities for recreational experiences related to seeing and appreciating sheepherding, cattle driving, and other activities would be possible, creating long-term negligible to minor beneficial effects.

Facility developments and improvements related to recreation in Alternative A would include enlarging and improving the Visitor Center at the original NPS Monument. Fire stations at Carey and Kimama would offer visitor information. Portal kiosks would be established at key access points to the Monument, and signs and wayside exhibits would be installed at Kings Bowl. These facility improvements would

offer recreational users maps, information, and some direction/safety messages for people who value such materials as part of a high-quality experience. These improvements would lead to long-term minor beneficial effects for many recreational users.

The agencies would pursue the purchase or exchange of private inholdings in the Monument on the basis of initiation by a willing seller. Such acquisitions would result in long-term negligible to minor beneficial effects by increasing the amount of land available for recreation.

No additional water developments or other habitat manipulations would be allowed in Wilderness areas or Wilderness Study Areas, and ways in WSAs not identified during the wilderness inventory would be closed and rehabilitated. These actions would improve primitive and unconfined experiences and opportunities for solitude, a long-term minor beneficial effect.

Continuing to authorize commercial outfitters and guides would add to the overall range of opportunities by offering a variety of backcountry and other remote experiences for recreational users who otherwise might not be able to enter the area. It also would improve monitoring at sensitive locations in the Monument. These authorizations would result in continuing long-term minor beneficial effects.

Programs such as Leave No Trace and Tread Lightly! emphasize responsible conservation-oriented recreation experiences. These programs would be promoted to encourage visitors to use the resources in a more responsible and sustainable way, resulting in long-term minor beneficial effects.

Opportunities for camping in the expanded part of the Monument would remain undeveloped and dispersed, with no designated sites. This would result in long-term minor beneficial effects on visitors who prefer this type of experience and long-term minor adverse impacts on people who prefer more developed, dispersed camping experiences.

Cumulative Impacts

Poor air quality caused by activities originating outside of the Monument could hinder recreational experiences. Under Alternative A, the agencies would work proactively with the Idaho Department of Environmental Quality (IDEQ), businesses, and other relevant organizations to protect and preserve the excellent air quality in the Monument, resulting in long-term moderate beneficial effects.

Other local, state, and federal agencies and private organizations have developed promotional materials that include information about the Monument. The agencies would continue consultation with outside public and private organizations to coordinate these programs with recreational needs. This would result in long-term minor beneficial effects.

According to the State Comprehensive Outdoor Recreation and Tourism Plan (2003), statewide and regional visitation is expected to increase at a slow pace over the life of the plan due to general demographic trends. When combined with expected visitation increases for the Monument, these regional increases would result in long-term minor beneficial effects on recreation but also result in long-term minor adverse impacts on people seeking solitude.

Overall, the cumulative effects on recreational users from the actions of Alternative A, combined with the expected (primarily beneficial) effects from other activities and plans, would result in cumulative long-term minor to moderate beneficial effects on recreation.

Conclusion

Alternative A would result in a wide range of negligible to moderate adverse and beneficial effects on recreation and public safety, depending on the recreational experience desired.

Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument; safety emphasis through interpretation; restoring sagebrush steppe communities, trail development and rehabilitation in the Kings Bowl area, developing or improving facilities, closing certain ways in Wilderness areas and WSAs, and authorizing commercial outfitters and guides. Short-term minor beneficial effects would result from wildland fire suppression.

Long-term moderate beneficial effects would result from greater protection of geological features in the original NPS Monument and indirectly from restoring of sagebrush steppe communities. Keeping almost all existing roads open to motorized travel would result in long-term minor beneficial effects on certain recreational experiences, but such access also

could affect other recreational experiences, resulting in long-term minor adverse impacts.

Long-term minor beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could affect people who prefer more developed, dispersed camping, resulting in long-term minor adverse impacts.

Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.

IMPACTS FROM ALTERNATIVE B

Analysis

In Alternative B, the effects on recreation from increased efforts to protect geologic features would be the same as those described for Alternative A, resulting in long-term moderate beneficial effects in the original NPS Monument and long-term minor beneficial effects in the expanded part of the Monument. Interpretation efforts would also emphasize safety, resulting in safety improvements that would cause long-term minor beneficial effects on recreational visitors.

Rehabilitating or restoring 45,000 acres of sagebrush steppe communities in the expanded part of the Monument, 5,000 acres more than in Alternative A, would cause about the same effects as the No Action Alternative - long-term minor beneficial effects, as well as indirect long-term moderate beneficial effects on hunting experiences.

Reduced smoke and fewer area closures (which can interfere with recreational users' experiences) would result in short-term minor beneficial effects in or near burned areas.

Nearly all roads would remain open to motorized use under Alternative A, but some roads could be closed individually to protect resources. This continued level of access to Monument features and destinations would lead to long-term minor beneficial effects. However, this level of access, and its associated use, would result in long-term minor adverse effects on visitors seeking solitude. A few new Class I and Class II trails might be developed in certain areas, and trails in the Kings Bowl area would be rehabilitated or maintained; these actions would result in long-term minor beneficial effects.

As in Alternative A, continuing to suppress wildland fire in almost areas in Alternative B would result in short-term minor beneficial effects. Fast and effective response to wildland fire would cause less fire-related interference with recreation opportunities, resulting in short-term minor beneficial effects in or near burned areas. Some wildland fire use would be allowed in the Wilderness and Preserve in Alternative B, resulting in short-term negligible adverse impacts.

Because the Passage Zone would be large in Alternative B, this alternative would offer the greatest opportunity of all the alternatives for motorized and mechanized recreational experiences. The entire length of both the Carey-Kimama and Arco-Minidoka roads would be designated Backcountry By-Ways, including an upgrade to Class B standards. This would be likely to increase visitation to the Monument, causing long-term moderate adverse impacts on visitors seeking solitude, but it would result in long-term moderate beneficial effects on people who prefer improved access for experiences like hunting, driving for pleasure, sightseeing, and going to points of interest along those routes.

Multiuse and single-use trails would be designated under Alternative B, including both Class I and Class II designations. This would increase the opportunities for hiking, mountain biking, off-highway motorcycle riding,. horseback riding, and OHV use, resulting in long-term moderate beneficial effects on visitors wanting experiences in those activities.

Continuing livestock operations in the BLM part of the Monument would result in the presence of cattle and sheep and the attendant facilities and equipment. This could interfere with many types of recreational experiences, causing long-term minor to moderate adverse impacts on these experiences, particularly in locations where livestock operations and recreation activities occur in the same area at the same time. However, given the long cultural history of livestock operations on public lands, some opportunities for recreational experiences related to seeing and appreciating sheepherding, cattle driving, and other activities would be possible, creating long-term negligible to minor beneficial effects.

Alternative B would involve the highest level of facility development and improvements related to recreation, including additional enlargement and improvement of the visitor center at the original NPS

Monument. The fire stations at Carey and Kimama would offer agency staff assistance and visitor information. Portal kiosks would be established at key access points to the Monument, and more facilities, signs, and wayside exhibits would be installed at Kings Bowl. These facility improvements would offer recreational users maps, information, and some direction/safety messages for people who value such materials as part of a high-quality experience. These improvements would lead to long-term moderate beneficial effects for many recreational users.

As in Alternative A, acquiring private inholdings would increase the amount of land available for recreation, resulting in long-term negligible to minor beneficial effects. Not allowing added water developments or other habitat manipulations in Wilderness areas or WSAs and closing and rehabilitating ways in WSAs that were not identified during the wilderness inventory would result in long-term minor beneficial effects by improving primitive and unconfined experiences and opportunities for solitude.

Continuing to authorize commercial outfitters and guides would add to the overall range of opportunities by offering a variety of backcountry and other remote experiences for recreational users who otherwise might not be able to enter the area. It also would improve monitoring at sensitive locations in the Monument. These authorizations would result in continuing long-term minor beneficial effects.

As in Alternative A, programs such as Leave No Trace and Tread Lightly! would be promoted to encourage visitors to use the resources in a more responsible and sustainable way, resulting in long-term minor beneficial effects.

Opportunities for camping in the expanded part of the Monument would increase in Alternative B's larger Passage Zone, but camping would remain generally undeveloped and dispersed, with the potential development of only 12 designated campsites. This would result in long-term minor beneficial effects on visitors who prefer this type of experience and long-term minor adverse impacts on people who prefer more developed, dispersed camping experiences.

Cumulative Impacts

The cumulative effects on recreational users under Alternative B would be similar to those described for Alternative A. There would be minor to moderate beneficial effects from cooperative efforts to limit air quality impacts and to supply promotional materials with information about the Monument. The agencies would continue to consult with outside public and private organizations to coordinate these programs with recreational needs. This would result in long-term minor beneficial effects.

According to the State Comprehensive Outdoor Recreation and Tourism Plan (2003), general demographic trends indicate that statewide and regional visitation will increase at a slow pace over the life of the plan. The expected slow growth, combined with expected visitation increases for the Monument, would result in long-term moderate beneficial effects on recreation but also would result in long-term moderate adverse impacts on people seeking solitude.

Overall, the cumulative effects on recreational users from the actions of Alternative B, combined with the expected (primarily beneficial) effects from other activities and plans, would result in cumulative long-term moderate beneficial effects on recreational activities.

Conclusion

The added access available in Alternative B would contribute both beneficial and adverse effects, depending on the type of recreation desired.

Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument, safety emphasis through interpretation, restoring sagebrush steppe communities, developing and rehabilitating trails in the Kings Bowl area, developing or improving facilities, closing certain ways in Wilderness areas and WSAs, and authorizing of commercial outfitters and guides. Short-term minor beneficial effects would result from wildland fire suppression, and short-term negligible adverse impacts would result from wildland fire use.

Long-term moderate beneficial effects would result from greater protection of geological features in the original NPS Monument, from designating multiuse and single-use trails, and from developing or improving facilities. There would be indirect long-term moderate benefits from restoring sagebrush steppe communities.

Improving motorized access would result in long-term moderate beneficial effects on certain recreational experiences, but it also could result in long-term moderate adverse impacts on other recreational experiences.

Long-term moderate beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could result in long-term minor adverse impacts on people who prefer more developed, dispersed camping.

Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.

IMPACTS FROM ALTERNATIVE C

Analysis

In Alternative C, the effects on recreation from increased efforts to protect geologic features would be the same as those described for Alternative A, resulting in long-term moderate beneficial effects in the original NPS Monument and long-term minor beneficial effects in the expanded part of the Monument. Interpretation efforts would also emphasize safety, resulting in safety improvements that would cause long-term minor beneficial effects on recreational visitors.

Rehabilitating or restoring 55,000 acres of sagebrush steppe communities and controlling weed infestations would result in slightly more effects, both beneficial and adverse, than in Alternative A, because the area would be 10,000 acres larger. The restoration would result in long-term minor beneficial effects, and these efforts also would improve the habitat for game species, resulting in indirect long-term moderate beneficial effects on hunting experiences.

As in Alternative A, continuing to suppress wildland fire in almost areas in Alternative C would result in short-term minor beneficial effects. Fast and effective response to wildland fire would cause less fire-related interference with recreation opportunities, resulting in short-term minor beneficial effects in or near burned areas. Some wildland fire use would be allowed in the Wilderness and Preserve in Alternative C, resulting in short-term negligible adverse impacts.

Alternative C would involve the least opportunity for motorized and mechanized travel. Many Class D roads in the Primitive Zone would be converted to non-motorized trails. This would result in long-term minor beneficial effects on experiences like hiking, mountain biking, and solitude and long-term minor adverse impacts on motorized experiences. The Pristine Zone would be larger in Alternative C than in the other alternatives, and all roads and ways in that zone would be closed to motorized and mechanized vehicle use. This would result in long-term minor adverse impacts on motorized and mechanized vehicle experiences, long-term moderate beneficial effects on visitors seeking a specifically non-motorized experience, solitude, and self discovery; and long-term moderate adverse impacts on people seeking access to certain destinations in the Primitive and Pristine Zones.

As in Alternative B, continuing livestock operations in the BLM part of the Monument would result in the presence of cattle and sheep and the attendant facilities and equipment. This could interfere with many types of recreational experiences, causing long-term minor to moderate adverse impacts on these experiences, particularly in locations where livestock operations and recreation activities occur in the same area at the same time. However, given the long cultural history of livestock operations on public lands, some opportunities for recreational experiences related to seeing and appreciating sheepherding, cattle driving, and other activities would be possible, creating long-term negligible to minor beneficial effects.

In Alternative C facility development and improvements related to recreation would be kept to a minimum, but the visitor center at the original NPS Monument would be enlarged and improved. The fire stations at Carey and Kimama would offer visitor information. Portal kiosks would be established at key access points to the Monument, and more facilities, signs, and wayside exhibits would be installed at Kings Bowl. These facility improvements would offer recreational users maps, information, and some direction/safety messages for people who value such materials as part of a high-quality experience. These improvements would lead to long-term minor beneficial effects

As in Alternatives A and B, acquiring private inholdings would result in long-term negligible to minor beneficial effects by increasing the amount of land available for recreation. Allowing no additional

water developments or other habitat manipulations in Wilderness areas or in WSAs, closing certain ways in Wilderness areas and WSAs, and authorizing commercial outfitters and guides would result in long-term minor beneficial effects by improving primitive and unconfined experiences and opportunities for solitude.

Continuing to authorize commercial outfitters and guides would add to the overall range of opportunities by offering a variety of backcountry and other remote experiences for recreational users who otherwise might not be able to enter the area. It also would improve monitoring at sensitive locations in the Monument. These authorizations would result in long-term minor beneficial effects.

As in Alternatives A and B, programs such as Leave No Trace and Tread Lightly! would be promoted to encourage visitors to use the resources in a more responsible and sustainable way, resulting in long-term minor beneficial effects.

Opportunities for camping in the expanded part of the Monument would increase in Alternative C, but camping would remain generally undeveloped and dispersed, with the potential development of only four designated campsites. This would result in long-term minor beneficial effects on visitors who prefer this type of experience and long-term minor adverse impacts on people who prefer more developed, dispersed camping experiences.

Cumulative Impacts

The cumulative effects on recreational users under Alternative C would be similar to those described for Alternatives A and B. There would be minor to moderate beneficial effects from cooperative efforts to limit air quality impacts and to supply promotional materials with information about the Monument. The agencies would continue to consult with outside public and private organizations to coordinate these programs with recreational needs. This would result in long-term minor beneficial effects.

The expected slow growth in regional visitation over the life of the plan, combined with expected visitation increases for the Monument, would result in long-term minor beneficial effects on recreation but also would result in long-term minor adverse impacts on people seeking solitude.

Overall, the cumulative effects on recreational users from the actions of Alternative C, combined with the expected (primarily beneficial) effects from other activities and plans, would result in cumulative long-term moderate beneficial effects on recreational activities.

Conclusion

The restricted access of Alternative C would contribute both beneficial and adverse effects, depending on the type of recreation desired.

Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument, safety emphasis through interpretation; restoring sagebrush steppe communities, limited facility developments and improvements; closing certain ways in Wilderness areas and WSAs; and authorizing commercial outfitters and guides. Short-term minor beneficial effects would result from wildland fire suppression, and short-term negligible adverse impacts would result from wildland fire use.

Long-term moderate beneficial effects would result from greater protection of geological features in the original NPS Monument, and there would be indirect long-term moderate benefits from restoring sagebrush steppe communities.

Long-term minor beneficial effects on certain recreational experiences would come from converting many Class D roads to non-motorized trails, but such conversion also would affect other recreational experiences, causing long-term minor adverse impacts. Closing certain roads and ways in the Pristine Zone to motorized and mechanized vehicle travel would result in long-term moderate beneficial effects on certain recreational experiences, but long-term minor adverse impacts also would result from such closures, affecting other recreational experiences. These closures also would result in long-term moderate adverse impacts from reduced access.

Long-term minor beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could adversely affect people who prefer more developed, dispersed camping, resulting in long-term minor adverse impacts.

Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.

IMPACTS FROM ALTERNATIVE D

Analysis

In Alternative D, the effects on recreation from increased efforts to protect geologic features through interpretation efforts would be the same as those described for Alternative A, resulting in long-term moderate beneficial effects in the original NPS Monument and long-term minor beneficial effects in the expanded part of the Monument. Interpretation efforts would also emphasize safety, resulting in safety improvements that would cause long-term minor beneficial effects on recreational visitors.

Rehabilitating or restoring 80,000 acres of sagebrush steppe communities and controlling weed infestations would result in more effects, both beneficial and adverse, than in Alternative A, because the area would be twice as large. The restoration could cause minor to moderate short-term adverse effects during the treatments, but in the long term thee would be moderate beneficial effects. These efforts also would improve the habitat for game species, resulting in indirect long-term moderate beneficial effects on hunting experiences.

Alternative D would involve the most aggressive fire suppression and rehabilitation program of all the alternatives. Wildland fire would continue to be suppressed in almost all areas, resulting in short-term minor beneficial effects. Fast, effective response to wildland fire would result in less fire-related interference with recreation opportunities. A reduced amount of smoke and fewer area closures that might interfere with recreational users' experiences would lead to short-term minor beneficial effects in or near burned areas, but aggressive rehabilitation would result in short-term minor adverse impacts on recreational experiences in these areas. Some wildland fire use would be allowed in the Wilderness and Preserve under Alternative D, resulting in short-term negligible adverse impacts.

Existing Class B and C roads would remain open to motorized use under Alternative D, and select Class D roads in the Primitive and Pristine Zones could be converted to trails or closed for resource protection. This reduced level of access to Monument features and destinations in the Primitive and Pristine Zones would result in long-term minor adverse impacts on motorized experiences and long-term minor beneficial effects on remote backcountry trail experiences, solitude, and self discovery. Upgrading primary access roads leading to the Monument to facilitate fire management (subject to county government approval and coordination) would result in long-term moderate beneficial effects. Select, limited improvements of Class C and D roads in the Primitive and Pristine Zones could be authorized to accommodate fire suppression, restoration, or other natural resource protection activities; this would result in improved access to remote areas, a short-term negligible to minor beneficial effect.

As in Alternatives B and C, continuing livestock operations in the BLM part of the Monument would result in the presence of cattle and sheep and the attendant facilities and equipment. This could interfere with many types of recreational experiences, causing long-term minor to moderate adverse impacts on these experiences, particularly in locations where livestock operations and recreation activities occur in the same area at the same time. However, given the long cultural history of livestock operations on public lands, some opportunities for recreational experiences related to seeing and appreciating sheepherding, cattle driving, and other activities would be possible, creating long-term negligible to minor beneficial effects.

Under Alternative D, partnerships would be encouraged to develop new information facilities in gateway communities. Facility development and improvements related to recreation would include enlarging and improving the visitor center at the original NPS Monument. The fire stations at Carey and Kimama would offer visitor information. Portal kiosks would be established at key access points to the Monument, and more facilities, signs, and wayside exhibits would be installed at Kings Bowl. These facility improvements would offer recreational users maps, information, and some direction/safety messages for people who value such materials as part of a high-quality experience. These improvements would lead to long-term minor beneficial effects.

Acquiring private inholdings would result in long-term negligible to minor beneficial effects by increasing the amount of land available for recreation. Allowing no additional water developments or other habitat manipulations in Wilderness areas or in WSAs and closing and rehabilitating certain ways in Wilderness areas and WSAs would result in long-

term minor beneficial effects by improving primitive and unconfined experiences and opportunities for solitude.

Increasing the authorizations for commercial outfitters and guides would add to the overall range of opportunities by offering a variety of backcountry and other remote experiences for recreational users who otherwise might not be able to enter the area. It also would improve monitoring at sensitive locations in the Monument. These authorizations would result in long-term moderate beneficial effects.

As in Alternative A, programs such as Leave No Trace and Tread Lightly! would be promoted to encourage visitors to use the resources in a more responsible and sustainable way, resulting in long-term minor beneficial effects.

Opportunities for camping in the expanded part of the Monument would increase in Alternative D, but camping would remain generally undeveloped and dispersed, with the potential development of only six designated campsites. This would result in long-term minor beneficial effects on visitors who prefer this type of experience and long-term minor adverse impacts on people who prefer more developed, dispersed camping experiences.

Cumulative Impacts

The cumulative effects on recreational users under Alternative D would be similar to those described for the other alternatives. There would be minor to moderate beneficial effects from cooperative efforts to limit air quality impacts and to supply promotional materials with information about the Monument. The agencies would work proactively with outside public and private organizations, as well as continuing to consult with local, state, and other federal agencies and private organizations to coordinate these programs with recreational needs. This would result in long-term minor beneficial effects.

The expected slow growth in regional visitation over the life of the plan, combined with expected visitation increases for the Monument under alternative D, would result in long-term minor beneficial effects on recreation but also would result in long-term minor adverse impacts on people seeking solitude.

Overall, the cumulative effects on recreational users from the actions of Alternative D, combined with the expected (primarily beneficial) effects from other activities and plans, would result in cumulative long-term moderate beneficial effects on recreational activities.

Conclusion

The added access related to administrative needs and the aggressive restoration program in Alternative D would contribute both beneficial and adverse effects, depending on the type of recreation desired.

Acquiring private inholdings would result in long-term negligible to minor beneficial effects, as would greater protection of geological features in the expanded part of the Monument, safety emphasis through interpretation, developing or improving facilities, and closing certain ways in Wilderness areas and WSAs.

Short-term negligible to minor beneficial effects would result from temporary improvements to Class C and D roads that could accommodate certain authorized activities, as well as from wildland fire suppression. Short-term negligible adverse impacts would result from wildland fire use, and short-term minor adverse impacts would result from aggressive rehabilitation.

Long-term minor to moderate beneficial effects would result from authorizing commercial outfitters and guides, and long-term moderate beneficial effects would come from greater protection of geological features in the original NPS Monument and from restoring sagebrush steppe communities.

Long-term minor beneficial effects on certain recreational experiences would result from closing Class D roads or converting them to trails in the Primitive and Pristine Zones, but such conversion also would affect other recreational experiences, causing long-term minor adverse impacts. Long-term moderate beneficial effects would result from the availability of undeveloped and dispersed camping, but this also could affect people who prefer more developed, dispersed camping, resulting in long-term minor adverse impacts.

Ongoing livestock operations would result in long-term minor to moderate adverse impacts on certain recreational experiences, but this also could affect other recreational opportunities, resulting in long-term negligible to minor beneficial effects.

VISUAL RESOURCES

IMPACTS FROM ALTERNATIVE A

Analysis

Any new surface disturbing activities proposed in the Monument would be subject to NEPA analysis, including a Visual Resource Management (VRM) Contrast Rating. New facilities and developments that could be allowed in the Frontcountry and Passage zones are livestock facilities, recreation sites, and interpretive facilities. Surface-disturbing activities would have to comply with VRM management class standards, which include several Class III and IV areas in Alternative A. This would result in long-term minor beneficial effects on the Monument's visual resources.

Efforts to protect geologic features from damage would be increased. Stopping vandalism and other forms of damage to frequently viewed geologic resources would lead to long-term minor beneficial effects.

Rehabilitating or restoring 40,000 acres of sagebrush steppe communities and controlling weed infestations would return those vegetated areas to their natural appearance, a long-term minor beneficial effect on viewscapes in the Monument.

Wildland fires and prescribed fires would result in smoke, causing short-term minor to moderate adverse impacts on visual resources, including the night sky. Other visual impacts would result from increased vehicle traffic, fire lines, and the contrast between burned and unburned areas. Burned areas could vary in size from a few acres to tens of thousands of acres.

Vehicles and dust plumes caused by the use of Class B roads would cause short-term minor adverse impacts. Existing livestock facilities, which are primarily in the Passage Zone, would result in minor visual contrasts and long-term minor adverse impacts. Continued use of the three existing mineral material sites would cause long- and short-term minor adverse impacts.

Cumulative Impacts

Visibility in the Monument can be affected by regional haze, dust from agricultural activities, smoke from western wildland fires, and other outside sources of air pollution. These things would cause short-term negligible to moderate adverse impacts on the Monument's viewscapes and night sky.

Several communication sites outside the Monument are visible from inside the Monument. These communication sites would cause long-term minor adverse impacts on visual resources during the day and long-term moderate adverse impacts on visual resources at night. Artificial light sources and light pollution from neighboring towns would affect the Monument's night sky, causing long-term negligible adverse impacts.

Overall, the beneficial and adverse effects from the actions of Alternative A, plus the adverse impacts from regional or neighboring sources, would result in cumulative minor adverse impacts on the Monument's visual resources.

Conclusion

Long-term minor beneficial effects would result from greater protection of geological features, from restoring sagebrush steppe communities, and from holding surface disturbing activities to the VRM management class standards that apply under Alternative A.

Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would result from the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night.

Class B road use would cause short-term minor adverse impacts, and short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.

IMPACTS FROM ALTERNATIVE B

Analysis

Any new surface disturbing activities proposed in the Monument under Alternative B would be subject to NEPA analysis, including a VRM Contrast Rating. Under this alternative, all of the Monument would be designated VRM Class I or Class II. New facilities and developments that could be allowed in the Frontcountry and Passage zones are livestock facilities, mineral material sites for administrative use, recreation sites, and interpretive facilities. Surface-

disturbing activities would have to comply with VRM management class standards, which would result in long-term minor to moderate beneficial effects on the Monument's visual resources.

As in Alternative A, efforts to protect geologic features from damage would be increased, and rehabilitating or restoring 45,000 acres of sagebrush steppe communities and controlling weed infestations would return those vegetated areas to their natural appearance, a long-term minor beneficial effect on viewscapes in the Monument.

Short-term minor to moderate adverse impacts on visual resources, including the night sky would result from wildland fires and prescribed fires (smoke), increased vehicle traffic, fire lines, and the contrast between burned and unburned areas. Burned areas could vary in size from a few acres to tens of thousands of acres. Increased suppression activities in this alternative would result in short-term impacts on the landscape from fire line construction, but these effects would be temporary.

Vehicles and dust plumes caused by the use of Class B roads would cause short-term minor to moderate adverse impacts. Existing livestock facilities, which are primarily in the Passage Zone, would result in minor visual contrasts and long-term minor adverse impacts. Continued use of the three existing mineral material sites would cause long- and short-term minor adverse impacts.

Cumulative Impacts

The cumulative effects on visibility in the Monument would be similar to those described for Alternative A. Visibility can be affected by regional haze, dust from agricultural activities, smoke from western wildland fires, and other outside sources of air pollution, including communication sites near the Monument. These things would cause long-term negligible to moderate adverse impacts on the Monument's viewscapes and night sky. Artificial light sources and light pollution from neighboring towns would affect the Monument's night sky, causing long-term negligible adverse impacts.

The use of vehicles, and the resultant dust plumes, would affect visibility in the Monument. Upgrades to the Arco-Minidoka and Carey-Kimama roads outside the Monument by county governments, as well as upgrades to certain roads within the Monument, would result in short-term minor adverse impacts on visibility from vehicles and the resultant dust plumes.

Several communication sites outside the Monument are visible from inside the Monument. These communication sites would cause long-term minor adverse impacts on visual resources during the day and long-term moderate adverse impacts on visual resources at night.

Overall, the beneficial and adverse effects from the actions of Alternative B, plus the adverse impacts from regional or neighboring sources, would result in long-term cumulative minor adverse impacts on the Monument's visual resources.

Conclusion

Long-term minor beneficial impacts on visual resources would result from greater protection of geological features and from restoring sagebrush steppe communities. Long-term minor to moderate beneficial effects would result from holding surface-disturbing activities to VRM management class standards that apply in Alternative B.

Artificial light sources would cause long-term negligible adverse cumulative impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would be caused by the use of existing mineral material sites. Long-term moderate, adverse impacts would result from communications sites at night.

Road upgrades would cause short-term minor cumulative adverse impacts, and short-term minor to moderate adverse impacts would result from Class B road use, Short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.

IMPACTS FROM ALTERNATIVE C

Analysis

Any new surface disturbing activities proposed in the Monument under Alternative C would be subject to NEPA analysis, including a VRM Contrast Rating. Under this alternative, all of the Monument would be designated VRM Class I or Class II. New facilities

and developments that could be allowed in the Frontcountry and Passage zones are livestock facilities, recreation sites, and interpretive facilities. Surface-disturbing activities would have to comply with VRM management class standards, which would result in long-term moderate beneficial effects on the Monument's visual resources.

As in Alternative A, efforts to protect geologic features from damage would be increased, and rehabilitating or restoring 55,000 acres of sagebrush steppe communities and controlling weed infestations would return those vegetated areas to their natural appearance, a long-term minor to moderate beneficial effect on viewscapes in the Monument.

Wildland fires and prescribed fires would result in smoke, causing short-term minor to moderate adverse impacts on visual resources, including the night sky. Other visual impacts would result from increased vehicle traffic, fire lines, and the contrast between burned and unburned areas. Burned areas could vary in size from a few acres to tens of thousands of acres.

Vehicles and dust plumes caused by the use of Class B roads would cause short-term minor adverse impacts. Existing livestock facilities, which are primarily in the Passage Zone, would create minor visual contrasts and long-term minor adverse impacts. Continued use of the three existing mineral material sites would cause long- and short-term minor adverse impacts.

Cumulative Impacts

The cumulative effects on visibility in the Monument would be similar to those described for Alternative A. Visibility can be affected by regional haze, dust from agricultural activities, smoke from western wildland fires, several communication sites that are near the Monument, and other outside sources of air pollution. These things would cause long-term negligible to moderate adverse impacts on the Monument's viewscapes and night sky. Artificial light sources and light pollution from neighboring towns would affect the Monument's night sky, causing long-term negligible adverse impacts.

Overall, the cumulative impacts on visual resources from the actions outside the Monument, added to the effects of Alternative C, would result in long-term minor adverse impacts on visual resources.

Conclusion

Long-term minor beneficial effects would result from greater protection of geological features. Long-term minor to moderate beneficial effects would result from restoring sagebrush steppe communities. Long-term moderate beneficial effects would come from holding surface disturbing activities to VRM class standards that apply under Alternative C.

Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would result from the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night.

Class B road use would cause short-term minor adverse impacts, and short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.

IMPACTS FROM ALTERNATIVE D

Analysis

Any new surface disturbing activities proposed in the Monument under Alternative D would be subject to NEPA analysis, including a VRM Contrast Rating. Under this alternative, all of the Monument would be designated VRM Class I or Class II. New facilities and developments that could be allowed in the Frontcountry and Passage zones are livestock facilities, mineral material sites for administrative use, recreation sites, and interpretive facilities. Surface-disturbing activities would have to comply with VRM management class standards, which would result in long-term minor to moderate beneficial effects on the Monument's visual resources.

As in Alternative A, efforts to protect geologic features from damage would be increased, and rehabilitating or restoring 80,000 acres of sagebrush steppe communities and controlling weed infestations would return those vegetated areas to their natural appearance. This more aggressive restoration program would cause long-term moderate beneficial effect on viewscapes in the Monument.

Wildland fires and prescribed fires would result in smoke, causing short-term minor to moderate

adverse impacts on visual resources, including the night sky. Other visual impacts would result from increased vehicle traffic, fire lines, and the contrast between burned and unburned areas. Burned areas could vary in size from a few acres to tens of thousands of acres.

Vehicles and dust plumes caused by the use of Class B roads would cause short-term minor adverse impacts. Existing livestock facilities, which are primarily in the Passage Zone, would create minor visual contrasts and long-term minor adverse impacts. Continued use of the three existing mineral material sites would cause long- and short-term minor adverse impacts.

Cumulative Impacts

The cumulative effects on visibility in the Monument would be similar to those described for Alternative A. Visibility can be affected by regional haze, dust from agricultural activities, smoke from western wildland fires, several communication sites that are near the Monument, and other outside sources of air pollution. These things would cause long-term negligible to moderate adverse impacts on the Monument's viewscapes and night sky. Artificial light sources and light pollution from neighboring towns would affect the Monument's night sky, causing long-term negligible adverse impacts.

Overall, the cumulative impacts on visual resources from the actions outside the Monument, added to the effects of Alternative D, would result in long-term minor adverse impacts on visual resources.

Conclusion

Long-term minor beneficial effects on visual resources would result from greater protection of geological features; long-term minor to moderate beneficial effects would come from holding surface disturbing activities to VRM management class standards, and restoring sagebrush steppe communities would cause long-term moderate beneficial effects.

Artificial light sources would cause long-term negligible cumulative adverse impacts. Long-term minor adverse impacts would result from existing livestock facilities and, cumulatively, from communications sites during the day. Long- and short-term minor adverse impacts would result from the use of existing mineral material sites. Long-term moderate adverse impacts would result from communications sites at night.

Class B road use would cause short-term minor adverse impacts, and short-term minor to moderate adverse impacts would be caused by wildland fires and prescribed fires. Short-term negligible to moderate cumulative adverse impacts would result from outside sources of air pollution.

SOUNDSCAPES

IMPACTS FROM ALTERNATIVE A

Analysis

Natural soundscapes in the Monument would be affected by a number of sources. Vehicle and road noise from the US 20/26/93 corridor, which passes though the Monument on the north side, would cause long-term minor adverse impacts, particularly affecting campers at the original NPS Monument. Areas of the expanded Monument along this corridor also would incur similar long-term minor adverse impacts from the noise. The sounds associated with car, truck, motorcycle, OHV, and snowmobile use in the Monument would cause short-term adverse impacts on natural soundscapes in a number of areas in the Monument that would be mostly negligible to minor.

The noise from regular grazing operations and firefighting/fire suppression actions would cause short-term negligible to minor adverse impacts. For example, administrative and fire suppression air operations, using both fixed-wing aircraft and helicopters over the Monument, would cause short-term minor adverse impacts in the area in which they were used for the duration of the fire.

Cumulative Impacts

Trains using railroad lines outside the southern boundary of the Monument can be heard from some locations in the Monument, causing long-term negligible to minor adverse impacts. Occasional overflights of commercial jets at cruising altitudes, small private aircraft, and military jets using training flyways at both high and low altitudes might be heard. Combined with the various sources of noise from the actions of Alternative A, these noise intrusions would result in cumulative long-term negligible to minor adverse impacts.

Conclusion

The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts.

IMPACTS FROM ALTERNATIVE B

Analysis

The effects on natural soundscapes in Alternative B would be almost the same as those described for Alternative A. There probably would be a higher incidence of short-term negligible to minor adverse impacts from vehicle use in the expanded Passage Zone because the roads would be maintained to a higher degree, allowing better access for more vehicles.

Activities associated with fire management and livestock operations would be the same as those described for Alternative A, resulting in short-term minor adverse impacts.

Cumulative Impacts

The cumulative effects on soundscapes in the Monument from Alternative B would be the same as those described for Alternative A, with slightly more noise caused by the increased access and associated transportation, more visitation, and more grazing in the Passage Zone. Overall, combined with the various sources of noise from the actions of Alternative B, the outside noise intrusions would result in cumulative long-term minor adverse impacts.

Conclusion

The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. Some increased noise would come from more use of the Passage Zone. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts.

IMPACTS FROM ALTERNATIVE C

Analysis

The effects on natural soundscapes in Alternative C would be almost the same as those described for Alternative A, but there would be less road-related noise and therefore fewer impacts from vehicle use.

Cumulative Impacts

The cumulative effects on soundscapes in the Monument from Alternative C would be the same as those described for Alternative A, but slightly less noise would be expected in the Passage Zone areas. Overall, combined with the various sources of noise from the actions of Alternative C, the outside noise intrusions would result in cumulative long-term minor adverse impacts on soundscapes.

Conclusion

The effects on natural soundscapes in the Monument from Alternative C would result mainly from transportation, administrative uses, and grazing. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts.

IMPACTS FROM ALTERNATIVE D

Analysis

The effects on natural soundscapes in Alternative D would be similar to those described for Alternative A, but some roads would be maintained to a higher degree, and the maintenance of others would be decreased. This would mean that there probably would be a slightly higher incidence of short-term negligible to minor adverse impacts from vehicle use in the Monument.

The fire management and livestock operations would be the same in this alternative as in Alternative A, resulting in short-term minor adverse impacts.

Cumulative Impacts

The cumulative effects on soundscapes in the Monument from Alternative D would be the same as those described for Alternative A, but with slightly more short-term noise from restoration, road

improvement, and fire management activities. Overall, the outside noise intrusions, combined with the various sources of noise from the actions of Alternative D, would result in cumulative long-term minor adverse impacts on soundscapes.

Conclusion

The effects on natural soundscapes in the Monument would result mainly from transportation, administrative uses, and grazing. The use of the US 20/26/93 corridor would cause long-term minor adverse impacts. Short-term negligible to minor adverse impacts would result from the use of various vehicles in the Monument, from fire management operations, and from livestock operations. Air operations would cause short-term minor adverse impacts.

SOCIAL AND ECONOMIC CONDITIONS

METHODOLOGY AND ASSUMPTIONS

This section identifies the potential impacts on the population, housing, social conditions, employment, and regional economy that might result from implementing each alternative. To assess socioeconomic impacts of each alternative, the following methods and assumptions were used:

- Estimates of Monument visitor spending and regional economic impacts were developed using the NPS's updated Money Generation Model (MGM2).
- Potential effects on social conditions were identified with the use of the 1994 Interorganizational Committee Guidelines and Principles for Social Impact Assessment.
- For the baseline condition, it is assumed that the Monument's annual operating budget and number of employees would not increase more than 10 percent over the next 10 years.
- Effects on economic conditions would result primarily from a long-term (more than 10 years) increase in the number of visitors to the Monument, an increase in the average time visitors stay at the Monument or at gateway communities, and/or more visitor spending.

The following impact thresholds were defined for analyzing impacts to socioeconomic conditions.

Negligible: No changes would occur, or changes to socioeconomic indicators (population, employment/unemployment rate, per capita income, property values; poverty level, crime rates, characteristics, quality and satisfaction of visitors' experience, or effects on the rural character around the Monument and Preserve) would be below or at the level of statistical error (about 3 percent) and, if detected, the effects would be considered slight and short term.

Minor: There would be increases in the number of visitors to the Monument and Preserve or changes in socioeconomic indicators between 4 and 10 percent.

Moderate: There would be increases in the number of visitors to the Monument and Preserve or changes in socioeconomic indicators by 10 to 20 percent.

Major: There would be increases in the number of visitors to the Monument and Preserve or changes in socioeconomic indicators by more than 20 percent.

The area of analysis for all impacts was defined as the county census tracts in the five counties surrounding Craters of the Moon National Monument and Preserve.

IMPACTS FROM ALTERNATIVE A

Analysis

Economic Conditions

Under Alternative A, continuation of present interim management actions, the number of annual visitors would remain consistent at about 200,000, and the economic effects of the Monument to the local economy would remain at between $7 and $11 million per year. Alternative A would not substantially change the number of annual visitors, the length of stay, or visitor spending, nor would substantial new

facilities be developed. Other than changes related to minerals development (see below), there would be no direct effects on the regional economy, population, employment/ unemployment rates, per capita income for workers in the counties surrounding the Monument, change in property values, or the need for additional services.

Existing mineral permits are valued at approximately $5 per ton. Replacement costs for the Monument mineral permits are estimated to be about $25 per ton, plus transportation costs of $1 to $2 per mile at distances of up to 100 miles to sites where needed. As mineral leases expired and could not be renewed, there would be long-term moderate adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

Social Conditions

No activities under Alternative A would affect the social value (characteristics, quality, satisfaction) of visitor experiences at the Monument or substantially change the number of visitors to the Monument, nor would there be any changes to Monument management. None of the actions of this alternative would directly or indirectly affect the rural character around the Monument.

Cumulative Impacts

The Minidoka Internment National Monument was designated in January 2001. An administrative facility for the Minidoka National Wildlife Refuge has been proposed, as has the development of a multi-agency South Central Idaho Visitor Center along I-84 near Twin Falls. These actions would have the potential to minimally increase the number of visitors to Craters of the Moon National Monument and Preserve. Blaine County's comprehensive plan stipulates that the portion of the Arco-Minidoka Road within its jurisdiction would continue to be maintained at its current level. No other regional economic activities were identified that would contribute to the cumulative effects on economic conditions under this alternative (i.e., any activities that would further stimulate increased visitation at the Monument).

Conclusion

Alternative A would result in a negligible adverse or beneficial effect on the number of annual visitors to the Monument, length of stay, or visitor spending. There would be no direct, indirect, or cumulative effects on the regional economy or any economic or social indicator, other than moderate adverse impacts related to a gradual loss of mineral leases. Alternative A would not affect the rural character around the Monument.

IMPACTS FROM ALTERNATIVE B

Analysis

Economic Conditions

Alternative B, which would involve the highest level of visitor recreational opportunities, would entail more public education and interpretation of cultural resource sites, more designated primitive campsites, interpretation of select caves, Kings Bowl Frontcountry Zone development, expansion and development of new facilities, and more travel and access in the Monument. Under this alternative a range of recreational opportunities would be available, including commercial helicopter landings. This alternative also would produce the highest level of Monument development.

The state of Idaho's 2002 "Outdoor Recreation Demand Assessment" found that 52 percent of residents were willing to travel 1 to 2 hours to engage in recreational activities, and the top three recreational activities for adults were walking, hiking, or watching wildlife - activities that would be available at the Monument. More opportunities for recreational activities would directly result in a moderate increase in the annual number of visitors, a longer visitor's stay in the area, and more recreational spending per visit. On the basis of these changes, it is estimated that the Monument would generate approximately $14 million directly and indirectly to the local economy - an increase of $3 million-$7 million per year over the current situation.

A moderate increase in visitors and visitor spending would result in the addition of about 100 new jobs directly or indirectly to the local economy, a negligible increase of about 1 percent of the workforce in the five-county/census tract region surrounding the Monument. These new jobs would be dispersed throughout the region in a wide variety of

visitor support services such as hotels, restaurants, auto service stations, and recreational outfitters and in services that would support increased business at these facilities. This increased economic stimulus would be long-term and permanent. Although important, this increased stimulus would cause a negligible impact on the local economy and a negligible to minor impact on local employment rates and per capita income.

As in Alternative A, mineral material site permits in the Monument would be terminated upon expiration, and those areas would be closed to further use except as needed administratively. This would cause moderate long-term beneficial effects on access and transportation by reducing heavy equipment damage to roads and related maintenance, as well as reducing congestion in the Monument's transportation system. However, as mineral leases expired and could not be renewed, there would be long-term moderate adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

Social Conditions

As was discussed above, this alternative would involve management actions that would result in more visitation to the Monument and more revenue from tourism, which would stimulate the need for approximately 100 new jobs. Although important, this level of economic stimulation would result in a negligible effect on the local population, health care, education, and crime rates around the Monument.

More visitors and more recreational activities could result in both positive and negative effects on the visitor experience, based on each visitor's recreational objectives. For some visitors, more recreational opportunities would mean a moderate decline in satisfaction for those who want to see the Monument protected from recreational impacts on the land. Other visitors could experience a moderate increase in satisfaction as a result of having a wide variety of recreational opportunities.

Cumulative Impacts

Population growth in southern Blaine County (US Census Tract 9601) increased by 31 percent between 1990 and 2000. Similarly, the population in the town of Carey in Blaine County has increased greatly. If new Monument-oriented recreational businesses should locate around Carey and southern Blaine County, they would cause a negligible to minor effect on the area's population and economic growth.

As was described for Alternative A, the Minidoka Internment National Monument was designated in January 2001. An administrative facility for the Minidoka National Wildlife Refuge has been proposed, as has the development of a multi-agency South Central Idaho Visitor Center along I-84 near Twin Falls. These actions would have the potential to minimally increase the number of visitors to Craters of the Moon National Monument and Preserve. No other regional economic activities were identified that would contribute to the cumulative effects on economic conditions under this alternative (i.e., any activities that would further stimulate increased visitation at the Monument).

Conclusion

Alternative B would result in a moderate increase in the annual number of visitors, would lengthen visitor's stay, and would increase recreational spending per visit. This moderate increase in visitors and visitor spending would result in a negligible effect on the local economy, a negligible or minor effect on local employment rates and per capita income, a negligible effect on the local population, health care, education, and crime rates around the Monument, and a moderate adverse or beneficial effect on visitor satisfaction. A moderate adverse impact would result from the gradual loss of mineral leases.

IMPACTS FROM ALTERNATIVE C

Analysis

Economic Conditions

Alternative C would create a visitor experience that would be similar to Alternative A, except that off-site interpretation would be emphasized and livestock developments might be reduced because there would be fewer acres in the Passage Zone.

Alternative C would not entail any new opportunities for visitor recreation that would stimulate additional Monument visitation or increase the length of visitors' stay or visitor spending. No substantial new facilities would not developed. The effects on the regional economy or population would be negligible.

The annual number of visitors would remain consistent at about 200,000, and the economic effects of the Monument on the local economy would remain at $7 million-$11 million. There would be negligible direct and indirect effects on the regional economy, population, employment/unemployment rates, per capita income for workers in the counties surrounding the Monument, change in property values, or the need for additional services.

As in Alternative A, mineral material site permits in the Monument would be terminated upon expiration, and those areas would be closed to further use except as needed administratively. This would cause moderate long-term beneficial effects on access and transportation by reducing heavy equipment damage to roads and related maintenance, as well as reducing congestion in the Monument's transportation system. However, as mineral leases expired and could not be renewed, there would be long-term moderate adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

Social Conditions

Alternative C would be similar to Alternative A in its development of new opportunities for visitor recreation. No actions of this alternative would affect the social value (characteristics, quality, satisfaction) of visitor experiences at the Monument or substantially change the number of visitors to the Monument, nor would there be any changes to Monument management. None of the actions of this alternative would directly or indirectly affect the rural character around the Monument.

