

National Park Service

U.S. Department of the Interior

Bighorn Canyon National Recreation Area

Wyoming



Bighorn Canyon Trails and Access Plan Environmental Assessment /Assessment of Effect

AUGUST 2011



Bighorn Canyon National Recreation Area Comprehensive Trails Management Plan

DRAFT ENVIRONMENTAL ASSESSMENT

SUMMARY

Bighorn Canyon National Recreation Area proposes to establish a comprehensive Trails and Access plan to help design, add, eliminate, manage and maintain trails and associated infrastructure based on resource protection and visitor use and enjoyment. This plan is needed to improve visitor access and travel planning and increase visitor safety while providing for the protection of natural and cultural resources. The proposed plan will also help to avoid user conflicts and provide recreation opportunities to a wider variety of user groups.

This Environmental Assessment evaluates a no action alternative and two action alternatives in the South District, North District, and Yellowtail Habitat Management Area. All action alternatives are based on laws, regulations and policies, public health and safety, and the objectives of this plan. The no action alternative represents current conditions and is also a baseline for comparison to the action alternatives for each respective district.

The no action alternative maintains that all trails and roads in the three districts would remain as they currently exist. The thirteen established trails would continue to be maintained under current practices. It is believed that resource damage and visitor safety concerns would become more difficult to manage.

Under alternative A, established trails would be improved for ease of access and route finding purposes. New trails would be established in appropriate locations to better serve a variety of recreational users. Accessible pathways would be established at popular points of interest, using standards set by the *Americans with Disabilities Act* (ADA) of 1990. Designated users on some trails would be redefined, limiting some trail to single user groups and others as multi-use. Mountain bike trails would be established for the first time in Bighorn Canyon, following appropriate rulemaking. This alternative would also allow for the reclamation of less desirable trails and unpaved roads, while public access roads would be defined and maintained.

Trail establishment and maintenance would minimize disturbance, and meet requirements to protect natural and cultural resources. Both existing and proposed trails were evaluated in terms of access to sites of interest, variety of terrain, user type, public demand and safe travel in addition to resource protection and sustainability.

Alternative B would improve existing trails in both the North and South Districts without the addition of new trails or roads. Where appropriate, trails will be re-routed to better protect resources and add to visitor safety and enjoyment. Accessible pathways would be improved at popular points of interest. Less desirable trails and roads would be abandoned for natural reclamation. Unpaved roads with public access would be defined within the South District and the Yellowtail Habitat Management Area and would be subject to maintenance and grading. Signs and markers may be used to improve visitor awareness and resource protection.

This Environmental Assessment has been prepared in compliance with the National Environmental Policy Act (NEPA) to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet project objectives, 2) evaluates potential issues and impacts to Bighorn Canyon National Recreation's resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. Resource topics that have been addressed in this document include vegetation, wildlife, special status species, soils, archeological sites, cultural landscapes, ethnographic resources, wilderness values, visitor use and experience, and park operations. All other resource topics have been dismissed because the project would result in negligible or minor effects to those resources. No major effects are anticipated as a result of this project.

PUBLIC COMMENT

If you wish to comment on the environmental assessment, you may enter your comments online at the National Park Service website Planning, Environment, and Public Comment (<http://parkplanning.nps.gov/>) or you may mail comments to the name and address below. This Environmental Assessment will be on public review for 30 days ending 2011. Please note that names and addresses of people who comment become part of the public record. We will make all submissions for organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety. If you wish us to withhold your name and/or address, you must state this at the beginning of your comment.

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Table of Contents

List of Acronyms	vii
Chapter 1: Purpose and Need for Action	1
Introduction	1
Background	1
Description and History of Trails in the Park	2
Purpose of and Need for Action	2
Purpose	2
Need	2
Objectives in Taking Action	4
Purpose and Significance of Bighorn Canyon National Recreation Area	4
Park Purpose	4
Park Significance	4
Previous Trails Planning	5
General Management Plan	5
Guidance from Other Plans	6
Bighorn Canyon Plans and Proposals	6
National Park Service Mandates and Policies	7
Related Laws, Regulating Policies, and Plans	11
Scoping	13
Internal Scoping	13
Cooperating Agencies	13
External Scoping	13
Appropriate Use	15
Scope of the Environmental Assessment	15
Issues and Impact Topics Retained for Detailed Analysis	15
Vegetation	16
Wildlife	16
Special Status Species	16
Geology and Soils	17
Archeological Resources	17
Wilderness Values	18
Visitor Use	18
Park Operations	19
Impact Topics Dismissed From Further Consideration	19
Chapter 2: Alternatives	24
Guidance from the General Management Plan	24
District Descriptions	24
Trail Prioritization	25
Actions Common to All Alternatives	25
Mitigation Measures	27
Trail Descriptions	28
Trail Types	28
Trail Maintenance Standards	28

