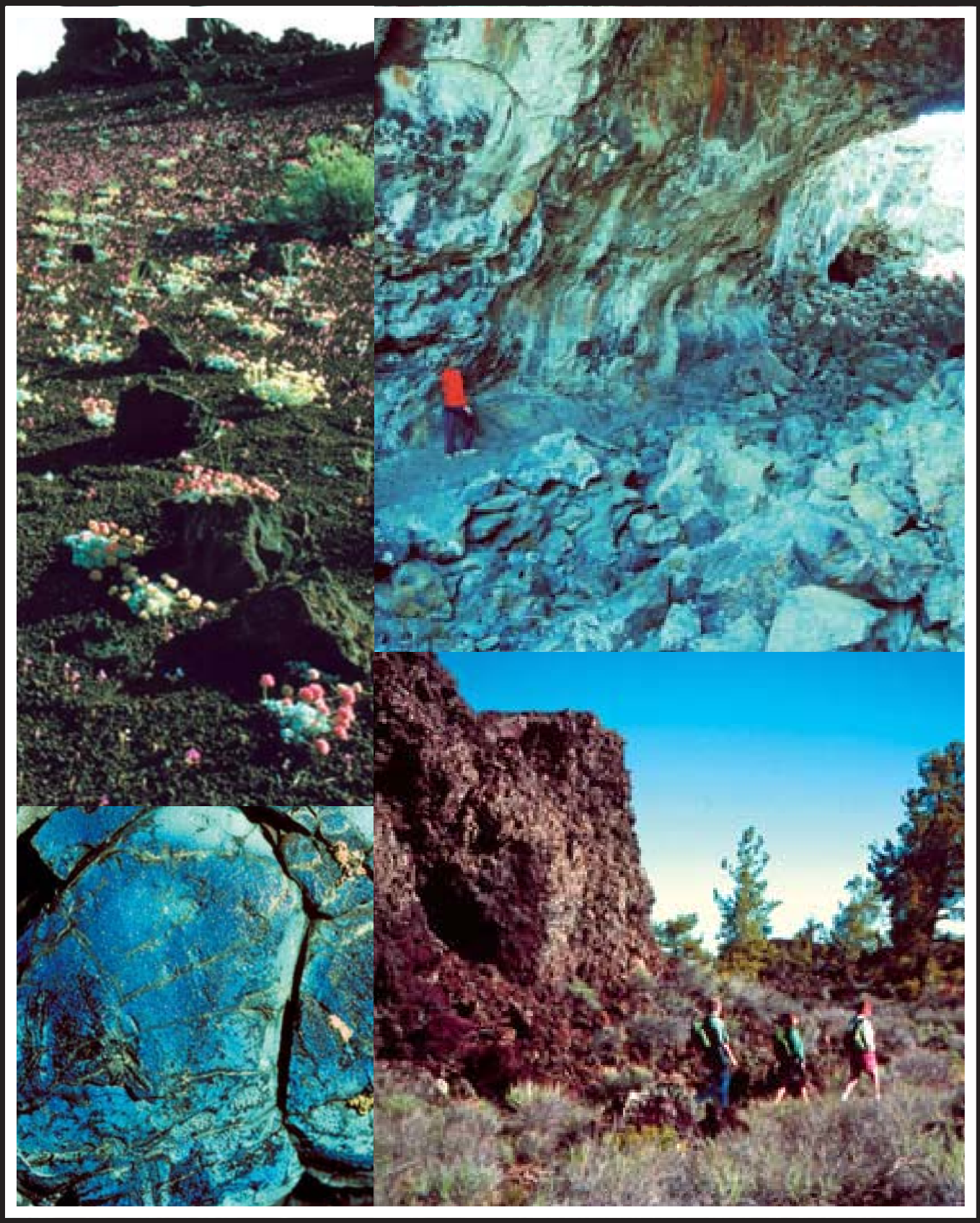
Chapter 4

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.

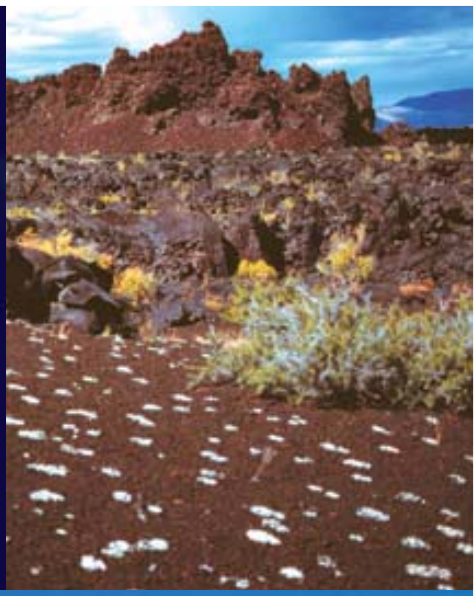
RELATIONSHIP OF SHORT-TERM USES OF THE ENVIRONMENT TO LONG-TERM PRODUCTIVITY

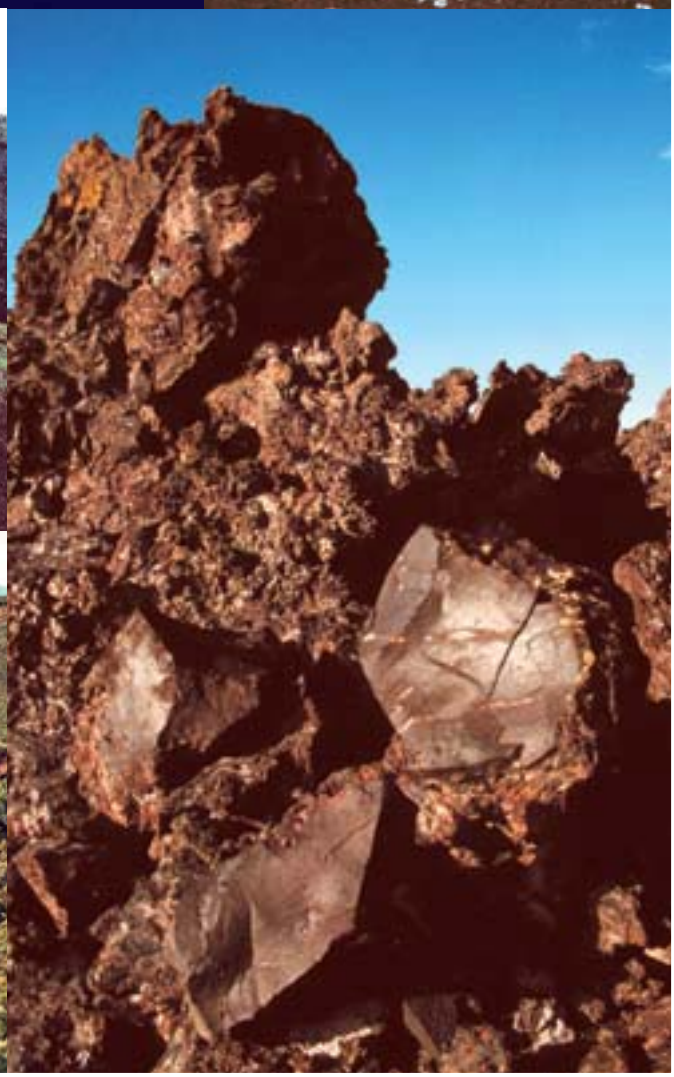
Under all alternatives, the short-term disturbances of soils, vegetation, wildlife habitat, and possibly visitor enjoyment of the Monument from the restoration efforts and limited facility construction would be more than offset by the long-term productivity of the restored sagebrush-steppe habitat and 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