Cumulative Impacts

As was described previously, the Minidoka Internment National Monument was designated in January 2001. An administrative facility for the Minidoka National Wildlife Refuge has been proposed, as has the development of a multi-agency South Central Idaho Visitor Center along I-84 near Twin Falls. These actions would have the potential to minimally increase the number of visitors to Craters of the Moon National Monument and Preserve. No other regional economic activities were identified that would contribute to the cumulative effects on economic conditions under this alternative (i.e., any activities that would further stimulate increased visitation at the Monument).

Conclusion

Alternative C would result in a negligible adverse or beneficial effect on the annual number of visitors to the Monument and Preserve, the length of visitors' stay, and the amount of visitor spending. There would be negligible direct, indirect, or cumulative effects on the regional economy or any economic or social indicator, other than the moderate adverse impacts from the gradual loss of mineral leases. Alternative C would not affect the rural character around the Monument.

IMPACTS FROM ALTERNATIVE D

Analysis

Economic Conditions

Alternative D, which would involve moderate amount of public education, also would entail interpretation of cultural resource sites, expanding and developing new facilities as well as new visitor facilities outside the Monument, a high level of recreation and visitor opportunities, a high level of visitor service development in the gateway communities, and the authorization of commercial outfitters and guides (ecotourism emphasis). More opportunities for visitor recreation would result in a moderate increase in the annual number of visitors, a longer stay for visitors, and more recreational spending per visit.

Alternative D would be similar to Alternative B in its potential for new visitor recreation opportunities and the stimulation of more Monument visitations. This level of visitation would generate approximately $14 million directly and indirectly to the local economy - an increase of $3 million-$7 million per year over the current situation. A moderate increase in visitors and visitor spending would result in the addition of about 100 new jobs directly or indirectly to the local economy, a negligible increase of about 1 percent of the workforce in the region surrounding the Monument and Preserve. This would be a negligible effect on the local economy and a negligible or minor effect on local employment rates and per capita income.

As in Alternative A, mineral material site permits in the Monument would be terminated upon expira-

tion, and those areas would be closed to further use except as needed administratively. This would cause moderate long-term beneficial effects on access and transportation by reducing heavy equipment damage to roads and related maintenance, as well as reducing congestion in the Monument's transportation system. However, as mineral leases expired and could not be renewed, there would be long-term moderate adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

Social Conditions

Alternative D would be similar to Alternative B in actions that would stimulate more visitation to the Monument, increasing revenue from tourism and new jobs. Economic stimulation under Alternative D would result in negligible effects on the local population, health care, education, and crime rates around the Monument. More visitors and more recreational activities would result in both adverse and beneficial moderate effects on the visitor experience, based on each visitor's recreational objectives. For some visitors, more recreational opportunities would mean a moderate decline in visitor satisfaction for those who want to see the Monument protected from recreational impacts on the land. Other visitors could experience a moderate increase in satisfaction as a result of having a wide variety of recreational opportunities.

Cumulative Impacts

Population growth in southern Blaine County (US Census Tract 9601) increased by 31 percent between 1990 and 2000. Similarly, the population in the town of Carey in Blaine County has increased greatly. If new Monument and Preserve-oriented recreational businesses should locate around Carey and southern Blaine County, they would cause a negligible to minor effect on the area's population and economic growth.

As was described for Alternative A, the Minidoka Internment National Monument was designated in January 2001. An administrative facility for the Minidoka National Wildlife Refuge has been proposed, as has the development of a multi-agency South Central Idaho Visitor Center along I-84 near Twin Falls. These actions would have the potential to minimally increase the number of visitors to Craters of the Moon National Monument and Preserve. Blaine County's comprehensive plan stipulates that the portion of the Arco-Minidoka Road within its jurisdiction would continue to be maintained at its current level. No other regional economic activities were identified that would contribute to the cumulative effects on economic conditions under this alternative (i.e., any activities that would further stimulate increased visitation at the Monument).

Conclusion

Alternative D would result in a moderate increase in the annual number of visitors, the length of visitors' stay, and the amount of recreational spending per visit. This moderate increase in visitors and visitor spending would result in a negligible effect on the local economy, a negligible or minor effect on local employment rates and per capita income, a negligible effect on the local population, health care, education, and crime rates around the Monument, and a moderate adverse of beneficial effect on visitor satisfaction. A moderate adverse impact would result from the gradual loss of mineral leases.

UNAVOIDABLE ADVERSE IMPACTS

The following paragraphs describe the more important (moderate and major intensity) adverse impacts that would unavoidably result from implementing the alternatives described above. These are residual impacts that would remain after mitigation was complete.

ALTERNATIVE A

Natural Resources

Damage, theft, vandalism, foot traffic, and other human-caused disturbances to geologic resources, although site-specific, could reach moderate to major intensity in some instances, depending, among other things, on their proximity to roads and trails. Removing cinders from materials sites in the Monument for road construction and maintenance could result in moderate to major adverse impacts on geologic resources. Fire suppression activities could result in moderate adverse impacts on geologic processes.

Localized major impacts to soils would result from fire suppression activities under Alternative A, including fire line construction. Livestock use, especially in areas where livestock concentrate, could cause moderate adverse impacts, including compaction, erosion, and changes in soil fertility and production,. Facility development, including expanding the Visitor Center, creating interpretation and trails in Kings Bowl, and installing kiosks, signs, and wayside exhibits would also cause moderate adverse impacts on soils. Soil loss and movement resulting from the actions of Alternative A, along with the cumulative effects of agricultural and other land uses in the vicinity of the Monument, would constitute moderate adverse impacts.

Road and trail use and maintenance could result in the spread of noxious weeds, causing moderate short- and long-term adverse impacts on native plant communities. Livestock would trample vegetation, causing the removal of vegetation and the spread of invasive and noxious weeds. Areas surrounding the Monument would be affected by agricultural practices, including irrigated and dryland crop farming and livestock ranching. Associated impacts that could reach moderate intensity are (a) the elimination of native vegetation by heavy livestock use or by its replacement by crops, (b) drift of weeds, (c) drift of herbicides, and (d) agricultural trespass, including the deposition of garbage or the removal of vegetation and planting crops on public lands adjacent to the Monument.

Intense recreational use of ice cave pools could create moderate changes in nutrient concentrations and bacteria levels. The duration of these local effects would depend on the specific site.

Under Alternative A, fires could result in major adverse impacts on some sensitive woodland and grassland wildlife species. Secondary roads and associated visitor use adjacent to sensitive wildlife areas could cause moderate disturbances of wildlife. Moderate long-term adverse impacts on wildlife from livestock use would result from competition for forage, trampling, loss of habitat, and disruption of migration corridors. The cumulative effects of agriculture and ranching on adjacent lands could adversely affect wildlife over large areas of the Monument through long-term competition for resources and habitat conversion.

Cultural Resources

Livestock use under Alternative A would cause erosion, create trails, and denude areas of vegetation, which could damage cultural resources in the area.

Land Use and Transportation

Livestock permittees would haul water to Laidlaw Park on the existing road network. This practice could cause a long-term moderate adverse effect on access routes.

The restoration and other actions associated with fire suppression and recovery of burned areas could result in closure to grazing for up to three years, a moderate adverse impact. Over time, increased recreation, especially in the Passage Zone, could result in conflicts, a moderate adverse impact on livestock operations.

Visitor Experience

VRM Inventory classifications outside the Monument boundary that would allow visual intrusions such as cell towers could cause long-term moderate adverse impacts on the natural night sky.

Social and Economic Conditions

As mineral leases expired and could not be not renewed, there would be moderate long-term adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

ALTERNATIVE B

Natural Resources

Improved roads and trails and the resultant increased access and visitation to geologic features would lead to greater damage, theft, vandalism, foot traffic, and other human-caused disturbances that would reach moderate to major intensities at some sites. Removing cinders from materials sites in the Monument for road construction and maintenance could result in moderate to major adverse impacts on geologic resources. Fire suppression activities also could cause moderate adverse impacts on geologic processes.

Better road and trail access in Alternative B and the associated increase in public use could result in long-term moderate adverse impacts on soils. As in Alternative A, local major adverse impacts on soils

would result from fire suppression activities in Alternative B, including fire line construction. Livestock use, especially in areas where livestock concentrate, would result in moderate adverse impacts, including compaction, erosion, and changes in soil fertility and production. Facility development, including the expansion of the Visitor Center, the creation of interpretation and trails in Kings Bowl, and the installation of kiosks, signs, and wayside exhibits also would cause moderate adverse impacts on soils. Soil loss and movement resulting from the actions of Alternative B, along with the cumulative effects of agricultural and other land uses in the vicinity of the Monument, would constitute moderate adverse impacts.

More road and trail construction under Alternative B would remove vegetation and could result in spread of noxious weeds, with moderate short- and long-term negative impacts on native plants. Livestock would trample vegetation, causing its removal and the spread of invasive and noxious weeds. More fire suppression under Alternative B could result in moderate adverse local impacts from fire line construction and heavy equipment. Areas around the Monument would be affected by agricultural practices, including irrigated and dryland crop farming and livestock ranching. Associated impacts that could reach moderate intensity are (a) the elimination of native vegetation by heavy livestock use or by its replacement by crops, (b) drift of weeds, (c) drift of herbicides, and (d) agricultural trespass, including the deposition of garbage or the removal of vegetation and planting crops on public lands adjacent to the Monument.

Intense recreational use of ice cave pools could create moderate changes in nutrient concentrations and bacteria levels. The duration of these local effects would depend on the specific site.

Under Alternative B, fires could result in major adverse impacts on some sensitive woodland and grassland wildlife species. Secondary roads and associated visitor use adjacent to sensitive wildlife areas could cause moderate disturbances of wildlife. Moderate long-term adverse impacts on wildlife from livestock use would result from competition for forage, trampling, loss of habitat, and disruption of migration corridors. The cumulative effects of agriculture and ranching on adjacent lands could adversely affect wildlife over large areas of the Monument through long-term competition for resources and habitat conversion.

Cultural Resources

Under Alternative B, improved access to the more remote regions of the Monument could increase visitation to those areas, as well as increasing the impacts of vehicle and foot traffic, unauthorized collections, and vandalism of cultural resources. Livestock use under Alternative B would cause erosion, create trails, and denude areas of vegetation, which could damage cultural resources in the area.

Land Use and Transportation

Under Alternative B, the Carey-Kimama and Arco-Minidoka roads would be designated as Backcountry Byways, which would cause moderate to major long-term adverse impacts from more visitation and related increases in maintenance and road degradation caused by erosion or overuse. In addition, roads and trails in the Monument would be improved, causing minor to moderate long-term adverse impacts on access and travel by attracting more visitors and increasing the frequency of needed maintenance. More livestock developments (such as water troughs) in the expanded Passage Zone under this alternative could cause moderate adverse impacts on transportation and access associated with more use of the road network.

The restoration and other actions associated with fire suppression and recovery of burned areas could result in closure to grazing for up to three years, a moderate adverse impact. Over time, increased recreation, especially in the Passage Zone, could result in conflicts, a moderate adverse impact on livestock operations.

Visitor Experience

VRM Inventory classifications outside the Monument boundary that would allow visual intrusions such as cell towers could cause long-term moderate adverse impacts on the natural night sky.

Social and Economic Conditions

As mineral leases expired and could not be not renewed, there would be moderate long-term adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

ALTERNATIVE C

Natural Resources

Damage, theft, vandalism, foot traffic, and other human-caused disturbances of geologic resources, although site-specific, could reach moderate to major intensity in some instances, depending on their nearness to roads and trails. However, with less availability of maintained access under Alternative C, these impacts would be less likely. Removing cinders from materials sites in the Monument for road construction and maintenance could result in moderate to major adverse impacts on geologic resources. Fire suppression activities also could cause moderate adverse impacts on geologic processes.

Under Alternative C, livestock use could cause moderate adverse impacts on soils, including compaction, erosion, and changes in soil fertility and production, especially in areas where livestock congregate. Soil loss and movement resulting from the actions of Alternative C, along with agricultural and other land uses near the Monument, would result in cumulative moderate adverse impacts on soils.

Decreased road density under Alternative C would reduce the opportunity for noxious weeds to be dispersed, but this would also reduce the probability of detection and treatment by Monument staff. This could result in a moderate adverse impact on Monument vegetation. Livestock would trample vegetation, causing its removal and the spread of invasive and noxious weeds.

Fire suppression activities under Alternative C could result in moderate adverse local impacts on vegetation. Areas around the Monument would be affected by agricultural practices, including irrigated and dryland crop farming and livestock ranching. Associated impacts that could reach moderate intensity are (a) the elimination of native vegetation by heavy livestock use, (b) drift of weeds, (c) drift of herbicides, and (d) agricultural trespass, including the deposition of garbage or the removal of vegetation and planting crops on public lands adjacent to the Monument.

Intense recreational use of ice cave pools could create moderate changes in nutrient concentrations and bacteria levels. The duration of these local effects would depend on the specific site.

Under Alternative C, fires could result in major adverse impacts on some sensitive woodland and grassland wildlife species. Secondary roads and associated visitor use adjacent to sensitive wildlife areas could cause moderate disturbances of wildlife. Moderate long-term adverse impacts on wildlife from livestock use would result from competition for forage, trampling, loss of habitat, and disruption of migration corridors. The cumulative effects of agriculture and ranching on adjacent lands could adversely affect wildlife over large areas of the Monument through long-term competition for resources and habitat conversion.

Cultural Resources

Livestock use under Alternative C would cause erosion, create trails, and denude areas of vegetation, which could damage cultural resources in the area.

Land Use and Transportation

Fewer miles of roads would be maintained under Alternative C, which would cause minor to moderate adverse impacts on Monument access because a smaller range of vehicles would be accommodated by the transportation system. In this alternative, the WSA boundaries would serve as the boundaries for the Pristine Zone. Two-track roads in this area would be either closed or obliterated, resulting in moderate long-term adverse effects on access.

The restoration and other actions associated with fire suppression and recovery of burned areas could result in closure to grazing for up to three years, a moderate adverse impact. Over time, increased recreation, especially in the Passage Zone, could result in conflicts, a moderate adverse impact on livestock operations.

Visitor Experience

VRM Inventory classifications outside the Monument boundary that would allow visual intrusions such as cell towers could cause long-term moderate adverse impacts on the natural night sky.

Social and Economic Conditions

As mineral leases expired and could not be not renewed, there would be moderate long-term adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

ALTERNATIVE D

Natural Resources

Damage, theft, vandalism, foot traffic, and other human-caused disturbances of geologic resources, although site-specific, could reach moderate to major intensity in some instances, depending on their closeness to roads and trails, among other things. Removing cinders from materials sites in the Monument for road construction and maintenance could result in moderate to major adverse impacts on geologic resources. Fire suppression activities also could cause moderate adverse impacts on geologic processes.

Restoring 80,000 acres of sagebrush steppe communities under Alternative D would lead to the exposure of the soils over this acreage, which would result in more wind erosion and potential nutrient loss that, resulting in short-term moderate adverse impacts. Livestock would cause compaction, erosion, and changes in soil fertility and production, especially in areas where livestock congregate. This would cause moderate adverse impacts.

Facility development, including expanding the Visitor Center, adding interpretation and trails in Kings Bowl, and installing kiosks, signs, and wayside exhibits would cause moderate adverse impacts on soils. Soil loss and movement resulting from the actions of Alternative D, along with the cumulative effects of agricultural and other land uses in the vicinity of the Monument, would constitute moderate adverse impacts.

More road density in Alternative D would increase the potential for noxious weed dispersal, but it also would increase the probability of detection and treatment by Monument staff. This could result in moderate short- and long-term negative impacts on native plants. Livestock would trample vegetation, causing its removal and the spread of invasive and noxious weeds. Fire suppression activities could result in moderate local impacts from fire line construction and the use of heavy equipment.

Areas around the Monument would be affected by agricultural practices, including irrigated and dryland crop farming and livestock ranching. Associated impacts that could reach moderate intensity are (a) the elimination of native vegetation by heavy livestock use or by its replacement by crops, (b) drift of weeds, (c) drift of herbicides, and (d) agricultural trespass, including the deposition of garbage or the removal of vegetation and planting crops on public lands adjacent to the Monument.

Intense recreational use of ice cave pools could create moderate changes in nutrient concentrations and bacteria levels. The duration of these local effects would depend on the specific site.

Under Alternative D, fires could result in major adverse impacts on some sensitive woodland and grassland wildlife species. Secondary roads and associated visitor use adjacent to sensitive wildlife areas could cause moderate disturbances of wildlife. Moderate long-term adverse impacts on wildlife from livestock use would result from competition for forage, trampling, loss of habitat, and disruption of migration corridors. The cumulative effects of agriculture and ranching on adjacent lands could adversely affect wildlife over large areas of the Monument through long-term competition for resources and habitat conversion.

Cultural Resources

Livestock use under Alternative D would cause erosion, create trails, and denude areas of vegetation, which could damage cultural resources in the area.

Land Use and Transportation

Access to many routes would be limited to administrative use under Alternative D, which would cause moderate adverse impacts on access and transportation.

The restoration and other actions associated with fire suppression and recovery of burned areas could result in closure to grazing for up to three years, a moderate adverse impact. Over time, increased recreation, especially in the Passage Zone, could result in conflicts, a moderate adverse impact on livestock operations.

Visitor Experience

VRM Inventory classifications outside the Monument boundary that would allow visual intrusions such as cell towers could cause long-term moderate adverse impacts on the natural night sky.

Social and Economic Conditions

As mineral leases expired and could not be not

renewed, there would be moderate long-term adverse economic impacts on county leaseholders, who would have to obtain minerals from other sources.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

For all alternatives, any improved roads and trails and the resultant increased access and visitation would lead to greater damage, theft, or vandalism of geologic features. In most cases, such changes would be irreversible and the resources lost would be irretrievable. The possibility of this occurring would be lessened under Alternative C (because of reduced or limited access) and heightened under Alternative B (because there would be more, better-maintained access and a larger area of Passage Zone). Cinders removed from materials sites in the Monument for road construction and maintenance also would be irretrievable.

Soil loss and movement resulting from implementing any of the alternatives and the cumulative effects of agricultural and other land uses in the vicinity of the Monument would be irreversible and irretrievable.

Under all alternatives, irreversible and irretrievable losses of resources would result from unauthorized collection and vandalism of cultural resources and from the disruption of cultural resource sites by livestock or vehicles. The possibility of this type of damage would be less under Alternatives C and D, in which access would be more restricted or limited.

For all alternatives, the materials and energy used for habitat restoration and facility improvements or maintenance would be irretrievably lost. The funds expended for labor and materials for habitat restoration, facility improvements and maintenance, and Monument operations would be irreversibly and irretrievably committed. This commitment would be largest under Alternative D, with 80,000 acres slated for restoration.

In some circumstances, the loss of sagebrush steppe habitat either by direct disruption or by the spread of noxious weeds or other invasive species would be irreversible. In other instances, reversing the loss of habitat would take many years to complete, thus irreversibly affecting wildlife that depend on these habitats.

RELATIONSHIP OF SHORT-TERM USES OF THE ENVIRONMENT TO LONG-TERM PRODUCTIVITY

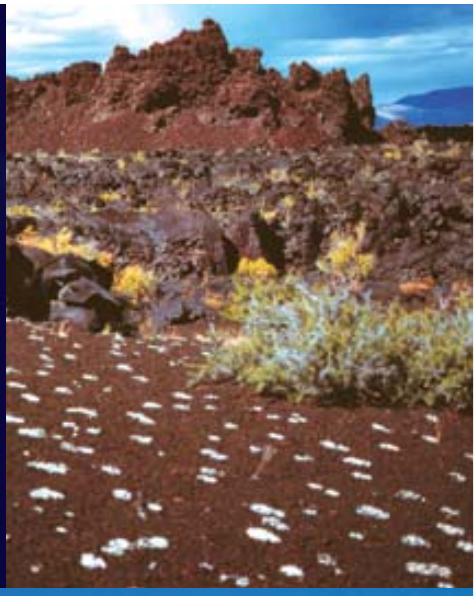
Under all alternatives, the short-term disturbances of soils, vegetation, wildlife habitat, and possibly visitor enjoyment of the Monument from the restoration efforts and limited facility construction would be more than offset by the long-term productivity of the restored sagebrush-steppe habitat and the enhanced facilities available for visitor use. This would be particularly true for Alternative D, with its greater emphasis on long-term restoration of habitat. Developing and constructing improved roads and facilities, especially under Alternative B, would result in short-term socioeconomic benefits. After construction work was finished, long-term benefits would result from the improved facilities, access, and programs.

Under all alternatives, grazing and mineral extraction would constitute short-term uses of the environment in various locations. These short-term uses would be balanced by the long-term productivity of these industries overall. The disturbance of soils, vegetation, and wildlife habitat from these uses and from visitor use would reduce the long-term productivity of the environment in local areas where revegetation or the restoration of the natural environment could not be fully realized over time.

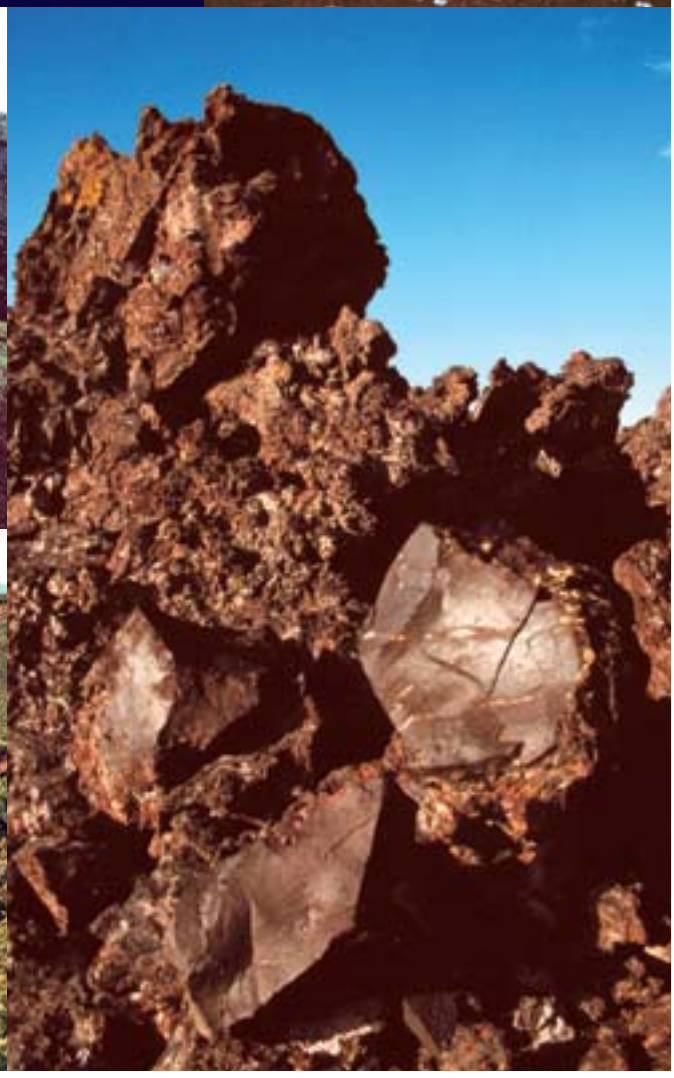
Chapter 5

Consultation and Coordination with Others











Previous page, clockwise, from top left
Blazing star
Devil's Orchard blocks
Blocky a'a
Crater
Big Cinder Butte

CHAPTER 5
CONSULTATION AND COORDINATION WITH OTHERS

Consultation and coordination efforts were ongoing throughout the process of preparing this Plan/EIS. A public participation plan and schedule were prepared and implemented during the preparation of the Plan. Methods included Federal Register notices, news releases, public meetings and workshops, invited presentations at special interest group meetings, individual meetings with interested publics, newsletter mailings, and website postings.

HISTORY OF PUBLIC INVOLVEMENT AND CONSULTATION

Scoping is the early and open process for determining the scope of issues to be addressed during the planning process. The Notice of Intent (NOI) to jointly prepare a land use plan and the associated EIS for the Craters of the Moon National Monument was published in the Federal Register on April 24, 2002. The NOI initiated the public scoping process by inviting participation in identifying planning issues and developing planning criteria.

Information about the Monument planning process and opportunities for involvement were posted on websites for the National Park Service (www.nps.gov/crmo) and the Bureau of Land Management (www.id.blm.gov/planning/index.htm). Comments were accepted by mail and via e-mail submitted to the project Inbox: IDCraters_Plan@blm.gov.

Local and regional newspapers and radio stations throughout the planning area were used to disseminate information on the Management Plan scoping and planning process. Press releases were prepared and mailed on April 24, 2002, by the BLM announcing the official scoping meetings and inviting the public to provide input. Press releases were provided to the following print and broadcast media:

Newspapers	
South Idaho Press, Burley	*Times News*, Twin Falls
Arco Advertiser, Arco	*Idaho Statesman*, Boise
Shelley Pioneer, Shelly	*High Country News*, Paonia, Colorado
Wood River Journal, Hailey	*Idaho Mountain Express*, Ketchum
Minidoka County News, Rupert	*Sho-Ban News*, Fort Hall
Morning News, Blackfoot	*Post Register*, Idaho Falls
Idaho State Journal, Pocatello	*Power County Press*, American Falls

Television	
KTVB Channel 7, Boise	KPVI Channel 6, Pocatello
KBCI Channel 2, Boise	KIFI Channel 8, Idaho Falls
KTFT Channel 38, Twin Falls	KIDK Channel 3, Idaho Falls
KMVT Channel 11, Twin Falls	KIVI Channel 6, Meridian
KTRV Channel 12, Nampa	Northwest Cable News, Seattle, Washington

Radio	
Ketchum:	**Jerome:**
KSKI FM	KART AM
KECH FM	KMVX FM
Twin Falls:	**Rupert:**
KLIX AM & FM	KBAR/KZDX AM & FM
KTFI AM & FM	KFTA AM
KEZJ FM	KKMV FM
Idaho Falls:	**Rexburg:**
KUPI AM	KRIC
KID-AM	
Pocatello:	
KWIK	

The first of a series of three newsletters was developed to inform the public about the planning process and to solicit input. Approximately 1,500 copies of Newsletter No.1 were distributed in April 2002, with an insert identifying the schedule and locations for six public meetings in Idaho communities during the 60-day scoping period. Open houses were held June at Arco, Carey, Shoshone, American Falls, Rupert, Fort Hall, Hailey, and Boise. More than 166 people attended the meetings. The following list shows the dates and the number of registered attendees at the open houses:

A total of 169 letters were received during the 60-day public scoping period, with 536 comments. Letters were received from 29 states, with more than 40 percent coming from Idaho. Of the 169 letters received, 148 came from individuals; 9 from federal, state, and local agencies, and 12 from interest groups. Comments were received from 26 different communities in Idaho, with the majority originating in Boise.

Issues identified through the scoping process were considered in the development and analysis of the planning alternatives. Comments were grouped into the following six categories:

- General (56 comments)
- Development (52 comments)
- Transportation and Access (139 comments)
- Visitor Use and Public Safety (77 comments)
- Authorized Uses (80 comments)
- Natural and Cultural Resources (132 comments)

Newsletter No. 2 was sent out in August 2002 to approximately 850 individuals and organizations on the mailing list. Copies were also made available at BLM and NPS offices and in gateway communities adjacent to the planning area. This newsletter summarized the comments received at the open houses and in writing throughout the scoping period. It also identified the next steps and proposed dates in the planning schedule.

Throughout the autumn of 2002, the planning team met and analyzed the comments received. The team developed four conceptual alternatives representing different management strategies that could be considered in planning the future of the Monument. These preliminary alternatives were explained in Newsletter No. 3, which was mailed out and made available in January 2003?. The newsletter also gave the dates and locations of three public workshops to be held in February 2003 for people to come and work with the planning team to provide input and assistance on the conceptual alternatives. A postage-paid card was included in the newsletter, with the request that comments be returned by March 14, 2003.

More than 160 letters or comment cards were received. The planning team also received a response developed as a Wilderness Society Alert from more than 2,500 individuals. These comments were again compiled into categories and analyzed by the planning team. Information in the comments and at the public workshops was used by team members as they considered the impacts that could be caused by possible management actions and made decisions on the final alternatives for this plan.

BLM-NPS COLLABORATION

Proclamation 7373, which enlarged the boundaries of the Monument, directed that the "National Park Service and the Bureau of Land Management manage the Monument cooperatively and shall prepare an agreement to share, consistent with applicable laws, whatever resources are necessary to manage properly the Monument." Further direction from the Secretary of the Interior tasked both agencies to complete a single, combined RMP/GMP and EIS that would meet the legal, regulatory, and policy requirements of both agencies.

In the spirit of this collaboration, a planning team was formed to complete the management plan for the enlarged Monument. Staffed by specialists from both the BLM and NPS, this team has worked cooperatively to prepare this draft document. The team will continue to compile the final plan, which will guide the joint management of the public lands in the Monument over the next 15 to 20 years.

AGENCY CONSULTATION AND COORDINATION

The following sections document the consultation and coordination efforts undertaken by BLM and NPS during the preparation of this Draft Plan/EIS. Consultation will be an ongoing effort throughout the entire process of developing the Final Plan and associated EIS. Appendix H contains copies of letters exchanged during the agency consultation process. Copies of other communications with local governments are in the project files.

CONSULTATION WITH NATIVE AMERICAN TRIBES

In keeping with the provisions of NEPA and FLPMA, BLM and NPS established opportunities for interaction with tribal officials. Superintendent Jim Morris, Monument Manager Rick Vander Voet, and several members of the planning team met with the Shoshone-Bannock Tribal Land Use Policy Commission on March 19, 2002, to explain the planning process and invite their participation. Commission members were updated regularly through newsletters and other correspondence. In addition, at a two-day workshop at the Fort Hall Indian Reservation on July 22-23, 2002, members of the interdisciplinary planning team fielded questions about the planning process and schedule.

Members of the Commission were briefed in spring 2003 to ask for their input on the conceptual alternatives presented in Newsletter No. 3. Formal tribal consultation with the Shoshone-Bannock Tribal Council was conducted in the summer of 2003 before the completion of this draft document.

CONSULTATION WITH THE STATE HISTORIC PRESERVATION OFFICER AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION

The State Historic Preservation Officer (SHPO) must be consulted concerning any resource management proposals that might affect a cultural property listed on or eligible for the National Register of Historic Places. Consultation with SHPO has been ongoing throughout the planning process.

CONSULTATION WITH THE U.S. FISH AND WILDLIFE SERVICE

The Endangered Species Act of 1973 (ESA), as amended, directs every federal agency to ensure that any action it authorizes, funds, or carries out is not likely to jeopardize the existence of any listed species or destroy or adversely modify critical habitat (50 CFR 400). The ESA authorizes federal agencies to enter into early consultation with the USFWS to make those determinations. A USFWS biologist is a consultant on the planning team. Formal consultation with USFWS under Section 7b of the ESA was initiated on April 25, 2002.

COORDINATION WITH OTHER AGENCIES, ORGANIZATIONS, AND GROUPS

The FLPMA, Title II, Section 202, provides guidance for coordinating planning efforts with American Indian tribes, other federal departments, and agencies of the state and local governments. All local governments, tribal governments, and federal and state agencies with resource management responsibilities or interests in the planning area were informed of the planning effort and encouraged to participate. Throughout the planning process, these agencies were updated with newsletter mailings and briefings to keep them informed of the status of the planning effort.

The planning team also made several presentations at special interest group meetings, as well as providing information through newsletter mailings and other personal calls. Congressional officials were kept updated throughout the planning process at regularly scheduled quarterly meetings. The open houses of June 2002 were well attended by local staffers. The members of the USRD Resource Advisory Committee (RAC) have received briefings on the plan schedule at their regular meetings.

The BLM Monument Manager and/or the NPS Superintendent briefed following groups about the status of the planning process:

- Shoshone-Bannock Land Use Planning Commission and Tribal Staff
- Butte County Commissioners
- Blaine County Commissioners
- Power County Commissioners
- Magic Valley Region, Idaho Department of Fish and Game
- Upper Snake River District Resources Advisory Council (RAC)
- Idaho Wool Growers
- The Wilderness Society
- Sierra Club
- Local chapters of National Audubon Society and Native Plant Society
- Idaho Conservation League
- Craters of the Moon Natural History Association
- Dietrich Highway District
- Richfield Highway District
- Shoshone Highway District
- Blaine County Road and Bridge Department

- Butte County Road and Bridge Department
- Committee for Idaho's High Desert
- Gem State Grotto
- Silver Sage Grotto
- Idaho Cave Survey
- Mini-Cassia Transportation Committee
- Idaho Outfitters and Guides Licensing Board
- US Fish and Wildlife Service
- APHIS Wildlife Services
- Carey City Council, City of Carey, Idaho
- Idaho Department of Parks and Recreation
- Several local chapters of Rotary, Lions, and Kiwanis

PLANNING CONSISTENCY

NEPA regulations require the NPS and BLM to try to achieve consistency between management plans and the following:

a. The officially approved or adopted resource-related plans, policies, and programs of other federal agencies, state and local governments, and Native American tribes; and
b. In the absence of officially approved or adopted resource-related plans of other federal agencies, state and local governments, and Native American tribes, then the officially approved and adopted resource-related policies and programs of other federal agencies, state and local governments, and Native American tribes, so long as the guidance and resource management plans are consistent with the policies, programs, and provisions of federal laws and regulations applicable to public lands.

Many other plans were reviewed and considered in the development of this Plan/EIS. This document has been made available to the Governor of Idaho, other federal agencies, state and local governments, and Native American tribes for comment. The resulting comments will be addressed in the final version of the proposed plan. The formal 60-day consistency review by the Governor will occur after the final plan is published.

LIST OF RECIPIENTS

Shown below is a partial list of the many agencies, organizations, and individuals who expressed interest in the Plan during the preparation of this document. Each of these groups or individuals will be sent a notice of availability and, upon request, either the summary of the Draft Plan/EIS, the entire document, or notification of where the document may be viewed on a website.

Native American Tribes

- Shoshone-Bannock Tribes
- Shoshone-Paiute Tribes

Government Agencies and Representatives

- Environmental Protection Agency, Seattle, Washington
- U.S. Fish and Wildlife Service
- Blaine, Butte, Lincoln, Minidoka, and Power County Commissioners
- Blaine, Butte, Lincoln, Minidoka, and Power County Planning and Zoning
- Cassia County
- Jerome County
- Mini-Cassia Transportation Committee
- Idaho Department of Agriculture
- Idaho Department of Commerce
- Idaho Department of Fish and Game
- Idaho Department of Lands
- Idaho Parks and Recreation Department
- Office of the Governor
- U.S. Senator Larry Craig
- U.S. Representative Mike Simpson
- City of Aberdeen
- City of Arco
- City of Burley
- City of Carey
- City of Heyburn
- City of Twin Falls
- City of Jerome
- City of Ketchum
- City of Hailey
- City of Shoshone
- City of Rupert
- City of Minidoka
- USDA/APHIS Wildlife Services
- Sawtooth National Forest - USDA Forest Service
- Idaho Environmental Council
- Idaho Department of Education
- Idaho Fish and Game Commission
- Idaho Geological Survey
- Idaho Migrant Council
- Idaho National Guard
- Idaho State Library
- Upper Snake River District Resource Advisory Council

Media

- Arco Advertiser, Arco
- High Country News, Paonia, Colorado
- Idaho Mountain Express, Ketchum
- Idaho State Journa, Pocatello
- Idaho Statesman, Boise
- Minidoka County News, Rupert
- Morning News, Blackfoot
- Post Register, Idaho Falls
- Power County Press, American Falls
- Shelley Pioneer. Shelley
- Sho-Ban News. Fort Hall
- South Idaho Press, Burley
- Times News, Twin Falls
- Wood River Journal, Hailey
- KTVB Channel 7, Boise
- KBCI Channel 2, Boise
- KTFT Channel 38, Twin Falls
- KMVT Channel 11, Twin Falls
- KTRV Channel 12, Nampa
- KPVI Channel 6, Pocatello
- KIFI Channel 8, Idaho Falls
- KIDK Channel 3, Idaho Falls
- KIVI Channel 6, Meridian
- Northwest Cable News, Seattle, Washington
- KSKI FM, Ketchum
- KECH FM, Ketchum
- KART AM/KMVX FM, Jerome
- KLIX AM & FM, Twin Falls
- KTFI AM & FM, Twin Falls
- KEZJ FM, Twin Falls
- KUPI AM, Idaho Falls
- KID-AM, Idaho Falls
- KBAR/KZDX AM & FM, Rupert
- KFTA AM, Rupert
- KKMV FM, Rupert
- KRIC, Rexburg
- KWIK, Pocatello

Businesses, Organizations and Other Groups

In addition to the specific businesses, interest groups, and other organizations listed below, numerous individuals expressed an interest in the Plan and requested to be notified of the availability of the draft document.

- Audubon Society
- Blue Ribbon Coalition
- Committee for Idaho's High Desert
- Craters of the Moon Natural History Association
- Flat Top Sheep Company
- Gem State Grotto
- Idaho Cattle Association
- Idaho Cave Survey Grotto
- Idaho Conservation League
- Idaho Outfitter and Guides Association
- Idaho Snowmobile Association
- Idaho State Historical Society
- Idaho Watershed Project (Western Watershed Project)
- Idaho Wool Growers
- IMBA (International Mountain Biking Association)
- Izaak Walton League
- Lava Lake Land and Livestock
- National Parks and Conservation Association
- National Wildlife Federation
- Sierra Club of Idaho
- Sun Valley-Ketchum Chamber of Commerce
- The Nature Conservancy
- The Wilderness Society of Idaho
- Twin Falls Chamber of Commerce

Appendixes, Glossary, Abbreviations and Acronyms, Bibliography, List of Preparers, and Index



Previous page, clockwise, from top left
Lava arch
Big Craters view
Sprouts

APPENDIX A
Proclamations and Enabling Legislation

Proclamation 1694

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 1694—May 2, 1924—43 Stat. 1947]

WHEREAS, there is located in townships one south, one and two north, ranges twenty-four and twenty-five east of the Boise Meridian, in Butte and Blaine Counties, Idaho, an area which contains a remarkable fissure eruption together with its associated volcanic cones, craters, rifts, lava flows, caves, natural bridges, and other phenomena characteristic of volcanic action which are of unusual scientific value and general interest; and

WHEREAS, this area contains many curious and unusual phenomena of great educational value and has a weird and scenic landscape peculiar to itself; and

WHEREAS, it appears that the public interest would be promoted by reserving these volcanic features as a National Monument, together with as much land as may be needed for the protection thereof.

NOW, THEREFORE, I, Calvin Coolidge, President of the United States of America, by authority of the power in me vested by section two of the act of Congress entitled, "An Act for the preservation of American antiquities," approved June eighth, nineteen hundred and six (34 Stat., 225) do proclaim that there is hereby reserved from all forms of appropriation under the public land laws, subject to all valid existing claims, and set apart as a National Monument all that piece or parcel of land in the Counties of Butte and Blaine, State of Idaho, shown as the Craters of the Moon National Monument upon the diagram hereto annexed and made a part hereof.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any feature of this Monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this Monument as provided in the act of Congress entitled, "An Act to establish a National Park Service and for other purposes," approved August twenty-fifth, nineteen hundred and sixteen (39 Stat., 535) and Acts additional thereto or amendatory thereof.

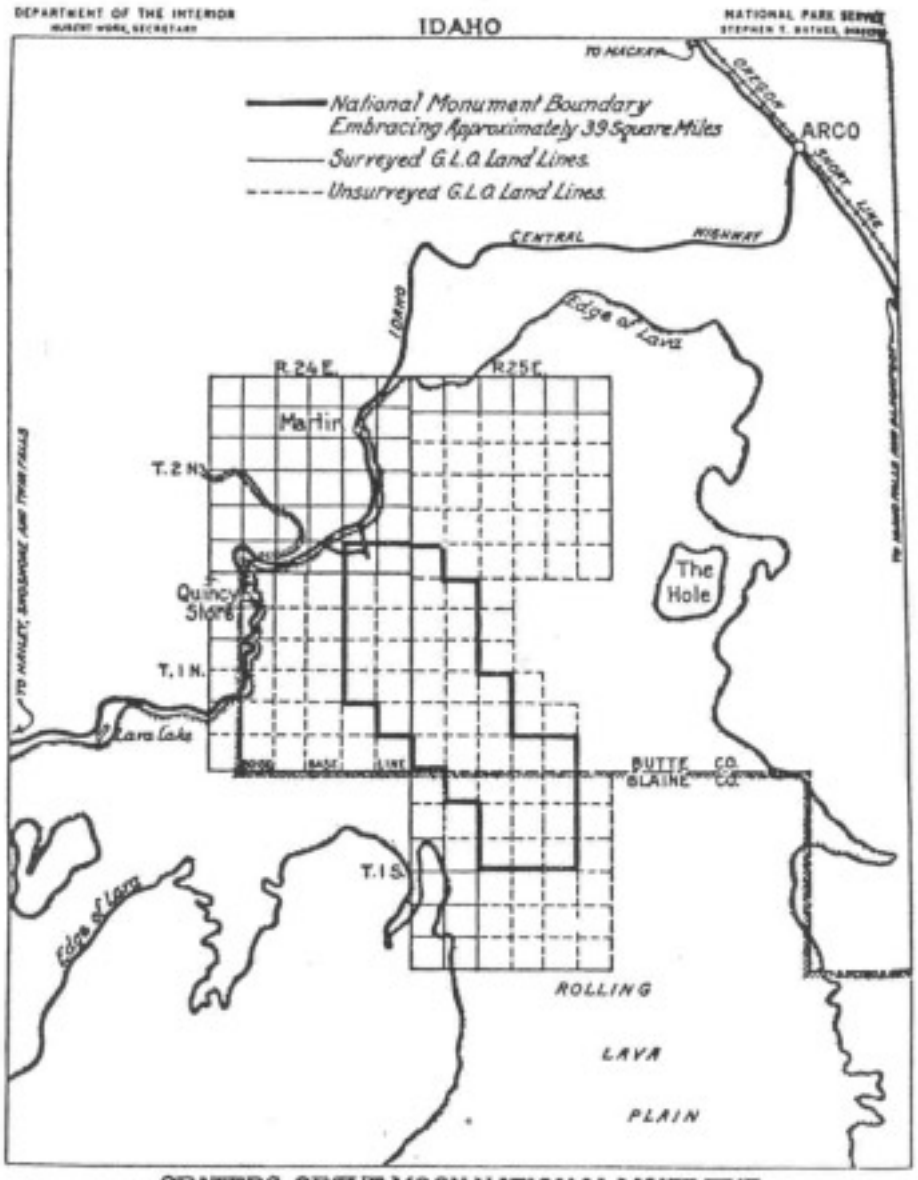
IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE in the City of Washington this 2d day of May in the year of our Lord one thousand nine hundred and twenty-four and of the [SEAL] Independence of the United States of America the one hundred and forty-eighth.

CALVIN COOLIDGE.

By the President:
CHARLES E. HUGHES,
Secretary of State.

Proclamation 1843



CRATERS OF THE MOON NATIONAL MONUMENT

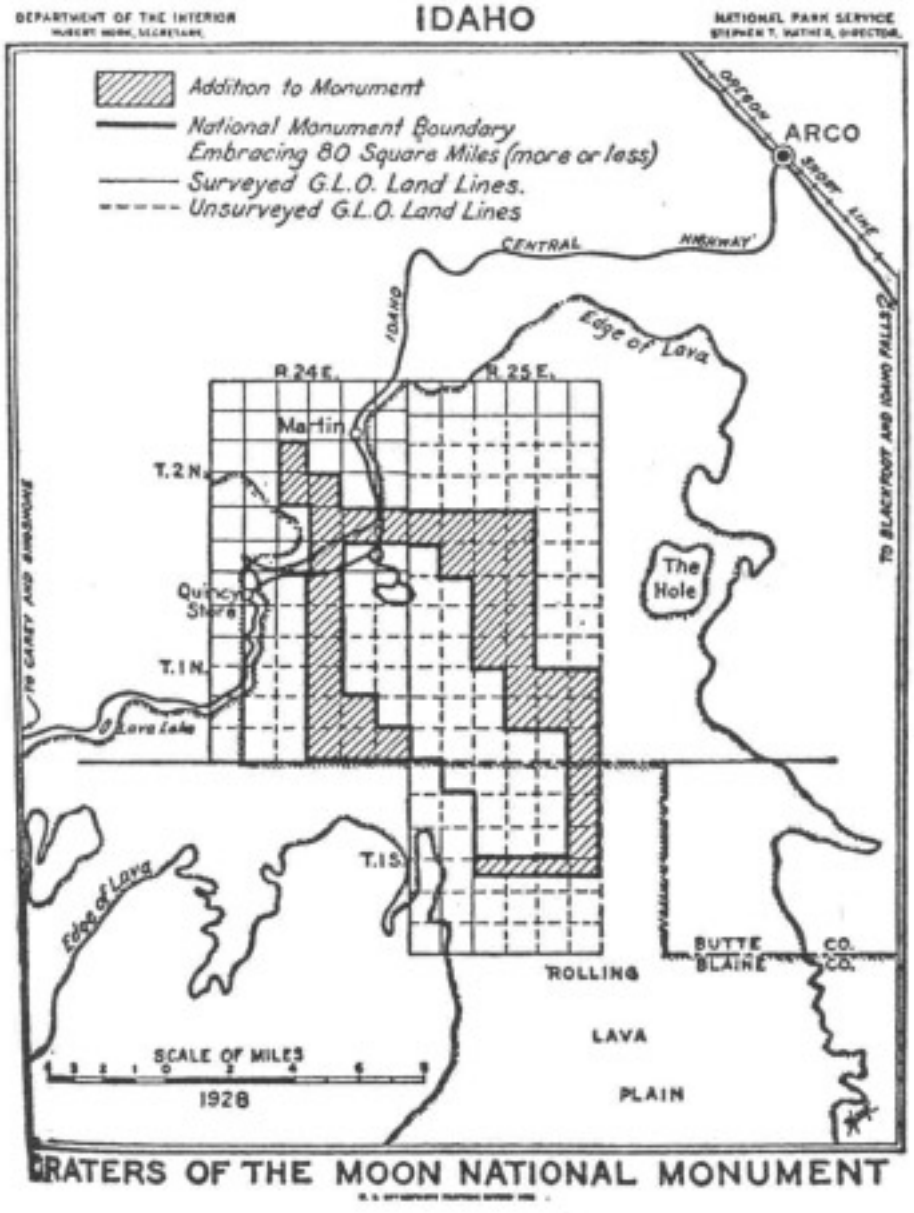
BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 1843—July 23, 1928—45 Stat. 2959]

WHEREAS, it appears that the public interest would be promoted by adding to the Craters of the Moon National Monument in the State of Idaho, certain adjoining lands for the purpose of including within said monument certain springs for water supply and additional features of scientific interest located thereon.

NOW, THEREFORE, I, Calvin Coolidge, President of the United States of America, by authority of the power in me vested by section two of the act of Congress entitled, "An Act for the Preservation of American antiquities", approved June eighth, nineteen hundred and six (34 Stat., 225), do proclaim that Sections sixteen, twenty-one, twenty-two, twenty-five, twenty-six, twenty-seven, and thirty-four in Township two North, Range twenty-four East; Unsurveyed Sections twenty-seven, twenty-eight, twenty-nine, thirty, thirty-two, thirty-three and thirty-four in Township two North, Range twenty-five East; Unsurveyed Sections three, ten, fifteen, twenty-two, twenty-six, twenty-seven, thirty-four, thirty-five and thirty-six in Township



one North, Range twenty-four East; Unsurveyed Sections three, four, nine ten, fifteen, sixteen, twenty-two, twenty-three, twenty-four, twenty-five, twenty-six, twenty-seven and thirty-six in Township one North, Range twenty-five East; Unsurveyed Sections one, twelve, thirteen and the north half of Sections twenty-one, twenty-two, twenty-three and twenty-four in Township one South, Range twenty-five East; all Boise Meridian, Idaho; are hereby reserved from all forms of appropriation under the public land laws, subject to all valid existing claims, and set apart as an addition to the Craters of the Moon National Monument and that the boundaries of the said National Monument are now as shown on the diagram hereto annexed and made a part hereof.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any feature of this Monument and not to locate or settle upon any of the lands thereof.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this Monument as provided in the Act of Congress entitled "An Act to establish a National Park Service and for other purposes," approved August twenty-fifth, nineteen hundred and sixteen (39 Stat., 535) and Acts additional thereto or amendatory thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 23 day of July in the year of our Lord one thousand nine hundred and twenty-eight and of the [SEAL]. Independence of the United States of America the one hundred and fifty-third.

CALVIN COOLIDGE.

By the President:
FRANK B. KELLOGG,
Secretary of State.

Proclamation 1916

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 1916—July 9, 1930—46 Stat. 3029]

WHEREAS lot 1, section 28, township 2 north, range 24 east, Boise meridian, Idaho, is bounded on the north and east by the Craters of the Moon National Monument; and

WHEREAS said lot 1, section 28, contains a spring which is needed to furnish the said monument with an adequate water supply; and

WHEREAS said lot 1, section 28, is vacant unappropriated public land of the United States;

NOW, THEREFORE, I, Herbert Hoover, President of the United States of America, do proclaim that the lands hereinafter described shall be, and are hereby, added to and included within the Craters of the Moon National Monument, and as part of said monument shall be, and are hereby, made subject to the provisions of the act of August 25, 1916 (39 Stat. 535), entitled "An act to establish a national park service, and for other purposes" and all acts supplementary thereto and amendatory thereof and all other laws and rules and regulations applicable to, and extending over, the said monument:

BOISE MERIDIAN

In township 2 north, range 24 east, lot 1, section 28.

Nothing herein shall affect any existing valid claim, location, or entry on said lands made under the land laws of the United States whether for homestead, mineral, right of way, or any other purposes whatsoever, or shall affect the right of any such claimant, locator, or entryman to the full use and enjoyment of his land.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 9th day of July, in the year of our Lord nineteen hundred and thirty, and of the Independence of [SEAL] the United States of America the one hundred and fifty-fifth.

HERBERT HOOVER.

By the President:

HENRY L. STIMSON,

Secretary of State.

Proclamation 2499

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

[No. 2499—July 18, 1941—55 Stat. 1660]

WHEREAS it appears that certain public land which is now a part of the Craters of the Moon National Monument in the State of Idaho, established by proclamation of May 2, 1924, 43 Stat. 1947, and enlarged by proclamations of July 23, 1928, 45 Stat. 2959, and July 9, 1930, 46 Stat. 3029, is not necessary for the proper care and management of the objects of scientific interest situated on the lands within the said monument; and

WHEREAS it appears that such land is needed for the construction of Idaho State Highway No. 22, by the State of Idaho:

NOW, THEREFORE, I, Franklin D. Roosevelt, President of the United States of America, under and by virtue of the authority vested in me by section 2 of the act of June 8, 1906, c. 3060, 34 Stat. 225, U. S. C., title 16, sec. 431, do proclaim that a strip of land situated in section 3, Township 1 North, Range 24 East, and sections 25, 34, 35 and 36, Township 2 North, Range 24 East, Boise Meridian, Butte County, Idaho, as shown on a map prepared by the Department of Public Works, Bureau of Highways, State of Idaho, on file in the General Land Office, Department of the Interior, bearing the title

"FAP 128-E(1)
Map showing right-of-way across
Craters of the Moon National
Monument—Butte County—Idaho
February 1941 — Scale 1" = 400'"

is hereby excluded from the Craters of the Moon National Monument.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 18th day of July in the year of our Lord nineteen hundred and forty-one, and of the Independence of the United States the one hundred sixty-sixth.

[SEAL]

FRANKLIN D. ROOSEVELT.

By the President:

SUMNER WELLES.

Acting Secretary of State.

Proclamation 3506

Presidential Documents

From Federal Register of Nov. 22, 1962

Title 3—THE PRESIDENT

Proclamation 3506

ADDITION TO THE CRATERS OF THE MOON NATIONAL MONUMENT, IDAHO

By the President of the United States of America
A Proclamation

WHEREAS the Craters of the Moon National Monument, Idaho, established by Proclamation No. 1694 of May 2, 1924, was reserved and set apart as an area that contains a remarkable fissure eruption together with its associated volcanic cones, craters, rifts, lava flows, caves, natural bridges, and other phenomena characteristic of volcanic action that are of unusual scientific value; and

WHEREAS it appears that it would be in the public interest to add to the Craters of the Moon National Monument a 180-acre kipuka, a term of Hawaiian origin for an island of vegetation completely surrounded by lava, that is scientifically valuable for ecological studies because it contains a mature, native sagebrush-grassland association which has been undisturbed by man or domestic livestock; and to add to the monument the intervening lands between the kipuka and the present monument boundaries:

NOW, THEREFORE, I, JOHN F. KENNEDY, President of the United States of America, by virtue of the authority vested in me by Section 2 of the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C. 431), and subject to valid existing rights do proclaim that the following-described lands are hereby added to and reserved as a part of the Craters of the Moon National Monument:

BOISE MERIDIAN, IDAHO

T. 1 S., R. 24 E.
sec. 3, W-½
All of section 4, 5, 8, 9, 17, 18 and 19
sec. 10, W-½
sec. 20, W-½ and W-½ E-½
sec. 29, NW-¼ and W-½ NE-¼
sec. 30, NE-¼;
comprising 5,360 acres, more or less.

Warning is hereby expressly given to all unauthorized persons not to appropriate, injure, destroy or remove any of the features or objects of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this nineteenth day of November in the year of our Lord nineteen hundred and sixty-two, and [SEAL] of the Independence of the United States of America the one hundred and eighty-seventh.

JOHN F. KENNEDY

By the President:

DEAN RUSK,
Secretary of State.

[F.R. Doc. 62-11655; Filed, Nov. 21, 1962; 9:54 a.m.]

Omnibus Parks and Public Lands Management Act of 1996

Public Law 104-333
104th Congress

An Act

To provide for the administration of certain Presidio properties at minimal cost to <<NOTE: Nov. 12, 1996 - [H.R. 4236]>> the Federal taxpayer, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, <<NOTE: Omnibus Parks and Public Lands Management Act of 1996. 16 USC 1 note.>>

SEC. 205. CRATERS OF THE MOON NATIONAL MONUMENT BOUNDARY ADJUSTMENT.

(a) Boundary Revision.--The boundary of Craters of the Moon National Monument, Idaho, is revised to add approximately 210 acres and to delete approximately 315 acres as generally depicted on the map entitled ``Craters of the Moon National Monument, Idaho, Proposed 1987 Boundary Adjustment'', numbered 131-80,008, and dated October 1987, which map shall be on file and available for public inspection in the office of the National Park Service, Department of the Interior.

(b) Administration and Acquisition.--Federal lands and interests therein deleted from the boundary of the national monument by this section shall be administered by the Secretary of the Interior through the Bureau of Land Management in accordance with the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701 et seq.), and Federal lands and interests therein added to the national monument by this section shall be administered by the Secretary as part of the national monument, subject to the laws and regulations applicable thereto. The Secretary is authorized to acquire private lands and interests therein within the boundary of the national monument by donation, purchase with donated or appropriated funds, or exchange, and when acquired they shall be administered by the Secretary as part of the national monument, subject to the laws and regulations applicable thereto.

Proclamation 7373



Federal Register

Wednesday,
November 15, 2000

Part VII

The President

Proclamation 7373—Boundary Enlargement of the Craters of the Moon National Monument
Proclamation 7374—Vermilion Cliffs National Monument
Proclamation 7375—Veterans Day, 2000

Federal Register
Vol. 65, No. 221
Wednesday, November 15, 2000

Presidential Documents

Title 3—

The President

Proclamation 7373 of November 9, 2000

Boundary Enlargement of the Craters of the Moon National Monument

By the President of the United States of America

A Proclamation

The Craters of the Moon National Monument was established on May 2, 1924 (Presidential Proclamation 1694), for the purpose of protecting the unusual landscape of the Craters of the Moon lava field. This "lunar" landscape was thought to resemble that of the Moon and was described in the Proclamation as "weird and scenic landscape peculiar to itself." The unusual scientific value of the expanded monument is the great diversity of exquisitely preserved volcanic features within a relatively small area. The expanded monument includes almost all the features of basaltic volcanism, including the craters, cones, lava flows, caves, and fissures of the 63-mile-long Great Rift, a geological feature that is comparable to the great rift zones of Iceland and Hawaii. It comprises the most diverse and geologically recent part of the lava terrain that covers the southern Snake River Plain, a broad lava plain made up of innumerable basalt lava flows that erupted during the past 5 million years.

Since 1924, the monument has been expanded and boundary adjustments made through four presidential proclamations issued pursuant to the Antiquities Act (34 Stat. 225, 16 U.S.C. 431). Presidential Proclamation 1843 of July 23, 1928, expanded the monument to include certain springs for water supply and additional features of scientific interest. Presidential Proclamation 1916 of July 9, 1930, Presidential Proclamation 2499 of July 18, 1941, and Presidential Proclamation 3506 of November 19, 1962, made further adjustments to the boundaries. In 1996, a minor boundary adjustment was made by section 205 of the Omnibus Parks and Public Lands Management Act of 1996 (Public Law 104–333, 110 Stat. 4093, 4106).

This Proclamation enlarges the boundary to assure protection of the entire Great Rift volcanic zone and associated lava features, all objects of scientific interest. The Craters of the Moon, Open Crack, Kings Bowl, and Wapi crack sets and the associated Craters of the Moon, Kings Bowl, and Wapi lava fields constitute this volcanic rift zone system. Craters of the Moon is the largest basaltic volcanic field of dominantly Holocene age (less than 10,000 years old) in the conterminous United States. Each of the past eruptive episodes lasted up to several hundred years in duration and was separated from other eruptive episodes by quiet periods of several hundred years to about 3,000 years. The first eruptive episode began about 15,000 years ago and the latest ended about 2,100 years ago.

Craters of the Moon holds the most diverse and youngest part of the lava terrain that covers the southern Snake River Plain of Idaho, a broad plain made up of innumerable basalt lava flows during the past 5 million years. The most recent eruptions at the Craters of the Moon took place about 2,100 years ago and were likely witnessed by the Shoshone people, whose legend speaks of a serpent on a mountain who, angered by lightening, coiled around and squeezed the mountain until the rocks crumbled and melted, fire shot from cracks, and liquid rock flowed from the fissures as the mountain exploded. The volcanic field now lies dormant, in the latest of a series of quiet periods that separate the eight eruptive episodes

during which the 60 lava flows and 25 cinder cones of this composite volcanic field were formed. Some of the lava flows traveled distances of as much as 43 miles from their vents, and some flows diverged around areas of higher ground and rejoined downstream to form isolated islands of older terrain surrounded by new lava. These areas are called "kipukas."

The kipukas provide a window on vegetative communities of the past that have been erased from most of the Snake River Plain. In many instances, the expanse of rugged lava surrounding the small pocket of soils has protected the kipukas from people, animals, and even exotic plants. As a result, these kipukas represent some of the last nearly pristine and undisturbed vegetation in the Snake River Plain, including 700-year-old juniper trees and relict stands of sagebrush that are essential habitat for sensitive sage grouse populations. These tracts of relict vegetation are remarkable benchmarks that aid in the scientific study of changes to vegetative communities from recent human activity as well as the role of natural fire in the sagebrush steppe ecosystem.

The Kings Bowl lava field and the Wapi lava field are included in the enlarged monument. The Kings Bowl field erupted during a single fissure eruption on the southern part of the Great Rift about 2,250 years ago. This eruption probably lasted only a few hours to a few days. The field preserves explosion pits, lava lakes, squeeze-ups, basalt mounds, and an ash blanket. The Wapi field probably formed from a fissure eruption simultaneously with the eruption of the Kings Bowl field. With more prolonged activity over a period of months to a few years, the Wapi field formed a low shield volcano. The Bear Trap lava tube, located between the Craters of the Moon and the Wapi lava fields, is a cave system more than 15 miles long. The lava tube is remarkable for its length and for the number of well preserved lava-cave features, such as lava stalactites and curbs, the latter marking high stands of the flowing lava forever frozen on the lava tube walls. The lava tubes and pit craters of the monument are known for their unusual preservation of winter ice and snow into the hot summer months, due to shielding from the sun and the insulating properties of the basalt.

Section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and to reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

WHEREAS it appears that it would be in the public interest to reserve such lands as an addition to the Craters of the Moon National Monument:

NOW, THEREFORE, I, William J. Clinton, President of the United States of America, by the authority vested in me by section 2 of the Act of June 8, 1906 (34 Stat. 225, 16 U.S.C. 431), do proclaim that there are hereby set apart and reserved as an addition to the Craters of the Moon National Monument, for the purpose of protecting the objects identified above, all lands and interests in lands owned or controlled by the United States within the boundaries of the area described on the map entitled "Craters of the Moon National Monument Boundary Enlargement" attached to and forming a part of this proclamation. The Federal land and interests in land reserved consist of approximately 661,287 acres, which is the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of this monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or leasing or other disposition under the public land laws, including but not limited to withdrawal from location, entry, and patent under the mining laws, and from disposition under all laws relating

to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The Secretary of the Interior shall prepare a transportation plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

The Secretary of the Interior shall manage the area being added to the monument through the Bureau of Land Management and the National Park Service, pursuant to legal authorities, to implement the purposes of this proclamation. The National Park Service and the Bureau of Land Management shall manage the monument cooperatively and shall prepare an agreement to share, consistent with applicable laws, whatever resources are necessary to manage properly the monument; however, the National Park Service shall have primary management authority over the portion of the monument that includes the exposed lava flows, and shall manage the area under the same laws and regulations that apply to the current monument. The Bureau of Land Management shall have primary management authority over the remaining portion of the monument, as indicated on the map entitled, "Craters of the Moon National Monument Boundary Enlargement."

Wilderness Study Areas included in the monument will continue to be managed under section 603(c) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701–1782).

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Idaho with respect to fish and wildlife management.

This proclamation does not reserve water as a matter of Federal law. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation. The Secretary shall work with appropriate State authorities to ensure that water resources needed for monument purposes are available.

Nothing in this proclamation shall be deemed to enlarge or diminish the rights of any Indian tribe.

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument administered by the Bureau of Land Management.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument. For the purpose of protecting the objects identified above, the Secretary shall prohibit all motorized and mechanized vehicle use off road, except for emergency or authorized administrative purposes.

Lands and interests in lands within the proposed monument not owned by the United States shall be reserved as a part of the monument upon acquisition of title thereto by the United States.

The Secretary of the Interior shall prepare a transportation plan that addresses the actions, including road closures or travel restrictions, necessary to protect the objects identified in this proclamation.

The Secretary of the Interior shall manage the area being added to the monument through the Bureau of Land Management and the National Park Service, pursuant to legal authorities, to implement the purposes of this proclamation. The National Park Service and the Bureau of Land Management shall manage the monument cooperatively and shall prepare an agreement to share, consistent with applicable laws, whatever resources are necessary to manage properly the monument; however, the National Park Service shall have primary management authority over the portion of the monument that includes the exposed lava flows, and shall manage the area under the same laws and regulations that apply to the current monument. The Bureau of Land Management shall have primary management authority over the remaining portion of the monument, as indicated on the map entitled, "Craters of the Moon National Monument Boundary Enlargement."

Wilderness Study Areas included in the monument will continue to be managed under section 603(c) of the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701–1782).

The establishment of this monument is subject to valid existing rights.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Idaho with respect to fish and wildlife management.

This proclamation does not reserve water as a matter of Federal law. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation. The Secretary shall work with appropriate State authorities to ensure that water resources needed for monument purposes are available.

Nothing in this proclamation shall be deemed to enlarge or diminish the rights of any Indian tribe.

Laws, regulations, and policies followed by the Bureau of Land Management in issuing and administering grazing permits or leases on all lands under its jurisdiction shall continue to apply with regard to the lands in the monument administered by the Bureau of Land Management.

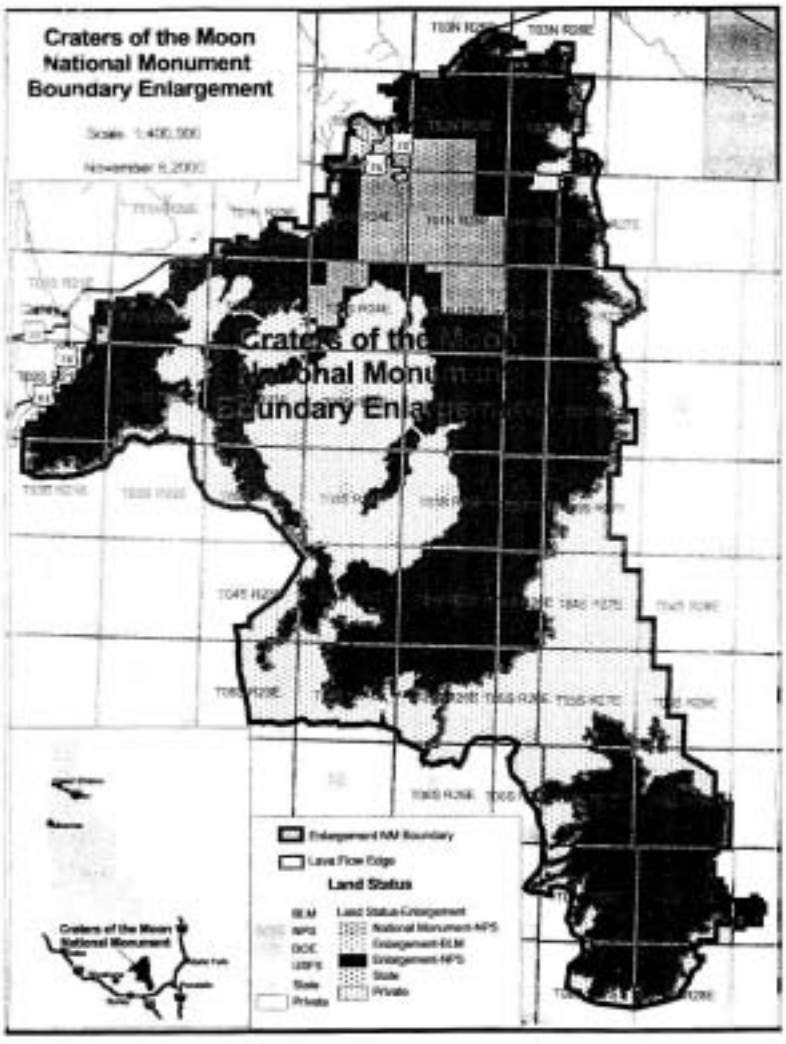
Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the national monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this ninth day of November, in the year of our Lord two thousand, and of the Independence of the United States of America the two hundred and twenty-fifth.

William J. Clinton

Billing code 3195–01–P



[FR Doc. 00–29461
Filed 11–14–00; 8:45 am]
Billing code 3195–01–C

Federal Legislation PL 107-213

Public Law 107-213
107th Congress

An Act

To redesignate certain lands within the Craters of the Moon National Monument, and for other purposes. <<NOTE: Aug. 21, 2002 - [H.R. 601]>>

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. <<NOTE: 16 USC 431 note, 698w.>> SPECIAL MANAGEMENT REQUIREMENTS FOR FEDERAL LANDS RECENTLY ADDED TO CRATERS OF THE MOON NATIONAL MONUMENT, IDAHO.

(a) Redesignation.--The approximately 410,000 acres of land added to the Craters of the Moon National Monument by Presidential Proclamation 7373 of November 9, 2000, and identified on the map accompanying the Proclamation for administration by the National Park Service, shall, on and after the date of enactment of this Act, be known as the ``Craters of the Moon National Preserve".

(b) Administration.--

(1) In general.--Except as provided by paragraph (2), the Craters of the Moon National Preserve shall be administered in accordance with--

(A) Presidential Proclamation 7373 of November 9, 2000;

(B) the Act of June 8, 1906, (commonly referred to as the ``Antiquities Act"; 34 Stat. 225; 16 U.S.C. 431); and

(C) the laws generally applicable to units of the National Park System, including the Act entitled ``An Act to establish a National Park Service, and for other purposes", approved August 25, 1916 (16 U.S.C. 1 et seq.).

(2) Hunting.--The Secretary of the Interior shall permit hunting on lands within the Craters of the Moon National Preserve in accordance with the applicable laws of the United States and the State of Idaho. The Secretary, in consultation with the State of Idaho, may designate zones where, and

establish periods when, no hunting may be permitted for reasons of public safety, protection of the area's resources, administration, or public use and enjoyment. Except in emergencies, any regulations prescribing such restrictions relating to hunting shall be put into effect only after consultation with the State of Idaho.

Approved August 21, 2002.

LEGISLATIVE HISTORY--H.R. 601:

HOUSE REPORTS: No. 107-34 (Comm. on Resources).
SENATE REPORTS: No. 107-181 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD:

Vol. 147 (2001):
May 1, considered and passed House.
Vol. 148 (2002):
Aug. 1, considered and passed Senate.

Wilderness Act

An Act to designate certain lands as wilderness. (84 Stat. 1104)

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

* * * * * * *

DESIGNATION OF WILDERNESS AREAS WITHIN NATIONAL PARKS AND MONUMENTS

SEC. 2. In accordance with section 3(c) of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1132(c)), the following lands are hereby designated as wilderness:

(a) certain lands in the Craters of the Moon National Monument, which comprise about forty-three thousand two hundred and forty-three acres and which are depicted on a map entitled "Wilderness Plan, Craters of the Moon National Monument, Idaho", numbered 131-91,000 and dated March 1970, which shall be known as the "Craters of the Moon National Wilderness Area";

SEC. 4. As soon as practicable after this Act takes effect, a map and a legal description of each wilderness area shall be filed with the Interior and Insular Affairs Committees of the United States Senate and the House of Representatives, and such description shall have the same force and effect as if included in this Act: *Provided, however*, That correction of clerical and typographical errors in such legal description and map may be made.

SEC. 5. Wilderness areas designated by or pursuant to this Act shall be administered in accordance with the provisions of the Wilderness Act governing areas designated by that Act as wilderness areas, except that any reference in such provisions to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this Act, and any reference to the Secretary of Agriculture shall be deemed to be a reference to the Secretary who has administrative jurisdiction over the area.

Approved October 23, 1970.

APPENDIX B

NATIONAL PARK SERVICE # GA9280001002
BLM MOU ID # 399

GENERAL AGREEMENT AND
MEMORANDUM OF UNDERSTANDING
CRATERS OF THE MOON NATIONAL MONUMENT

between the

United States Department of the Interior
National Park Service
Craters of the Moon National Monument

and the

United States Department of the Interior
Bureau of Land Management
Upper Snake River District

This General Agreement (NPS) and Memorandum of Understanding (BLM), hereinafter called Agreement, is between two field units of two agencies within the Department of Interior. The National Park Service's Craters of the Moon National Monument (NPS) and Bureau of Land Management's Upper Snake River District (BLM) jointly manage the recently expanded Craters of the Moon National Monument.

I. Purpose:

Presidential Proclamation 7373 of November 9, 2000 - Boundary Enlargement of the Craters of the Moon National Monument (attached), gave the following direction to the National Park Service and Bureau of Land Management:

> *"The National Park Service and the Bureau of Land Management shall manage the monument cooperatively and shall prepare an agreement to share, consistent with applicable laws, whatever resources are necessary to manage properly the monument . . . ".*

In addition, the Secretary of Interior instructed the Director, Bureau of Land Management and the Director, National Park Service, in a Memorandum dated November 24, 2000 to prepare a shared resources agreement to, *" . . . provide seamless service to the public and use their resources accordingly."* The Directors of the Bureau of Land Management and the National Park Service further refined these instructions in a Memorandum to the

District Manager, BLM Upper Snake River District and the Park Superintendent, Craters of the Moon National Monument, dated February 15, 2001 stating in part, *"The joint management of the Craters of the Moon National Monument represents a new chapter in a continuing partnership between BLM and NPS."*

The purpose of this Agreement is to implement the direction contained in the Proclamation by describing the cooperative working relationship between NPS and BLM. This Agreement is intended to form a framework for joint agency management of a single National Monument. Such interagency cooperation is in the interest of the American public. Both the NPS and BLM have unique abilities and strengths which can be jointly applied for efficient management of the Monument. While both agencies are part of the Department of Interior, cooperative management as described by this Agreement provides the agencies with a high visibility opportunity to demonstrate their capabilities in natural resource stewardship and management effectiveness.

II. Background:

Since the 1924 Presidential Proclamation that created the original National Monument, several expansion proposals, National Park designations, National Conservation Area designations, and other proposals have been made. The Monument has now been expanded through five separate Presidential Proclamations and one legislative initiative. Over the past few years, both BLM and NPS staff have developed a close working relationship, partially in response to these many initiatives for Monument expansion.

The BLM and NPS have formally cooperated for many years in managing the Great Rift - Craters of the Moon area. The agencies have signed several agreement instruments, including a Memorandum of Understanding (MU928095001) in 1999 that also included the U.S. Geological Survey.

At a January 2001 Workshop, staff and managers from both agencies wrote the following vision statement to help guide the development of this Agreement:

> The NPS and BLM will cooperatively manage Craters of the Moon National Monument. Cooperative management means providing seamless public service and extensive public participation opportunities. Working together, both agencies will manage a wide variety of uses, promote education and enjoyment of the Monument's significant natural resources, while retaining appropriate traditional human uses and practices associated with the land. Cooperative management will follow the Proclamations that created the Monument. Cooperative management will recognize the diverse assemblage of geologic features, high desert plant and animal communities, and the rich traditions of human use and interaction within this uniquely Western landscape.

III. Authority:

The BLM is delegated authority of the Secretary of the Interior which is contained in the Federal Land Policy and Management Act of 1976 (FLPMA, 43 U.S.C. 1701 *et seq.*, as amended). The NPS is delegated authority of the Secretary of the Interior which is contained in the National Park Service Organic Act (16 U.S.C. 1 g, as amended) and Presidential Proclamation 1694 which originally established the Monument as a unit of the National Park System.

President Clinton enlarged the Craters of the Moon National Monument, through Proclamation, by the authority vested in him by Section 2 of the Act of June 8, 1906 (Antiquities Act, 16 U.S.C. 431). Proclamation 7373 instructed both agencies to follow their respective legal authorities on the land each agency administers within the Monument, subject to the overriding purpose of protecting the scientific and historic objects described in the Proclamation.

IV. Commitments:

The NPS and BLM will:

- Support one another in activities within the Monument irrespective of the interior boundaries between the agency administered lands.
- Share the expertise each agency possesses to the maximum extent feasible.
- Acknowledge and incorporate the particular strengths and abilities of each agency.
- Strive to develop an integrated budget that outlines all the needs for the Monument.
- Promote the Monument as a model of effective interagency coordination and cooperation.
- Make decisions on discretionary uses and authorizations only after consultation with each other.
- Coordinate public information releases that pertain to matters involving both agencies in the management of the Monument.
- Provide a diversity of opportunities for high quality, safe, educational and enjoyable visitor experiences.

- Insure full public understanding of agency actions and seamless service to the public in a way that is both clear and easily understandable.

- Actively seek the involvement of all stakeholders and a range of views on all Monument management issues, particularly during the planning process.

- Work in close cooperation with local governments including five Boards of County Commissioners, Sheriffs, search and rescue organizations, and community development associations.

- Complete a single, combined Resource Management Plan - General Management Plan - Environmental Impact Statement that meets both agency's legal, regulatory, and policy requirements.

- Work in close cooperation with the Craters of the Moon Natural History Association to support interpretive and research programs at the Monument.

- Partner with the U. S. Geological Survey to foster the scientific understanding of the Monument which serves as a natural laboratory for the study and interpretation of the processes and products of basaltic volcanism and of volcanic rift zones.

Interim Management Guidelines are attached to this Agreement as an addendum. Both parties expect to develop several additional addendums following the execution of this instrument, including a Project Agreement/Preparation Plan to guide the Monument's planning effort.

V. Duration and Limitations:

A. This Agreement becomes effective on the date of its signature by both parties.

B. The need for this Agreement is perpetual because a Presidential Proclamation ordered the preparation of an agreement. Both parties expect to propose modifications to the Agreement. Generally, either party will propose modifications in writing at least sixty days prior to the proposed date of the modification. Both parties will update and review the contents of this Agreement, including modifications and subservient instruments, at least annually.

C. Nothing in this Agreement may be construed to obligate the Department of the Interior or the United States to any current or future expenditures of resources in advance of the availability of appropriations from Congress.

D. Nothing in this Agreement will be construed as affecting the authorities of the participants or as binding beyond their respective authorities.

E. Specific work projects or activities that involve the transfer of funds, services, or property between the parties to this Agreement will require the execution of a separate Intra-Agency Agreement(s). Each subsequent agreement or arrangement involving the transfer of funds, services, or property must comply with all applicable statutes and regulations.

F. No member of, or delegate to Congress, or resident Commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise there from, but these provisions shall not be construed to extend to this Agreement if made with a corporation for its general benefits.

G. During the performance of this Agreement, the participants agree to abide by the terms of USDI-Civil Rights Assurance Certification, non-discrimination, and will not discriminate against any person because of race, color, religion, sex, or national origin. The participants will take affirmative action to ensure that applicants are employed without regard to their race, color, sexual orientation, national origin, disabilities, religion, age, or sex.

H. The existing MOU (MU928095001) with the U.S. Geological Survey remains in effect.

I. This Agreement is coordinated with other existing agreements related to fire and emergency services.

VI. Authorizing Signatures:

/s/ 9/06/01	/s/ 8/24/01
John Reynolds, date	Martha Hahn, date
Regional Director	State Director
Pacific West Region	Idaho
National Park Service	Bureau of Land Management

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Upper Snake River District
1405 Hollipark Drive
Idaho Falls, Idaho 83401-2100

In Reply Refer To:
1511 (ID-070) P

November 29, 2001

Memorandum

To: Acting Director, Bureau of Land Management
Director, National Park Service

Through: State Director, Idaho, BLM
Regional Director, Pacific West Region, NPS

From: District Manager, Upper Snake River District, BLM
Park Superintendent, Craters of the Moon National Monument, NPS

Subject: Joint Agency Recommendations for Craters of the Moon National Monument

Attached is our proposed agreement for the sharing of resources and joint management of Craters of the Moon National Monument that you requested. The agreement has two components:

1. An umbrella General Agreement (NPS) and Memorandum of Understanding (BLM) which broadly frames the cooperative relationship between the National Park Service and Bureau of Land Management.
2. Interim Management Guidelines which are an Addendum to the Agreement. These Guidelines describe how the two agencies intend to manage the Monument during a three year planning process.

We are working on a Project Agreement (NPS) and Preparation Plan (BLM) to provide structure and focus for our interagency planning process. We anticipate submitting this product for your review by August 31. BLM will complete a metes and bounds description of the Monument this Fall and will publish the description as soon as possible.

We appreciate your interest in our unique interagency partnership.

ADDENDUM # 1

CRATERS OF THE MOON NATIONAL MONUMENT

INTERIM MANAGEMENT GUIDELINES

Introduction: Presidential Proclamation 7373 expanded Craters of the Moon National Monument and instructed the Bureau of Land Management and the National Park Service to prepare a joint management plan for the Monument. The agencies anticipate completing this plan by January 2004. In a Memorandum dated November 24, 2000 the Secretary of Interior instructed the Bureau of Land Management and the National Park Service to, "*. . . issue interim management guidance for managing the Craters of the Moon National Monument*". Furthermore, in a Memorandum dated February 15, 2001 the Acting Directors of the National Park Service and Bureau of Land Management instructed the Park Superintendent, Craters of the Moon National Monument and District Manager, Upper Snake River District to, "*. . . provide us with a proposal as to how the agencies can best coordinate management of the Monument*". Until the agencies complete the Monument Plan, these Interim Management Guidelines will provide direction specific to Craters of the Moon National Monument.

These Guidelines are an Addendum to the Agreement between the NPS and BLM for cooperative management of Craters of the Moon National Monument. These Guidelines constitute a more specific level of direction than the commitments outlined in the umbrella Agreement. For BLM, these Guidelines are tiered to the National Interim Management Policy for Newly Created National Monuments. NPS will follow the National Park Service Management Policies.

These Guidelines only apply to the expanded portion of the Monument created by Presidential Proclamation 7373. A 1992 General Management Plan is currently in place for lands administered by the NPS prior to Proclamation 7373.

General Guidelines: The overall theme of this interim management strategy is to maintain existing management policies, designations, and allocations except where changes are necessary to comply with the Proclamation and protect the objects of scientific and historic interest within the Monument.

Proclamation 7373 did not change much of the agencies' regular and routine work within the Monument. Over the next three years, regular, on-going, base work will continue, albeit with a higher agency priority and a higher level of public interest.

However, all project level work within the expanded portion of the Monument, whether approved prior to the Proclamation or a new proposal, will be "screened" to insure no conflicts exist with the Proclamation. In most cases this will involve a quick, simple review and documentation in the appropriate project file. If conflicts or concerns with the project surface during the Proclamation screening, then the project should either undergo additional analysis using National Environmental Policy Act procedures, or be put on hold until completion of the Monument plan.

All BLM designations, restrictions, authorizations, and use limitations in effect on November 9, 2000, on lands now under NPS administration, remain in effect unless specifically addressed in the Proclamation, or in Park Service legal authorities. All NPS designations, restrictions, authorizations, and use limitations in effect on the portion of the Monument established prior to 2000 also remain in effect.

Both agencies expect to discover minor conflicts between NPS and BLM legal authorities, regulations, and policies during the interim management period. These conflicts should be interpreted based on the Monument Proclamation(s) and resolved to the benefit of the Monument's resources at the lowest possible level within the agencies.

Public outreach and the involvement of local communities, users, and the Tribes are perhaps the most critical tasks facing the agencies. The agencies will communicate the contents of the Agreement and Interim Guidelines as widely as possible. It is important that staff from both agencies communicate the same message to the public.

Discussion of Specific Activities

Planning and NEPA: Both agencies have their own planning guidance. Development of the Craters of the Moon General Management Plan - Resource Management Plan - Environmental Impact Statement will require a unique mixing of both agencies procedures and guidance. A forthcoming Project Agreement (NPS) and Preparation Plan will outline the proposed Craters of the Moon planning process.

Evaluation of the five current BLM land use plans and NPS General Management Plan in effect at the Monument will be an interdisciplinary as well as interagency effort. The agencies view evaluation of these current plans as an excellent opportunity for staff from both agencies to become familiar with each other's planning systems.

With limited exceptions, most "mid-level" planning for the expanded area will be placed on hold until completion of the Monument plan. BLM's mid-level plans are generally referred to as Activity Plans. NPS mid-level plans are part of Implementation Planning. Individual project level planning and NEPA analysis will continue. Environmental Assessments are an important tool for involving the public in Monument management during this interim period.

Budget and Staffing: The agencies intend to function under a completely coordinated budget by Fiscal Year 2004. For Fiscal Year 2001, spending will be coordinated as closely as possible. Staff have already submitted Fiscal Year 2002 budget requests. Fiscal Year 2003 requests will provide the first opportunity for development of a consolidated budget.

The agencies will need to complete an Intra-Agency Agreement(s), Economy Act Determination(s), task orders, administrative and overhead fee waivers to share funding beginning in Fiscal Year 2002. The capability of the agencies to provide financial assistance to each other will be determined on a year-by-year, project-by-project basis, subject to the availability of funds. Intra-Agency Agreements also require a financial plan and reports documenting the completion of projects and funds expended.

The agencies will prepare an integrated Operations Plan for the Monument by Fiscal Year. The Operations Plan will facilitate interagency coordination at the project and specific task level. The Operations Plan will assign staff responsibility for specific work items, display the multi-fiscal year nature of some work, and provide documentation of accomplishments.

NPS line authority will continue through the Monument Superintendent. The BLM Interim Monument Manager will have authority as a point of contact, for day to day decisions, and to coordinate activities between the three affected BLM Field Office Managers in Shoshone, Burley, and Idaho Falls. Because the Monument includes three BLM Field Offices, authority for decisions that affect the entire Monument resides with the Upper Snake River District Manager.

The agencies will discuss opportunities to combine staff under the authority of a single line manager during the planning process. The agencies anticipate Monument plan decisions regarding facility and office locations. The staff and table of organization required to implement the Monument plan will likely differ from the staff and tables of organization in place during the interim planning period.

The agencies will encourage opportunities for details and informal cross assignments between staffs. Employees of both agencies will have access to training opportunities under the same terms as employees of the agency offering the training.

Travel and Transportation System Management: Within the expanded Monument, all of the existing transportation network is on BLM administered land. A few primitive routes (ways) are located within Wilderness Study Areas on NPS administered land. All existing roads and trails within the Monument that were open to vehicle travel prior to the Proclamation will remain open during the interim planning period. The agencies may close individual roads and trails to protect resources on a case by case basis. An example of such a closure would be roads within a fire rehabilitation project.

The Proclamation closed the Monument to cross-country travel by motorized or mechanical vehicles. Mechanical vehicles include mountain bikes. On-the-ground, this closure only affects land outside of Wilderness Study Areas because cross-country vehicle travel was already prohibited in Wilderness Study Areas. BLM administers most of the land affected by this Proclamation restriction. BLM will coordinate with livestock permittees, USDA Wildlife Services, Idaho Department of Fish of Game and others who may require authorizations for cross-country vehicle use. Due to the rugged, roadless nature of NPS administered lava flows, authorizations for cross-country vehicle travel are neither desired nor necessary.

BLM will continue to maintain, inventory, and coordinate with County Governments in managing the roads historically and regularly used by motorized and mechanical vehicles. Existing County Road rights-of-way are considered a Valid Existing Right and are not affected by the Proclamation.

The Proclamation mandated preparation of a transportation system plan. The agencies will include a transportation plan as an important component of the Monument plan.

Recreation: The Proclamation did not affect most recreation uses such as camping and hiking. Historically, the recent addition to the Monument received very small amounts of recreation use. BLM estimates from the Recreation Management Information System indicate less than 10,000 visits per year. The vast majority of this use was hunting for sage grouse and mule deer. BLM estimates that the NPS portion of the expanded Monument received less than 300 visits a year, most of which were hunters and hikers along the edge of lava flows.

The area has attracted increasing numbers of mountain bikers, hikers, cavers and other adventure oriented recreationists in recent years. The agencies anticipate additional increases in non-hunting recreation use. The agencies will improve the quantity and quality of visitor use measurements as well as the monitoring of biophysical and social impacts of recreation use.

The proclamation did not affect hunting on BLM administered portions of the Monument, other than the prohibition on cross-country vehicle use. Hunting or the use of firearms on the NPS administered portion of the Monument is prohibited.

Outfitter and Guide Operations: BLM and NPS will coordinate all outfitter and guide authorizations with the Idaho State Outfitter and Guide Licensing Board. The NPS will explore the possibility of signing onto the statewide agreement between all of the Federal land management agencies and the Board. Both agencies will work with the Board to develop additional, temporary guidelines for outfitter activities in the Monument during the interim planning period. The agencies anticipate that decisions in the Monument Plan will address outfitter activities and perhaps use allocation.

All existing outfitter activities within the Monument will be "screened" to insure compliance with the Proclamation. The agencies will perform a NEPA analysis of all proposed changes to existing Outfitter Plans of Operation. Any approved changes will be temporary authorizations pending completion of the Monument plan. Temporary authorizations will not grant an outfitter any preference in future authorizations or allocations which may be made in the Monument plan.

Both agencies believe that new outfitter services may be appropriate in the expanded portion of the Monument. Desired activities in portions of the Monument might include: guided hiking, geologic interpretation, jeep tours, backpacking, wildlife viewing, and mountain biking. Until the agencies complete the Monument plan, BLM will accept Special Recreation Permit Applications for outfitted services. BLM will prepare an environmental assessment for each application. The applicant must pursue the concurrent authorization process with the State Board. If the application is approved, the Special Recreation Permit will be issued for a term of one year. An acceptable annual performance evaluation will be required prior to renewal of the permit for another year. Annual authorizations will be required until completion of the Monument plan. These temporary authorizations will not grant an outfitter any preference in future authorizations or allocations which may be made in the Monument plan.

The agencies will work closely with all authorized hunting outfitters to insure they are aware of NPS restrictions regarding firearms and hunting on NPS administered portions of the Monument. The Proclamation did not change hunting and firearm use on BLM administered portions of the Monument.

Information, Education and Interpretation: NPS will have the lead in these program areas. All products and materials should include both agencies' logos. All products will comply with the intent of BLM's Interim Printing and Signing Guidelines for National Landscape Conservation System Units (IM-2001-083) and NPS Sign Standards (draft Director's Order # 52 C). During the interim planning period, most products will be temporary. Both agencies will monitor public demand for different types of products and evaluate the effectiveness of the available temporary products. The first initial priority is to provide visitor safety information related to the expanded portion of the Monument. The second initial priority is to reach out to local communities, schools, and historic users of the Monument.

It is critical that visitors seeking a developed recreation setting and experience receive information directing them to existing NPS facilities. This theme will be emphasized in all information materials including web sites, informational signs, kiosks, responses to inquiries, press releases, and hard copy handouts and sale items.

Visitors intentionally seeking a remote, primitive, dispersed experience will be provided with information containing a strong "Leave-No-Trace" message. Information on current conditions, hazards, and recommended equipment for backcountry travel will also be provided.

Publication and distribution of maps, educational materials, interpretive brochures and guides, will normally involve the Craters of the Moon Natural History Association. The three BLM Field Offices and Interagency Visitor Center in Idaho Falls will explore opportunities for working with the Natural History Association.

Wilderness Study Areas: Approximately 90 percent of the land transferred from BLM to NPS by the Proclamation is in Wilderness Study Area status. In many areas, BLM administered land lies between the WSA boundary and the NPS administered lava flows within the WSA. The Proclamation instructed NPS to manage WSA's according to Section 603 of FLPMA. NPS has national policy guidance for management of areas recommended suitable for wilderness designation. However, at Craters of the Moon, NPS will generally use BLM's handbook, "Interim Management Policy and Guidelines for Lands Under Wilderness Review" (IMP, Handbook 8550-1). BLM's IMP is directly tiered to Section 603 of FLPMA. This will also facilitate seamless service and avoid contrasts between the two agencies' management of the same WSA within the same Monument.

Every effort will be made to coordinate WSA IMP work with ongoing transportation network inventory, visitor use measurement, and cadastral survey. For example, the transportation system inventory will involve looking for any new ways established in WSA's since 1980 as well as documenting the condition of all existing ways.

The Proclamation had no effect on the existing, designated, NPS Craters of the Moon Wilderness.

Water Rights: The Proclamation does not reserve water as a matter of Federal law. However, the agencies will file for water rights under Idaho State Statute and within the procedures of the Snake

River Basin General Water Adjudication. BLM has submitted several filings within the Monument, primarily for purposes of livestock and wildlife water.

Mineral Materials: The Proclamation prohibits casual rock collection on all land within the Monument. The agencies will provide information on BLM areas outside the Monument where casual collection of materials similar to those found in the Monument is appropriate and permitted.

No mining claims or mineral leases exist within the boundaries of the Monument. Existing authorizations for material sites within the Monument will continue during the interim planning period. Applications for new free use sites, community pits, common variety mineral material sales, or other discretionary mineral material disposals will not be accepted until completion of the Monument plan.

Lands and Realty: The Monument's external boundary is over 260 miles long. Within the boundary are approximately 8,000 acres of State land and 7,000 acres of private land. The Monument does not contain any Recreation and Public Purpose Act leases; active land exchanges, land sales or other land disposal actions.

BLM will perform an inventory of all rights-of-way, easements, land use permits, and other authorizations in effect as of the date of the proclamation. The agencies will make determinations on Valid Existing Rights as part of the planning process. At this time, the agencies are not aware of any conflicts between existing lands and realty program actions and the Proclamation. Action on applications for new, discretionary land use authorizations will be guided by existing NPS and BLM policies until completion of the Monument plan.

The agencies will accept proposals for the acquisition of the private and state land within the Monument boundary during the interim planning period. The agencies will emphasize that all acquisition proposals, whether through easement, fee title, or exchange involve a willing seller who initiates the proposal. The agencies will identify acquisition priorities as part of the Monument plan.

BLM will prepare a written description of the Monument boundary and perform a meets and bounds survey of the external Monument boundary. Both agencies will approve the final boundary description. Minor boundary corrections based on the survey require the approval of both agencies. The agencies will consider maps showing the Monument boundary as preliminary and draft, until the description and survey are complete, approved, and filed with the Secretary of Interior.

In many places, the boundary between NPS and BLM administered land is extremely difficult to describe and locate. In most cases, distinguishing the boundary between BLM and NPS administered land, on the ground, is not a matter of concern to the agencies or the public. Surveying the boundary between the agencies is not a high priority. If a specific situation requires determination of the BLM - NPS boundary, then the boundary line will be described by the Universal Transverse Mercator coordinates which correspond to the edge line of the brown colored lava shown on USGS 7.5 minute series topographic maps.

Government to Government Tribal Coordination: Federal agencies are responsible for maintaining a formal government to government relationship with American Indian tribes. Federal agencies protect and maintain treaty rights on public land. Regarding cultural resources, this relationship focuses on identifying and protecting archaeological sites possessing traditional and religious values. BLM generally provides access for tribal members to gather traditional plant and animal resources from public lands, including National Monuments. Both agencies will facilitate access for tribal members to sacred sites. BLM and NPS will incorporate the concerns of the Shoshone-Bannock Tribes into the Monument plan through formal coordination. The agencies will also regularly coordinate with the Tribes and Tribal staff concerning management activities at the Monument.

Coordination with State and Local Governments: Most state and local government coordination will involve both agencies. Whenever possible, BLM and NPS will cooperatively conduct communication and coordination as the "Monument" rather than as an individual agency.

Law Enforcement Coordination: Law enforcement staff will work together in a cooperative and coordinated manner within the Monument. Both agencies intend to emphasize education over enforcement during the interim management period.

Coordination with County Sheriffs will be conducted jointly. County deputization of BLM or NPS law enforcement staff is entirely at the discretion of the individual County Sheriff. BLM will enter into separate agreements with each of the five County Sheriffs affected by the Monument. During the interim management period, these agreements will provide financial assistance to the County Sheriffs so that they can manage an expected increase in people accessing the Monument as well as search and rescue activities.

Fire Management: BLM has traditionally functioned as the lead agency for most fire management activities in the Monument area. The agencies have established a long standing cooperative relationship prior to the expansion Proclamation. Both agencies have also entered into a variety of agreements with nearby local fire departments and rural Fire Districts. The agencies intend to continue, if not improve, these existing partnerships.

The Monument contains a complete spectrum of fire management activities. Fire suppression ranges from highest priority immediate response aimed at protecting remnant stands of sagebrush to low level monitoring of lightening caused fires within the Craters of the Moon Wilderness. BLM has scheduled several fuel management projects and range restoration projects which are partially within the Monument. Existing vegetation studies related to fire effects and fire rehabilitation will continue.

During the interim planning period, adequate fire management guidance exists under the agencies' existing plans and agreements. For example, existing fire management guidance requires a Resource Advisor for all wildfires within or near the Monument. Both agencies will continue to operate under existing fire management plans and Interagency Agreements which are reviewed and updated on an annual basis. The Monument plan will address fire management and the relationship between fire management and other resources.

Weed and Grasshopper Control Programs: The Proclamation will result in the agencies placing a higher priority on weed management over a large area. The focus on stopping the spread of new invaders will continue. The agencies will explore opportunities to increase cooperation and logistical coordination with local governments and weed control districts. The ongoing, nationally recognized, Raven's Eye WSA leafy spurge program will continue on both agencies' jurisdictions. Weeds are recognized to be an important element of transportation system management.

Historically, grasshoppers control activities have occurred within the Monument boundary where there is an agricultural interface. The agencies will work with USDA APHIS to address the additional constraints of Monument designation in the NEPA process for proposed grasshopper control activities.

USDA Wildlife Service's Operations: The Proclamation did not specifically address predator control. However, predator control activities are addressed in the Background Materials document, the Secretary's Memorandum, the Director's Memorandum, and BLM's National Interim Management Policy for Newly Created National Monuments. For BLM administered land, predator control, including any necessary preemptive strategies, will continue to be governed under applicable laws. BLM will continue to coordinate with Wildlife Services as described in existing national MOU's, BLM State policy, and Upper Snake River District annual meetings.

The NPS Superintendent has the authority to authorize predator control on NPS administered land for individual offending animals on a case-by-case basis.

Livestock Grazing: Both agencies will emphasize that the Proclamation affirms BLM's continued management of livestock grazing consistent with existing policies. Both agencies recognize that livestock grazing is an important component of the landscape described in the Proclamation. BLM will continue to follow the same laws, regulations, and policies for administering grazing as it did prior to the Proclamation.

Scientific Study: All of the Proclamations associated with Craters of the Moon National Monument focus on the unique geologic resources of the Monument. The protection, study, and appreciation of the Monument's unique geologic features are perhaps the over-riding purpose of the Monument. Both agencies acknowledge the challenge of scientific study in the Monument's remote and often harsh environment. In addition, restrictions on surface disturbance and cross-country travel can constrain geologic research. Nonetheless, the agencies recognize the potential exists for significant scientific discoveries. In addition, basic research plays an important role in the identification, characterization and interpretation of the Monument's resources.

The existing MOU between the agencies and the U.S. Geological Survey remains in effect. BLM and NPS will continue to encourage the U. S. Geological Survey to pursue ongoing research involving geologic mapping, geochemistry, geophysics, geomorphology, seismology, geomagnetism, geodesy, tectonics, earthquake hazards, volcanic hazards, and climate change.

The agencies will encourage partnerships with a variety of academic organizations, professional societies, clubs and hobby organizations who have expressed interest in the Monument's unique

geologic resources. These organizations include three separate Grottos associated with the National Speleological Society.

The existing NPS unit has a long term air quality monitoring program in place. Both agencies intend to continue and expand climatic and air quality research and monitoring. The Idaho National Energy and Environmental Laboratory has cooperatively participated in these activities and is expected to be an important partner in the future.

The Monument contains several ongoing archeologic scientific studies. The agencies will continue established relationships with academic institutions for these challenge cost share research projects. Inventory, characterization, and protection of cultural resources is a high priority for both agencies. The potential for additional discoveries of significant cultural and paleontological resources is high. Investigations must conform with policy guidelines for surface disturbance within Wilderness Study Areas and minimize surface disturbance elsewhere.

The lava flows at Craters of the Moon create many unique opportunities for the study of isolated, relatively undisturbed native plant communities. The Proclamation describes kipukas as important comparative benchmarks relative to human altered plant communities in the Snake River Plain. The Monument has been the site of many vegetative studies and research projects. Several studies involving rare plants, natural fire, fire rehabilitation, and grazing are in progress. The agencies intend to continue ongoing studies without regard to the Proclamation's transfer of administration of some study sites.

The Monument is also a remnant stronghold for sage grouse. The Monument is particularly suited for the study of healthy sage grouse populations. The agencies intend to encourage both population and habitat research in cooperation with the Idaho Department of Fish and Game.

Several potential partners have expressed an interest in biological science at the Monument including Idaho's Conservation Data Center, the Idaho Rangeland Resource Commission, universities, and the Biological Division of the U.S. Geological Survey. Both agencies will actively encourage appropriate and needed biological research in cooperation with these partners to fulfill this important aspect of Monument designation.

The agencies hope to sponsor and host a Science Symposium in Fiscal Year 2002 with the intent of cataloging existing scientific information and fostering future research within the Monument.

Recommended by:

/s/ 10/24/01
Jim May, date
District Manager
BLM
Upper Snake River District

/s/ 10/26/01
James A. Morris, date
Superintendent
NPS
Craters of the Moon National Monument

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Upper Snake River District
1405 Hollipark Drive
Idaho Falls, Idaho 83401-2100

In Reply Refer To:
6210 (ID-079) **P**

November 29, 2001

EMS
Instruction Memorandum No. ID-070-2002-001
Expires: 9/30/03

To: All Employees

From: District Manager

Subject: Interim Management Guidelines for Craters of the Moon National Monument

Program Area: National Landscape Conservation System (NLCS).

Purpose: This Instruction Memorandum transmits the attached Interim Management Guidelines for Craters of the Moon National Monument. The Guidelines provide a management strategy for the Monument while BLM and the National Park Service (NPS) cooperatively prepare a land use plan.

Policy/Action: These Interim Guidelines are an Addendum to the Memorandum of Understanding (BLM-ID-MOU-399) between BLM and NPS for the Craters of the Moon National Monument. The Memorandum of Understanding was recently signed by the BLM Idaho State Director and NPS Pacific West Regional Director. The MOU broadly frames the cooperative relationship between the NPS and BLM. The Interim Management Guidelines describe how BLM and NPS will manage the National Monument during the land use planning process. The Guidelines apply to all BLM and NPS management actions and activities at the expanded National Monument. The NPS unit at Craters of the Moon National Monument will publish the Guidelines as part of the Compendium of Superintendents Orders.

Timeframe: This IM is effective immediately.

Background: Presidential Proclamation 7373 of November 9, 2000 expanded Craters of the Moon National Monument and instructed BLM and NPS to prepare a joint management plan for the Monument. Subsequently, the Secretary of Interior instructed the agencies to issue interim management guidance for the expanded Monument. For BLM, NLCS national policy requires the development of unit specific interim management guidelines which are tiered to the National

Interim Management Policy for Newly Created National Monuments.

Manual/Handbook Sections Affected: None.

Coordination: The following Offices have provided input to, and reviewed draft versions of the attached Interim Management Guidelines: BLM Shoshone Field Office, Upper Snake River District, Idaho State Office Resource Services and Support Services Divisions, Headquarters NLCS Office; NPS Craters of the Moon National Monument, Columbia Cascades Support Office and the Pacific West Regional Office.

Contact: If you have questions regarding this IM or the Interim Management Guidelines, please contact Rick VanderVoet, BLM Monument Manager, at 208-886-7288, or Jim Morris, NPS Superintendent, at 208-527-3257.

Signed by:
Jim May
USRD, District Manager

Authenticated by:
Sandy Hoffer
Secretary

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
WASHINGTON, D.C. 20240
October 4, 2001

In Reply Refer To:
2071 (WO-171) N

EMS TRANSMISSION 10/11/01
Instruction Memorandum No. 2002-008
Expires: 09/30/2003

To: State Directors and Assistant Directors

From: Director

Subject: Interim Management Policy for Bureau of Land Management National Monuments and National Conservation Areas

Program Area: National Landscape Conservation System; National Monuments; National Conservation Areas

Purpose: This Instruction Memorandum issues interim management guidelines for newly designated BLM national monuments and national conservation areas and supercedes IM No. 2000-62. The guidelines in this policy are designed to provide direction to State Directors responsible for the proper care of new national conservation areas or national monuments, pending the completion of the required planning processes.

Policy/Action: See Attachment 1.

Time Frame: This guidance is in effect immediately.

Background: IM No. 2000-62, which provides interim management guidance for newly designated BLM national monuments expired on September 30, 2001. This Instruction Memorandum updates the guidance to include national conservation areas with input from the field.

Budget Impact: n/a

Manual/Handbook Sections Affected: n/a

Coordination: n/a

Contact: If you have any questions or concerns regarding this policy, you may contact Elaine Marquis-Brong, Director, National Landscape Conservation System, at (202) 208-3516.

Signed by:
Nina Rose Hatfield
Acting Director

Authenticated by:
Vincent C. Chapman Jr
Policy & Records Group, WO-560

1 Attachment
1 Interim Management Policy (4 pp)

Interim Management Policy
BLM National Monuments
BLM National Conservation Areas

Adhere to direction in the legislation or the President's Proclamation

- Federal lands and interests in lands within the national conservation area or monument are withdrawn from all forms of entry, location, selection, sale, leasing, or other disposition under the public land laws, including among others the mineral leasing and mining laws unless otherwise specified in legislation or the Proclamation.

- Valid existing rights will be recognized.

- The States responsibilities and authorities regarding wildlife management, including fishing and hunting, within the national conservation area or the monument are unaffected by legislation or the Proclamation.

- Grazing activities shall continue to be governed by applicable laws and regulations other than specified in legislation or the Proclamation.

- Existing withdrawals, reservations, or appropriations are not revoked, but the national conservation area or monument is the dominant reservation.

Maintain existing management policies, designations, and allocations except where changes are necessary to comply with the legislation or Proclamation and protect the objects of scientific and historic interest within the national conservation area or monument.

Provide the public with prompt and accessible information on questions regarding the use of federal lands within the national conservation area or monument.

Coordinate with the local, State, Tribal, and other governmental entities (under existing agreements and any new arrangements deemed necessary) to disseminate and exchange information and cooperate in management actions, consistent with applicable legal authorities and other directives.

Assure the applications, proposals, and future use requests pending when the legislation or Proclamation was issued are subject to the terms of the legislation or Proclamation, including its recognition of valid existing rights, and other management directives and decisions relate to the national conservation area or monument.

Consider land or easement acquisitions and land exchanges that will enhance the values of the national conservation area or monument.

All existing planning documents related to the monument lands should be reviewed for consistency with the legislation or Proclamation. Consistent with NEPA and FLPMA, the plans should be modified or a new plan created for the monument that addresses all resource issues in the legislation or Proclamation. A separate planning document for the national conservation area or monument is recommended, as opposed to combining the national conservation area or monument with an adjacent

administrative resource area.

Discussion of Specific Activities

In general, actions that are not precluded by the Proclamation or legislation and which do not conflict with the established purposes of the monument or national conservation area may continue. Allowed activities can be restricted only where (1) the BLM, through processes required by existing law, identifies places where such uses ought to be restricted or prohibited as necessary to protect the federal lands and resources, including the objects protected by the monument or national conservation designation; or (2) where the BLM finds a clear threat from such a use to the federal lands and resources, including the objects protected by the national conservation area or monument designation and the circumstances call for swift protective action.

Livestock Grazing: Where applicable and consistent with the designation, livestock grazing within the national conservation area or monument is permitted, pursuant to the terms of permits and leases. Appropriate grazing management practices (as in all properly managed grazing pastures) should be followed to protect rangeland resources. Implementation of Standards and Guidelines for Rangeland Improvement should continue. Actions should be taken to assist permits in assuring compliance with existing requirements. Enforcement actions against trespassers or other violators continue to be authorized under policy.

Animal Damage Control: Coordinate closely with State Game and Fish Department and Animal and Plant Health Inspection Service (APHIS) on animal damage control issues.

Camping: Dispersed recreational camping may continue consistent with current policies and practices and the Proclamation. Developed BLM camping facilities should be maintained and rehabilitated as appropriate, consistent with monument purposes.

Facilities: Maintenance of existing facilities should be permitted, subject to compliance with current policies and practices, provided monument resources are protected. Applications for new facilities may be considered, if they will protect or enhance monument resources.

Hunting and Fishing: Coordinate with the State to ensure public safety, specifically if there are areas of increased visitor use.

Mineral Activities (including Hard rock, Oil, Gas, and Coal): Unless otherwise specified in legislation or proclamation all valid existing rights will be recognized in accordance with policy.

Noxious Weeds/Exotic Species: Existing noxious weed control activities should continue. Exotic species should not be introduced, unless doing so is essential to control noxious weeds or other undesirable species.

Off-Road Vehicles: No areas in the national conservation area or monument should be authorized for cross-country, off-road vehicular use, except for authorized administrative and emergency purposes. For routes, including washes, where motorized and mechanical vehicular use has been authorized by past planning decisions, management discretion should be exercised where necessary, through emergency closures or other actions, to protect the national conservation area or monument resources. Wheeled game carriers are exempt.

Paleontological Resources and Rock Collection: The collection of any objects, including vegetation, paleontological resources, or rock specimens, should not be permitted, except where intended for legitimate scientific uses for which documentation is provided to the satisfaction of the responsible management official. Where limited wood gathering for uses including fire wood and fence maintenance occurred prior to designation, this activity could be permitted. In such cases the manager must assure that national conservation area or monument resources are not affected.

Rights-of-Way: No new rights-of-way or ancillary public facilities should be processed, except for rights-of-way pursuant to existing policies and practices and necessary for access and/or maintenance needs to private or state in holdings, public facilities or administrative sites. In addition, rights-of-way may be permitted within the boundary of existing rights-of-way or designated rights-of-way corridors established by previous land use planning, and where site specific NEPA analysis determines that impact to the objects or values for which the national conservation area or monument was designated would be negligible.

Roads: Road improvements should be minimal and designed solely to correct those conditions that are unsafe or hazardous. Activities that maintain, as opposed to enhance, existing roads may be permissible.

Scientific, Archeological, and Historical Investigations: Scientific, archeological, and historical investigations that increase our understanding of the national conservation area's or monument's resources are important and scientific use for surveys and reconnaissance may be allowed but surface disturbance should be avoided.

Signs and Interpretation: Appropriate signs at the national conservation areas or monuments boundaries should be provided. Other relevant information should be posted as needed. Actions should be initiated to interpret the resources and values and provide environmental education to visitors on important topics (i.e., visitor safety and resource protection).

Surface Disturbance and Reclamation Activities under Current Permits: Surface disturbance and reclamation activities under current permits should proceed consistent with those permits. Permit extensions will be considered subject to consistency with applicable policies, laws and proclamation.

Vegetation Manipulation: Vegetation manipulation should proceed only when consistent with conservation and protection of the national conservation area or monument's resources. Chaining and other vegetation manipulation methods that cause substantial surface disturbance shall not be permitted.

Wilderness Study Areas: Where applicable, maintain the non-impairment standard for wilderness study areas, per FLPMA, to prevent undue and unnecessary degradation of resources.

APPENDIX B: PLANNING CRITERIA

GENERAL PLANNING CRITERIA

"Planning area" or use of the "Monument" refers to the original NPS Monument, expanded Monument, and Preserve as a whole. The following General Planning Criteria will be considered in developing the Management Plan for the Craters of the Moon National Monument and Preserve:

Presidential Proclamations 1694 and 7373
Compatibility of proposed uses with the purposes for which the Monument was established
Existing laws, regulations, and agency policies
Plans, programs, and policies of North American Indian tribes and other federal, state, and local governments
Public input
Quantity and quality of non-commodity resource values
Future needs and demands for existing or potential resource commodities and values
Past and present use of public and adjacent lands
Public benefits of providing goods and services relative to costs
Environmental impacts
Social and economic values
Public welfare and safety
Appropriate scientific findings

PROGRAM PLANNING CRITERIA

Section II of the National Parks Omnibus Management Act of 1998 (the Act) directs the NPS to inventory and monitor resources to establish baseline conditions and provide information on long-term trends in the condition of resources. The Act also provides a clear mandate to encourage scientific studies to benefit both park management and broader scientific understanding. The Act further directs that the information gained from resource inventories, monitoring, and research be disseminated to the public and utilized in management decisions.

In addition to the General Planning Criteria, the following program-specific criteria will apply to individual program decisions. Planning criteria are listed on the left; the laws, regulations, and policies that guide or mandate the criteria are referenced on the right.

PROGRAM PLANNING CRITERIA

Impairment	
Planning Criteria	*Laws, Regulations, Policies*
Law and NPS management policies require the analysis of potential effects to determine whether or not actions would impair Monument resources. Managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on resources and values. Although management discretion may allow certain impacts within NPS units, impairment of Monument resources and values is not permitted unless specifically authorized by federal law. A determination on impairment is made in the *Environmental Consequences* section for each impact topic.	NPS Organic Act, Proclamation 7373, NPS and BLM Management Policies
Archaeological Resources	
Planning Criteria	*Laws, Regulations, Policies*
Laws and policies, including the National Historic Preservation Act, require that both agencies achieve the following desired conditions for archaeological resources within the Monument: • Archaeological sites are identified and inventoried, and their significance is determined and documented. • Sites are protected in an undisturbed condition unless it is determined through formal processes that disturbance or natural deterioration is unavoidable. • Where disturbance or deterioration is unavoidable, sites are professionally documented and salvaged.	National Historic Preservation Act; Executive Order 11593; Archaeological and Historic Preservation Act; Archaeological Resources Protection Act; Federal Land Policy Management Act; the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation; Programmatic Memorandum of Agreement among the NPS, Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers (1995); BLM and NPS Management Policies; National Environmental Policy Act; NPS Organic Act
Historic Properties	
Planning Criteria	*Laws, Regulations, Policies*
Under the National Historic Preservation Act and other laws, historic properties within the Monument will be inventoried and evaluated under National Register criteria. The qualities that contribute to the eligibility for listing of properties on the Register will be protected in accordance with the Secretary of Interior's Standards (unless it is determined through a formal process that disturbance or natural deterioration is unavoidable).	National Historic Preservation Act; Executive Order 11593; Archaeological and Historic Preservation Act; Federal Land Policy Management Act; the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation; Programmatic Memorandum of Agreement among the NPS, Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers (1995); BLM and NPS Management Policies; National Environmental Policy Act; NPS Organic Act

Indian Trust Resources/Tribal Treaty Rights	
Planning Criteria	*Laws, Regulations, Policies*
Secretarial Order 3175 requires that any anticipated impacts to Indian Trust Resources from a proposed project or action by Department of Interior agencies be explicitly addressed in environmental documents. The Federal Indian Trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights; and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.	Secretarial Order 3175; Department of Interior ECM 95-2, NPS and BLM Management Policies
Ethnographic Resources	
Planning Criteria	*Laws, Regulations, Policies*
Certain contemporary American Indian and other communities are permitted by law, regulation, or policy to pursue customary religious, subsistence, and other cultural uses of resources with which they have traditionally associated. Both agencies plan and execute program in ways that safeguard cultural and natural resources, while reflecting informed concern for the contemporary peoples and cultures traditionally associated with those resources. Ethnographic information will be collected through collaborative research that recognizes the sensitive nature of such information. Certain research data may be withheld from public disclosure to protect sensitive or confidential information about archaeological, historic, or other resources when doing so would be consistent with the Freedom of Information Act (FOIA). In many circumstances, this will allow the agencies to withhold information about ethnographic resources.	National Historic Preservation Act; Programmatic Memorandum of Agreement among the NPS, Advisory Council on Historic Preservation, and the National Council of State Historic Preservation Officers (1995); Executive Order 11593; American Indian Religious Freedom Act, Native American Graves Protection and Repatriation Act, Executive Order 13007 on American Indian Sacred Sites; Presidential Memorandum of April 29, 1994, on Government-to-Government Relations with Tribal Governments; BLM and NPS Management Policies; NPS Organic Act
Collections	
Planning Criteria	*Laws, Regulations, Policies*
NPS and BLM policies and other laws require that the qualities that contribute to the significance of collections be protected in accordance with established standards. All museum objects and manuscripts will be identified and inventoried with their significance determined and documented. Federal regulations (CFR Title 36, Section 2.5) prohibit collection of animal, plant, and mineral specimens on NPS lands without a permit. Specimen collection is limited to scientific or educational purposes, and all such specimens must be labeled as NPS property and recorded in the NPS museum catalog.	National Historic Preservation Act; American Indian Religious Freedom Act; Archaeological and Historic Preservation Act; Archaeological Resources Protection Act; Native American Graves Protection and Repatriation Act; NPS and BLM Management Policies; NPS Organic Act

Air Quality	
Planning Criteria	*Laws, Regulations, Policies*
Under the federal Clean Air Act, the Craters of the Moon Wilderness is designated a Prevention of Significant Deterioration (PSD) Class I area. The goal for Class I areas is to remedy existing visibility impairment and prevent future visibility impairment. Only small increases from new sources of air pollutants above established baseline levels of sulfur dioxide and particulate matter are permitted. The non-wilderness lands within the Monument are classified as Class II. Class II allows larger but still moderate increases above baseline levels. All lands within the planning unit will be managed in compliance with applicable local, state, tribal, and federal air quality laws, regulations, standards and implementation plans, including the Idaho DEQ regulations and the Montana/Idaho Smoke Management Program. Current laws and policies require that air quality in the Monument meets National Ambient Air Quality Standards (NAAQS) for specified pollutants and that Monument activities do not contribute to the deterioration of air quality.	Clean Air Act; BLM and NPS Management Policies; National Parks Omnibus Management Act of 1998; NPS Organic Act
Water and Soil Resources	
Planning Criteria	*Laws, Regulations, Policies*
Section 319 of the Clean Water Act obligates federal agencies to be consistent with state nonpoint source management program plans. Section 313 requires compliance with the state water quality standards. Both agencies will coordinate with the IDEQ regarding their total maximum daily load program and other relevant water quality programs. Water quality will be maintained or improved in accordance with state and federal standards. Water resources within the Monument are ephemeral and relatively rare, with the exception of the northernmost end, which contains small spring-fed streams. The plan will describe the desired future condition of those types of water sources that occur within the Monument. The plan will also identify any Best Management Practices necessary, or desirable, to protect watersheds or to maintain or enhance soil conditions in order to maintain long-term productivity of soils.	Clean Water Act; Executive Order 11514; Executive Order 12088; Executive Order 11988 (Floodplain Values); Executive Order 11990 (Wetland Values); Rivers and Harbors Act; BLM and NPS Management Policies; National Environmental Policy Act; National Parks Omnibus Management Act of 1998; NPS Organic Act

Vegetation	
Planning Criteria	*Laws, Regulations, Policies*
Vegetation will be managed to achieve desired plant communities or desired future condition. Ecological site potential will be considered, providing for biodiversity; protection and restoration of native species; and nonconsumption uses, including plant protection, visual quality, and watershed protection. The desired plant communities will provide both wildlife habitat and forage for livestock and native wildlife. Plant maintenance, watershed protection and stability, and wildlife habitat needs will be a primary goal. The plan will identify and describe desired plant communities and those actions necessary to achieve that desired future condition. Domestic livestock will use forage on BLM rangeland. The BLM will manage grazing according to Idaho's Standards for Rangeland Health and ecological site potential. Prescribed fire and other treatment methods, consistent with approved fire management plans, will be considered as management tools to manipulate and restore native vegetation.	NPS and BLM Management Policies; Idaho Standards for Rangeland Health; National Parks Omnibus Management Act of 1998; NPS Organic Act
Geologic Resources	
Planning Criteria	*Laws, Regulations, Policies*
The natural soil resources and geologic processes in the Monument should function in as natural condition as possible, except where special management considerations are allowable under policy. These areas of special management considerations will be determined through the management zoning decisions in the plan.	Monument's enabling legislation; NPS and BLM Management Policies; National Parks Omnibus Management Act of 1998; NPS Organic Act; Proclamation 1694
Caves and Paleontology	
Planning Criteria	*Laws, Regulations, Policies*
Significant cave resources in the Monument will be identified and protected pursuant to 43 CFR, Part 37. Cultural sites within caves that meet the National Register criteria will be protected and nominated for inclusion on the register. Both agencies will coordinate with the Idaho State Historic Preservation Officer and Tribal State Historic Preservation Officers on issues dealing with historic or cultural resources. BLM will identify significant caves on federal lands and regulate, or restrict use of, significant caves under the Federal Cave Resources Protection Act of 1988. The policy of the NPS, pursuant to its Organic Act of 1916 (16 USC 1, et seq.) and Management Policies (Chapter 4:20, Dec. 1988), is that all caves are afforded protection and will be managed in compliance with approved resource management plans. Accordingly, all caves on NPS-administered lands are deemed to fall within the definition of "significant cave." Paleontological resources will be considered and management recommendations will be developed, as appropriate.	Federal Caves Resources Protection Act of 1988; NPS Organic Act; NPS and BLM Management Policies; National Parks Omnibus Management Act of 1998; Proclamation 1694

Special Designations: Wilderness, Areas of Critical Environmental Concern, Wild and Scenic Rivers	
Planning Criteria	*Laws, Regulations, Policies*
Approximately 70 percent of the Monument is either in WSA status or designated Wilderness. Proclamation 7373 directs both agencies to manage WSAs under Section 603(c) of the Federal Land Policy and Management Act (FLPMA) of 1976 (43 USC 1701-1782). Areas of Critical Environmental Concern (ACECs) are areas within the public lands where special management attention may be required to protect important historic, cultural, or scenic values, fish and wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards. The BLM is required to consider designating ACECs as part of the planning process. FLPMA provides for ACEC designation and establishes national policy for the protection of public land ACECs. Section 202(c)(3) of FLPMA requires the agency to give priority to the designation and protection of ACECs in the development and revision of land use plans. One ACEC is proposed in north Laidlaw Park for its undisturbed native plant communities. A planning decision will be made as to whether or not new ACEC designations are necessary or desirable. Four Research Natural Areas (RNAs) have been designated within the Monument: Carey Kipuka, Sand Kipuka, Big Juniper Kipuka, and Brass Cap Kipuka. The Great Rift System Natural Landmark was designated by the Secretary of the Interior in 1968 for its geological significance and enlarged in 1980 in recognition of its biological significance. The Idaho Conservation Data Center has nominated two areas in the northern portion of the Monument, representing nationally significant vegetation communities, for National Natural Landmark status. There are no Wild and Scenic Rivers within the Monument.	Proclamation 7373; Federal Land Policy and Management Act (PLPMA) of 1976; BLM and NPS Management Policies; BLM "Interim Management Policy for Lands Under Wilderness Review"; Wilderness Act of 1964

Species of Special Concern	
Planning Criteria	*Laws, Regulations, Policies*
Management actions authorized, funded, or implemented by BLM or NPS will be conducted in a manner that will not jeopardize the continued existence of federally listed, threatened, or endangered plant or animal species. The agencies will consult with the U.S. Fish and Wildlife Service in preparing the plan. Management actions should not result in the destruction or modification of habitat for state-, BLM- and NPS-designated sensitive species. Species proposed, or candidates for, federal listing will be given the same consideration as listed species. Planning criteria will protect and maintain the intrinsic and recreational values associated with native and appropriate non-native species; identify habitat needs in consultation with the Idaho Department of Fish and Game; integrate Biological Opinions, Conservation Agreements, and Strategy Plans; protect federally listed threatened or endangered plant or animal species, including protection of critical habitat; and protect BLM sensitive species. For example, for sage grouse, a sensitive species, the following guidance would be considered: BLM 1640 Manual, 684 Manual on Special Status, Idaho BLM Sensitive Species List, Idaho BLM Standards and Guidelines for Rangeland Health, and 50 CFR Chapter IV (Fish and Wildlife Service Draft Policy for Evaluation of Conservation Efforts When Making Listing Decisions).	Endangered Species Act; Executive Order 13112, Invasive Species; BLM and NPS Management Policies; National Environmental Policy Act; Monument's enabling legislation; National Parks Omnibus Management Act of 1998; NPS Organic Act
Fish and Wildlife	
Planning Criteria	*Laws, Regulations, Policies*
There are no fisheries within the Monument, although some vernal ponds support fairy shrimp. Terrestrial wildlife species are a diverse and important part of the ecosystem. The plan will acknowledge the Idaho Department of Fish and Game's role in managing fish and wildlife populations. The plan will closely coordinate goals and objectives for wildlife management with those developed for vegetation management, livestock management, fire management, wetlands, and recreation (including guides and outfitters).	NPS and BLM Management Policies; National Parks Omnibus Management Act of 1998; NPS Organic Act
Fire Management	
Planning Criteria	*Laws, Regulations, Policies*
Fire management on the Monument will be in accordance with the BLM Upper Snake River District Fire, Fuels and Related Vegetation Management Direction Plan Amendment, the new Monument Management Plan, and the agencies' Fire Management Plans. The planning criteria will include enforcing standards for the public and firefighters while protecting natural resources, historic properties, and private property; implementing current and future fire management activity plans; coordinating with other local cooperators in developing plans; and implementing the National Fire Plan DOI/USDA Cohesive Strategy.	BLM and NPS Management Policies; National Fire Plan; BLM/NPS Fire Management Plans; National Parks Omnibus Management Act of 1998

Viewscape/Night Sky Management	
Planning Criteria	*Laws, Regulations, Policies*
Large expanses of lands with little human intrusion and night skies where human caused light remains at minimum levels are considered important natural resources and have a high value because of their increasing rarity. The agencies will protect expansive, panoramic viewscapes that provide unobstructed views for up to 100 miles as an integral resource within the Monument. They will also recognize the importance that a light/dark cycle plays in the natural environment as well as the value of the opportunity to view a night sky without the interference of artificial light sources. To prevent the loss of western landscape vistas and natural dark conditions, the agencies will seek the cooperation of visitors, neighbors, and local government agencies to prevent or minimize the intrusion of human intrusion on the ecosystems of the Monument.	Proclamation 7373; Proclamation 1694; NPS and BLM Management Policies; National Parks Omnibus Management Act of 1998; NPS Organic Act
Natural Soundscape/Natural Quiet	
Planning Criteria	*Laws, Regulations, Policies*
Both BLM and NPS will preserve, to the greatest extent possible, the natural soundscapes of the Monument. The agencies will restore degraded soundscapes to the natural condition wherever possible, and will protect natural soundscapes from degradation due to noise (undesirable human-caused sound). Using appropriate management planning, managers will identify what levels of human-caused sound can be accepted. The frequencies, magnitudes, and durations of human-caused sound considered acceptable will vary throughout the Monument, being generally greater in developed areas and generally lesser in undeveloped areas. In and adjacent to the Monument, the agencies will monitor human activities that generate noise that adversely affects Monument soundscapes, including noise caused by mechanical or electronic devices. The agencies will take action to prevent, or minimize, all noise that, through frequency, magnitude or duration, adversely affects the natural soundscape or other Monument resources or values, or that exceeds levels that have been identified as being acceptable to or appropriate for visitor uses at the sites being monitored.	Proclamation 7373; Proclamation 1694; NPS Management Policies; National Parks Omnibus Management Act of 1998; NPS Organic Act

Visitor Experience, Visual Resources, and Monument Use Requirements	
Planning Criteria	*Laws, Regulations, Policies*
Public lands will be managed to enhance appropriate recreation opportunities and visual resources. Either agency may identify special recreation management areas within a Development or Special Use Planning Zone as part of the planning process. Some areas may be subject to special measures to protect resources or reduce conflicts among uses. Recreation planning will follow the principles and guidance in NPS Management Policies (2000), the BLM National OHV Strategic Action Plan, and the draft National Mountain Bicycling Strategic Action Plan. According to BLM policy, all Wilderness Study Areas are designated as Visual Resources Management Class I. The plan will contain Visual Resource Management designations for the remainder of the Monument. All reasonable effort will be made to make NPS and BLM facilities, programs, and services accessible to and usable by all people, including those with disabilities. The NPS-administered portion of the Monument was a pilot site for the National Fee Demonstration Program. Entry fees will continue to be charged for entry into the north end of the Monument via the "Monument Loop Drive." Under the 1978 National Parks and Recreation Act (PL 95-625), NPS is required to address the issue of carrying capacity in its general management plans. The concept of carrying capacity is intended to safeguard the quality of park resources and visitor experiences. Identifying desired resource conditions and visitor experience by zone is part of general management planning. At this level of decision-making, the desired resource conditions and experiences describe carrying capacity in qualitative terms. These qualitative terms are then translated into quantitative standards over time during implementation planning.	BLM OHV Strategic Action Plan; National Mountain Bicycling Strategic Action Plan (Draft); National Parks and Recreation Act of 1978; NPS Organic Act; Monument's enabling legislation; BLM Manual Section 8400, Visual Resource Management; Americans with Disabilities Act; Architectural Barriers Act; Rehabilitation Act; 1998 Executive Summary to Congress, Recreational Fee Demonstration Program, Progress Report to Congress, Volume I – Overview and Summary (U.S. Department of the Interior, National Park Service, U.S. Fish and Wildlife Service, Bureau of Land Management; U.S. Department of Agriculture, Forest Service); NPS and BLM Management Policies; National Parks Omnibus Management Act of 1998
Relations with Monument Neighbors and Other Agencies	
Planning Criteria	*Laws, Regulations, Policies*
Public participation in planning and decision-making will ensure that both agencies fully understand and consider the public's interests in the Monument, which is part of their national heritage, cultural traditions, and community surroundings. The agencies will actively seek out, and consult with, existing and potential visitors, neighbors, people with traditional cultural ties to Monument lands, scientists and scholars, concessionaires, cooperating associations, gateway communities, other partners, and government agencies. The agencies will work cooperatively with others to improve the condition of the Monument, to enhance public service, and to integrate the Monument into sustainable ecological, cultural, and socioeconomic systems.	BLM and NPS Management Policies; National Environmental Policy Act

Sustainable Design/Development	
Planning Criteria	*Laws, Regulations, Policies*
Sustainability can be described as the result achieved by doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long-term environmental impacts of development and other activities through resource conservation, recycling, waste minimization, and the use of energy efficient and ecologically responsible materials and techniques. Facilities will be integrated into the Monument landscape and environs with sustainable designs and systems to minimize environmental impact. Development will not compete with, or dominate, Monument features, or interfere with natural processes, such as the seasonal migration of wildlife or hydrologic activity associated with wetlands.	BLM and NPS Management Policies
Environmental Justice	
Planning Criteria	*Laws, Regulations, Policies*
NPS and BLM will incorporate environmental justice into the plan. Identifying and addressing any disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities will accomplish this.	Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations"
Socioeconomics	
Planning Criteria	*Laws, Regulations, Policies*
Both agencies understand the need to promote social and economic diversification and resiliency in southeastern Idaho and recognize the increasing demand for outdoor recreational opportunities and the dependency of local community economies on goods and services from public lands. Livestock production on public lands also makes a contribution to the health of local and rural economies. Population growth continues to increase and shift the demand on public lands for many uses including recreation opportunities. This demand and shift in the kinds and uses of public lands may contribute to changes in the economies of the counties and communities within the Monument area.	NPS and BLM Management Policies

Land Protection/Land Tenure Adjustments	
Planning Criteria	*Laws, Regulations, Policies*
Proclamation 7373 prohibits all forms of land disposal except exchanges that further the purposes of the Monument. The Proclamation also acknowledges that state or private lands may be acquired. Plans will be developed and periodically reviewed and updated, for the Monument containing lands that may be subject to acquisition. The plans will identify the alternative methods that will provide for the protection of resources, for visitor use, and for development; identify the minimum interests necessary for those purposes; and establish priorities for acquisition of land or interests in land.	NPS Management Policies; NPS Land Acquisition Policy Implementation Guideline (NPS-25); the Department of the Interior's "Policy for the Federal Portion of the Land and Water Conservation Fund" (FR 47:19784); the NPS "Land Protection Plan Instructions" (FR 48:21121); the Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 USC 4601 et seq.); Executive Order 12630, "Governmental Actions and Interference with Constitutionally Protected Property Rights"; Proclamation 7373, FLPMA Sec. 205 and 206, 43 CFR 2100 and 2200 and FLTFA
Rights-of-Way and Telecommunication Infrastructure	
Planning Criteria	*Laws, Regulations, Policies*
BLM-administered lands are generally available for transportation and utility rights-of-way (ROWs) subject to Monument compatibility determinations and NEPA evaluation, except where specifically prohibited by law or regulation or in areas specifically identified for avoidance and exclusion to protect significant resource values. Other types of ROW may be restricted. Major differences in ROW authority exist between BLM and NPS and the Plan will establish how potential conflicts might be resolved. Telecommunication structures are permitted in the Monument (outside of wilderness and wilderness study areas) to the extent that they do not jeopardize the Monument's mission and resources.	16 USC 5; 16 USC 79; 23 USC 317; 36 CFR 14; BLM and NPS Management Policies; Director's Order 53A, Wireless Telecommunications
Minerals and Energy	
Planning Criteria	*Laws, Regulations, Policies*
Presidential Proclamation 7373 withdrew lands within the Monument from location under the general mining laws, and the operation of the mineral and geothermal leasing laws, and from the mineral material disposal law, other than by exchange that furthers the protective purposes of the Monument.	Proclamation 7373
Noxious Weed Control	
Planning Criteria	*Laws, Regulations, Policies*
Both agencies will work with state and county governments and Cooperative Weed Management Areas to monitor the location and spread of noxious weeds. The agencies will control the occurrence and spread of noxious weeds on public lands where economically feasible, and to the extent funds are available, to comply with Executive Order 11312. Noxious weed control is conducted in accordance with the integrated weed management guidelines and design features identified in current policies and programs.	Executive Order 11312, Invasive Species (February 1999); NPS Management Policies; the Northwest Area Noxious Weed Control Program EIS of 1985 and the USDI-BLM Final Environmental Impact Statement for Vegetation Treatment on BLM Lands in 13 Western States (May 1999); National Parks Omnibus Management Act of 1998

Livestock Management	
Planning Criteria	*Laws, Regulations, Policies*
Proclamation 7373 provides for continued livestock use on that portion of the Monument administered by the BLM under 43 CFR 4100 which addresses rangeland health and grazing administration. The Idaho State Director of the BLM, in consultation with the Resource Advisory Council, established under 43 CFR Part 1780, Subpart 1784, developed standards and guidelines to be applied to livestock use. On Monument lands administered by the BLM, livestock will be managed in accordance with Idaho's Standards for Rangeland Health and Guidelines for Livestock Grazing Management in reference to ecological site potentials. Rangeland health assessments presented in the plan will guide issuance of grazing decisions in accordance with applicable BLM regulations and policy.	Proclamation 7373; Idaho Standards for Rangeland Health and Guidelines for Livestock Grazing Management; Federal Land Policy Management Act; Public Range Improvement Act; BLM Planning Regulations
Transportation	
Planning Criteria	*Laws, Regulations, Policies*
Proclamation 7373 specifically directs the agencies to prepare a transportation plan that addresses any actions, including road closures or travel restrictions, necessary to protect monument resources. Except for emergency or authorized administrative purposes, the Proclamation prohibits all motorized and mechanized vehicle use off road. In consultation with the respective county and transportation districts, the planning team will incorporate transportation planning in the Monument management plan by providing broad guidance on travel within the Monument. Any specific long-term road closures or travel restrictions will be carried out after completion of the management plan. The agencies will inform the public of travel opportunities and restrictions within the Monument by providing a Monument travel map, road signing as appropriate, and by other means. The BLM and NPS will follow existing agency policies in determining and describing road and trail definitions and standards. The planning team will develop the criteria for use in determining how roads and trails of different standards will fit into a comprehensive transportation system.	Proclamation 7373; Proclamation 1694; BLM and NPS Management Policies
Water Rights	
Planning Criteria	*Laws, Regulations, Policies*
Proclamation 7373 does not reserve water as a matter of Federal law. Nothing in this reservation shall be construed as a relinquishment or reduction of any water use or rights reserved or appropriated by the United States on or before the date of this proclamation. The Secretary shall work with appropriate State authorities to ensure that water resources needed for monument purposes are available. The agencies will continue to participate in the Snake River Basin Adjudication (SRBA) pursuant to the McCarran Amendment (43 U.S.C. 666) and the Commencement Order for the SRBA (Case No. 39576, 5th District Court of Idaho), to secure historical priority to stock water under state and /or federal law.	Idaho Code 42-202; Fish & Wildlife Coordination Act of March 10, 1934 (16 USC 661); Federal Land Management Policy Act (43 USC 666); 43 CFR 4120.3-9; Idaho Code 42-1503

Forestry	
Planning Criteria	*Laws, Regulations, Policies*
There are no commercial forest resources within the Monument.	N/A
Wild Horses and Burros	
Planning Criteria	*Laws, Regulations, Policies*
There are no wild horses or burros or herd management plans within or near the Monument.	N/A

APPENDIX C

Proposed Boundary Adjustments

The boundary of a national monument may be modified only as authorized by law. This appendix describes five minor proposed changes to the external boundary of the Monument and three proposed changes to the boundary between NPS and BLM within the Monument. The Agencies are recommending these boundary modifications for the reasons described below. Congress would have to pass legislation authorizing a modification and the President would need to sign that legislation for the modification to be authorized by law.

As part of the planning process, the Agencies have identified and evaluated boundary adjustments that may be necessary or desirable in order to carry out the purposes of the Craters of the Moon National Monument and Preserve. Boundary adjustments have been recommended to:

- Protect significant resources and values, or to enhance opportunities for public enjoyment related to Monument purposes;
- Address operational and management issues, such as the need for access or the need for boundaries to correspond to logical boundary delineations such as topographic or other natural features or roads; or
- Otherwise protect Monument resources that are critical to fulfilling Monument purposes.

All recommendations for boundary changes have met the following two criteria:

- The added lands will be feasible to administer, considering their size, configuration, and ownership, and hazardous substances, costs, the views of and impacts on local communities and surrounding jurisdictions, and other factors such as the presence of exotic species; and
- Other alternatives for management and resource protection are not adequate.

These criteria apply conversely to recommendations for the deletion of lands from the authorized boundaries of the Monument. For example, before recommending the deletion of land, a finding was made that the land did not include a significant resource, value, or opportunity for public enjoyment related to the purposes of the Monument. Full consideration was given to present and future needs before a recommendation was made to delete lands from the authorized boundaries of the Monument.

Boundary adjustments essentially fall into three distinct categories: (1) technical revisions; (2) minor revisions based upon statutorily defined criteria; and (3) revisions to include adjacent real property acquired by donation, purchased with donated funds, transferred from any other federal agency, or obtained by exchange. Adjacent real property is considered to be land located contiguous to, but outside the boundary of the Monument. The modifications proposed here are technical and minor.

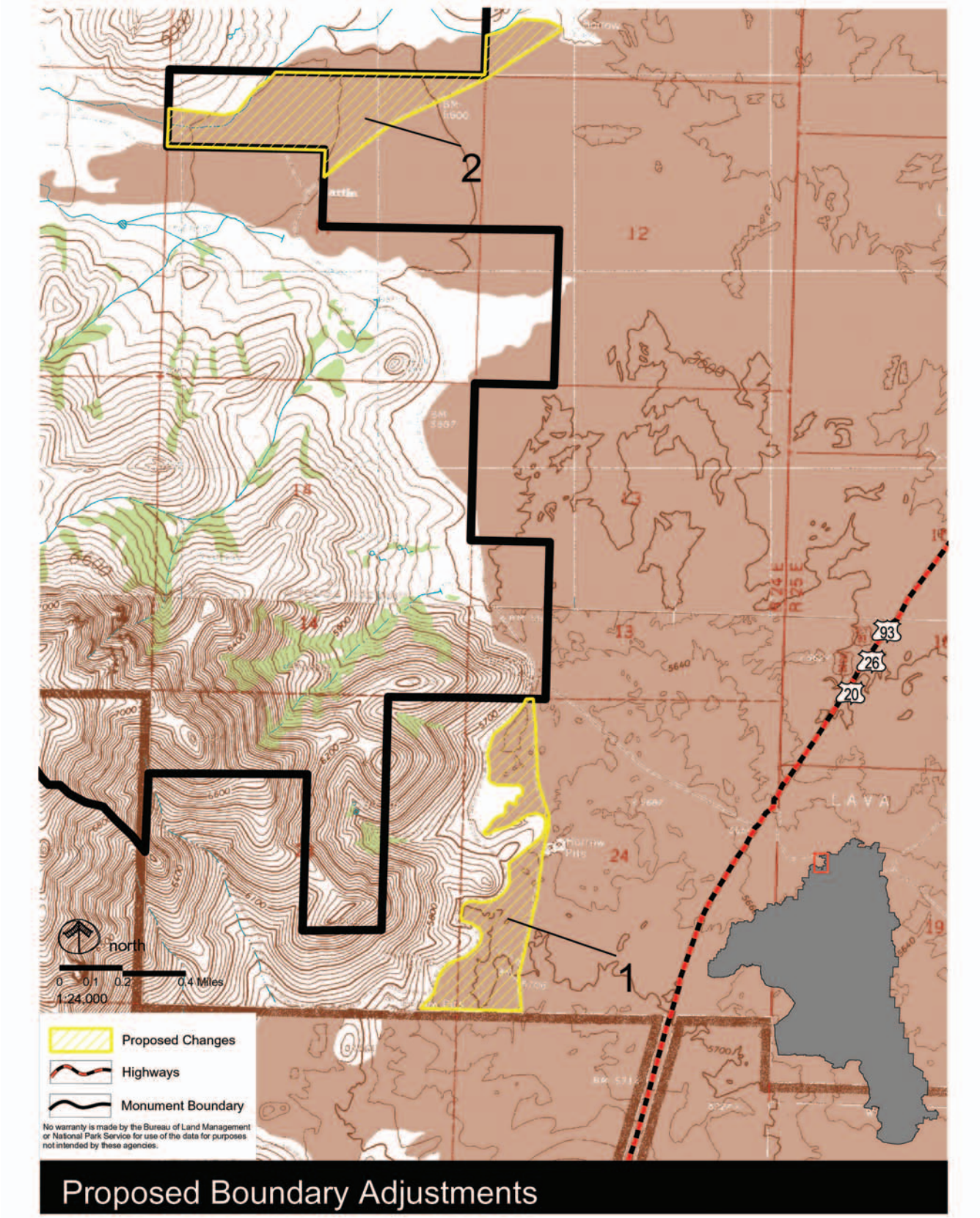
The following is a list of recommended boundary modifications including legal description, approximate acreage, and a brief summary of the justification for each proposed change. See maps for specific locations.

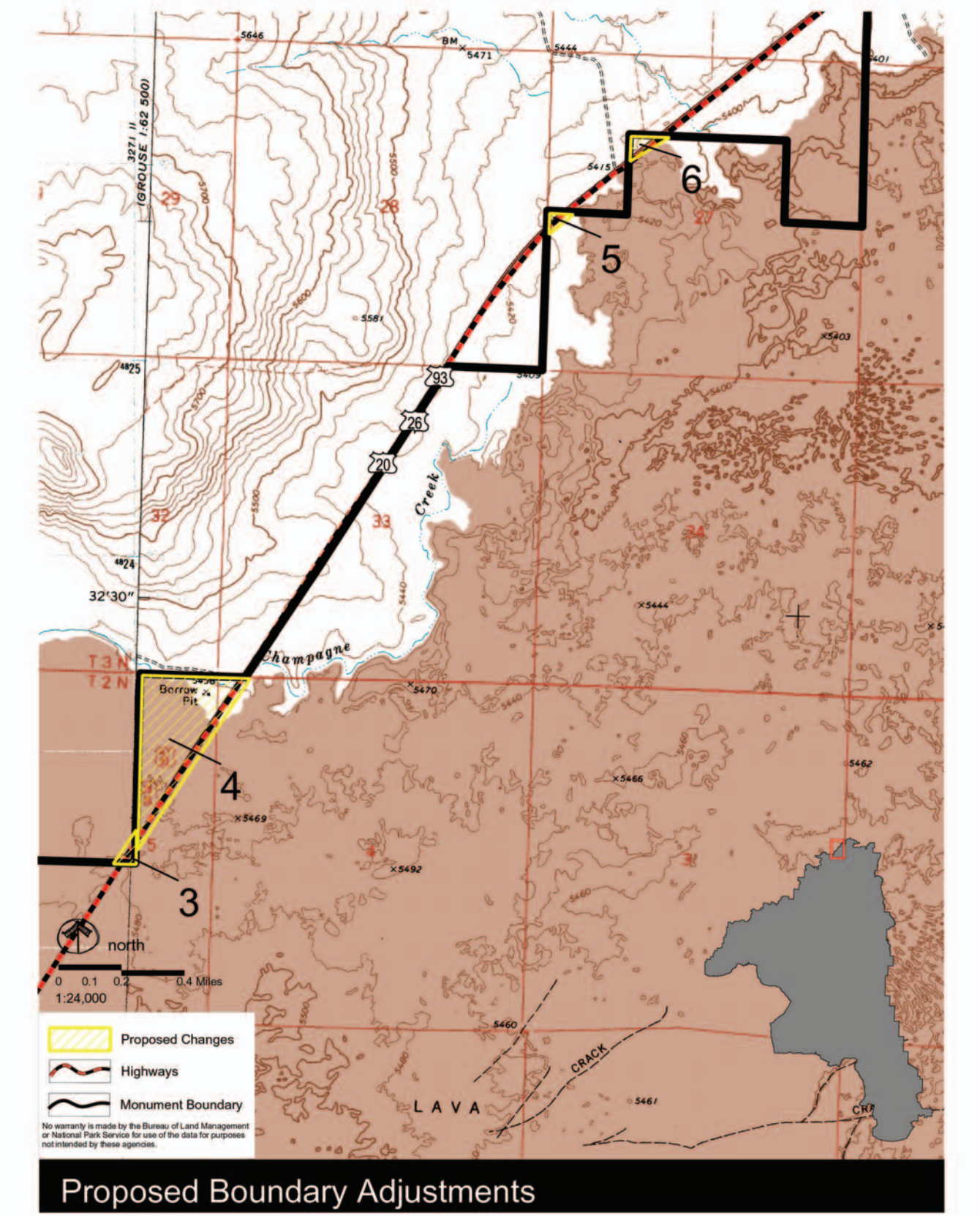
1) Boise Meridian, Township 2 North, Range 24 East, Section 24
   Approximately 90 acres
   a. Recommended transfer of management from NPS to BLM to provide for the continuation of historic grazing. With the expansion of the Monument, the NPS has assumed management of all lava covered lands within the Monument (indicated by the dark brown coloring on 7.5 minute USGS color maps). The NPS management boundary would be moved eastward from the lava edge illustrated on the USGS 7.5 minute map to the first road. This adjustment would be bounded at the southern end by the Craters of the Moon Wilderness area. A closer evaluation of this particular site revealed relatively low evidence of lava and/or unique features. As such, this land can be more closely identified with most other BLM managed portions of the Monument and should be managed accordingly.
2) BM, T2N, R24E, Sec11 – Approximately 120 acres
   a. Recommended transfer of management from NPS to BLM to provide for the continuation of historic grazing. With the expansion of the Monument, the NPS has assumed management of all lava covered lands within the Monument (indicated by the dark brown coloring on 7.5 minute USGS color maps). The NPS management boundary would be moved eastward from the lava edge illustrated on the USGS 7.5 minute map to the first road. A closer evaluation of this particular site revealed relatively low evidence of lava and/or unique features. As such, this land can be more closely identified with most other BLM managed portions of the Monument and should be managed accordingly.
3) BM, T2N, R25E, Sec5 – Approximately 1 acre
   a. Recommended inclusion of land in the Monument from the BLM to expand the Monument boundary from a legal subdivision to meet the northern edge of the highway right of way. This would provide for a more consistent and manageable boundary.
4) BM, T2N, R25E, Sec5 – Approximately 60 acres
   a. Recommended deletion of land from the Monument to adjust the Monument boundary from a legal subdivision to meet the southern edge of the highway right of way. This would provide for a more consistent and manageable boundary.
   b. It would also eliminate a mineral material site from the Monument.
   c. Proposed changes 3 and 4 are mutually exclusive, and represent two alternatives to address the same issue of providing a more consistent and manageable boundary.
5) BM, T3N, R25E, Sec27 – Approximately 2 acres
   a. Recommended deletion of land from the Monument to adjust the Monument boundary from a legal subdivision to meet the southern edge of

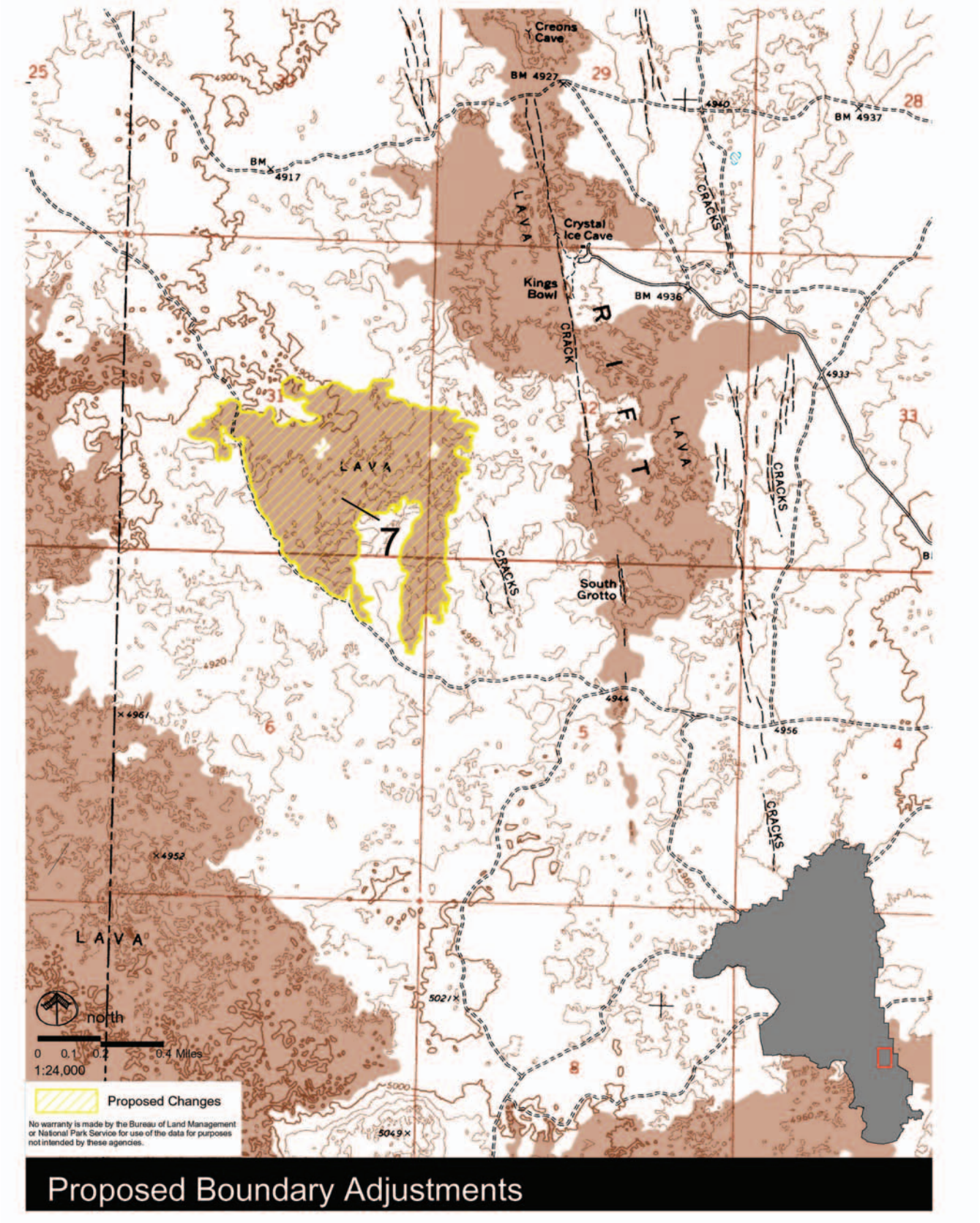
the highway right of way. This would provide for a more consistent and manageable boundary.

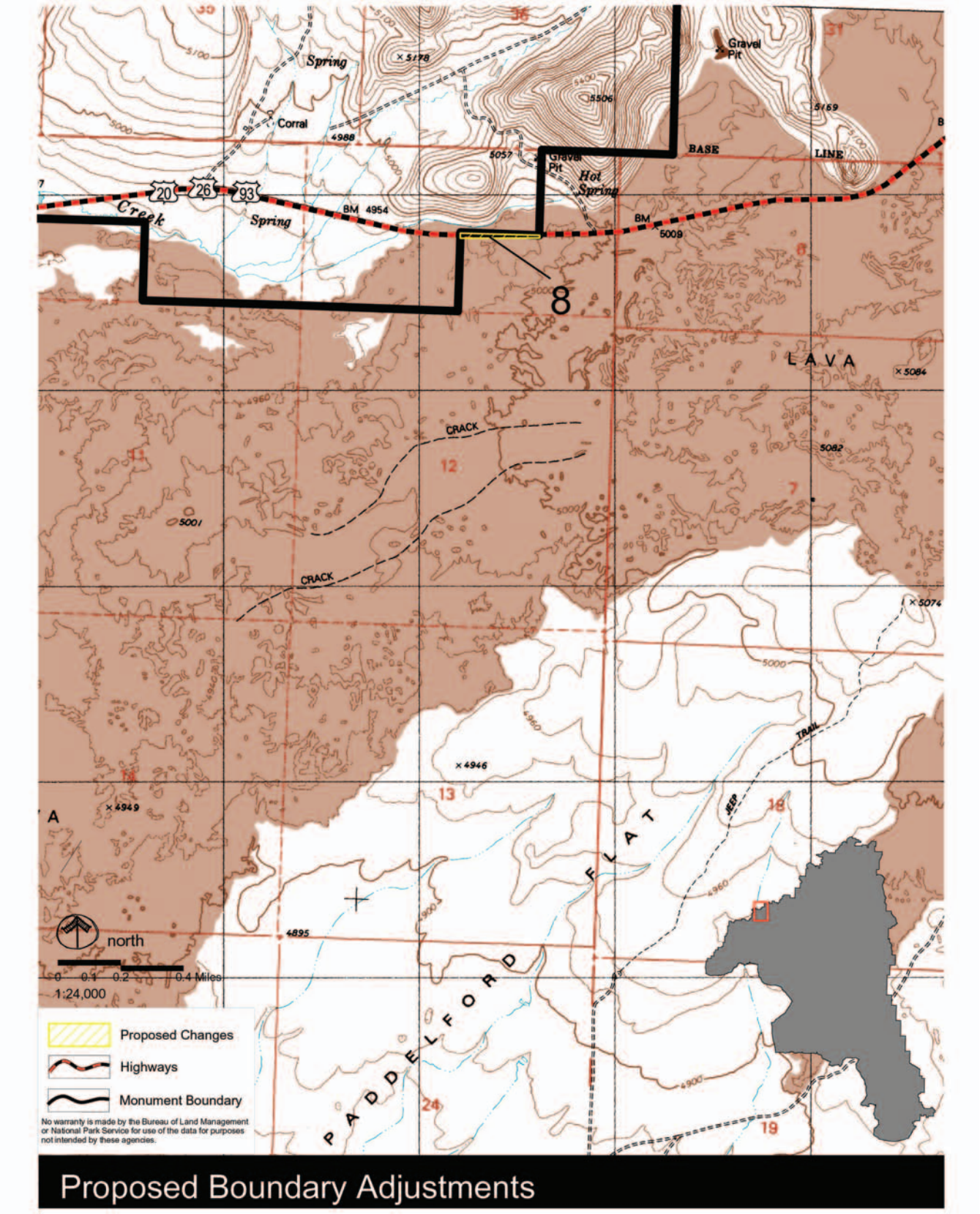
6) BM, T3N, R25E, Sec27 – Approximately 3 acres
   a. Recommended deletion of land from the Monument to adjust the Monument boundary from a legal subdivision to meet the southern edge of the highway right of way. This would provide for a more consistent and manageable boundary.
7) BM, T5S, R28E, Sec36 – Approximately 230 acres
   a. Recommended transfer of management from NPS to BLM to provide for the continuation of historic grazing. With the expansion of the Monument, the NPS has assumed management of all lava covered lands within the Monument (indicated by the dark brown coloring on 7.5 minute USGS color maps). A closer evaluation of this particular site revealed relatively low evidence of lava and/or unique features. As such, this land can be more closely identified with most other BLM managed portions of the Monument and should be managed accordingly.
8) BM, T1S, R22E, Sec 5 – Approximately 2 acres
   a. Recommended adjustment of the Monument boundary from a legal subdivision to meet the southern edge of the highway right of way. This would provide for a more consistent and manageable boundary.

The agencies have consulted with the relative interests to arrive at these proposals which are consistent with enabling Legislation, the Proclamations, and current management guidelines. The agencies received no other proposals for boundary modifications during the scoping for the Draft Management Plan/EIS.


2
1
north
0 0.1 0.2 0.4 Miles
1:24,000
Proposed Changes
Highways
Monument Boundary
No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies.
93
26
20
LAVA
Proposed Boundary Adjustments


6
5
4
3
93
26
20
Champagne
Creek
Borrow Pit
north
0 0.1 0.2 0.4 Miles
1:24,000
Proposed Changes
Highways
Monument Boundary
No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies.
LAVA
CRACK
Proposed Boundary Adjustments


Creons Cave
BM 4927
BM 4917
Crystal Ice Cave
Kings Bowl
BM 4936
BM 4937
CRACKS
CRACK
RIFT
LAVA
South Grotto
4940
4933
4956
4944
4952
4961
5021
5049
north
0 0.1 0.2 0.4 Miles
1:24,000
Proposed Changes
No warranty is made by the Bureau of Land Management or National Park Service for use of the data for purposes not intended by these agencies.
Proposed Boundary Adjustments



Proposed Boundary Adjustments

APPENDIX D

Common and Scientific Names of Vertebrate Species Occurring at Craters of the Moon National Monument and Preserve

Amphibians	
Western toad	*Bufo boreas*
Boreal chorus frog	*Pseudacris maculate*
Pacific tree frog	*Pseudacris regilla*
Great Basin spadefoot	*Spea intermontana*

Birds	
Copper's Hawk	*Accipiter cooperii*
Northern Goshawk	*Accipiter gentilit*
Sharp-shinned Hawk	*Accipiter striatus*
Spotted Sandpiper	*Acitis macularia*
Western Grebe	*Aechmophorus occidentalis*
Northern Saw-whet Owl	*Aegolius acadicus*
White-throated Swift	*Aeronautes saxatalis*
Red-winged Blackbird	*Agelaius phoeniceus*
Chukar	*Alectoris chukar*
Grasshopper Sparrow	*Ammodrmus savannarum*
Sage Sparrow	*Amphispiza belli*
Black-throated Sparrow	*Amphispiza bilineata*
Northern Pintail	*Anas acuta*
American Wigeon	*Anas americana*
Northern Shoveler	*Anas clypeata*
Green-winged Teal	*Anas crecca*
Cinnamon Teal	*Anas cyanoptera*
Blue-winged Teal	*Anas discors*
Mallard	*Anas platyrhynchos*
Gadwall	*Anas strepera*
American Pipit	*Anthus rubescens*
Golden Eagle	*Aquila chrysaetos*
Black-chinned Hummingbird	*Archilochus alexandri*
Great Blue Heron	*Ardea herodias*
Short-eared Owl	*Asio flammeus*
Long-eared Owl	*Asio otus*
Western Burrowing Owl	*Athene cunicularia*
Lesser Scaup	*Aythya affinis*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
Canvasback	*Aythya valisineria*

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Birds	
Cedar Waxwing	*Bombycilla cedrorum*
Bohemian Waxwing	*Bombycilla garrulus*
Ruffed Grouse	*Bonasa umbellus*
Canada Goose	*Branta canadensis*
Great Horned Owl	*Bubo virginianus*
Bufflehead	*Bucephala albeola*
Common Goldeneye	*Bucephala clangula*
Red-tailed hawk	*Buteo jamaicensis*
Rough-legged Hawk	*Buteo lagopus*
Ferruginous Hawk	*Buteo regalis*
Swainson's Hawk.	*Buteo swainsonii*
Lark Bunting	*Calamospiza melanocorys*
Common Redpoll	*Carduelis flammea*
Hoary Redpoll	*Carduelis hornemanni*
Pine Siskin	*Carduelis pinus*
American Goldfinch	*Carduelis tristis*
Cassin’s Finch	*Carpodacus cassinii*
House Finch	*Carpodacus mexicanus*
Turkey Vulture	*Cathartes aura*
Hermit Thrush	*Catharus guttas*
Swainson’s Thrush	*Catharus ustulatus*
Greater Sage Grouse	*Centrocercus urophasianus*
Brown Creeper	*Certhia americana*
Belted Kingfisher	*Ceryle alcyon*
Killdeer	*Charadrius vociferus*
Snow Goose	*Chen caerulescens*
Black Tern	*Chlidonias niger*
Lark Sparrow	*Chondestes grammacus*
Common Nighthawk	*Chordeiles minor*
American Dipper	*Cinclus mexicanus*
Northern Harrier	*Circus cyaneus*
Marsh Wren	*Cistothorus palustris*
Evening Grosbeak	*Coccothraustes vespertinus*
Northern Flicker	*Coloptes auratus*
Band-tailed Pigeon	*Columba fasciata*
Rock Pigeon	*Columba livia*
Olive-sided Flycatcher	*Contopus cooperi*
Western Wood-pewee	*Contopus sordidulus*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*
Steller’s Jay	*Cyanocitta stelleri*

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Birds	
Tundra Swan	*Cygnus columbianus*
Blue Grouse	*Dendragapus obscurus*
Yellow-rumped Warbler	*Dendroica coronata*
Yellow Warbler	*Dendroica petechia*
Townsend's Warbler	*Dendroica townsendii*
Bobolink	*Dolichonyx oryzivorus*
Gray Catbird	*Dumetella carolinensis*
Hammond's Flycatcher	*Empidonax hammondii*
Dusky Flycatcher	*Empidonax oberholseri*
Cordilleran Flycatcher	*Empidonax occidentallis*
Willow Flycatcher	*Empidonax traillii*
Gray Flycatcher	*Empidonax wrighti*
Horned Lark	*Eremophilla alpestris*
Brewer's Blackbird	*Euphagus cyanocephalus*
Merlin	*Falco columbarius*
Prairie Falcon	*Falco mexicanus*
Peregrine Falcon	*Falco pergrinus*
Gyrfalcoln	*Falco rusticolus*
American Kestrel	*Falco sparverius*
American Coot	*Filica americana*
Wilson's Snipe	*Gallinago gallinago*
Sandhill Crane	*Grus canadensis*
Pinyon Jay	*Gymnorhinus cyanocephalus*
Bald Eagle	*Haliaeetus leucocephalus*
Barn Swallow	*Hirunda rustica*
Yellow-breasted Chat	*Icteria virens*
Bullock's Oriole	*Icterus bullockii*
Varied Thrush	*Ixoreus naevius*
Dark-eyed Junco	*Junco hyemalis*
Northern Shrike	*Lanius excubitot*
Loggerhead Shrike	*Lanius ludovicianus*
Herring Gull	*Larus argentatus*
California Gull	*Larus californicus*
Ring-billed Gull	*Larus delawarensis*
Franklin's Gull	*Larus pipixan*
Black Rosy-Finch	*Leucosticte atrata*
Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*
Long-billed Dowitcher	*Limnodromus scolopaceus*
Red Crossbill	*Loxia curvirostra*
Western Screech-owl	*Megascops kennicottii*
Red-headed Woodpecker	*Melenerpes erythrocephalus*

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Birds	
Lewis' Woodpecker	*Melenerpes lewis*
Lincoln's Sparrow	*Melospiza lincolnii*
Song Sparrow	*Melospiza melodia*
Brown-headed Cowbird	*Molothrus ater*
Townsend's Solitaire	*Myadestes townsendi*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Clark's Nutcracker	*Nucifraga columbiana*
Long-billed Curlew	*Numenius americanus*
Whimbrel	*Numenius phaeopus*
Snowy Owl	*Nyctea scandiaca*
MacGillivray's Warbler	*Oporornis tolmiei*
Sage Thrasher	*Orreoscoptes montanus*
Ruddy Duck	*Oxyura jamaicensis*
Osprey	*Pandion haliaetus*
House Sparrow	*Passer domesticus*
Savannah Sparrow	*Passerculus sandwichensis*
Lazuli Bunting	*Passerina amoena*
Fox Sparrow	*Passerlla iliaca*
American White Pelican	*Pelecanus erythrorhynchos*
Gray Partridge	*Perdix perdix*
Cliff Swallow	*Petrochelidon pyrrhonota*
Common Poorwill	*Phalaenoptilus*
Wilson's Phalarope	*Phalaropus tricolor*
Ring-necked Pheasant	*Phasianus colchicus*
Black-headed Grosbeak	*Pheucticus melanocephalus*
Black-billed Magpie	*Pica hudsonia*
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Pine Grosbeak	*Pinicola enucleator*
Green-tailed Towhee	*Pipilo chlorurus*
Spotted Towhee	*Pipilo maculatus*
Western Tanager	*Piranga ludoviciana*
Snow Bunting	*Plectrophenax nivalis*
White-faced Ibis	*Plegadis chihi*
Eared Grebe	*Podiceps nigricollis*
Pied-billed Grebe	*Podilymbus podiceps*
Black-capped Chickadee	*Poecile atricapilla*
Mountain Chickadee	*Poecile gambeli*
Blue-gray Gnatcatcher	*Polioptila caerula*
Vesper Sparrow	*Pooecetes gramineus*
Sora	*Porzana carolina*

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Birds	
Common Grackle	Quiscalus quiscula
Virginia Rail	*Rallus limicola*
American Avocet	*Recurvirostra americana*
Ruby-crowned Kinglet	*Regulus calendula*
Golden-crowned Kinglet	*Regulus satrapa*
Rock Wren	*Salpinctes obsoletus*
Say's Phoebe	*Sayornis saya*
Northern Waterthrush	*Seiurus noveboracensis*
Broad-tailed Hummingbird	*Selasphorus platycercus*
Rufous Hummingbird	*Selasphorus rufus*
American Redstart	*Setophaga ruuticilla*
Mountain Bluebird	*Sialia currucoides*
Western Bluebird	*Sialia mexicana*
Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*
Red-naped Sapsucker	*Sphyrapicus nuchallis*
Williamson's Sapsucker	*Sphyrapicus thryoideus*
Brewer's Sparrow	*Spizella breweri*
Chipping Sparrow	*Spizella passerina*
Northern Rough-winged Swallow	*Stelgidopteryx serripennis*
Calliope Hummingbird	*Stellula calliope*
Forster's Tern	*Sterna forsteri*
Western Meadowlark	*Sturnella neglecta*
European Starling	*Sturnus vulgaris*
Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Tachycineta thalassina*
Brown Thrasher	*Toxostoma rufum*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
American Robin	*Turdus migratorius*
Eastern Kingbird	*Tyrannus tyrannus*
Western Kingbird	*Tyrannus verticalis*
Orange-crowned Warbler	*Vermivora celata*
Tennessee Warbler	*Vermivora pergrina*
Nashville Warbler	*Vermivora ruficapilla*
Cassin's Vireo	*Vireo cassinii*
Warbling Vireo	*Vireo gilvus*
Plumbeous Vireo	*Vireo plumbeus*
Wilson's Warbler	*Wilsonia pusilla*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Mourning Dove	*Zenaida macroura*

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Birds	
White-throated Sparrow	*Zonotrichia albicollis*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
White-crowned Sparrow	*Zonotrichia leucophrys*

Mammals	
Moose	*Alces alces*
Pronghorn	*Antilocapra americana*
Pallid bat	*Antrozous pallidus*
Pygmy rabbit	*Brachylagus idahoensis*
Coyote	*Canis latrans*
Gray wolf	*Canis lupus*
Beaver	*Castor canadensis*
Elk	*Cervus elephas*
Townsend's big-eared bat	*Corynorhinus townsendii*
Ord’s kangaroo rat	*Dipodomys ordii*
Big brown bat	*Eptesicus fuscus*
Porcupine	*Erethizon dorsatum*
Mountain lion	*Felis concolor*
Sagebrush vole	*Lagurus curtatus*
Snowshoe hare	*Lepus americanus*
White-tailed jackrabbit	*Lepus californicus*
Black-tailed jackrabbit	*Lepus townsendii*
Bobcat	*Lynx rufus*
Yellow-bellied marmot	*Marmota flaviventris*
Striped skunk	*Mephitis mephitis*
Long-tailed vole	*Microtus longicaudis*
Montane vole	*Microtus montanus*
Short-tailed weasel	*Mustela ermina*
Long-tailed weasel	*Mustela frenata*
California myotis	*Myotis califonicus*
Long-eared myotis	*Myotis evotis*
Small-footed myotis	*Myotis leibii*
Little brown myotis	*Myotis lucifugus*
Fringed myotis	*Myotis thysanodes*
Long-legged myotis	*Myotis volans*
Bushy-tailed woodrat	*Neotoma cinerea*
Pika	*Ochotona princeps*
Mule deer	*Odocoileus hemionus*
Muskrat	*Ondatra zibethicus*
Great Basin pocket mouse	*Perognathus parvus*

APPENDIX D

Mammals	
Deer mouse	*Peromyscus maniculatus*
Heather vole	*Phenacomys intermedius*
Raccoon	*Procyon lotor*
Western harvest mouse	*Reithrodontomys megalotis*
Merriam's shrew	*Sorex merriami*
Dusky shrew	*Sorex monticolus*
Vagrant shrew	*Sorex vagrans*
Columbian ground squirrel	*Spermophilus columibianus*
Golden-mantled ground squirrel	*Spermophilus lateralis*
Piute ground squirrel	*Spermophilus mollis*
Western spotted skunk	*Spilogale gracilis*
Mountain cottontail	*Sylvilagus nuttallii*
Yellow-pine chipmunk	*Tamias amoenus*
Least chipmunk	*Tamias minimus*
Red squirrel	*Tamiasciurus hudsonicus*
Badger	*Taxidea taxus*
Northern pocket gopher	*Thomomys talpoides*
Black bear	*Ursus americanus*
Kit fox	*Vulpes macrotis*
Red fox	*Vulpes vulpes*
Western jumping mouse	*Zapus princeps*

Reptiles	
Rubber boa	*Charina bottae*
Western yellow-bellied racer	*Coluber constrictor*
Western rattlesnake	*Crotalus viridis*
Western skink	*Eumeces skiltonianus*
Longnose leopard lizard	*Gambelia wislizenii*
Short-horned lizard	*Phrynosoma douglasii*
Desert horned lizard	*Phrynosoma platyrhinos*
Gopher snake	*Pituophis catenifer*
Sagebrush lizard	*Sceloporus graciosus*
Western terrestrial garter snake	*Thamnophis elegans*

APPENDIX D

Common and Scientific Names of Plant Species Occurring at Craters of the Moon National Monument and Preserve

Trees	
Utah juniper	*Juniperus osteosperma*
Rocky Mountain juniper	*Juniperus scopulorum*
Limber pine	*Pinus flexilis*
Quaking aspen	*Populus tremuloides*
Black cottonwood	*Populus trichocarpa*
Douglas fir	*Pseudotsuga menziesii*

Shrubs	
Alder	*Alnus incana*
Serviceberry	*Amelanchier alnifolia*
Low sagebrush	*Artemisia arbuscula*
Early low (alkali) sagebrush	*Artemisia longiloba*
Basin big sagebrush	*Artemisia tridentata* ssp. *tridentata*
Mountain big sagebrush	*Artemisia tridentata* ssp. *vaseyana*
Wyoming big sagebrush	*Artemisia tridentata* ssp. w*yomingensis*
Threetip sagebrush	*Artemisia tripartita*
Fern-bush (tansy bush)	*Chamaebatiaria millefolium*
Green rabbitbrush	*Chrysothamnus viscidiflorus*
Rubber rabbitbrush	*Chrysothanus nauseosus*
Rock spirea	*Holodiscus dumosus*
Syringa	*Philadelphus lewisii*
Chokecherry	*Prunus virginiana*
Antelope bitterbrush	*Purshia tridentate*
Golden current	*Ribes aureum*
Wax current	*Ribes cereum*
Willow	*Salix* spp.
Mountain snowberry	*Symphoricarpos oreophilus*
Gray horsebrush	*Tetradymia canescens*

APPENDIX D

Grasses and Grasslike Plants	
Crested wheatgrass	*Agropyron cristatum*
Tall wheatgrass	*Agropyron elongata*
Siberian wheatgrass	*Agropyron fragile*
Cheatgrass	*Bromus tectorum*
Great Basin wildrye	*Elymus cinereus*
Snake River wheatgrass	*Elymus wawaensis*
Idaho fescue	*Festuca idahoensis*
Prairie junegrass	*Koeleria cristata*
Onion grass	*Melica bulbosa*
Indian ricegrass	*Oryzopsis hymenoides*
Big bluegrass	*Poa ampla*
Sandberg bluegrass	*Poa secunda*
Bluebunch wheatgrass	*Psuedoroegneria spicata*
Threesquare bulrush	*Scirpus americanus*
Needle-and-thread grass	*Stipa comata*
Western needlegrass	*Stipa occidentalis*
Thurber needlegrass	*Stipa thurberiana*

Forbs	
Two-headed onion	*Allium anceps*
Dwarf mistletoe	*Arceuthobium campylopodum*
Picabo milkvetch	*Astragalus oniciformis*
Milkvetch	*Astragalus* sp.
Arrowleaf balsamroot	*Balsamorhiza sagittata*
Douglas chaenactis	*Chaenactis douglasii*
Oval-leaved buckwheat	*Eriogonum ovalifolium*
Dwarf buckwheat	*Eriogonum ovalifolium* var. *depressum*
Buckwheat	*Eriogonum* sp.
Bitterroot	*Lewisia rediviva*
Blue flax	*Linum perenne*
Lupine	*Lupinus* sp.
Alfalfa	*Medicago sativa*
Dwarf monkeyflower	*Mimulus nanus*
Sainfoin	*Onobrychis viciaefolia*
Penstemon	*Penstemon* sp.
Scorpion weed	*Phacelia hastata*
Obscure phacelia	*Phacelia inconspicua*
Phlox	*Phlox* sp.
Gland cinquefoil	*Potentilla glandulods*

APPENDIX D

Noxious Weeds	
Russian knapweed	*Acroptilon repens*
Musk thistle	*Carduus nutans*
Diffuse knapweed	*Centaurea diffusa*
Spotted knapweed	*Centaurea maculosa*
Rush skeletonweed	*Chondrilla juncea*
Canada thistle	*Cirsium arvense*
Field bindweed	*Convolvulus arvensis*
Leafy spurge	*Euphorbia esula*
Dalmation toadflax	*Linaria genistifolia* ssp. *dalmatica*
Scotch thistle	*Onopordum acanthium*

APPENDIX E

List of Species Protected by the Migratory Bird Treaty Act and Known to Occur at Craters of the Moon National Monument and Preserve

Pied-billed Grebe
Eared Grebe
Western Grebe
American White Pelican
Great Blue Heron
White-faced Ibis
Turkey Vulture
Snow Goose
Canada Goose
Tundra Swan
Gadwall
American Wigeon
Mallard
Northern Shoveler
Cinnamon Teal
Northern Pintail
Blue-winged Teal
Green-winged Teal
Ruddy Duck
Canvasback
Redhead
Ring-necked Duck
Lesser Scaup
Common Goldeneye
Bufflehead
Osprey
Bald Eagle
Northern Harrier
Sharp-shinned Hawk
Copper's Hawk
Northern Goshawk
Swainson's Hawk
Red-tailed Hawk
Rough-legged Hawk
Ferruginous Hawk
Golden Eagle
American Kestrel
Merlin
Gyrfalcoln
Peregrine Falcon
Prairie Falcon
American Coot
Virginia Rail
Sora
Sandhill Crane
Killdeer
American Avocet
Spotted Sandpiper
Whimbrel
Long-billed Curlew
Wilson's Snipe
Wilson's Phalarope
Long-billed Dowitcher
Ring-billed Gull
Herring Gull
California Gull
Franklin's Gull
Forster's Tern
Black Tern
Band-tailed Pigeon
Mourning Dove
Great Horned Owl
Snowy Owl
Western Burrowing Owl
Long-eared Owl
Short-eared Owl
Western Screech Owl
Northern Saw-whet Owl
Common Nighthawk
Common Poorwill
White-throated Swift
Black-chinned Hummingbird
Calliope Hummingbird
Broad-tailed Hummingbird
Rufous Hummingbird
Belted Kingfisher

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Lewis' Woodpecker
Red-headed Woodpecker
Red-naped Sapsucker
Williamson's Sapsucker
Downy Woodpecker
Hairy Woodpecker
Northern Flicker
Olive-sided Flycatcher
Western Wood-pewee
Willow Flycatcher
Hammond's Flycatcher
Gray Flycatcher
Dusky Flycatcher
Cordilleran Flycatcher
Say's Phoebe
Ash-throated Flycatcher
Western Kingbird
Eastern Kingbird
Loggerhead Shrike
Northern Shrike
Plumbeous Vireo
Cassin's Vireo
Warbling Vireo
Steller's Jay
Pinyon Jay
Clark's Nutcracker
Black-billed Magpie
American Crow
Common Raven
Horned Lark
Tree Swallow
Violet-green Swallow
Cliff Swallow
Northern Rough-winged Swallow
Barn Swallow
Black-capped Chickadee
Mountain Chickadee
Red-breasted Nuthatch
White-breasted Nuthatch
Brown Creeper
Rock Wren
Winter Wren
Marsh Wren
American Dipper
Golden-crowned Kinglet
Ruby-crowned Kinglet
Blue-gray Gnatcatcher
Western Bluebird
Mountain Bluebird
Townsend's Solitaire
Swainson's Thrush
Hermit Thrush
American Robin
Varied Thrush
Gray Catbird
Sage Thrasher
Brown Thrasher
American Pipit
Bohemian Waxwing
Cedar Waxwing
Tennessee Warbler
Orange-crowned Warbler
Nashville Warbler
Yellow Warbler
Yellow-rumped Warbler
Townsend's Warbler
American Redstart
Northern Waterthrush
MacGillivray's Warbler
Wilson's Warbler
Yellow-breasted Chat
Western Tanager
Green-tailed Towhee
Spotted Towhee
Chipping Sparrow
Brewer's Sparrow
Vesper Sparrow
Lark Sparrow
Black-throated Sparrow
Sage Sparrow
Lark Bunting
Savannah Sparrow

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Grasshopper Sparrow
Fox Sparrow
Song Sparrow
Lincoln's Sparrow
White-throated Sparrow
White-crowned Sparrow
Golden-crowned Sparrow
Dark-eyed Junco
Snow Bunting
Black-headed Grosbeak
Lazuli Bunting
Bobolink
Red-winged Blackbird
Western Meadowlark
Yellow-headed Blackbird
Brewer's Blackbird
Common Grackle
Brown-headed Cowbird
Bullock's Oriole
Baltimore Oriole
Gray-crowned Rosy-Finch
Black Rosy-Finch
Pine Grosbeak
Cassin's Finch
House Finch
Red Crossbill
Hoary Redpoll
Common Redpoll
Pine Siskin
American Goldfinch
Evening Grosbeak
Weaver Finches

APPENDIX F

Livestock Grazing

I. STANDARD AND GUIDELINES

Idaho Standards for Rangeland Health &
Guidelines for Livestock Grazing Management

Standards for Rangeland Health

The Standards for Rangeland Health, as applied in the State of Idaho, are to be used as the Bureau of Land Management's management goals for the betterment of the environment, protection of cultural resources, and sustained productivity of the range. They are developed with the specific intent of providing for the multiple use of the public lands. Application of the standards should involve collaboration between the authorized officer, interested publics, and resource users.

Rangelands should be meeting the Standards for Rangeland Health or making significant progress toward meeting the standards. Meeting the standards provides for proper nutrient cycling, hydrologic cycling, and energy flow.

Monitoring of all uses is necessary to determine if the standards are being met. It is the primary tool for determining rangeland health, condition, and trend. It will be performed on representative sites.

Appropriate to soil type, climate, and landform, indicators are a list of typical physical and biological factors and processes that can be measured and/or observed (e.g., photographic monitoring). They are used in combination to provide information necessary to determine the health and condition of the rangelands. Usually, no single indicator provides sufficient information to determine rangeland health. Only those indicators appropriate to a particular site are to be used. The indicators listed below each standard are not intended to be all inclusive.

The issue of scale must be kept in mind in evaluating the indicators listed after each standard. It is recognized that individual isolated sites within a landscape may not be meeting the standards; however, broader areas must be in proper functioning condition. Furthermore, fragmentation of habitat that reduces the effective size of large areas must also be evaluated for its consequences.

Standard 1 (Watersheds)

Watersheds provide for the proper infiltration, retention, and release of water appropriate to soil type, vegetation, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.

2. Evidence of accelerated erosion in the form of rills and/or gullies, erosional pedestals, flow patterns, physical soil crusts/surface sealing, and compaction layers below the soil surface is minimal for soil type and landform.

Standard 2 (Riparian Areas and Wetlands)

Riparian-wetland areas are in properly functioning condition appropriate to soil type, climate, geology, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. The riparian/wetland vegetation is controlling erosion, stabilizing streambanks, shading water areas to reduce water temperature, stabilizing shorelines, filtering sediment, aiding in floodplain development, dissipating energy, delaying flood water, and increasing recharge of groundwater appropriate to site potential.

2. Riparian/wetland vegetation with deep strong binding roots is sufficient to stabilize streambanks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.

3. Age class and structural diversity of riparian/wetland vegetation is appropriate for the site.

4. Noxious weeds are not increasing.

Standard 3 (Stream Channel/Floodplain)

Stream channels and floodplains are properly functioning relative to the geomorphology (e.g., gradient, size, shape, roughness, confinement, and sinuosity) and climate to provide for proper nutrient cycling, hydrologic cycling, and energy flow.

Indicators may include, but are not limited to, the following:

1. Stream channels and floodplains dissipate energy of high water flows and transport sediment. Soils support appropriate riparian-wetland species, allowing water movement, sediment filtration, and water storage. Stream channels are not entrenching.

2. Stream width/depth ratio, gradient, sinuosity, and pool, riffle and run frequency are appropriate for the valley bottom type, geology, hydrology, and soils.

3. Streams have access to their floodplains and sediment deposition is evident.

4. There is little evidence of excessive soil compaction on the floodplain due to human activities.

5. Stream banks are within an appropriate range of stability according to site potential.

6. Noxious weeds are not increasing.

Standard 4 (Native Plant Communities)

Healthy, productive, and diverse native animal habitat and populations of native plants are maintained or promoted as appropriate to soil type, climate, and landform to provide for proper nutrient cycling, hydrologic cycling, and energy flow. Indicators may include, but are not limited to, the following:

1. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.

2. The diversity of native species is maintained.

3. Plant vigor (total plant production, seed and seedstalk production, cover, etc.) is adequate to enable reproduction and recruitment of plants when favorable climatic events occur.

4. Noxious weeds are not increasing.

5. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 5 (Seedings)

Rangelands seeded with mixtures, including predominately non-native plants, are functioning to maintain life form diversity, production, native animal habitat, nutrient cycling, energy flow, and the hydrologic cycle.

Indicators may include, but are not limited to, the following:

1. In established seedings, the diversity of perennial species is not diminishing over time.

2. Plant production, seed production, and cover are adequate to enable recruitment when favorable climatic events occur.

3. Noxious weeds are not increasing.

4. Adequate litter and standing dead plant material are present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 6 (Exotic Plant Communities, Other Than Seedings)

Exotic plant communities, other than seedings, will meet minimum requirements of soil stability and maintenance of existing native and seeded plants. These communities will be rehabilitated to perennial communities when feasible cost effective methods are developed.

Indicators may include, but are not limited to, the following:

1. Noxious weeds are not increasing.

2. The number of perennial species is not diminishing over time.

3. Plant vigor (production, seed and seedstalk production, cover, etc.) of remnant native or seeded (introduced) plants is maintained to enable reproduction and recruitment when favorable climatic or other environmental events occur.

4. Adequate litter and standing dead plant material is present for site protection and for decomposition to replenish soil nutrients relative to site potential.

Standard 7 (Water Quality)

Surface and ground water on public lands comply with the Idaho Water Quality Standards.

Indicators may include, but are not limited to, the following:

1. Physical, chemical, and biologic parameters described in the Idaho Water Quality Standards.

Standard 8 (Threatened and Endangered Plants and Animals)

Habitats are suitable to maintain viable populations of threatened and endangered, sensitive, and other special status species.

Indicators may include, but are not limited to, the following:

1. Parameters described in the Idaho Water Quality Standards.

2. Riparian/wetland vegetation with deep, strong, binding roots is sufficient to stabilize stream banks and shorelines. Invader and shallow rooted species are a minor component of the floodplain.

3. Age class and structural diversity of riparian/wetland vegetation are appropriate for the site.

4. Native plant communities (flora and microbiotic crusts) are maintained or improved to ensure the proper functioning of ecological processes and continued productivity and diversity of native plant species.

5. The diversity of native species is maintained.

6. The amount and distribution of ground cover, including litter, for identified ecological site(s) or soil-plant associations are appropriate for site stability.

7. Noxious weeds are not increasing.

Guidelines for Livestock Grazing Management

Guidelines direct the selection of grazing management practices, and where appropriate, livestock management facilities to promote significant progress toward, or the attainment and maintenance of, the standards. Grazing management practices are livestock management techniques. They include the manipulation of season, duration (time), and intensity of use, as well as numbers, distribution, and kind of livestock. Livestock management facilities are structures such as fences, corrals, and water developments (ponds, springs, pipelines, troughs, etc.) used to facilitate the application of grazing management practices. Livestock grazing management practices and guidelines will be consistent with the Idaho Agricultural Pollution Abatement Plan.

Grazing management practices and facilities are implemented locally, usually on an allotment or watershed basis. Grazing management programs are based on a combination of appropriate grazing management practices and facilities developed through consultation, coordination, and cooperation with the Bureau of Land Management, permittees, other agencies, Indian tribes, and interested publics. These guidelines were prepared under the assumption that regulations and policies regarding grazing on the public lands will be implemented and will be adhered to by the grazing permittees and agency personnel. Anything not covered in these guidelines will be addressed by existing laws, regulations, Indian treaties, and policies.

The BLM will identify and document within the local watershed all impacts that affect the ability to meet the standards. If a standard is not being met due to livestock grazing, then allotment management will be adjusted unless it can be demonstrated that significant progress toward the standard is being achieved. This applies to all subsequent guidelines.

Guidelines

1. Use grazing management practices and/or facilities to maintain or promote significant progress toward adequate amounts of ground cover (determined on an ecological site basis) to support infiltration, maintain soil moisture storage, and stabilize soils.

2. Locate livestock management facilities away from riparian areas wherever they conflict with achieving or maintaining riparian-wetland functions.

3. Use grazing management practices and/or facilities to maintain or promote soil conditions that support water infiltration, plant vigor, and permeability rates and minimize soil compaction appropriate to site potential.

4. Implement grazing management practices that provide periodic rest or deferment during critical growth stages to allow sufficient regrowth to achieve and maintain healthy, properly functioning conditions, including good plant vigor and adequate vegetative cover appropriate to site potential.

5. Maintain or promote grazing management practices that provide sufficient residual vegetation to improve, restore, or maintain healthy riparian-wetland functions and structure for energy dissipation, sediment capture, ground water recharge, streambank stability, and wildlife habitat appropriate to site potential.

6. The development of springs, seeps, or other projects affecting water and associated resources shall be designed to protect the ecological functions, wildlife habitat, and significant cultural and historical/ archaeological/paleontological values associated with the water source.

7. Apply grazing management practices to maintain, promote, or progress toward appropriate stream channel and stream bank morphology and functions. Adverse impacts due to livestock grazing will be addressed.

8. Apply grazing management practices that maintain or promote the interaction of the hydrologic cycle, nutrient cycle, and energy flow that will support the appropriate types and amounts of soil organisms, plants, and animals appropriate to soil type, climate, and landform.

9. Apply grazing management practices to maintain adequate plant vigor for seed production, seed dispersal, and seedling survival of desired species relative to soil type, climate, and landform.

10. Implement grazing management practices and/or facilities that provide for complying with the Idaho Water Quality Standards.

11. Use grazing management practices developed in recovery plans, conservation agreements, and Endangered Species Act, Section 7 consultations to maintain or improve habitat for federally listed threatened, endangered, and sensitive plants and animals.

12. Apply grazing management practices and/or facilities that maintain or promote the physical and biological conditions necessary to sustain native plant populations and wildlife habitats in native plant communities.

13. On areas seeded predominantly with non-native plants, use grazing management practices to maintain or promote the physical and biological conditions to achieve healthy rangelands.

14. Where native communities exist, the conversion to exotic communities after disturbance will be minimized. Native species are emphasized for rehabilitating disturbed rangelands. Evaluate whether native plants are adapted, available, and able to compete with weeds or seeded exotics.

15. Use non-native plant species for rehabilitation only in those situations where:
    a. native species are not readily available in sufficient quantities;

    b. native plant species cannot maintain or achieve the standards; or

    c. non-native plant species provide for management and protection of native rangelands.

Include a diversity of appropriate grasses, forbs, and shrubs in rehabilitation efforts.

16. On burned areas, allow natural regeneration when it is determined that populations of native perennial shrubs, grasses, and forbs are sufficient to revegetate the site. Rest burned or rehabilitated areas to allow recovery or establishment of perennial plant species.

17. Carefully consider the effects of new management facilities (e.g., water developments, fences) on healthy and properly functioning rangelands prior to implementation.

18. Use grazing management practices, where feasible, for wildfire control and to reduce the spread of targeted undesirable plants (e.g., cheatgrass, medusa head, wildrye, and noxious weeds) while enhancing vigor and abundance of desirable native or seeded species.

19. Employ grazing management practices that promote natural forest regeneration and protect reforestation projects until the Idaho Forest Practices Act requirements for timber stand replacement are met.

20. Design management fences to minimize adverse impacts, such as habitat fragmentation, to maintain habitat integrity and connectivity for native plants and animals.

II. ALLOTMENT BOUNDARY ADJUSTMENTS

When the Monument was expanded in 2000, some portions of new lava included in allotment boundaries were transferred to the NPS. Since federal regulations do not authorize livestock grazing on NPS lands, the affected allotment boundaries would be revised to exclude these portions of lava. These areas consist primarily of exposed lava flows, which are mostly devoid of available forage and/or are inaccessible to livestock; therefore, prohibiting grazing in these areas would have little to no impact on the livestock industry. There would be no change in forage allocation or reduction in these affected allotments, and no boundary fences or border would be built. Table F-1 and Figure F-1 show the revised allotment acres and boundaries. The map legends show impacted allotments, which are the allotments within the Monument that are impacted with the adjustments from BLM- to NPS-administered land. Affected area represents the area of land that was previously BLM and is now administered by NPS.

Table F-1
Revised Allotment Acres

Allotment	Total Acres	NPS Acres Removed from Allotment	Adjusted Allotment Total Acres
Craters	10,900	8,600	2,300
Blizzard Mountain	5,000	1,300	3,700
Big Desert	235,900	200	235,700
Rudeen	15,800	400	15,400
Minadoka	100,200	1,200	99,000
Schodde	21,900	1,000	20,900
Cottonwood	6,300	20	6,280
Crater	4,400	1,900	2,500
Lava Lake	16,100	1,000	15,100
Timber Butte	8,800	800	8,000

III. LIVESTOCK ADMINISTRATION ADJUSTMENTS

In this plan, there is no change in AUM preference, acres available for grazing, acres not available for grazing, or allotment size from one alternative to another. Adjustments to stocking rates, if needed, would be addressed during the standards and guidelines process. The standards and guidelines process would be used to accurately address the specific needs of each allotment.

Any changes in livestock management and AUM allocations (a grazing increase or decrease) would conform to the grazing regulations (43 CFR 4130) and this land use plan. Monitoring, field observations, ecological site inventories, or other BLM acceptable data must support management changes.

If grazing preference is reduced through relinquishment, which could occur when a permittee voluntarily gives up all or part of their preference, or through cancellation, then that preference may be used to provide management flexibility to conduct vegetation treatments, rehabilitation

or other natural resource management actions. The preference may also be allocated to a different permittee in that Allotment. In addition, the pasture or allotment that held the reduced grazing preference may be combined with an existing allotment/pasture to allow additional management flexibility. BLM may reduce grazing use if that would facilitate progress toward meeting land use plan objectives.

Proposals to reduce or increase grazing use will be analyzed and documented in a NEPA compliant grazing decision. Completely removing grazing from an area identified in this plan as "available for livestock grazing" requires NEPA analysis as well as a Land Use Plan Amendment.

The trailing of livestock from one allotment to another is a common practice in the livestock industry. Historic trail routes are still used today in many areas of the Monument. The majority of this trailing occurs along existing roads. There are two historic livestock trails in the Monument that do not follow designated roads and cross lava flows that now administered by the NPS. These two trails would be evaluated to determine if they could remain open to their historic use with the stipulation that no motorized vehicles would be used as part of the trailing operation. Figure F-1 shows the location of the two existing trails.

APPENDIX G

Proposed Laidlaw Park ACEC

The purpose of an Area of Critical Environmental Concern (ACEC) designation is to focus management attention on special resources located in the area. The potential ACEC designation was brought to the attention of the Bureau of Land Management (BLM), which then used a screening process – the ACEC Criteria Review Checklist – as an initial evaluation to determine if the nominated area met basic relevance and importance criteria for designation. The BLM considered the appropriate amount of land needed to protect the resource values reflected in the nomination.

The ACEC evaluation was based on guidance provided by 43 CFR 1610.7-2 and BLM Manual Section 1613, which state that potential ACECs must meet specified criteria for relevance and importance. Relevance is based on the presence of a significant

- Historic, cultural, or scenic value;
- Fish or wildlife resource or other natural system or process; or
- Natural hazard.

Upon meeting the relevance criteria, a nominated site must then have substantial significance and values that meet one or more of the "importance" criteria:

- Has more than locally significant qualities which give it special worth, consequence, meaning, distinctiveness, or cause for concern, especially compared to any similar resource.
- Has qualities or circumstances that make it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change.
- Has been recognized as warranting protection in order to satisfy national priority concerns or to carry out the mandates of Federal Land and Policy Management Act (FLPMA).
- Has qualities which warrant highlighting in order to satisfy public or management concerns about safety and public welfare.
- Poses a significant threat to human life and safety or to property.

North Laidlaw Park met the relevance criteria for scenic values, wildlife resources, and natural process or system and importance criteria for scenic values and wildlife resources. The Laidlaw Park ACEC (10,517 acres of public land) is proposed in Alternative C. However, it is uncertain that ACEC designation is needed to provide special management for the identified resources or values, because current management, regulation, and law provide sufficient protection for the values identified; therefore, ACEC designation may not be necessary. The ACEC criteria review checklist follows:

Relevance: **Does the area contain a significant historic, cultural or scenic value; fish or wildlife resource; natural process or system; or natural hazard?**	**Yes/No**
Historic: There are no recorded historical resources that contribute to the ACEC.	No
Cultural: There are no recorded cultural resources that contribute to the ACEC.	No
Scenic: Laidlaw Park is the world's largest kipuka and contains unobstructed views of the volcanic landscapes for which the Monument was established, as well as the Pioneer Mountains to the north. Because of the isolated nature of the area it provides excellent night-sky viewing. Air quality monitoring from the nearby NPS Monument headquarters indicates that the airshed is among the cleanest in the nation.	Yes
Fish or Wildlife Resource: There are no fish resources in the area. North Laidlaw Park contains one of the last remaining large contiguous blocks of low elevation sagebrush habitat found in the central Snake River Plain. The area provides critical breeding, brood rearing, and winter habitat for sage grouse and other sagebrush dependent wildlife. In addition, the area provides important seasonal habitat for pronghorn and elk and important transition range for migrating mule deer. North Laidlaw Park contains 7 active and historical leks.	Yes
Natural Process or System: The natural system in Laidlaw Park is classified as cool shrub, with communities dominated by basin big sagebrush, Wyoming big sagebrush, mountain big sagebrush, and threetip sagebrush in association with bluebunch wheatgrass, Thurber's needlegrass, and Idaho fescue. Communities within the park are in a variety of seral stages, ranging from early seral grassland post-fire to early- and late-seral shrub-dominated stands. There is currently little known about the ecology of threetip sagebrush communities, which are common throughout the area. In particular, it is unknown if these communities are a long-term seral stage of a big sagebrush association, or climax communities unto themselves. Laidlaw Park has only been grazed for approximately 70 years, as compared to surrounding areas that have been grazed for over 100 years. Recent livestock use in North Laidlaw has been light due to lack of water. This area is in good to excellent ecological condition without large areas dominated by exotic species and with considerable forb diversity. Therefore the area serves as a reference site for ecologically comparable, more heavily grazed sites. North Laidlaw also contains an aspen grove at Snowdrift Crater, a plant community that is rare in this desert environment. Habitat is present for the BLM Sensitive species, Picabo milkvetch (*Astragalus oniciformis*), which is endemic to this area of the central Snake River Plain.	Yes
Natural Hazard: There are no known natural hazards within the area.	No

Importance: **Does the value, resource system, process, or hazard meet one or more of the following importance factors: (1) has more than locally significant qualities and special worth or cause for concern; (2) has qualities/circumstances making it fragile, sensitive, rare, irreplaceable, exemplary, unique, endangered, threatened, or vulnerable to adverse change; (3) is recognized as warranting protection to satisfy national priority concerns or carry out FLPMA's mandates; (4) warrants highlighting to satisfy concerns about safety and public welfare?**	**Yes/No**
Historic:	N/A
Cultural:	N/A
Scenic: The scenic qualities found within the area are unique on a national level. Bordered on the north side by the National Park Service's first federally designated Wilderness area, North Laidlaw Park offers the viewer a striking visual progression. Looking north across the vast sagebrush steppe landscape, the view from North Laidlaw Park climbs abruptly into the black austerity of the Craters of the Moon lava fields, then high into the Pioneer Mountains. To the south lies Laidlaw Butte, representing one of the most outstanding examples of a low shield volcano in the world outside of Hawaii. The shallow-angled slopes of Laidlaw Butte typify the unique volcanic character of the Snake River Plain. Snowdrift Crater is the summit caldera of another discrete shield volcano. Over one mile long and nearly a half-mile across, Snowdrift Crater is geologically comparable to Kilauea Caldera in Hawaii Volcanoes National Park, offering views into the giant cinder cones and fresh multi-colored lavas of the Craters of the Moon Wilderness. In the southern part of the Crater, the Monument's only stand of aspen offers shade to both visitors and a large herd of migrating elk. The spectacular seasonal color changes combined with the unique variety of disparate ecosystems and landforms earned published photographs in both Sunset Magazine and Sierra Club Calendars.	Yes
Fish or Wildlife Resource: There are no fish resources within the area. The area contains key habitat for sage grouse and other sagebrush steppe obligates (Terrestrial Family 11 as defined by ICBEMP). This habitat, particularly big sagebrush vegetation types, has declined substantially from historical to current on a regional level. ICBEMP identified areas such as this as being significant regionally due to this decline. The Proclamation for the expansion of the Monument highlighted the importance of the area as habitat for sagebrush steppe obligates and its protection.	Yes
Natural Process or System: North Laidlaw Park is not vulnerable to adverse change under existing management. Current fire management direction is for full fire suppression, especially for the protection of sage grouse "strongholds," which includes the entire park. Current post-fire rehabilitation policy directs the use of native species where it is appropriate.	No
Natural Hazard:	N/A

Alternative A (No Action Alternative)

The nominated Laidlaw Park ACEC would not be designated. Existing management for the area would continue to be implemented (see the appropriate resource sections in this chapter for management direction).

Alternative B

The nominated Laidlaw Park ACEC would not be designated.

Alternative C

In this alternative, 10,517 acres of public land encompassing North Laidlaw Park, north of the Turnbull Fence, would be designated as an ACEC. The following actions would be implemented to protect the high quality native vegetation, wildlife habitat, and scenic values of the area:

a) Develop standards and indicators for vegetation health that allow for natural disturbance and processes while ensuring that degradation due to invasion of invasive or noxious weeds does not occur.

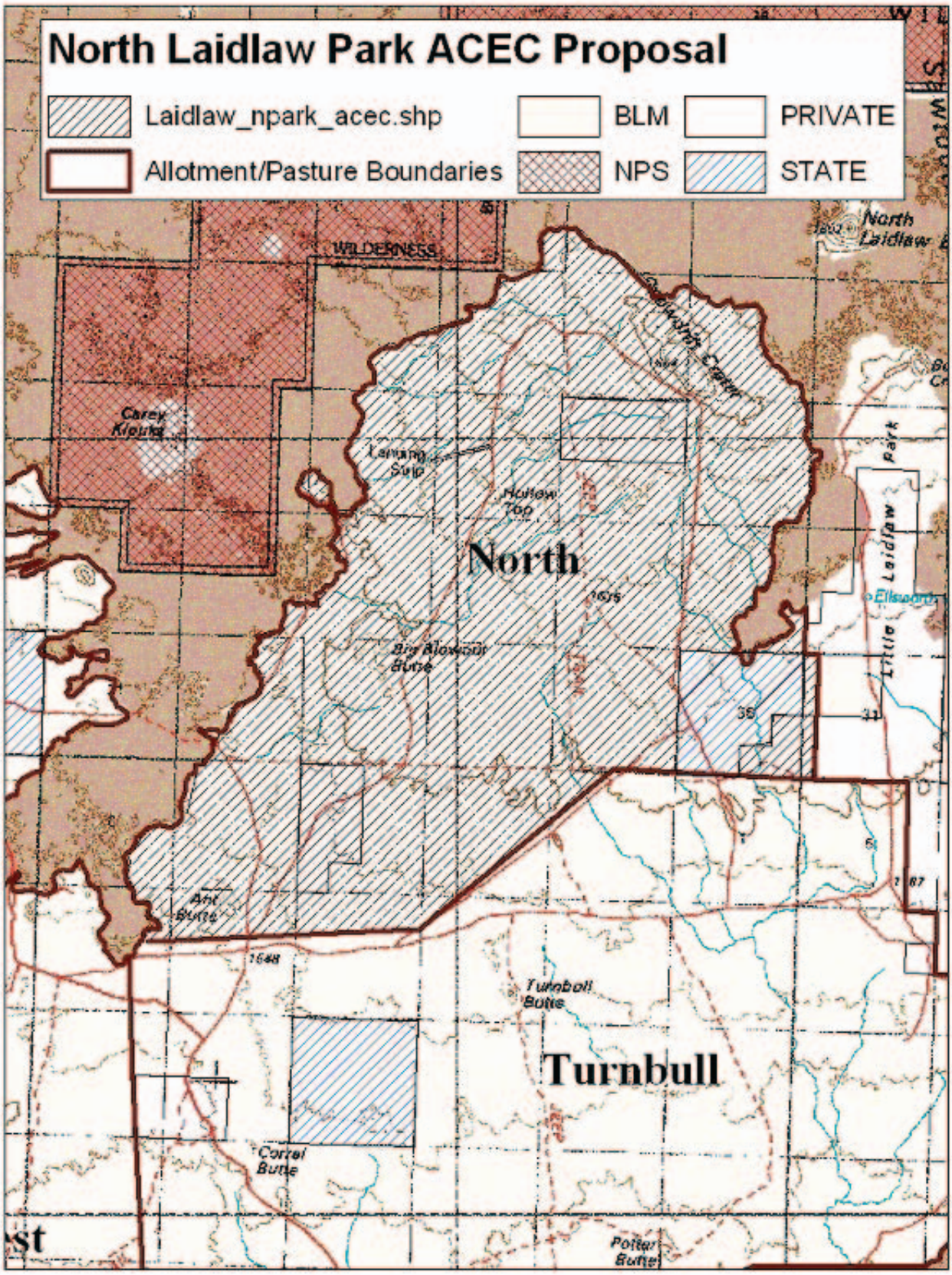
b) Develop a low-use transportation network with no new routes, trails, or signs.

c) No new development of permanent livestock watering facilities to ensure that the existing, light use of the area continues. The two existing watering facilities will be maintained, but not expanded. Water hauling to temporary sites will remain at the current level.

d) Use off-site interpretive resources to highlight grazing management, native vegetation, and scenic qualities of the area.

Alternative D

The nominated Laidlaw Park ACEC would not be designated.


North Laidlaw Park ACEC Proposal
Laidlaw_npark_acec.shp
Allotment/Pasture Boundaries
BLM
NPS
PRIVATE
STATE
WILDERNESS
North
Turnbull
Carey Kipuka
Hollow Top
Big Blowout Butte
Ant Butte
Turnbull Butte
Corral Butte
Potter Butte
Elkhorn
Little Laidlaw Park
North Laidlaw

APPENDIX H

Recreation Statistics — Craters of the Moon National Monument, 1999-2002

Month	Year	Recreation Visits	Total Visits	Tent Campers	RV Campers	Total RV/Tent Campers	Back-country Campers	Misc. Campers	Total Overnight Stays
January	1999	2,691	2,691	0	0	0	0	0	0
February	1999	2,040	2,040	0	0	0	0	0	0
March	1999	6,495	6,495	0	0	0	0	0	0
April	1999	6,900	6,900	0	19	19	0	0	19
May	1999	21,926	21,926	558	896	1,454	25	20	1,499
June	1999	35,507	35,507	1,206	2,003	3,209	41	270	3,520
July	1999	46,843	46,843	1,590	1,779	3,369	19	180	3,568
August	1999	42,100	42,100	1,482	1,724	3,206	15	219	3,440
September	1999	29,442	29,442	905	1,643	2,548	20	0	2,568
October	1999	13,848	13,848	254	391	645	1	0	646
November	1999	5,860	5,860	47	62	109	0	0	109
December	1999	1,915	1,915	0	0	0	0	0	0
January	2000	1,431	1,431	0	0	0	0	0	0
February	2000	1,719	1,719	0	0	0	4	0	4
March	2000	5,065	5,065	0	0	0	6	0	6
April	2000	9,131	9,131	152	198	350	36	0	386
May	2000	20,574	20,574	555	952	1,507	32	60	1,599
June	2000	59,573	59,573	1,234	1,547	2,781	18	270	3,069
July	2000	39,358	39,358	1,435	1,339	2,774	8	120	2,902
August	2000	29,013	29,013	1,104	1,020	2,124	12	120	2,256
September	2000	26,271	26,271	608	862	1,470	8	0	1,478
October	2000	14,262	14,262	254	322	576	19	0	595
November	2000	3,475	3,475	19	31	50	0	0	50
December	2000	1,770	1,770	3	6	9	0	0	9
January	2001	2,368	2,368	0	0	0	0	0	0
February	2001	1,290	1,290	0	0	0	0	0	0
March	2001	5,726	5,726	0	0	0	1	0	1
April	2001	7,660	7,660	121	81	202	8	0	210
May	2001	21,338	21,338	490	725	1,215	38	270	1,523
June	2001	30,394	30,394	1,110	1,451	2,561	37	240	2,838
July	2001	40,769	40,769	992	1,026	2,018	12	180	2,210
August	2001	33,133	33,133	1,215	1,141	2,356	10	0	2,366
September	2001	24,808	24,808	840	1,150	1,990	11	0	2,001
October	2001	13,161	13,161	177	239	416	16	0	432
November	2001	4,991	4,991	71	28	99	12	0	111
December	2001	161	161	3	0	3	0	0	3
January	2002	1,897	1,897	0	0	0	0	0	0
February	2002	1,141	1,141	0	0	0	0	0	0
March	2002	4,495	4,495	0	0	0	0	0	0
April	2002	6,181	6,181	90	62	152	2	0	154
May	2002	20,968	20,968	496	741	1,237	20	0	1,257
June	2002	30,346	30,346	1,073	1,547	2,620	24	90	2,734
July	2002	37,447	37,447	1,308	1,265	2,573	8	210	2,791
August	2002	36,173	36,173	1,538	1,460	2,998	16	90	3,104
September	2002	25,833	25,833	756	1,237	1,993	9	90	2,092
October	2002	13,103	13,103	220	279	499	13	0	512
November	2002	3,565	3,565	6	0	6	0	0	6
December	2002	2,424	2,424	0	0	0	2	0	2
TOTALS		796,581	796,581	21,912	27,226	49,138	503	2,429	52,070

The SHOSHONE-BANNOCK TRIBES

FORT HALL INDIAN RESERVATION
PHONE (208) 478-3700
FAX # (208) 237-0797

FORT HALL BUSINESS COUNCIL
P.O. BOX 306
FORT HALL, IDAHO 83203

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October 16, 2003

Craters of the Moon National Monument Planning Team
Bureau of Land Management
Shoshone Field Office
PO BOX 2-B
400 West F Street
Shoshone, ID 83352-1522

Jim Morris, Superintendent
Craters of the Moon National Monument
PO BOX 29
Arco, ID 83213

RE: SHOSHONE-BANNOCK TRIBES COMMENTS TO THE CRATERS OF THE MOON NATIONAL MOMUMENT & PRESERVE – RESOURCE MANAGEMENT PLAN

The Shoshone-Bannock Tribes would like to thank the National Park Service and the Bureau of Land Management for seeking Tribal participation in the development of this Management Plan. The Shoshone-Bannock Tribes (Tribes) technical staff has reviewed the available information and submits the following comments.

The BLM and NPS staff came to Fort Hall to meet on August 27, 2003 with the Fort Hall Business Council, and that may be considered as a part of the consultation process, as an information meeting. Prior to that, the BLM and NPS staff coordinated with the Tribal resource staff, and the Tribes urge the agencies to continue to coordinate with the staff, throughout the planning process.

The Craters of the Moon area is of particular importance to the Tribes, as it has important historical usage and continues to retain cultural values, as legends and other Tribal histories have included the Craters area. Any potentially adverse impacts that this management plan would have upon those traditional values needs to be prevented.

Out of the four alternatives presented, the technical staff supports the DRAFT Alternative C, which emphasizes retention and enhancement of the Monuments primitive character with minimal visitor facilities or services and less management action to influence resource conditions,

with minor changes. These suggestions are to ensure adequate roads, (two tracks) to allow Tribal member access for exercise of treaty rights.

The Tribes request to be actively involved and participate in the development of the implementation plan for individual projects that will result from this management plan.

General Comments: The Shoshone-Bannock Tribes are not members of the general public; the Tribes are a sovereign nation, with its own governing system and cannot be equated with local state, municipalities or county governments. The 1868 Fort Bridger Treaty reserves the right to continue traditional activities on all unoccupied federal lands.

Understanding that the BLM is under a Multi-use Mandate, the Tribes remind and emphasize that the BLM first has a federal trust responsibility to the Tribes to manage lands under their jurisdiction in a manner to preserve and protect those trust resources, on behalf of the Tribes.

Please include in your list of required laws and statutes the federal agencies must follow, the 1868 Fort Bridger Treaty, as well as the official government-to-government consultation requirements to the Shoshone-Bannock Tribes. Also include in the document, a statement stating the federal agencies federal trust responsibility to the Tribes to manage and protect Indian Trust Assets/Treaty Resources, and that these federal agencies will work to ensure all proposed projects will be developed and analyzed with this responsibility paramount.

Specific Comments: Please analyze the impacts that this proposed management plan would have upon the Tribes reserved treaty rights. Please review and revise this NEPA document to address the concerns raised in these comments. Again, the Tribes need to be involved to review and ensure that the EIS adequately addresses the Tribal comments.

Specific treaty resources include the following resources, cultural resources, wildlife, plants and vegetation, water resources and the traditional cultural activities.

The Tribal staff agrees with the overall recommendation and goal to retain the character and preserve the unique qualities of this area, but another goal/objective would be to ensure that Tribal interests and rights are protected, enhanced and managed to the benefit of the Tribes.

Tribal hunting and gathering rights needs to be addressed to ensure access for Tribal members on public lands. To exercise treaty rights reserved by the 1868 Treaty, no state regulations or permits are necessary by Tribal members. The Tribes Fish & Game Department regulate and enforce the 1975 Tribal Fish & Game Code, for all off reservation hunting and fishing activities. Please expressly state that the federal agencies recognize that the Tribes regulate their own Tribal members for hunting, and do not require Tribal members to secure state hunting permits to hunting within the National Preserve lands or within the jurisdiction of the BLM.

Big game wildlife that is important for Tribal hunting include elk, deer, antelope and an occasional moose. Small game includes the sharp tailed grouse, sage hens, rabbits, rockchucks, squirrels, partridges, and other associated small game. Access to hunting areas is also vital to the Tribal members to allow them exercise their treaty rights, but also without opening up additional roads to tourists.

Due to the additional concerns to protect the delicate and fragile environment, it is the recommendation of the Tribal staff to discourage the development of new roads.

The federal agencies are requesting specific site information to help identify constraints in specific locations of resources important to the Tribes, etc., however, it is the Tribes position that the *entire area* contains cultural significance to the Tribes. Site-specific recommendations are difficult to make without extensive visits to these areas by our Tribal members and Tribal resource staff. If the BLM can offer financial assistance, via Assistance Agreements, to provide the funding to the Tribes, then more detailed participation can be possible from the Tribes side. The Tribes expect the agencies to manage to protect, and when possible enhance *all* of these resources.

Additional information and educational signs and displays to educate the public about the historical use of this area by the Tribes are necessary. Please develop these informational displays in conjunction with the Tribes. The documented archeological sites are very important to the Tribes, with expectation that they will be respected, preserved, protected from excessive public recreational use.

Additionally, as a part of the management plan, please encourage Tribal member permanent and temporary employment, such as for fire management activities, seasonal employment and summer youth employment.

The Tribes look forward to continuing to work with your staff to develop these Management Plans for the Craters of the Moon National Monument and Preserve. If you have any further technical questions, please call Yvette Tuell at 208-238-3290 or email her at ytuell@shoshonebannocktribes.com.

Sincerely,

Fred Auck

Fred Auck, Chairman
Fort Hall Business Council
Shoshone-Bannock Tribes

CC: Chad Colter, Shoshone-Bannock Tribes
Louise Dixey, Shoshone-Bannock Tribes
Yvette Tuell, Shoshone-Bannock Tribes
LaRae Buckskin, Shoshone-Bannock Tribes
Land Use Policy Commission (3)
File

United States Department of the Interior

FISH AND WILDLIFE SERVICE

EASTERN IDAHO FIELD OFFICE - ES
4425 BURLEY DR., SUITE A
CHUBBUCK, IDAHO 83202
Telephone (208) 237-6975 Fax Number (208) 237-8213

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May 24, 2002

James A. Morris
Superintendent,
Craters of the Moon National Monument
National Park Service
P.O. Box 29
Arco, Idaho 83213

Rick Vander Voet
Monument Manager,
Craters of the Moon National Monument
Bureau Of Land Management
P.O. Box 2-B
Shoshone, Idaho 83352

Subject: Craters of the Moon National Monument Land Use Management Plan and Environmental Impact Statement Scoping Document
File # 1035.0150 FWS # 1-4-02-SP-0126

Dear Mr. Morris and Mr. Vander Voet:

The U.S. Fish and Wildlife Service (Service) is providing you with a list of endangered, threatened, proposed, and/or candidate species which may be present in the area of Craters of the Moon National Monument (Monument) located in Blaine, Butte, Lincoln, Minidoka, and Power Counties, Idaho. The list fulfills requirements for a Species List under Section 7(c) of the Endangered Species Act of 1973 (Act), as amended. If the project decision is not made within 180 days of this letter, regulations require that you request an updated list. Please refer to the FWS number above in all correspondence and reports.

Section 7 of the Act requires Federal agencies to assure that their actions are not likely to jeopardize the continued existence of endangered or threatened species. Federal funding, permitting, or land use management decisions are considered to be Federal actions subject to Section 7. If the proposed action may affect a listed species, consultation with the Service is required. Formal consultation must be initiated for any project that is likely to adversely affect a threatened or endangered species. If a project involves a major construction activity and may affect listed species, Federal agencies are required to prepare a Biological Assessment (BA). If a proposed species is likely to be jeopardized by a Federal action, regulations require a conference between the Federal agency and the Service.

The Service understands that the National Park Service and Bureau of Land Management has proposed to develop a Management Plan for the Monument. This plan is intended to (1) provide general direction and basic management philosophy; (2) identify resource, management, and visitor use strategies and actions; (3) identify Monument infrastructure requirements, functions, and locations; (4) satisfy statutory and policy requirements; and (5) identify funding and staffing requirements.

Threatened and Endangered Species

Threatened and endangered species that may occur in the proposed project area (enclosure) include: Canada lynx (*Lynx canadensis*), gray wolf (*Canis lupus*), bald eagle (*Haliaeetus leucocephalus*), Ute ladies'- tresses (*Spiranthes diluvialis*), bull trout (*Salvelinus confluentus*), Bliss Rapids snail (*Taylorconcha serpenticola*), Utah valvata snail (*Valvata utahensis*), and Snake River physa snail (*Physa natricina*). However, for your information, we also have provided you with a list of Species of Special Concern and ask that you consider them, and their habitats, during project planning and review; although they do not have legal status under the Act.

Based on our knowledge of the Monument area, sufficient habitat for Canada lynx or bull trout is not available. The proposed project area does not occur in lynx habitat (i.e., not in a Lynx Analysis Unit) and there are no linkage areas in the project area. Furthermore, there is not adequate surface water present in the Monument area for bull trout survival. However, any available information documenting Canada lynx or bull trout presence in the project area should be noted in the project BA.

The gray wolf is listed as nonessential experimental within the central Idaho area. However, if gray wolf denning sites or rendevous areas are found near or within the project area, the Service asks that project activities be planned to minimize disturbance to wolf activities.

A bald eagle breeding territory is located approximately 15 air miles east of Monument at Carey Lake. The project BA should document the most recent bald eagle survey information regarding the above breeding territory and address effects of proposed project activities on these and any newly established breeding territories that may occur in the project area. The Guidelines for Management of Breeding Areas (Bald Eagle Management Plan for Greater Yellowstone, 1996 Final Draft) should guide the timing of any project activities with regard to potential disturbance of Nest Site Management Zones (NSMZ) from human activity, and to bald eagle foraging habitat outside NSMZs. It also should be noted that transient, wintering bald eagles may occur anywhere throughout Blaine, Butte, Minidoka, and Power counties, including the project area.

Ute ladies'-tresses have the potential to occur in wetland and riparian areas including springs, wet meadows, and river meanders. The plant is known to occur at sites ranging from 1,500 to 7,000 feet in elevation. This species generally flowers from mid-July through September, and can be identified definitively only at that time. The orchid can remain dormant for several years; therefore, we suggest surveys for the orchid be scheduled for sequential years. The species may

be adversely affected by modification of riparian and wetland habitats associated with livestock grazing, vegetation removal, excavation, construction for residential or commercial purposes, stream channelization, hydroelectric development and operation, and actions that alter hydrology.

The Bliss Rapids snail, Utah valvata snail, and Snake River physa snail are part of the native mollusc fauna of the middle Snake River which characteristically require cold, fastwater or lotic habitats. The Bliss Rapids snail occurs on stable, cobble-boulder substratum only in flowing waters in unimpounded stream reaches. This species does not burrow in sediments and normally avoids surfaces with attached plants. Populations (or colonies) of the Bliss Rapids snail occur in areas associated with spring influences or rapids edge environments and tend to flank shorelines. They are found at varying depths if dissolved oxygen and temperature requirements persist. The Utah valvata snail lives in deep pools adjacent to rapids or in perennial flowing waters associated with large spring complexes. This species avoids areas with heavy currents or rapids, and prefers well-oxygenated areas of non-reducing calcareous mud or mud-sand substrate among beds of submergent aquatic vegetation. The Snake River physa snail occurs on the undersides of gravel to boulder substratum in swift current. Living specimens have been found on boulders in the deepest accessible part of Snake River at the margins of rapids. Currently, the occurrence of snails at the Monument is unknown; therefore the project BA should document any available survey information addressing the presence or absence of snails or snail habitat in or near the project area. If survey information is not available, we recommend surveys be conducted prior to submission of the BA.

Our office would welcome the opportunity to assist in developing a consultation agreement and to work as part of your planning team. If you need any further information, please contact Sandi Arena of this office at (208) 237-6975 x 34. Thank you for your continued interest in endangered species conservation.

Sincerely,

Deb Mignogno
Supervisor, Eastern Idaho Sub-Office

Enclosure

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Southeast Idaho Refuge Complex
4425 Burley Drive, Suite A
Chubbuck, Idaho 83202
Telephone: 208/237-6615 Fax: 208/237-8213

12 March 2003

Craters of the Moon National Monument Planning Team
Bureau Of land Management
PO BOX 2-B
400 West F Street
Shoshone, ID 83352-1522

Dear Planning Team,

We appreciate the opportunity to comment on the National Monument alternatives. We do not wish to endorse any particular alternative, but would like to voice a couple of concerns.

If you are considering land trades to even up boundaries or to take care of inholdings The U. S. Fish and Wildlife Service would be interested in partnering in those transactions. There are three parcels of State lands on the north shore of Lake Walcott that Minidoka National Wildlife Refuge would like to acquire to give the refuge control of the entire north shore. This would allow better wildlife management and opportunities to improve recreational access in the Gifford Springs Area. Since we do not have excess lands to trade we will require the assistance of other Federal agencies. The Department of Lands has expressed interest in disposing of these three tracts to consolidate their holding elsewhere.

Secondly, if the decision is made to add a visitor center at the south end of the National Monument, the U. S. Fish and Wildlife Service would like to investigate the possibility of joint location for visitor and education facilities as well as an office complex in the vicinity of Lake Walcott State Park. The Idaho Department of Parks and Recreation would also likely be interested in collocation.

Our final concern is with weed invasion. Since weed control is a major effort at Minidoka NWR we are sensitive to the potential problems that may occur on the National Monument. We suggest that potential for weed introductions be considered before opening access routes, either by foot of by vehicle into new areas, particulary in Kipukas with pristine natural vegetation.

Sincerely,

Richard Munoz, Project Leader
Southeast Idaho National Wildlife Refuge Complex

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

Reply To
Attn Of: ECO-088

JUL 19 2002

02-030-NPS

Rick VanderVoet, Monument Manager
Bureau of Land Management,(BLM)
Shoshone Field Office
PO Box 2-B
Shoshone, ID 83352

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James Morris, CRMO Superintendent
National Park Service (NPS)
PO Box 29
Arco, ID 83213

Dear Mr. VanderVoet and Mr. Morris:

The U.S. Environmental Protection Agency (EPA) has reviewed the Federal Register Notice of Intent (NOI) to prepare an environmental impact statement (EIS) for the proposed **Craters of the Moon National Monument (CRMO), Land Use Plan**. Our review of the NOI was conducted in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

Section 309 specifically directs EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Although our Section 309 and NEPA reviews are independent, we conduct both at the same time. Our review considers not only the impact to the environment, but also the adequacy of the document to meet the requirements of NEPA. To avoid major revisions after the draft EIS is issued, we offer these comments early in the NEPA process to help improve the proposed project and ensure that a good NEPA document is developed. A good EIS should adequately address purpose and need for the proposed activity, set forth the environmental impacts of the proposed project and all its alternatives, and discuss significant issues. Please refer to the attached information, *EPA's Section 309 Review: The Clean Air Act and NEPA,* for further explanation on our EIS review responsibility.

Through the Presidential Proclamation 7373, the CRMO was greatly expanded "to assure protection of the entire Great Rift volcanic zone and associated lava features." The CRMO's basaltic volcanism features are nationally significant. In addition, the CRMO contains undisturbed sage-brush steppe communities within isolated vegetation islands surrounded by lava. These relic vegetation stands, called kipukas, form essential habitat for sensitive species that is often found lacking within the surrounding Snake River Plain.

Bureau of Land Management and the National Park Service are in a unique situation, as co-managers, to manage and protect this national treasure. Our major concerns related to the proposed CRMO, Land Use Plan are:

- The direct, indirect, and cumulative impacts to streams and riparian areas – For example, the proposed project has the potential to alter stream discharge, and degrade riparian areas and water quality.
- Impacts to soil quality – The proposed project has the potential to impact long-term soil productivity (soil quality) through disturbances and changes in organic matter levels.
- Threatened or endangered species – The proposed project may impact federally listed or candidate species and including their habitats.
- Wildlife habitat and habitat connectivity – The proposed project should disclose if or how wildlife habitat or migration corridors might be impacted.
- Recreation and accessibility – The DEIS should disclose management of recreational and accessibility opportunities in the project area.
- Prescribed wildfires – The proposed management plan should disclose potential impacts from prescribed fires in the project area.
- Air Quality – The DEIS should disclose the elements of a smoke management plan for the project area.
- Livestock grazing – Since grazing will continue within the CRMO, the DEIS should elements of sustainable rangeland management and disclose impacts associated with existing and proposed livestock grazing activities within project areas.
- Invasive and noxious weeds – Proposed project should disclose efforts towards restoration of native habitat disrupted by the colonization and establishment of noxious weeds within project area.
- Hunting activities – Since hunting privileges will continue in the Monument, the DEIS should disclose long-term management of target species and their habitat.
- Historic resources, treaty rights, and privileges – Proposed project development may affect historical or traditional cultural places of importance to the area's tribal community.
- Effective public participation – The DEIS should disclose what efforts were initiated to ensure effective public participation.

We appreciate the opportunity to participate early in the scoping process. We are available to discuss issues or answer questions that arise while you develop the draft EIS. Should you have any questions regarding our comments, please contact me at (206) 553-4423 or at connor.tom@epa.gov.

Sincerely,

Tom Connor

Tom Connor, Environmental Specialist

ADDITIONAL ENVIRONMENTAL PROTECTION AGENCY (EPA) DETAILED SCOPING COMMENTS ON THE FIRE, FUELS, AND VEGETATION MANAGEMENT PLAN

Purpose and Need

We suggest writing a short, yet direct, Purpose and Need statement that clearly states what the driving factor is for the project. The Council on Environmental Quality (CEQ), through its regulation (§ 1502.13), provides assistance in proposing that the Purpose and Need statement should disclose the underlying purpose of this management plan (MP). Make it about one to two sentences long. Then follow it with more in-depth discussion. Avoid putting in the Purpose and Need Statement other objectives you want to accomplish. Instead, discuss these other objectives later in the Purpose and Need section. For example, the Purpose and Need for this cooperative project between BLM and NPS may be to manage and restore public lands within the Craters of the Moon National Monument (CRMO). If both federal project leads intend to also improve livestock forage and habitat, improve recreational opportunities, and preserve relic sage-brush steppe habitat in the CRMO, then it would be more accurate to characterize these as other proposed activities and not include them in the Purpose and Need statement.

Description of Impacts

We strongly encourage that the Draft Environmental Impact Statement (DEIS) quantify values where possible when predicting impacts to the environment and discuss the significance of those values in terms of how the environment will be affected. Describing impacts as low, medium, or high, for example, is not very meaningful. Ideally impacts should be quantified and compared against a standard or threshold. For example, water quality of an affected stream could be compared to the water quality standards.

Water Quality

<u>303(d) Listed Waters</u>

One of EPA's primary concerns is to prevent the degradation of water quality. Section 303(d) of the Clean Water Act (CWA) requires the state of Idaho identify those waterbodies which are not meeting or not likely to meet State water quality standards. The EIS must disclose which waterbodies may be impacted by the project, the nature of the potential impacts, and the specific pollutants likely to impact those waters. It should also report those water bodies potentially affected by the project that are listed on the State's current 303(d) list and whether Idaho Department of Environmental Quality (DEQ) has developed a TMDL for the waterbodies and the pollutants of concern. If a water restoration plan (Total Maximum Daily Load) has not been established which applies to a stream on the 303(d) list, then in the interim until one is established, it must be demonstrated that there will be

no net degradation of water quality. This should be demonstrated by doing a watershed analysis. Also, the DEIS must identify other waterbodies [not just those that are listed under Section 303(d)] likely to be impacted by the project, the nature of the potential impacts, and the specific pollutants likely to impact those waters.

Best Management Practices (BMPs)

Predicting water quality impacts from nonpoint source activities and the efficacy of BMPs in preventing those impacts is an imprecise science. Challenges include predicting water quality degradation from a proposed activity, designing appropriate BMPs, and making the BMPs work in the field. Therefore, the effectiveness of the BMP should be verified. One way is to use monitoring information on BMPs employed elsewhere under similar circumstances. Finally, water quality should be monitored to determine the adequacy of BMPs and for future remediation work if BMPs are found later to be inadequate.

Source Water Assessment and Protection (SWAP)

Public drinking water supplies and/or their source areas are often found on lands under federal management. Activities such as timber harvesting, road building, weed/insect control, grazing, and recreation may impact the water quality of waters that serve as the sources of drinking water for downstream communities. The SWAP provisions of the 1996 amendments to the Safe Drinking Water Act (SDWA) impose certain obligations on federal land management agencies. Under the SWAP requirements, federal land management agencies that manage land that serves as source water areas will need to participate with the states and local communities in the delineation of the source water area, the inventory of all potential sources of contamination, and in the protection of these source water areas.

If you should discover that there are public drinking water supplies in the project area, then you should disclose this information and how you intend to protect those source waters under each alternative. In any case, you should discuss the SWAP provisions of the SDWA as outlined above, what you are doing to meet your obligations under SWAP, and whether there are any issues with SWAP from this project.

Vegetation Management

Unfortunately, noxious weeds have established themselves nationally across thousands of acres of BLM land. Currently, BLM is participating with state and local governments in establishing Cooperative Weed Management Areas. These Areas will utilize local, state and federal resources to inventory and treat weed infestations on public and private lands. While the briefing package for the proposed project does mention mechanical and chemical methods towards weed management, EPA strongly encourages that the DEIS incorporates proven strategies of an integrated weed management program.

EPA endorses the concept of an integrated weed management program for several reasons. Important among these reasons are:

1) Uncertainties. Despite the substantial amount of scientific information that EPA reviews prior to registering a pesticide, it is virtually impossible to identify all conceivable risks and to address all the uncertainties of pesticide use. Therefore, pesticide use should be approached cautiously.

2) Overuse of pesticide can cause problems. Aside from the potential for toxic effects to people, overuse of pesticides may cause problems such as: a) lethal effects to beneficial organisms; b) resurgence of pest populations, and c) contamination of the environment.

3) Economics. An integrated weed management program can result in lower costs than conventional pest management. Some of these poorly accounted for costs are: potential long term health effects, effects of pesticides on non-target animals and plants, and the health effects to someone who may be particularly sensitive to a pesticide or pesticides, and any other effects that are not now understood, but will be uncovered over time. Even though these costs are not traditionally considered in economics, they are costs, and should not be ignored.

We recommend that the DEIS disclose if BLM is pursuing management strategies beyond chemical and mechanical; and if they are, then what these strategies might be. We also recommend that the approach of an integrated weed management program be adaptive. This means that as new information becomes available, it can be incorporated into corrective decisions to revise vegetation management plans.

Herbicides

Herbicide use affects ecosystem processes and, specifically, biological processes. Unintended environmental impacts do occur. The EIS should address the sublethal effects of herbicides, surfactant and emulsifiers on ESA-listed species. The EIS should explore the impacts from non-specific or broad-based herbicides that kill many species of plants and can devastate ecological chains, adversely affecting both terrestrial and aquatic species directly (plant) and indirectly (animal). While the focus is generally on water pathways and drift during chemical application, wind erosion of soils can transport herbicides offsite and have unintended effects, especially on dry, highly erosive BLM lands in the West. In Idaho, a recent application of the herbicide OUST® on BLM lands was unintentionally carried via windblown sediment to nearby agricultural lands, and ended up damaging literally tens of millions of dollars worth of crops. Similarly, the EIS should consider that dust can also be deposited in streams, lakes, and wetlands.

Livestock Management

The EIS should evaluate and disclose historic rangeland conditions on a broad, landscape scale and identify avenues to incorporate flexibility in grazing plans and allotments that permit both BLM managers and public-lands ranchers to account for special circumstances such as drought and reduce grazing use when necessary.

> 43 CFR 4110.3-3, "When the authorized officer determines that the soil, vegetation, or other resources on the public lands require immediate protection because of conditions such as drought, fire, flood, insect infestation, or when continued grazing use poses an imminent likelihood of significant resource damage, after consultation with, or a reasonable attempt to consult with, affected permittees or lessees, the interested public, and the State having lands or responsible for managing resources within the area, the authorized officer shall close allotments or portions of allotments to grazing by any kind of livestock or modify authorized grazing use."

The EIS should evaluate whether riparian protection, habitat conservation for ESA-listed species and habitat management plans for sensitive species are being implemented as committed to in the MP and other planning and/or decision documents. More specifically, the EIS should evaluate ecological restoration needs and develop strategies to achieve restoration goals. It should also consider including roadless and wilderness designations as part of the overall restoration strategy.

The DEIS should examine the tradeoffs associated with various management options for livestock grazing regarding wildlife habitat. This information should be considered when developing the MP or other NEPA decisions. It should include information and guidance which informs BLM managers and other stakeholders about the effects of livestock forage removal and competition with native wildlife. The DEIS should evaluate the extent and risks associated with continued grazing on listed, threatened, endangered or sensitive species and on rare and sensitive species and ecosystems found on BLM lands.

The DEIS should consider an appropriate range of alternatives to achieve multiple-use goals for lands that are desired for other economic and human uses. For example, the EIS should consider a No Grazing Alternative on allotments to evaluate the social, economic, and environmental impacts that may occur if grazing ceases on a given allotment or other land holdings that are desirable for other uses or that are seriously degraded.

The DEIS should consider all impacts in the decision criteria, including land health, riparian protection, wildlife habitat and recreation, with equal consideration to grazing. The decision criteria should be based on sound science and economics rather than solely on sustaining a single-use objective.

Noxious weeds

The short and long-term impact of noxious weeds on public lands is affecting both the quality of native habitat and the breadth of management activities. Due to the growth of noxious weeds' impacts, the DEIS needs to disclose if and how the Integrated Vegetation Management program will control and manage noxious weed infestations due to a variety of vectors (i.e., livestock grazing, off-road vehicle activities, and road construction and maintenance) within the Planning Area. For example, studies have shown that livestock contribute to noxious weed invasion (Belsky et al., 1999; and Belsky and Gelgard, 2000) by a variety of avenues.

Accessibility and Recreation

Roads

Roads are the major source of sediment to streams and interrupt the subsurface flow of water, particularly where roads cut into steep slopes. In addition, roads and their use contribute to other environmental problems such as habitat fragmentation, wildlife disturbance, the introduction or exacerbation of noxious weeds, and increased fire danger from recreational activities. Please describe the road and culvert situation in the project area in terms of impacts on resources.

Off Road Vehicles (ORV)

Unauthorized ORV use is becoming a concern to many BLM areas since unregulated and unsanctioned ORV disturbance is inconsistent with two Executive Orders (11644 and 11989). Even the CEQ has written a report (1979) stating the environmental damage that ORV's have caused on stream reaches across numerous ecosystems throughout the Unites States. In general, unregulated and unsanctioned motorized vehicle use on public lands is incompatible with soil and aquatic resource management. Therefore within the Planning Area, how will the BLM prevent both short and long-term access of unauthorized motorized traffic, especially by 4-wheel drive vehicles (or ATVs), prevent unrestrained access across fragile rangelands and and other sensitive areas, and effectively enforce access to restricted areas?

Biodiversity

A significant issue in the Pacific Northwest is decreasing biodiversity. To preserve native faunal numbers and abundance, and in recognition of the importance of viable habitat, the Affected Environment section of the DEIS should rate the current quality and potential capacity of habitat, its use by wildlife on and near the project area, and identify known wildlife corridors, migration routes, and areas of seasonal wildlife congregation. The Environmental Consequences sections should evaluate effects on wildlife from habitat removal and alteration; habitat fragmentation caused by roads, land use, and management activities; and increased human access. As a proactive

management plan, maintenance of biodiversity can minimize the need for listing species as threatened or endangered under the Endangered Species Act.

Furthermore, the importance of maintaining project area's biodiversity extends equally to native plant species. Therefore, efforts of disclosure within the DEIS should proceed at the same level of detail as for wildlife habitat. Preservation of floral biodiversity includes active and long-term preservation of the native genetic stock throughout the project area. Preservation of the number and abundance of the indigenous floristic community should extend from the herbaceous layer and shrub species to the tree species.

Prescribed Wildfires and Regional Haze Regulations

Pursuant to the Clean Air Act for the protection of public health and welfare and to preserve, protect, and enhance air quality, we recommend that the DEIS describe the Interim Air Quality Policy on Wildland and Prescribed Fires in relation to the alternatives. The DEIS needs to disclose the smoke management program to be used for this propose project with pertinent discussion on visibility and haze management. In addition, we recommend that the project leaders work closely with the Western Regional Air Partnership.

The State of Idaho has a smoke management plan (or program) (SMP) that is applicable in Idaho. Federal agencies are required to abide by applicable State rules and as such this project should likewise comply with the provisions of the Idaho SMP. In addition, the State is developing a SIP revision addressing the requirements of the Regional Haze Rule (64 FR 35714, July 1, 1999) in a cooperative effort with the WRAP of which the National Park Service (DOI) and Department of Agriculture are members. We recommend that impacts from any prescribed fire be considered in light of potential provisions of an Enhanced Smoke Management Plan as developed by the WRAP.

Having two federal agencies (the Bureau of Land Management and the National Park Service) acting as co-managers, Craters of the Moon National Monument (CRMO) is in a unusual position nationally for both cooperating agencies to manage and preserve public resources. While the BLM will be implementing livestock grazing within the monument, the NPS will be working to preserve the nationally significant basaltic volcanism features and native vegetation communities located within the monument's unique kipuka habitats. To help preserve CRMO's significant basaltic volcanism features, the NPS created a portion of the CRMO as the Craters of the Moon Wilderness Area, designating it as a mandatory federal Class I Area according to the Clean Air Act.. Furthermore, as stated within the NOI, fire and fuel management will continue within CRMO). Thus site management will be an active concern. Even when following a designed smoke management program (SMP), there is the potential for unwanted air quality impacts and these should be described. SMPs rely on the vagaries of the weather. Smoke generated from human activities, like prescribed fires, may not disperse as intended resulting in adverse impacts to nearby designated airsheds or communities. Contingencies for these situations should be considered, including a short-term air quality action level. Nonexceedance of the 24-hour particulate matter

(PM) under national air quality standards does not preclude the need to plan ahead given the potential adverse health impacts to individuals exposed to PM at high concentrations for shorter time periods.

Direct, Indirect, and Cumulative Effects

Please include the indirect and cumulative effects of the project in your analysis. We are as concerned with cumulative effects as we are with direct impacts posed by the individual project. To examine the impact of this project in isolation from other past, present, and reasonably foreseeable future projects in the vicinity would be to ignore what is really happening to the environment in the project area. Resources that could be examined for cumulative effects with this project are water quality, air quality (see previous discussion on Prescribed Fires), mines, old unmaintained or abandoned roads, noxious weeds, biodiversity, and visual (aesthetics) resources.

Agency guidance and information is now available. The handbook, *Considering Cumulative Effects under the National Environmental Policy Act*, issued by the Council on Environmental Quality in January 1997. In summary, the guidance states that in order to address cumulative effects, the EIS should:

- Identify resources that are being cumulatively impacted. If there are none then you need to state this.
- Determine the appropriate geographic (natural ecological boundaries) area and the time period over which the effects will occur
- Look at all past, present, and reasonably foreseeable future actions that contribute to cumulative effects on the resource of concern.
- Describe a benchmark or baseline.
- Include scientifically defensible threshold levels.

Related Regional Planning Actions

We recommend that the DEIS disclose and coordinate with other agency planning efforts that are proposing federal actions within the project area of the recently expanded CRMO. For example, the Natural Resources Conservation Service is currently proposing a project in Blaine County through the issuance of a Notice of Intent for the Little Wood River Irrigation District, Gravity Pressurized Irrigation Delivery System. Of interest, the Irrigation District is proposing returning water to the Little Wood River which could alter seasonal flows within the system. Then at a larger scale, BLM has issued an intent to prepare a Fire, Fuels, and Vegetation Management Plan within the Upper Snake River District of Idaho that includes the lands comprising CRMO.

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Monitoring

The DEIS should establish environmental monitoring protocols that are appropriate and essential, and these same protocols should actively incorporate adaptive management principles. For example, the DEIS should identify additional mechanisms to enforce performance standards based on monitoring data when adverse impacts to rangelands from overstocking results in poor forage quality and ecological damage to fish and wildlife habitat, riparian areas, and fragile upland soils.

Regarding Tribal Consultation and Coordination

The DEIS should include ethnographic research and discuss any inter-governmental coordination on proposed activities within and adjacent to the proposed project area related to rights or historical utilization by the affected Tribe. The project co-leaders should work with the Tribe in a government-to-government relationship whereby the Tribe can work with BLM/NPS as co-managers of the natural resources. Below, we highlight specific concerns.

1) The DEIS should disclose how the lead federal agencies consulted and coordinated with the Tribe in development of the EIS as required by the Executive Order 13175.

Paraphrasing EPA Region 10's Tribal Consultation Process, "Consultation" means the process of seeking, discussing, and considering the views of federally recognized tribal governments at the earliest time in the decision-making process. Consultation generally means more than simply providing information about what the agency is planning to do and allowing comment. Rather, consultation means two-way communication that works toward a consensus reflecting the concerns of the affected federally recognized tribe(s).

2) The DEIS should disclose whether the Tribe considers lands within the project area to be "sacred sites" and provide a prescriptive accommodation plan to resolve concerns, yet not publically disclose actual site locations.

According to Executive Order 13007, federal land managers are to "accommodate access to and ceremonial use of Indian sacred sites." The SDEIS has not disclosed if the MNF has consulted with the Burns Paiute Tribe on this issue.

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June 14, 2002

Mr. John Apel
Craters of the Moon National Monument
P.O. Box 29
Arco, Idaho 83213

RE: Craters of the Moon National Monument Management Plan

Dear Mr. Apel:

Thank you for notifying us of the National Park Service's proposed development of a comprehensive management plan for Craters of the Moon National Monument. We look forward to working with you through this process.

We are pleased to see that one of the desire future conditions is to educate the public about the Monument's diverse history and prehistory and its important cultural resources. This will be a good opportunity to expand on the Monument's existing and excellent interpretation about human adaptation over time to Craters' unique landscape. To meet this goal, we encourage NPS to step up efforts to complete a record search of known historic properties within the Monument and to conduct reconnaissance surveys to identify historic properties not yet recorded. This information will also be necessary to determine what protection should be offered for cultural resource sites.

We appreciate your stewardship of our State's important historic places. If you have any questions, please feel free to contact me at 208-334-3847.

Sincerely,

Susan Pengilly Neitzel
Deputy SHPO and
Compliance Coordinator

cc: Lisa Cresswell, BLM

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June 8, 2002

Dirk Kempthorne/Governor
Steven M. Huffaker/Director

Craters of the Moon National Monument
Planning Team
Bureau of Land Management
P.O. Box 2-B
400 West F Street
Shoshone, Idaho 83352-1522

Re: Draft Goals and Issues for Management Planning – Craters of the Moon National Monument

Rick Vander Voet and Jim Morris,

We have reviewed the information provided at the June 6, 2002 public information meeting and presented in your scoping document (Spring/Summer newsletter) for the Management Plan being developed for the Craters of the Moon National Monument. In general, we concur with your broad statements presented in the "Purpose and Significance," "Goals," and "Issues and Concerns" sections. To assist you in further defining issues relevant to fish and wildlife management and recreational use of the area, please consider the following comments:

- The Idaho Department of Fish and Game has management authority over fish and wildlife within the Monument boundary. Although specific information on wildlife populations within the Monument is limited, we do have broad management plans for the game management units encompassing the Craters of the Moon. We request consideration be given to our species management plans and goals for the management units found within the Monument boundaries. These include hunt units 49, 50, 52A, and 68. Species management plans covering this area are available for Mule Deer, Elk, Pronghorn, and Sage Grouse. They can be found on the Idaho Department of Fish and Game website or can be provided by the Magic Valley Regional Office in Jerome.

- Given the lack of site specific wildlife information and its importance in management planning and decision making, we recommend the plan identify wildlife information and monitoring needs within the Monument. We readily offer our expertise and assistance in identifying data gaps and monitoring needed to assess wildlife species abundance, distributions, and trends; particularly in relation to Monument management goals.

- Hunting and trapping and sportsmen access should be considered in management planning as a traditional use of the land. As you are aware, federal legislation is currently being proposed to restore these traditional uses, which were excluded under the Presidential Proclamation expanding the Monument. We fully expect these traditional

activities will again be allowed and request management direction allow for this recreational use of the land.

- The land included in the Monument expansion is currently a mix of native shrub-steppe habitats and areas altered by post fire rehabilitation efforts. We would like to see a goal included in your management plan that addresses future vegetation management in the Monument. Specifically, we would like to see a commitment by BLM and the National Parks Service to utilize only native plant materials in treatment activities. Additionally, we request management consideration and priority be given to the restoration of areas currently dominated by exotic plants. Fire response priorities should also be designated for the Monument with native shrub communities given the highest level of protection.

- Past grasshopper and cricket infestations have resulted in the use of pesticides on federally owned land within the area covered by the expanded Monument. We recommend management guidelines for insect control are included in your planning document. Specifically, we recommend pesticide use guidelines consider the impact on sagebrush obligate wildlife, such as sage grouse, and the importance of insects in chick and migratory songbird survival.

Thank you for this opportunity to participate in planning for future management at the Craters of the Moon National Monument. We will contact you after the scoping meetings have concluded to discuss information the Department can contribute to the management planning process. Please contact Mike McDonald, Environmental Staff Biologist, in this office if you have any questions or need additional information.

Sincerely,

David Parrish

David Parrish
Magic Valley Regional Supervisor

Cc: IDFG-NRBP
IDFG-D. Pitman
IDFG-B. Saban

IDAHO DEPARTMENT OF LANDS

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June 17, 2002

Craters of the Moon Planning Team
Bureau of Land Management
P.O. Box 2-B
400 West F Street
Shoshone, ID 83352-1522

Re: State of Idaho Endowment lands within the Boundary of the Expanded Craters of the Moon National Monument

Planning Team:

Please add the Idaho Department of Lands, P.O. Box 149, Gooding, Idaho 83330 to your mailing list. We did not receive any notice of your current planning activity so we must not be on your list at this time.

You should note that there are seventeen (17) parcels of Idaho Endowment land within the expanded boundary. There is no mention of these lands in Newsletter 1. There are an additional five (5) parcels that border on the boundary of the monument.

Most of the Endowment lands are currently leased for grazing and we encourage the continuance of grazing on these lands. Grazing leases provide income and impact vegetation to reduce wildfire severity and control of weeds.

Existing roads to Endowment lands need to remain open so that the State and its lessees, or successors in interest can access these lands for administration. Additionally, endowment lands are open to the public for hunting. Existing roads will provide the public access to our lands for hunting.

Since management of the Monument likely will not meet the objectives of this department to maximize revenue from Endowment lands, these Endowment lands should be acquired by the federal government through land exchange. There is no mention in your newsletter that you will work towards acquiring all non-federal lands within the monument boundary.

If land exchange cannot be completed then we would seek improved access to Endowment lands so that we might lease them to Outfitters and Guides for use such as a base camp, or similar uses, in order to generate additional income for our beneficiaries.

It is important that the federal government work diligently to acquire the Endowment lands within the Monument boundary to avoid conflicts with the Department of Lands Mission and the Monuments need to manage for public purposes. Department staff are willing to meet with your planning team to develop a land exchange proposal.

Sincerely,

Bryce Taylor

BRYCE TAYLOR
Area Supervisor

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September 23, 2002

Rick Vander Voet, Monument Manager
Shoshone Field Office, BLM
P.O. Box 2-B
Shoshone, ID 83352

RE: Craters of the Moon National Monument Management Plan

Dear Rick:

The Idaho Department of Parks and Recreation obtained a copy of the Craters of the Moon National Monument Management Plan Preliminary Planning Criteria. We obtained this copy by checking your website and fortunately checked it before the comment deadline closed. We would like to receive all planning documents by mail or e-mail well before the comment period closes.

National Monument designation creates more restrictive planning criteria than a normal resource management plan. The enabling proclamation in itself, presents constraints on plan development.

What surprised us the most about the preliminary planning criteria was the lack of BLM information to guide recreation planning. We believe the monument plan should incorporate the principles and guidance laid out by the BLM's National OHV Strategic Action Plan and the draft National Mountain Bicycling Strategic Action Plan.

A key component of this plan will be the development of a transportation management component. Monument designation and an increasing local population will likely increase visitation to the area. A transportation management component should minimize visitor ecological impacts and still provide for adequate visitor access (motorized and non-motorized).

The travel analysis in the plan needs to distinguish between different forms of off-highway vehicle (OHV) recreation. Off-highway motorcycles, ATV's, and passenger four-wheel drives have different impacts to the environment. The most obvious difference is the trail that they can travel on. An off-highway motorcycle can travel on a trail with a tread width as narrow as 12 inches with no adverse effects to the trail tread, while an ATV requires at least a 48 inch tread width to avoid adverse impacts to the trail tread.

The plan will also have to provide adequate access for both motorized and non-motorized recreation. Travel planning can be a difficult issue. The broad variety of recreation uses competing for the same amount of ground can lead to conflict. The monument should also try to create more non-motorized opportunities without closing current motorized opportunities.

This can be as simple as creating different zones for travel. The lava flows limit mechanized travel. They provide for wilderness or a wilderness like experience. Other areas, such as Little Park are more open and prone to route proliferation. The key to reducing route proliferation is properly identifying and signing routes combined with visitor education and enforcement. Another key is to provide adequate recreation access.

The Idaho Department of Parks and Recreation appreciates the opportunity to comment on the planning criteria. We look forward to working with the BLM and the NPS in the planning process. If you have any questions about our comments, contact Jeff Cook, Trails Program Coordinator at (208) 334-4180 ext. 230.

Sincerely,

Rick Collignon, Director
Idaho Parks and Recreation

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March 7, 2003

Craters of the Moon National Monument Planning Team
Shoshone Field Office, BLM
P.O. Box 2-B
Shoshone, ID 83352-1522

RE: Monument Plan Preliminary Alternatives

Dear Rick and Jim:

The Idaho Department of Parks and Recreation attended the Craters Monument Plan workshop on February 22, 2003 in Rupert. The Craters of the Moon National Monument is an unknown treasure to many Idahoans, and potential visitors. In the future, as the population grows, the monument will likely become better known. The management plan should focus on managing visitor opportunities and traditional ranching opportunities as well as protecting physical resources.

The preliminary alternatives cover a wide range of activities and actions. Much of the public sentiment has been to manage the area as it is currently being managed. We believe that all alternatives should give monument managers enough flexibility to manage the monument resources and opportunities effectively.

One component of Alternative B would resource inventory and monitor target areas most vulnerable to vandalism, theft, or indirect impact from increased levels of recreation use. National Monument designation requires the NPS and BLM to protect areas from vandalism, theft, or indirect recreation use impacts. We encourage the planners to incorporate this component into the entire range of action alternatives.

Draft alternative C increases the amount and extent of biological weed treatments and reduces chemical treatments compared to the existing situation. Generally, biological treatments are most successful in controlling the spread of noxious weeds while chemical treatments are more successful in eliminating noxious weeds. The EIS should examine the effectiveness of biological verses chemical treatments across the range of alternatives.

Draft alternative C also increases the amount of land located in the pristine zone over the other alternatives. While attending the meeting, we learned that some areas proposed for the pristine zone, might not be suitable to being listed as pristine. These areas have numerous range improvements, power line corridor and roads. Draft alternative C might need to have some of the pristine zone unit boundaries relocated.

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governor

Richard J. Collignon
director

Rick Cummins, Administrator
division of management services

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region two

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region three

Latham Williams
region four

Jean S. McDevitt
region five

Douglas A. Hancey
region six

IDAHO DEPARTMENT OF PARKS AND RECREATION

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A key component of draft alternative D is to promote partnerships at existing facilities such as Idaho visitor centers, state parks and Chamber of Commerce visitor centers. Partnerships will be key to the implementation of any selected alternative. We encourage the planning staff to put this component in the entire range of selected alternatives.

Section 202 (f) and Section 309 (e) of the Federal Lands Policy Management Act (FLPMA) provides that federal, state, and local governments and the public be given adequate public notice and opportunity to comment on the formulation of standards and criteria for, and to participate in, the preparation and execution of plans and programs for the management of public lands. Both your agencies have done a good job of providing the public an opportunity to comment on the formulation of this management plan. The Lower Snake River District implemented an intergovernmental coordinating group for the development of the Bruneau and Snake River Birds Of Prey Resource Management Plans. The planning staff should consider the formulation of a similar group to insure consistency of this plan with other state and local plans. If such a group is formed, the Idaho Department of Parks and Recreation would like to participate.

We recently completed the 2002 State Comprehensive Outdoor Recreation and Tourism Plan (SCORTP). We encourage you to review it in your planning process. As a component of the SCORTP plan, the Idaho Outdoor Recreation Demand Assessment provides good information on Idahoans' ranking of important outdoor recreation issues and participation in outdoor recreation activities. The 2002 SCORP can be downloaded online at http://www.idahoparks.org/SCORTP/.

We appreciate the opportunity to attend the draft alternative meeting, and provide comment on these draft alternatives. We look forward to working with the BLM and NPS on the development, and possibly implementation of this plan. Please let us know if we can help in any way. If you have any questions about our comments, contact Jeff Cook, Outdoor Recreation Analyst at (208) 334-4180 ext. 230.

Sincerely,

Rick Collignon, Director
Idaho Department of Parks and Recreation

THE BOARD OF BLAINE COUNTY COMMISSIONERS

206 FIRST AVENUE SOUTH, SUITE 300
HAILEY, IDAHO 83333
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Dennis Wright, Chairman * Sarah Michael, Vice Chair * Mary Ann Mix, Commissioner

March 13,2003

Craters of the Moon National Monument
Planning Team
BLM, Shoshone Field Office
P O Box 2-B
Shoshone, ID 83352

RE: County Government Comment on Alternative Concepts

Our first comments refer to your Purpose statements, which were well crafted, and we hope are utilized as standards to decide where you go from this point forward. In our view, it is very important to not forget to 'maintain the wilderness character of the Craters, protect the kipukas, and continue the historic and traditional human relationships that have existed for generations'! We believe the traditional relationships like hunting and grazing can be accommodated within managed parameters. Most probably the biggest threat to kipukas would come from vehicles and grazing, both of which could be mitigated by management constraints. By definition, any historical and traditional connection to a proposed use ought to be measured by a time factor. Certainly a use established two or three years ago wouldn't fit these standards.

Secondly, the Draft Goals, if utilized by the team in balancing your efforts, should always focus on the compatibility of competing uses. It isn't sensible to build conflict into the plan at any stage. In addition, team members hopefully will not lose sight of the second goal, which mentions the 'remarkable opportunities for solitude'. If certain noisy uses are allowed, they should be in segregated areas so as not to violate this goal.

While all of the alternatives pose their unique problems, our Board would at this time, support the approximate ideas represented by A and C. We have no problems with accessing the King's Bowl area on the south but would prefer to have it an in-and-out experience, as opposed to the circular pattern in Draft D and we definitely oppose the improved road connection from Arco to Minidoka that is proposed through Blaine County by alternative B. We realize there is pressure from the two

counties to our south to enhance their economies through major travel from Arco to Rupert. However, we think this idea is misguided and wouldn't amount to near the economic benefit that the proponents do. Arco especially, has experience from visitors going through their town and hasn't realized measurable improvements to their area from the approximately 195,000 annual visitors to the present visitor center. Without a doubt, an improved road would bring more traffic, demand more maintenance dollars, and put many more people at peril who may chose to leave the road and not understand the harsh environment they are dealing with. Blaine County does not care to accept any more maintenance responsibilities in that area and may consider abandoning the 4 miles we presently maintain on the Arco-Minidoka road. Road issues on the Carey-Kamama Rd. will have to be addressed also from a maintenance viewpoint. Once again, increased traffic will necessitate increased grading and dust control. These increases to our marginal costs will have to be borne by someone other than Blaine County.

The increased passage zone north of Highway 93 near the visitor's center in Alternative A in an improvement we could support. It would tend to keep visitors near the best road and out of trouble in other areas.

Overall, we urge the planning team to not forget the real purpose behind every Monument creation. That is to protect the area's natural features and vitality from degradation and to preserve it as a legacy to pass on to future generations. Certainly you want to encourage visitors and enjoyment from the general public while at the same time, minimizing the effect of that visitation on the fragile features of the area. Recreational pursuits by certain types of ORV's do not, in our opinion, fit the purpose statements outlined earlier. It should be recognized that there are thousands of acres of BLM lands contiguous to the monument boundaries that are already accessible to these uses. The monument itself should not necessarily accommodate the exact same uses as other desert lands under BLM jurisdiction. Otherwise one needs to ask the question: Why was it set apart as a monument in the first place? Please don't forget, this doesn't prevent people from visiting; it only limits the mode of transportation.

This Board looks forward to more input as your team continues to refine the management plan. We also recognize the enormity of your task and wish you much success as you strive to reach your ultimate objective. Thank you for the opportunity to respond at this time.

Sincerely,

Dennis Wright
Chairman

Sarah Michael
Vice-Chair

Mary Ann Mix
Commissioner



CITY OF CAREY, IDAHO
PO Box 6, Carey, Idaho 83320
208-823-4045

Mayor-Richard Baird: Council President-Robert Simpson: Council- Daniel Parke, Randy Patterson, Craig Adamson

SHOSHONE OFFICE

MAR 2 6 2003

RECEIVED

March 24, 2003

Mr. Jim Morris, Superintendent
Craters of the Moon National Monument

Mr. Rick Vander Voet
Bureau of Land Management

Dear Jim and Rick,

I want to first let you know how much I appreciate the role that both of you have related to planning for the future of the Craters of the Moon National Monument. The right people at the right time certainly comes to mind. Thank you again for taking the time to give the presentation to the City Council.

In the last regular City Council meeting, the presentation was briefly discussed again. The Council unanimously feels that now is the appropriate time for individual comment and that it would not be appropriate for them to try and develop a City opinion without a significant public process. They therefore instructed me to thank both of you for the presentation and let you know that we want to be a full partner completely through this process and that a more appropriate time will present itself for City comment in the future.

Thank you again and if you have questions, please contact me at 208-788-9003.

Richard Baird, Mayor

CITY OF CAREY, IDAHO
PO Box 6, Carey, Idaho 83320
208-823-4045

Mayor-Richard Baird: Council President-Robert Simpson: Council- Daniel Parke, Randy Patterson, Craig Adamson

JUN 2 5 2002
RECEIVED

June 25, 2002

Craters of the Moon National Monument Planning Team
Bureau of Land Management – Shoshone Field Office
P.O. Box 2B
Shoshone, ID 83352

To Whom It May Concern:

On behalf of the Carey City Council, I have been authorized to provide the following comments.

The residents of the City of Carey were not part of the decision making process to expand the Monument. It was a decision that was made primarily at the national level. The Monument will certainly impact the Carey Valley sometime in the future. The extent of impact cannot be determined or even forecasted because appropriate plans and studies related to the monument have not been completed. The City Council, therefore, will insist that local residents not shoulder impact to this community or to the Carey Valley alone. Federal funds should be made available on a timely basis to mitigate impacts that are a direct or indirect result of the new Monument Management Plan. In fact, mitigation measures should be a part of the plan itself.

Carey Valley residents are concerned that the future will bring access restrictions. The area should remain accessible to as many people, by as many different methods as possible. The plan should recognize statistics relating to the baby boomer generation and ensure that our most vulnerable and experienced can enjoy the monument as they could before the expansion.

The area should remain multi-use. Grazing, hunting, four wheeling and as many other activities as possible, should be addressed and made a part of the plan. The BLM was able to manage the area for years and ensure that it essentially remained unchanged. The BLM was continuously under pressure from many permittees to grant more grazing rights, but their management was working. It can remain multi-use and remain unchanged.

The community believes that development inside the Monument is not appropriate. Facilities like campgrounds and other services should be provided outside of the Monument and should not be allowed to change what the expansion designation sought to protect. Roads should be maintained, not improved.

In this era of electronic marvels, the form letter comment sheet or idea has been perfected. Please insure that appropriate weight is placed on particular comments. Organized groups have the ability to overwhelm the comment process with comments that mean nothing more than the push of a button.

The City of Carey desires to work with the BLM and National Park Service to ensure that the Plan not only protects, but also provides as much opportunity to as many as possible. We are also proud to be considered the western gate/entry to the Monument.

Please place the City of Carey on the mailing list. We would like ten hard copies of the Draft Management Plan/Environmental Impact Statement.

Thank you for the opportunity to comment and to participate in the process.

Sincerely,

Richard R. Baird
Mayor, City of Carey

RESOLUTION
Craters of the Moon National Monument and Preserve

Bureau of Land Management
Upper Snake River District Resource Advisory Council
September 11, 2003

The Upper Snake River District Resource Advisory Council has been involved in the process of developing management strategies for the recent expansion of the Craters of the Moon National Monument and Preserve. Since the Executive Proclamation #7373 was announced, the Upper Snake River RAC has received briefings and updates on the expansion process and the development of new management plans. The USRDRAC set up a subcommittee to offer help to the Bureau of Land Management and the National Park Service as they planned for the future of the monument. The subcommittee sent representatives to attend various interdisciplinary team meetings of the agencies involved. RAC members also attended public scoping meetings, open houses and alternative concepts workshops. The Upper Snake River RAC was represented at the Choosing By Advantage workshop where the various alternatives were evaluated and voted upon.

BE IT RESOLVED the Upper Snake River Resource Advisory Council supports the efforts of the Bureau of Land Management and the National Park Service thus far in the management planning process of Craters of the Moon. It was observed that the agencies use a well thought-out process to sort through natural resource information and public comment. The process seemed to be a logical method to gather public comment and create management alternatives. The selection of a preferred alternative was done in a thoughtful and reasonable way.

The USRDRAC lends its support to the preferred alternative, Alternative D, and encourages the agencies to continue developing management strategies that enhance the landscape from the perspective of Alternative D.

The RAC appreciates the opportunity to provide input, and is committed to continue to help at any stage of development and implementation of management plans.

Signed:

GLOSSARY

A'a — A Hawaiian term for basaltic lava flows that are typically rough and jagged with a clinkery surface.

Acre-Foot — Amount of water that will cover 1 acre to a depth of 1 foot.

Active Preference (grazing) — Current authorized use including livestock grazing and conservation use. Active use may constitute a portion, or all, of permitted use. Active use does not include temporary non-use or suspended use of forage within all or a por tion of an allotment.

Adaptive Management — A type of natural resource management that implies making decisions as part of an ongoing process. It is a continuous process of planning, implementing, monitoring, evaluating, and incorporating new information into strategies to meet goals and objectives. It also provides a model for adjusting goals and objectives as new information develops and public desires change.

Adit — A nearly horizontal passage in an underground mine, driven from the surface, by which a mine may be entered, ventilated, or dewatered.

Age Class — An age grouping of trees according to an interval of years, usually 20 years. A single age class would have trees that are within 20 years of the same age, such as 1-20 years or 21-40 years.

Aggradation — The building up of land surfaces by sedimentation or deposition of mineral matter.

Air Quality — Class I Area - Areas designated under the Clean Air Act that are afforded this highest level of protection from air pollutants; generally consist of wilderness areas, national parks, and wildlife refuges.

Class II Area — Areas not designated as Class I; additional air pollutant inputs may be permit ted up to certain limits.

Airshed — A geographic area that shares the same air.

Allotment — An area allocated for livestock use by one or more qualified grazing permit tees, including prescribed numbers and kinds of livestock under one plan of management.

Allotment Management Plan (AMP) — A documented program that applies to livestock grazing on public lands, prepared by consulting, cooperating, and coordinating with the permittee(s), lessee(s), or other interested publics.

All-Terrain Vehicle (ATV) — Small three-wheel and four-wheel recreational motor vehicles capable of operating in rugged terrain.

Alluvium — Any sediment deposited by flowing water, as in a river bed, floodplain, or delta.

Animal Unit — One cow, one wild horse, two burros, or five sheep.

Animal Unit Month (AUM) — The amount of forage required to sustain one mature cow or the equivalent (e.g., five sheep or five goats), based on an average daily forage consumption of 26 pounds of dry matter per day. The equivalent animal units for other ungulate species, based on a weight conversion (3 percent body weight per day), are: 10.5 for antelope; 7.6, deer; 2.1, elk; 1.2, moose; 0.9, wild horses; and 5.2, sheep.

Annual Vegetation — Plants that complete their life cycles and die in one year or less.

Appropriate Management Response (AMR) — Specific actions taken in response to a wildland fire to implement protection and fire use objectives.
- **Category A:** private lands, BLM facilities, and other areas with values where fire would not be desired.
- **Category B:** areas where a variety of appropriate fire suppression techniques would be applied to meet the resource objectives specified in the Plan/EIS and other site-specific activity plans.

Aquifer — A saturated, permeable sediment or rock that can transmit significant quanti ties of water under hydraulic gradients.

Area of Critical Environmental Concern (ACEC) — An area of public lands where special management attention is required to protect resources and prevent irreparable damage to important historic, cultural, or scenic values; fish and wildlife resources; or other natural systems or processes; or to protect humans from natural hazards.

Basalt — Fine-grained, dark-colored igneous rocks that are either intrusive or extrusive.

Beneficial Use — A use of water, such as domestic, municipal, agricultural, mining, livestock watering, recreation, wildlife, or power generation, that provides a benefit.

Best Management Practice (BMP) — Practices based on current scientific information and technology that, when applied during the implementation of management actions, ensure that adverse impacts are minimized. BMPs are based on site-specific evaluation and represent the most effective and practical means to achieve management goals for a given site.

Biological Diversity (Biodiversity) — The variety of life and its processes and the interrelationships within and among various levels of ecological organization. Federal resource management agencies must examine the implications of management actions and development decisions on regional and local biodiversity.

Biological Soil Crust — A complex mosaic of mosses, lichens, algae, cyanobacteria, and fungi that occupies the soil surface in arid and semiarid plant communities. These organisms weave through the soil and essentially glue the surface particles together, forming a protective coating against erosive forces.

Blister — A blister is formed by the swelling of the crust that occurs as a result of the expansion of gas or vapor beneath a flow; typically about 1 meter (3.3 feet) in diameter and hollow.

Block Lava — Lava with a surface of angular blocks and forms from very dense lava.

Bomb — Pyroclastic fragments greater than 64 millimeters (2.5 inches) in diameter that were molten or plastic at the time of ejection. The shape of a bomb is determined by the viscosity of the magma, velocity of flight, length of flight, the rate at which the lava cooled, the rate of expansion of gases, and the type of deformation that occurred upon impact.

Breadcrust Bomb — A crust that cooled during flight such that as gases within it continued to expand, the crust cracked much like bread rising in an oven.

Broadcast Burn — A prescribed fire that burns a designated area. These controlled fires can reduce wildfire hazards, improve forage for wildlife and livestock, or encourage the successful regeneration of trees.

Brood Rearing — Caring for young birds hatched at one time.

Butte — A detached low mountain or high mound rising abruptly from the general level of the surrounding plain; applied to peculiar elevations in the Rocky Mountain Region.

Cairn — A formation of stones intentionally piled by humans.

Cambrian Period — From 500 million to about 544 million years ago, in which marine invertebrates were common.

Candidate Species — Species not protected under the Endangered Species Act but under consideration by the U.S. Fish and Wildlife Service for inclusion on the list of federally threatened or endangered species.

Carbonate — A salt or carbonic acid, like limestone.

Carrying Capacity — The character of use that can be supported over a specific time by an area developed at a certain level without causing excessive damage to either the physical environment or the experience of the visitor.

Cation — An electrically charged particle (ion) with a positive charge.

Cheatgrass — A variety of woodland and meadow grasses of the genus Bromus; native to temperate regions.

Chemical Control — The use of pesticides and herbicides to control pests and undesirable plant species.

Cenozoic — The most recent era of geologic history (65 million years ago until the pres ent) during which the earth's modern landforms, animals, and plants came into being.

Cinder — Uncemented, glassy, vesicular (holes created by escaping gas bubbles) pyro clastic material. Cinder can be thought of as "volcanic froth."

Cinder Cone — A steep, conical hill that is formed by the accumulation of cinders, spatter, and other pyroclastic material.

Cinder Garden — Gardens that develop on cinder deposits with little to no soil development.

Class of Livestock — The species of domestic livestock - cattle and sheep.

Climax Vegetation — The final vegetation community and highest ecological development of a plant community that emerges after a series of successive vegetational stages. The climax community perpetuates itself indefinitely unless disturbed by out side forces.

Collector Road — A road that serves small land areas; collector roads are usually connected to a larger road or state highway.

Community — An assemblage of plant and animal populations in a common spatial arrange ment.

Consultation, Coordination, and Cooperation — A process prescribed by the Public Rangelands Improvement Act of involving the permittee(s), lessee(s), federally recognized Native American tribes, and interested publics in the development of allotment management plans and other management programs on public lands. The process also includes trust responsibilities to federally recognized Native American tribes.

Consumptive Use — Recreation activities that consume natural resources. Hunting and fishing are regarding as consumptive recreation because wildlife species are consumed. Rockhounding is consumptive because nonrenewable resources are removed.

Cow-pie Bomb — Also known as a cow-dung or pancake bomb, a cow-pie bomb forms from very fluid lava that is still plastic when it lands, causing it to flatten upon impact; some still have a liquid core upon impact.

Crater — A circular depression in a volcano that formed from a gradual accumulation of pyroclastic material around the vent, an explosive eruption or collapse.

Critical Habitat, Designated — Specific parts of an area occupied by a federally listed threatened or endan gered plant or animal at the time it is listed that contain physical or biological features essential to the conservation of the species or that may require spe cial management or protection. Critical habitat may also include specific areas outside an area occupied by a federally listed species if the Secretary of the Interior determines that these areas are essential for the conservation of the species.

Cultivar — A cultivated plant or animal that has no known wild ancestry.

Cultural Landscape — A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Cultural Property — The definite location of a past human activity, occupation, or use identifiable through field inventory, historic documentation, or oral evidence. Cultural properties include prehistoric and historic archaeological remains, or archi tectural sites, structures, objects, or places with important public and scientif ic uses.

Cultural Resource — The fragile and nonrenewable remains of human activity that are found in his toric districts, sites, buildings, and artifacts and that are important in past and present human events.

Cultural Resource Inventory — Section 110 inventories - surveys done in response to the federal proactive responsibility to protect cultural resources
Section 106 inventories — inventories done in response to the requirements of the National Historic Preservation Act. There are three types:
— **Class I** - literature review and file search
— **Class II** - intensive pedestrian survey of a sample of an area
— **Class III** - intensive pedestrian survey of an entire area

Cumulative Impact — The effect on the environment that would result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor but collective ly significant actions taking place over a period of time. Cumulative impacts can result from similar projects or actions, as well as from projects or actions that have similar impacts (40 CFR 1508.7).

Current Annual Growth — The amount of forage produced by a plant in one growing season.

Deferment — Nongrazing, either by delay or discontinuance of grazing, from the beginning of plant growth until the seed is set or the equivalent stage of vegetative repro duction.

Desired Future Condition — Used to describe the future condition of resources needed to meet manage ment objectives. Desired future condition is based on ecological, social, and economic considerations during the land and resource management planning process.

Desired Plant Community — The plant community that provides the vegetation attributes required for meeting or exceeding RMP vegetation objectives. The desired plant commu nity must be within an ecological site's capability to produce these attributes through natural succession, management action, or both.

Developed Recreation — Recreation that requires facilities that, in turn, result in concentrated use of the area. For example, skiing requires ski lifts, parking lots, buildings, and roads. Campgrounds require roads, picnic tables, and toilet facilities.

Dipteran — An insect having usually a single pair of functional wings (anterior pair) with the posterior pair reduced to small knobbed structures and mouth parts adapted for sucking or lapping or piercing (i.e., true flies).

Dispersed Recreation — Recreation that does not occur in a developed recreation site, such as hunt ing, backpacking, and scenic driving.

Diversity (Species) — (1) The absolute number of species in a community, species richness; and (2) a measure of the number of species and their relative abundance in a commu nity; low diversity refers to few species or unequal abundance; high diversity refers to many species or equal abundance.

Easement — A right or privilege one may have on another's land.

Ecological Succession — An ecosystem's gradual evolution to a stable state or climax. If, through the ability of its populations and elements, an ecosystem can absorb changes, it tends to persist and become stable through time.

Ecosystem — A functioning system composed of a community of animals, plants, and bac teria and its interrelated physical and chemical environment.

Ecotone — A transition area between two distinct habitats, where the ranges of the organ isms in each bordering habitat overlap, and where there are organisms unique to the transition area.

Endangered Species — Any animal or plant species in danger of extinction throughout all or a signifi cant portion of its range. These species are listed by the U.S. Fish and Wildlife Service under the provisions of the Endangered Species Act.

Endemic — Having a natural distribution confined to a particular geographical region.

Environmental Assessment (EA) — A concise public document that a federal agency prepares under the National Environmental Policy Act (NEPA) to provide sufficient evidence and analysis to determine whether a proposed agency action would require the prepara tion of an Environmental Impact Statement (EIS) or a Finding of No Significant Impact. A federal agency may also prepare an EA to aid its compli ance with NEPA when no EIS is necessary or to facilitate the preparation of an EIS when one is necessary.

Environmental Impact Statement (EIS) — A detailed written statement that is required by the National Environmental Policy Act (NEPA) for a proposed major federal action that would significant ly affect the quality of the human environment. The findings from the docu ment are published in a Record of Decision (ROD).

Environmental Justice — The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, imple mentation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from the operation or execution of federal programs and policies. Executive Order 12898 directs federal agencies to make achieving environmental justice part of their missions by identifying and addressing disproportionately high and adverse effects of agency pro grams, policies, and activities on minority and low-income populations.

Eolian Process — Wind erosion, transport, or deposition.

Ephemeral — Short-lived; usually only one day.

Erosion — The wearing away of land surface either by natural weathering processes (including water, wind, or ice) or human or animal activities.

Erosion Blanket — Material such as straw, jute matting, or rock that is applied to the land surface to minimize the erosion of soil particles caused by the impact of raindrop splash and by flowing water.

Ethnographic Resource — A site structure, object, landscape, or natural resource feature assigned tradi tional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Exotic Plant Community — An assemblage of plants that are not indigenous to the area, such as cheat grass, yellow star thistle, and medusa head rye.

Exotic Species — An animal or plant species that is not a part of an area's original fauna or flora.

Extirpated — Completely gone from an area; destroyed completely.

Fault — A fracture or fissure in the earth's surface.

Fauna — The animal life of an area.

Fecal Coliform/ Fecal Streptococcus — Types of bacteria found in animal waste.

Finding of No Significant Impact (FONSI) — A public document issued by a federal agency that briefly presents the reasons why an action for which the agency has prepared an Environmental Assessment does not have potential for a significant effect on the human envi ronment and thus will not require the preparation of an Environmental Impact Statement.

Fire Condition Class (FCC) — A classification for vegetation communities relative to the departure of the fire regime (frequency and severity of fire) from historic conditions. There are three fire condition classes ranging from FCC1 (low departure) to FCC3 (high departure):

- **FCC1** represents low departure from the historic fire regime. Key ecosys tem components include a healthy mosaic of various successional stages for each vegetation type. For example, these components would include

sage brush steppe communities with native perennial grass and forb understories, or aspen or Douglas fir communities with trees of variable age, openings to allow tree regeneration, and an abundance of understory grasses and forbs.
- — FCC2 represents moderate departure from the historic fire regime, result ing in some risk of more frequent fire return intervals and/or greater levels of severity.
- — FCC3 represents high departure from the historic fire regime, resulting in high risk of resource loss due to frequent fire return intervals and/or high levels of severity. An example of FCC3 is an area that was formerly low-elevation sagebrush steppe that is currently dominated by an understory or monoculture of cheatgrass.

Fire Cycle — The average time between fires in a given area.

Fire Fountain — A rhythmic vertical fountain-like eruption of lava.

Fire Suppression — All work and activities associated with fire extinguishing operations, begin ning with the discovery and continuing until the fire is completely extin guished.

Fissure Cave — A cave formed from a fissure, i.e., an elongated fracture or crack related to volcanic action.

Fissure/Vent — An elongate fracture or crack at the surface from which molten rock and vol canic gases escape onto surface.

Floodplain — Level streamside land that may be subject to flooding.

Flora — The plant life of an area.

Forage — Vegetation of all forms available and of a type used for animal consumption.

Forb — A broadleaf plant that has little or no woody material in it.

Four-Wheel Drive (4WD) — Trucks, cars, or sport utility vehicles with high clearance and the ability to operate off pavement, on rugged terrain, as well as on highways.

Fragmentation —±The process of dividing habitats into smaller and smaller units until their util ity as habitat is lost.

Fuel Loading — The accumulation of natural combustible materials (fuel) that could burn in a fire.

Fugitive Dust — Particulate matter emissions that do not pass through a stack, chimney, vent, pipe, or similar opening.

Gateway Community — A towns in the areas surrounding the Monument; such towns often serve as entrance points for visitors to the Monument.

Geographic Information com System (GIS) — GIS is both a database designed to handle geographic data and a set of puter operations that can be used to analyze the data. In a sense, GIS can be thought of as a higher-order map.

Geomorphic Process — A process that changes the form of the earth, such as volcanic activity, run ning water, and glacial action.

Geomorphology — A subdiscipline of geography concerned with the study of the form and devel opment of the landscape. It includes such specializations as sedimentology.

Grazing Management Practice — A technique used to manage livestock. Such techniques include season, dura tion (amount of the time that grazing occurs), intensity of use, numbers of livestock, kind of livestock, and distribution (ways to affect distribution include salting, herding, and water development).

Grazing Plan or Program — A combination of grazing management and/or facilities used to ensure an expectation of meeting or making significant progress toward meeting the Standards for Rangeland Health.

Great Rift — The Great Rift volcanic rift zone is a belt of open cracks, eruptive fissures, shield volcanoes, and cinder cones, which varies in width between approxi mately 1 and 5 miles. It begins north of the Monument, approximately 6 miles

from the topographic edge of the Snake River Plain, in the vent area of the Lava Creek flows in the southern Pioneer Mountains. The Great Rift extends southeasterly from the Lava Creek vents for more than 50 miles to somewhere beneath the Wapi Lava Field.

Ground Fire — A fire that burns along the forest floor and does not affect trees with thick bark or high crowns.

Groundwater — Water that has percolated downward from the ground surface through the soil pores.

Habitat — The natural abode of a plant or animal, including all biotic, climatic, and soil factors affecting life.

Herbaceous — Pertaining to or characteristic of an herb (fleshy-stemmed plant), as distin guished from the woody tissue of shrubs and trees.

Hornito — A rootless spatter cone (fed by lava from within an underlying lava tube) that has a steep sided, inverted cone shape and is formed from an accumulation of pyroclastic materials. Also called Rootless Vent.

Hydrologic Cycle — The circulation of water in the atmosphere, on the surface of the earth, in the soil, and in the underlying rocks.

Hydrology — The science of dealing with the study of water on the surface of the land, in the soil and underlying rocks, and in the atmosphere.

Igneous Rock — Rock (such as granite and basalt) that has solidified from a molten or partially molten state.

Indicator — Components or attributes of a rangeland ecosystem that can be observed and/or measured; an indicator provides evidence of the function, productivity, health, and/or condition of the ecosystem.

Indigenous (species) — Any species of wildlife native to a given land or water area by natural occur rence.

Inflation Structure — An inflation structure occurs along a crack where the swelling of underlying lava causes one side to become uplifted relative to the other, whether due to degassing or the influx of more lava.

Inholding — A non-federal parcel of land that is completely surrounded by federal land.

Integrated Pest Management (IPM) — IPM evaluates alternatives for managing forest pest populations, based on the consideration of pest-host relationships.

Invasive Species — A non-native species (with respect to a particular ecosystem) whose introduc tion cause or is likely to cause harm to the economy, environment, or human health.

Irretrievable — One of the categories of impacts mentioned in the National Environmental Policy Act to be included in environmental impact statements. An irretriev able effect applies to a loss of production or a commitment of renewable nat ural resources. For example, when an area is used as a ski area, some or all of the timber production there is irretrievably lost. If the ski area closes, timber production could resume; the loss of timber production during the time that the area was devoted to winter sports is irretrievable. However, the loss of timber production during that time is not irreversible, because it would be possible for timber production to resume if the area was no longer used as a ski area.

Irreversible — A category of impacts mentioned in environmental impact statements that applies to non-renewable resources, such as minerals and archaeological sites. Irreversible effects can also refer to effects of actions that can be renewed only after a very long period of time, such as the loss of soil productivity.

Karst — An area underlain by limestone in which erosion has formed sinkholes, fis sures, caverns, and underground streams.

Kiosk — A stall set up in a public place where one can obtain information, e.g., tourist information.

Kipuka — < kee' poo ka > Hawaiian word meaning "key", or opening such as for a door. A mound of older land, usually covered by vegetation, which is surrounded by a younger lava flow.

Lacustrine — Relating to or living near lakes.

Landscape — A large land area composed of interacting ecosystems that are repeated due to factors such as geology, soils, climate, and human impacts.

Late Pleistocene-Holocene — Beginning about 11,000 years ago, the end of the glacial period ("Ice Age") due to the multiple expansion and retreat of glaciers.

Lava — Lava is magma (molten rock) that has erupted onto the earth's surface; also used to refer to magma after it has solidified.

Lava Curb — Lava curbs form when blobs of lava floating in a river of lava accumulate on the edges of the flow and begin to build out. If the curbs build out far enough on either side to connect to each other and create a crust, they create a new lava tube roof.

Lava Field — A large contiguous area of lava formed from a lava flow.

Lava Flow — A lava flow can be described as an outpouring of molten rock onto the earth's surface forming a river or sheet.

Lava Fountains — A vertical eruption of lava from a vent or along a fissure. Lava fountains can reach a height of 2,000 ft.

Lava Lake — A lake of molten lava, usually basaltic, contained in a vent, crater, or broad depression of a shield volcano.

Lava Toe — Small, bulbous extensions of lava that form at the front of pahoehoe flows by breaking through crusts on the flow front.

Lava Tub — Lava tubes form when the surface of flowing lava congeals, forming a crust. The lava underneath the solidified crust continues to flow, now insulated from the cooling air. When the lava eruption ceases, and if the tube drains, a large tubular cave may be left behind.

Leasable Mineral — A mineral such as oil shale, oil and gas, phosphate, potash, sodium, geother mal resources, and all other minerals that may be developed under the Mineral Leasing Act of 1920, as amended.

Lee (or Leeward) Side — The side of something that is sheltered from the wind.

Lek — An assembly area where birds, especially sage grouse, carry on display and courtship behavior.

Levee — A natural or human-made feature of the landscape that restricts the move ment of water into or through an area.

Licensed Vehicle — A motor vehicle operating under a current state registration.

Lichen — A mutualistic association of a fungus and a photosynthetic organism.

Limited Designation (motorized travel) — BLM designation meaning that some restrictions apply to motorized travel on a specified route or in a specified area.

Lithic Scatter — Pertaining to or composed of stone scatter; a form of an archaeological resource.

Litter — Dead plant or animal material on the soil surface.

Livestock Development; Livestock Management Facility — A physical facility such as a fence, water development, or corral that can be used to handle and control livestock.

Loess — Unconsolidated, silt-sized particles with accessory clay and sand particles that are deposited primarily by the wind. Loess that has filtered down into cracks in the lava and between the cinders provides the growth medium for vegeta tion.

Magma — Molten rock beneath the earth's surface.

Management Framework Plan (MFP) — Bureau of Land Management land use plan, predecessor to the Resource Management Plan (RMP).

Mechanical Treatment — The use of mechanical equipment for seeding, brush management, and other management practices.

Mechanized Vehicle — Mechanical transport designed to replace human labor and/or human physi cal capabilities. Mechanized vehicles include mountain bikes, horse drawn wagons, big game carriers, handcarts, and hang gliders.

Mesic — Conditioned by a temperate moist climate; neither dry nor wet; pertaining to conditions of medium moisture supply.

Metamorphic — Pertaining to, produced by, or exhibiting certain changes that minerals or rocks may have undergone since their original deposition, especially applied to the recyrstallization that sedimentary rocks have undergone through the influence of heat and pressure, after which they are called metamorphic rocks.

Microbiotic Crust — Community of non-vascular primary producers that occur as a "crust" on the surface of soils and made up of a mixture of algae, lichens, mosses, and cyanobacteria (bluegreen algae).

Midden — The accumulation of debris and domestic waste products resulting from human use, especially an accumulation of shells or of cinders, bones, and other refuse on the supposed site of the dwelling places of prehistoric tribes. The long-term disposal of refuse can result in stratified deposits, which are useful for relative dating.

Mineral Material — A material such as common varieties of sand, stone, gravel, pumice, pumicite, and clay, which is not obtainable under the mining or leasing laws but that can be acquired under the Mineral Materials Act of 1947, as amended.

Mineral Rights — The ownership of all minerals, including all rights needed for access, explo ration, development, mining, ore dressing, and transportation.

Mineral Soil — Soil that consists mainly of inorganic material, such as weathered rock, rather than organic matter.

Mineral Withdrawal — A withdrawal of public lands that are potentially valuable for leasable miner als. This precludes the disposal of the lands except with a mineral reservation, or unless the lands are found to not be valuable for minerals.

Minority — Defined by the U.S. Census as individuals who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Mitigation; Mitigating Measures — Constraints, requirements, or conditions imposed to reduce or eliminate an anticipated impact on an environmental, socioeconomic, or other resource value from a proposed action.

Modification — A fundamental change in the provisions of a lease stipulation, either tem porarily or for the term of the lease. A modification may include an exemp tion from or alteration to a stipulated requirement. The modification may or may not apply to all other sites within the leasehold to which the restrictive criteria apply.

Motorized Vehicle — Vehicle powered by an engine, usually internal combustion.

Multiple Use Management — Multiple use is defined in the Federal Policy and Management Act of 1976 as follows: "The management of the public lands and their various resource val ues so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resource or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to con form with changing needs and conditions; the use of some land for less than

all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historic values; and harmonious and coordinated management of the var ious resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the rela tive values of the resources and not necessarily to the combination of the uses that will give the greatest economic return or the greatest output."

Museum Collection — Objects, specimens, and archival and manuscript collections that are impor tant resources providing valuable information about processes, events, and interactions among people and the environment.

National Ambient Air — The allowable concentrations of air pollutants in the ambient (public
out**Quality Standards (NAAQS)** door) air specified in 40 CFR 50. NAAQS are based on the air quality criteria and divided into primary standards (allowing an adequate margin of safety to protect the public health) and secondary standards (allowing an adequate margin of safety to protect the public welfare).

National Environmental Policy Act of 1969 (NEPA) — The federal law that established a national policy for the environment and requires federal agencies to (1) become aware of the environmental ramifica tions of their proposed actions, (2) fully disclose to the public proposed fed eral actions and provide a mechanism for public input to federal decision making, and (3) prepare environmental impact statements for every major action that would significantly affect the quality of the human environment.

National Register of Historic Places (NRHP) — The official list, established by the National Historic Preservation Act, of the nation's cultural resources worthy of preservation. The NRHP lists archaeo logical, historic, and architectural properties (districts, sites, buildings, struc tures, and objects) nominated for their local, state, or national significance by state and federal agencies and approved by the National Register Staff.

National Wild and Scenic Rivers System — Established by the Wild and Scenic Rivers Act of 1958 to protect rivers and their immediate environments that have outstanding scenic, recreation, geo logic, fish and wildlife, historic, cultural, and other similar values and are pre served in free-flowing conditions. The system provides for the designation of three types of rivers: Recreation, Scenic, and Wild.

Native Species — Plants or animals indigenous to the area.

Natural Quiet — Refers to the state of having only natural sources of sound; for example, wind, rustling leaves, water, and animal calls.

Naturalness — In Section 2(c) of the Wilderness Act, the wilderness characteristic in which an area "generally appears to have been affected primarily by the forces of nature, with the imprint of people's work substantially unnoticeable."

Night Sky — A sky free of artificial light sources and related light pollution.

Non-native Species — Plants or animals that are not indigenous to the area. (See also Exotic Species.)

Nonpoint Source Pollution — Pollution whose source is not specific in location. The sources of the dis charge are dispersed, not well defined, or constant. Rainstorms and snowmelt often make this type of pollution worse. Some examples are sediments from logging activities and runoff from agricultural chemicals.

Non-renewable Resource — A resource whose total quantity does not increase measurably over time, so that each use of the resource diminishes the supply.

Nonvascular Plant — Plants that do not have specialized tissues for conducting water and synthesizing foods, such as any moss or liverwort.

Notice of Intent — A notice in the Federal Register of the intent to prepare an Environmental Impact Statement on a proposed action.

Noxious Weed — According to the Federal Noxious Weed Act (Public Law 93-629), a weed that causes disease or has other adverse effects on humans and their environment and is therefore detrimental to public health and the agriculture and commerce of the United States.

Nutrient Cycle — The cyclical process by which plants and animals use chemical compounds and elements in the soil, water, and atmosphere to produce plants and ani mals, and the decomposition of plants and animals to return chemical com pounds and elements to the soil, water, and air for future use.

Obligate — Essential, necessary, unable to exist in any other state, mode, or relationship. See *Sagebrush Obligate*.

Off-Highway Vehicle (OHV) — Any motorized vehicle designed for or capable of cross-country travel over lands, water, sand, snow, ice, marsh, swampland, or other terrain.

Off-Highway Vehicle Management Designation — A designations that applies to all off-road vehicles, regardless of the purposes for which they are being used. Emergency vehi cles are excluded. The OHV designation definitions have been developed in cooperation with representatives of the U.S. Forest Service, National Park Service, and BLM state and district personnel:

- **Open:** Designated areas and trails where OHVs may be operated. The BLM designation meaning that motorized travel on a specific route or in a specific area is permitted.
- **Limited:** Designated areas and trails where the use of an OHV is subject to restrictions, such as limiting the dates and times of use (seasonal restric tions), limiting use to designated roads and trails, and limiting use to exist ing roads and trails. Combinations of restrictions are possible.
- **Closed:** Designated areas, roads, and trails where the use of an OHV is permanently or temporarily prohibited. Emergency use of vehicles is allowed.

Pahoehoe — A Hawaiian term for a basaltic lava flow that has a smooth, billowy, or ropy surface.

Paleoecology — The study of the relationship of extinct organisms or groups of organisms to their environments.

Paleontological Resource (Fossil) — The physical remains of plants and animals preserved in soils and sedimenta ry rock formations. Paleontological resources are important for understand ing past environments, environmental change, and the evolution of life.

Paleontology — The study of the fossil record of past geological periods and of the phyloge netic relationships between ancient and contemporary plant and animal spe cials.

Palustrine — Non-tidal inland wetlands dominated by terrestrial and emergent vegetation.

Particulate Matter — Fine liquid or solid particles suspended in the air and consisting of dust, smoke, mist, fumes, and compounds containing sulfur, nitrogen, and metals, typically averaging one micron or smaller in diameter.

Perennial Vegetation — A plants that has a life cycle of three or more years.

Permitted Use — The forage allocated by, or under the guidance of, an applicable land use plan for livestock grazing in an allotment under a permit or lease and is expressed in animal unit months (AUMs).

Permittee — A person or organization legally permitted to graze a specific number and class of livestock on designated areas of public land during specified seasons each year.

pH — A measure of acidity or hydrogen ion activity. Neutral is pH 7.0. All values below 7.0 are acidic, and all values above 7.0 are alkaline.

Phreatic — Of or relating to groundwater.

Pictograph — An aboriginally painted design on natural rock surfaces. Red ochre is the most frequently used pigment, and natural or abstract motifs may be represented.

Pioneer Plants — A plants that establishes itself first on disturbed areas or bare soil.

Pit Crater — A circular-shaped depression with steep to vertical walls that formed by col lapse of the ground that results from the removal of support such as from the withdrawal of the underlying magma. Also known as a volcanic sink.

Playa — A dried-up, flat-floored area representing the bottom of a shallow, undrained lake basin in which water accumulates and often is quickly evaporated.

Pleistocene Age — The latest major geological epoch from 11,000 to 2 million years ago, the time of human evolution. Also known as the "Ice Age" due to the multiple expan sion and retreat of glaciers.

Pre-existing Use — Land use that may not conform to a zoning ordinance but existed prior to the enactment of the ordinance.

Prescribed Burning — Controlled application of fire to wildland fuels in either their natural or modi fied state, under specified environmental conditions which allow the fire to be confined to a predetermined area and at the same time to produce the fire line intensity and rate of spread required to attain planned resource manage ment objectives.

Prescribed Fire — A controlled application of fire to natural fuels under conditions of weather, fuel moisture, and soil moisture that would allow the confinement of the fire to a predetermined area and at the same time produce the intensity of heat and rate of spread required to accomplish certain planned benefits for one or more objectives for wildlife, livestock, and watershed values. The overall objectives are to employ fire scientifically to realize maximum net benefits at minimum environmental damage and acceptable cost.

Prescribed Natural Fire — A naturally ignited fire allowed to burn under designated conditions to meet resource management objectives. Also called "Wildland Fire for Resource Benefit" and Wildland Fire Use, which see..

Pressure Plateau — A pressure plateau forms from a sill-like injection of new lava beneath the crust of an earlier flow that has not completely solidified.

Pressure Ridge — Elongated uplift of the congealing crust of a lava flow believed to have been caused by the pressure of the underlying, still flowing, lava.

Public Land — Any land or interest in land owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management, with out regard to how the United States acquired ownership, except for (1) land located on the Outer Continental Shelf and (2) land held for the benefit of American Indians, Aleuts, and Eskimos.

Pumice — A light colored, frothy volcanic rock having the composition of rhyolite. It is often buoyant enough to float on water.

Pyroclastic — A term that refers to volcanic rock material that is formed by a volcanic explo sion or by ejection from a volcanic vent.

Quartzite — A granular stone formed of fused quartz grains. Commonly white, yellow or red. Used as a raw material, for flaked stone tools.

Radiocarbon Dating — An absolute dating method based on the radioactive decay of Carbon-14 con tained in organic materials.

Rafted Block — A volcanic fragment that was caught up in a lava flow and detached from its source, such as a piece of crater-wall carried off much like an iceberg.

Range Management — The art and science of planning and directing range use intended to yield the sustained maximum animal production and perpetuation of the natural resources.

Rangeland — Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes

natural grasslands, savannas, many wetlands, some deserts, tundra, and areas that support certain forb and shrub communities.

Rangeland Condition — The present status of a unit in terms of its specific values or potential.

Rangeland Health — The degree to which the integrity of the soil and ecological processes of rangeland ecosystems is maintained.

Rangeland Improvement — Any activity or program on or relating to rangelands that is designed to improve forage production, change vegetation composition, control patterns of use, provide water, stabilize soil and water conditions, and enhance habitat for livestock, wildlife, and wild horses and burros. Rangeland improvements include land treatments (such as chaining, seeding, or burning), water devel opments, fences, and trails.

Raptor — Bird of prey, such as the eagle, falcon, hawk, owl, or vulture.

Record of Decision (ROD) — A document signed by a responsible official recording a decision that was pre ceded by the preparation of an Environment Impact Statement.

Reclamation — The reconstruction of disturbed ecosystems by returning the land to a condi tion approximate or equal to that which existed before disturbance, or to a stable and productive condition compatible with the land use plan. The immediate goal of reclamation is to stabilize disturbed areas and protect both disturbed and adjacent undisturbed areas from unnecessary degradation.

Recreation Visitor Day — Any recreational activity taking place within a 24-hour period, or portion thereof, for each individual recreating on public lands.

Rehabilitation — The activities necessary to repair damage or disturbance caused by wildfire or the fire suppression activity. Rehabilitation treatments can include herbicide use to control weeds and seeding with desirable vegetation.

Residual Vegetation — The amount, cover, and species composition of the vegetation on a site after it has been grazed for a period of time.

Resource Management Plan (RMP) — A land use plan as described by the Federal Land Policy and Management Act to guide resource management and use allocation on public lands and resources administered by the BLM.

Rest — Nongrazing for a specified period of time, generally a full growing season up to one full year.

Revegetation — The reestablishment and development of a plant cover either by natural means or by artificial means such as reseeding.

Restoration — Actions that proactively treat degraded vegetation with the intent of meeting resource management objectives. Restoration treatments can include pre scribed fire, herbicide use to control weeds, and seeding with desirable vege tation.

Ribbon Bomb — A strand of fluid lava ejected from a vent that takes the shape of a thin, twisted ribbon.

Rift Zone — An area characterized by an open volcanic fissure.

Right-of-Way (ROW) — A permit or an easement that authorizes the use of public land for certain specified purposes, commonly for pipelines, roads, telephone lines, electric lines, and reservoirs. It is also the reference to the land covered by such an easement or permit.

Right-of-Way Corridor — A parcel of land that has been identified by law, Secretarial Order, through a land use plan, or by other management decision as being the preferred loca tion for existing and future right-of-way grants and suitable to accommodate one type of right-of-way or one or more rights-of-way that are similar, identi cal, or compatible.

Riparian Area/Habitat — A form of wetland transition between permanently saturated wetlands and uplands. Such areas exhibit vegetation or physical characteristics that reflect permanent surface or subsurface water influence.

Riparian Habitat — An area of land directly influenced by permanent (surface or subsurface) water, which has visible vegetation or physical characteristics reflective of per manent water influence.

Riparian Vegetation — Plants adapted to moist growing conditions along streams, waterways, ponds, or other permanent water body.

Road — A transportation facility used primarily by vehicles having four or more wheels, documented as such by the owner and maintained for regular and continuous use. Includes the following classes:

- **Class A Roads** generally are paved and have a surface of asphalt, concrete, or similar continuous material. In addition to U.S. Highway 20/26/93, the only Class A roads in the project area are the loop drive, spur roads, and associated parking areas in the original NPS Monument. Class A roads are found only in the Frontcountry Zone.
- **Class B Roads** are improved roads constructed with a natural or aggregate surface, and they may have berms, ditches, or culverts. Regular mainte nance allows passage by standard passenger and commercial vehicles such as cars, light trucks and some heavy trucks. In the Monument, seasonal conditions and lack of snow removal can render these roads impassable. Class B roads are found primarily in the Passage Zone.
- **Class C Roads** have an unimproved natural surface and may be either constructed or established over time by the repeated passage of vehicles. The natural surface may be dirt, sand, or rock. A minimal amount of main tenance, if any at all, is limited primarily to spot surface grading to allow vehicle passage within the original road corridor. Class C roads accommo date a much smaller range of vehicles than Class B roads, usually high clearance two-wheel drive and four-wheel drive vehicles. Seasonal condi tions or wet weather can render these roads impassable at any time. Class C roads are found primarily in the Passage and Primitive zones.
- **Class D Roads** are primitive roads that were not constructed, but were established over time by the passage of motorized vehicles. These roads receive no maintenance or grading. Occasional emergency repairs or limit ed maintenance might be performed for resource protection and adminis trative purposes. These roads are generally referred to as "two-tracks." The condition of these roads varies from sometimes passable by a passen ger car, to only suitable for high clearance four-wheel drives vehicles. Seasonal conditions or wet weather can render these roads impassable at any time. Class D roads are found primarily in the Primitive Zone.

Rootless Vent — See *Hornito*.

Route — A roadlike feature used by vehicles having two, three, four, or more wheels, but not declared a road by the owner and which receives no maintenance to guarantee regular and continuous use.

Sagebrush Obligates — Restricted to sagebrush habitats during the breeding season or year-round.

Sagebrush Steppe Community — A semi-arid plant community characterized by a predominance of big sage brush and other sagebrush species, plus grasses and forbs.

Saleable Minerals — Minerals that can be sold under the Material Sale Act of 1947, as amended. Included are common varieties of sand, stone, gravel, and clay.

Scoping — The ongoing process to determine public opinion, receive comments and sug gestions, and determine issues during the environmental analysis process. Scoping can involve public meetings, telephone conversations, and letters.

Scenic River — A river or section of a river that is free of impoundments and whose shore lines are largely undeveloped but accessible in places by roads.

Seasonal Utilization — The amount of utilization that has occurred before the end of the growing season.

Season-Long Use — Grazing throughout the growing period, with little or no effort to control the amount of distribution of livestock use in area/pasture/allotments. Also called "passive, continuous grazing."

Resource Advisory Councils (RACs) — Advisory councils appointed by the Secretary of the Interior and consisting of representatives of major public land interest groups (commodity industries, recreation, environmental, and local area interests) in a state or smaller area. RACs advise the Bureau of Land Management, focusing on a full array of multiple use public land issues. RACs also help develop fundamentals for rangeland health and guidelines for livestock grazing.

Section 7 Consultation — The requirement of Section 7 of the Endangered Species Act that all federal agencies consult with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service if a proposed action might affect a federally listed species or its critical habitat.

Section 106 Consultation — Also known as the 36 CFR 800 process. Discussions between a federal agency official and the Advisory Council on Historic Preservation, a State Historic Preservation Officer, and other interested parties concerning historic proper ties that could be affected by a specific undertaking. Section 106 is the part of the National Historic Preservation Act that outlines the procedure. The pro cedure is codified in 36 CFR 800.

Sedimentary Rock — A rock (such as sandstone, limestone, and shale) that has been formed from sediments or from transported fragments deposited in water.

Seedling — A tree grown from seed that has not reached a height of 3 feet or a diameter of 2 inches.

Sensitive Species — A plant and animal species not yet officially listed, but which is undergoing status review for listing on the U.S. Fish and Wildlife Service's official threat ened and endangered list; species whose populations are small and widely dispersed or restricted to a few localities; and species whose numbers are declining so rapidly that official listing may be necessary. Sensitive species are listed by the Bureau of Land Management State Directors.

Shelly Pahoehoe — A type of pahoehoe lava that forms from highly gas-charged lava, often near vents or tube skylights, with a surface that consists of broken blisters, small open lava tubes, and thin crusts. In the Craters of the Moon Lava Field, sur face crusts are typically about 10 centimeters (3.9 inches) thick.

Shield Volcano — A broad, gently sloping volcano that has a flattened dome shape not unlike that of a knight's shield. Shield volcanoes usually cover a large area and form from overlapping and interfingering, low viscosity lava flows.

Significant Progress — Measurable and/or observable (for example, through the use of photography or approved qualitative procedures) changes in the indicators that demon strate improved rangeland health.

Silt — Earthy sediment of fine particles of rock and soil suspended in and carried by water.

Slabby Pahoehoe — A type of pahoehoe with a surface that consists of a jumbled arrangement of jagged plates, or slabs, of pahoehoe that were rafted, sheared, tilted, upturned, overturned, and heaped on each other.

Spatter — An accumulation of very fluid pyroclasts (ejected material).

Spatter Cone — A low, steep sided cone formed from the accumulation of spatter ejected from a vent or fissure.

Spatter Rampart — A broad, elongate embankment of spatter that is built by a curtain of fire and forms along either side of a fissure.

Special Management Areas — An area containing one or a combination of unique resources or values that receive more intensive management (such as ACECs, Special Recreation Management Areas, or Wild and Scenic Rivers).

Special Status Species — Wildlife and plant species either federally listed as threatened or endangered, proposed threatened or endangered, candidate species, state-listed as threat ened or endangered, or listed by a Bureau of Land Management State Director as sensitive or determined priority.

Speleothem — A mineral deposit of calcium carbonate that precipitates from solution in a cave.

Spindle Bomb — A volcanic bomb with a twisted shape. Spindle bombs form from blobs of fluid lava that often take on a smooth stoss side (front side), a rougher lee side (backside) marked by ribs and fluting caused by frictional resistance to air, and have prominent, usually twisted, projections on either side that form as ribbon bombs separately.

Spiny Pahoehoe — A type of pahoehoe with a surface that consists of elongate vesicles that formed from stretching of very viscous lava, giving it a surface texture of small ridges or spines.

Squeeze Up — A bulbous blob of viscous, molten lava that was forced by pressure up through a fracture or opening in solidified lava.

Successional Stage — A stage of development of a plant community with another. Conditions of the prior plant community (or successional stage) create conditions that are favorable for the establishment of the next stage.

SUM06 Statistic — The sum of hourly average ozone concentrations greater than 0.06 parts per million; used to assess potential air quality impacts relating to ozone levels.

Sustainable — The yield of a natural resource that can be produced continually at a given intensity of management is said to be sustainable.

Sustainability — The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Suspended Animal Unit Months (AUMs) — Temporary withholding from active use, through a decision issued by the authorized officer or by agreement, of part or all of the permitted use in a grazing permit or lease.

Sustained Productivity the Range — Maintaining the production capability of the rangeland for long periods of **of** time (100 years or more).

Tachylyte — A black, green, or brown volcanic glass that forms when basaltic magma is rapidly chilled.

Tailings — The waste matter from ore after the extraction of economically recoverable metals and minerals.

Taxa — A group of organisms sharing common characteristics in varying degrees of distinction and constituting one of the categories in taxonomic classification, such as a phylum, order, family, genus, or species.

Take — As defined by the Endangered Species Act, "to harass, harm, pursue, hunt, shoot, wound, kill, capture, or collect, or attempt to engage in any such con duct."

Tension Fractures — Tension fractures result from stresses that pull rocks apart.

Tephra — Volcanic ash.

Tertiary Period — The earlier (5 million to 12 million years ago) of the two geologic periods in the Cenozoic era of geologic time.

Threatened and Endangered Species — As defined in the Endangered Species Act of 1973, as amended (Public Law 93-205; 87 Stat. 884), "endangered species" is "any species which is in danger of extinction throughout all or a significant portion of its range" and a "threatened species" is "any species which is likely to become an endangered

species within the foreseeable future throughout all or a significant portion of its range." Whether a species is threatened or endangered is determined by the following factors: (1) present or threatened destruction, modification, or curtailment of its habitat or range; (2) overutilization for commercial, sport ing, scientific, or educational purposes; (3) disease or predation; (4) inadequa cy of existing regulatory mechanisms; or (5) other natural or human-made factors.

Total Dissolved Solids (TDS) — Total concentration of salts in solution. High TDS solutions can change the chemical nature of water, exert varying degrees of osmotic pressure, and often become lethal to aquatic life.

Traditional Lifeway Value — A value that is important for maintaining a group's traditional system of reli gious belief, cultural practice, or social interaction. A group's shared tradition al lifeway values are abstract, nonmaterial, ascribed ideas that cannot be dis covered except through discussions with members of the group. These values may or may not be closely associated with definite locations.

Traditional Cultural Property — A cultural property that is eligible for inclusion in the National Register of Historic Places because of its association with a living community's cultural practices or beliefs that (a) are rooted in that community's history and (b) are important in maintaining the community's continuing cultural identity.

Trail — A linear feature constructed (or established by past use), with a single tread designated, designed, and intended for travel primarily by foot, beasts of bur den, two-wheeled vehicles (such as mountain bikes and motorcycles), and various special equipment or machinery generally used for individual travel. Facilities used by jeep or four-wheel drive are typically classified as "roads" or "ways." Trails are sometimes referred to as "single track."

- **Class 1 Trails** are restricted to non-motorized/non-mechanized travel (wheelchairs are allowed). Examples of permitted forms of travel are foot travel, pack animal, and horseback. Examples of prohibited forms of travel on Type 1 trails are mountain bikes and all motorized vehicles. Class 1 trails may be further restricted, for example, to foot travel only.
- **Class 2 Trails** are open to motorized/mechanized travel in addition to foot travel, pack animal, horseback, and other forms of passage. Examples of prohibited forms of travel are any vehicle with a footprint wider than an 18-inch tread (all-terrain vehicles, four-wheelers, and four-wheel-drive vehicles).

Tree Mold — A tree mold or lava tree forms when lava flows around a tree and chills, leav ing behind a "mold" of the space occupied by the tree or an impression of the charred wood. Tree molds can also be horizontal if the tree was knocked down by the lava flow.

Tuff — A compacted pyroclastic deposit of volcanic ash and dust that may contain up to 50 percent sediments such as sand or clay.

Tumulus (plural, Tamuli) — A dome or mound-shaped structure on the crust of a lava flow caused by pressure from the difference in rates of flow beneath the crust. Unlike a vol canic blister, a tumulus is a solid structure.

Turbidity — Muddiness created by stirring up sediment or having foreign particles sus pended.

Two-Wheel Drive (2WD) — A vehicle with clearance generally lower than with a 4WD and not designed to travel off pavement.

Understory — The trees and woody shrubs growing beneath the overstory in a stand of trees.

Ungulates — Hoofed animals, including ruminants but also deer and elk.

Untrammeled — Not subject to human controls and manipulations that hamper the free play of natural forces. A word describing desired wilderness conditions used in the Wilderness Act.

Utilization — The portion of forage that has been consumed (or destroyed) by livestock, wild horses, wildlife, and insects during a specified period. The term is also used to refer to a pattern of such use (43 CFR 4100.0-5).

Valid Existing Rights — Locatable mineral development rights that existed when the Federal Land Policy and Management Act (FLPMA) was enacted on October 21, 1976. Some areas are segregated from entry and location under the Mining Law to protect certain values or allow certain uses. Mining claims that existed as of the effective date of the segregation may still be valid if they can meet the test of discovery of a valuable mineral required under the Mining Law. Determining the validity of mining claims located in segregated lands requires BLM to conduct a validity examination and is called a "valid existing right" determination.

Vascular — Having vessels for circulating or transmitting plant or animals fluids.

Variety Class — A way to classify landscapes according to their visual features. This system is based on the premise that landscapes with the greatest variety or diversity have the greatest potential for scenic value.

Vegetation Treatment — Changing the characteristics of an established vegetation type for the purpose of improving rangeland forage or wildlife habitat resources. Treatments are designed for specific areas and differ according to the area's suitability and potential. The most common land treatment methods alter the vegetation by chaining, spraying with pesticides, burning, and plowing, followed by seeding with well-adapted desirable plant species.

Vesicle — A cavity or variable space in lava formed by the entrapment of a gas bubble while the lava was solidifying.

Visitor Day — Twelve visitor hours that one or more persons may aggregate continuously, intermittently, or simultaneously.

Visitor Use — Passive or active recreational activity on public land, which may involve either consumptive or non-consumptive use of the resources.

Visual Resource — A part of the landscape important for its scenic quality. It may include a com posite of terrain, geologic features, or vegetation.

Visual Resource Management (VRM) — A tool used by the Bureau of Land Management to help characterize and preserve the quality of visual resources. VRM classes are determined on the basis of overall scenic quality, distance from travel routes, and sensitivity to change:

- **Class I:** Provides primarily for natural ecological changes only. It is applied to wilderness areas, some natural areas, and similar situations where management activities are to be restricted.
- **Class II:** Changes in the basic elements caused by a management activity may be evident in the characteristic landscape, but the changes should remain subordinate to the visual strength of the existing character.
- **Class III:** Contrasts to the basic elements caused by management activity may be evident and begin to attract attention in the landscape, but the changes should remain subordinate in the existing landscape.
- **Class IV:** Contrasts may attract attention and be a dominant feature in the landscape in terms of scale, but the change should repeat the basic element of the characteristic landscape.

Volcanic Rift Zone — An elongate system of crustal fractures associated with underlying dike com plexes.

Volcanic Sink See *pit crater*.

Volcano — A vent in the earth's surface through which magma, gases, or ash may erupt. The structure produced by ejected material.

Watershed — An area that collects and discharges runoff to a given point. It is often used synonymously with drainage basin or catchment.

Way — A road-like feature used by vehicles having four or more wheels, but not declared a road by the owner, and which receives no maintenance to guaran tee its regular and continuous use.

Wayside — The edge of a road, path, or way (roadside).

Wetland — Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and which under normal cir cumstances will support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Typical wetlands include marshes, shallow swamps, sloughs, lakeshores, bogs, wet meadows, river overflows, mud flats, and riparian areas.

Wilderness Area — An area of federal land designated by the United States Congress and defined by the Wilderness Act of 1964 as a place "where the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Designation is aimed at ensuring that these lands are preserved and protected in their natural condition. Wilderness areas, which generally cover at least 5,000 acres or more, offer outstanding opportunities for solitude or a primitive and unconfined type of recreation; such areas may also contain eco logical, geological, or other features that have scientific, scenic, or historical value.

Wilderness Inventory — A written description of resource information and accompanying map of public lands that meet the wilderness criteria as established under Section 603(a) of the Federal Land Policy and Management Act and Section 2(c) of the Wilderness Act.

Wilderness Study Area (WSA) — An area designated by a federal agency as having wilderness characteristics, thus making it worthy of consideration by Congress for wilderness designa tion. While Congress considers whether to designate a WSA as a permanent wilderness, the federal agency managing the WSA does so in a manner as to prevent the impairment of the area's suitability for wilderness designation.

Wildfire — An unwanted wildland fire, regardless of ignition source, which is unplanned, has escaped control, or does not meet management objectives and therefore requires a suppression response.

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

Wildland Fire Use — A naturally ignited fire allowed to burn under designated conditions to meet resource management objectives. Also called "Wildland Fire for Resource Benefit" and Prescribed Natural Fire, which see.

Withdrawal — The removal or "withholding" of public lands from the operation of some or all of the public land laws (settlement, sale, mining, and or mineral leasing). An action that restricts the use or disposal of public lands, segregating the land from the operation of some or all of the public land and/or mineral laws and holding it for a specific public purpose. Withdrawals may also be used to transfer the jurisdiction of management to other federal agencies.

Xenolith — An inclusion of a foreign body of rock in an igneous rock.

Xeriscaping — Landscaping with drought-tolerant vegetation.

ABBREVIATIONS AND ACRONYMS

^{o}F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter
ACEC	Area of Critical Environmental Concern
AGI	Areas of Geologic Interest
AMP	Allotment Management Plan
APHIS	Animal and Plant Health Inspection Service
ATV	all-terrain vehicle
AUM	animal unit month
BLM	Bureau of Land Management
BMP	Best Management Practice
CBA	Choosing by Advantages
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CRMP	Cultural Resource Management Plan
DOE	United States Department of Energy
EA	Environmental Analysis
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
ESR	emergency stabilization or rehabilitation
ESRP	Eastern Snake River Plain
FAA	Federal Aviation Administration
FCC	Fire Condition Class
FCRPA	Federal Cave Resources and Protection Act
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act

FMDA	Fire Management Direction Amendment
FMP	Fire Management Plan
FY	fiscal year
GIS	Geographic Information System
GMP	General Management Plan
GPS	Global Positioning System
I	Interstate
ICBEMP	Interior Columbia Basin Ecosystem Management Project
ICDC	Idaho Conservation Data Center
IDFG	Idaho Department of Fish and Game
IDL	Idaho Department of Lands
IDPL	Idaho Department of Public Lands
IDPR	Idaho Department of Parks and Recreation
IMBA	International Mountain Biking Association
IMP	Interim Management Policy
IMPROVE	Interagency Monitoring of Protected Environments Program
INEEL	Idaho National Environmental and Engineering Laboratory
INPS	Idaho Native Plant Society
ITD	Idaho Transportation Department
LAC	Limits of Acceptable Change
lbs/acre	pounds per acre
MBTA	Migratory Bird Treaty Act
MFP	Management Framework Plan
mg/L	milligrams per liter
MGM2	Money Generation Model (NPS cost estimating software)
Monument	Craters of the Moon National Monument and Preserve
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards

NADP	National Atmospheric Deposition Program
NAGPRA	National American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NNL	National Natural Landmark
NOI	Notice of Intent
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRV	natural range of variability
NTN	National Trends Network
NWI	National Wetlands Inventory
OHV	off-highway vehicle
PL	Public Law
Plan/EIS	Craters of the Moon National Monument and Preserve Management Plan/Environmental Impact Statement
PM	particulate matter (PM10 = PM less than 10 microns in diameter; PM2.5 = PM less than 2.5 microns in diameter)
ppb	parts per billion
ppm	parts per million
ppm/hr	parts per million per hour
PSD	Prevention of Significant Deterioration
R&PP	Recreation and Public Purposes Act
RAC	Resource Advisory Committee
RMIS	Recreation Management Information System
RMP	Resource Management Plan
RNA	Reserved Natural Area
ROW	right-of-way

RV	recreational vehicle
SCORTP	State Comprehensive Outdoor Recreation and Tourism Plan
SH	State Highway
SHPO	State Historic Preservation Officer
Stat.	Statute
Strategy	Interior Columbia Basin Strategy
SUM06	the sum of hourly average ozone concentrations greater than 0.06 parts per million
U.S.	United States
US	United States Highway ##
USC	United States Code
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USRD	Upper Snake River District
VRM	Visual Resource Management
WS	Wildlife Services of the United States Department of Agriculture, Animal and Plant Health Inspection Service
WSA	Wilderness Study Area

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NPS D-75 March 2004

Printed on Recyled Paper

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE AND BUREAU OF LAND MANAGEMENT