Mountain Biking Trails	29
Descriptions of Planning Areas	29
North District	29
Reservoir Planning Area	29
Headquarters Planning Area	29
3-mile Planning Area	30
South District	30
Horseshoe Bend Planning Area	30
Canyon Rim Planning Area	30
Proposed Wilderness Planning Area	30
Ranch/Landing Planning Area	31
Yellowtail Wildlife Habitat Management Area	31
Habitat Planning Area	31
South and Southeast Lake Planning Area	31
Alternatives Considered	31
No Action Alternative	32
Alternative A	33
Alternative B	37
Alternative Summaries	39
Preferred Alternative	41
Alternatives Considered but Dismissed from Further Consideration	56
Environmentally Preferred Alternative	56
Chapter 3: Affected Environment	62
Introduction	62
Natural Resources	62
Vegetation Types	62
Protected Plant Species and Species of Concern	62
Wildlife	65
Wildlife Species of Special Concern	65
Geology and Soils	66
Cultural Resources	67
Archeological Resources	67
Historic Structures	68
Cultural Landscapes	69
Ethnographic Resources	69
Human Environmental Components	70
Wilderness Values	70
Visitor Use and Experience	71
Park Operations	73
Park Facilities	74
Chapter 4: Impacts	76
Introduction	76
General Analysis Methods	76
Assumptions	76
Impact Thresholds	77
Cumulative Effects Analysis Method	77
Past Actions	78

Current Actions	78
Foreseeable Future Actions	79
Impairment of National Park Resources	79
Unacceptable Impacts	79
Natural Resources	80
Vegetation	80
No Action Alternative	81
Alternative A	83
Alternative B	86
Wildlife	89
No Action Alternative	90
Alternative A	92
Alternative B	95
Special Status Species	97
No Action Alternative	101
Alternative A	105
Alternative B	109
Geology and Soils	112
No Action Alternative	113
Alternative A	115
Alternative B	118
Cultural Resources	120
Archeological Resources	121
No Action Alternative	122
Alternative A	123
Alternative B	124
Cultural Landscapes	125
No Action Alternative	125
Alternative A	126
Alternative B	127
Ethnographic Resources	128
No Action Alternative	128
Alternative A	129
Alternative B	129
Human Environmental Components	130
Wilderness Values	130
No Action Alternative	131
Alternative A	131
Alternative B	132
Visitor Use and Experience	132
No Action Alternative	132
Alternative A	134
Alternative B	135
Park Operations	136
No Action Alternative	137
Alternative A	137
Alternative B	138
Chapter 5: Consultation and Coordination	140

Public and Agency Involvement	140
Scoping Questionnaire	140
Internal Scoping	142
Tribal Consultation	142
List of Preparers	142
References	143
Appendices	147
Appendix A: Trail Criteria	147
Appendix B: Trail Descriptions	148
Appendix C: Trail Priorities	153
Appendix D: Recreational Visitation Statistics	156
Appendix E: Related Laws, Regulating Policies, and Plans	158

List of Tables

Table 2.1 Summary of Alternatives and Priorities	42
Table 2.2 Trails Types Represented by Each Alternative	58
Table 2.3 Summary of Impacts	58
Table 3.1 Rare Vascular Plants of Bighorn Canyon National Recreation Area	63
Table 4.1 Special Status Plant Species in BICA	99
Table 4.2 Special Status Wildlife Potentially Affected by Trails Plan	100

List of Figures

Figure 1.1 Map of Bighorn Canyon National Recreation Area	3
Figure 2.1 Planning Districts	47
Figure 2.2 Planning Areas at Bighorn Canyon: Ft Smith	48
Figure 2.3 Planning Areas at Bighorn Canyon: South District	49
Figure 2.4 Planning Areas at Bighorn Canyon: Habitat	50
Figure 2.5 Map of Existing and Proposed Trails in the North District	51
Figure 2.6 Map of Existing and Proposed Trail from Stateline to Pete's Canyon	52
Figure 2.7 Map of Existing and Proposed Trails from Horseshoe Bend to Stateline	53
Figure 2.8 Yellowtail Habitat North of Causeway	54
Figure 2.9 Yellowtail Habitat South of Causeway	55
Figure 3.1 BICA Yearly Visitation	59
Figure 3.2 2009 Visitation by Month	60

List of Acronyms

4WD	Four wheel drive
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
APE	Area of Potential Effects
ATVs	All-Terrain Vehicles
BICA	Bighorn Canyon National Recreation Area
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
EA	Environmental Assessment
ESA	Endangered Species Act
GMP	General Management Plan
IMBA	International Mountain Biking Association
IPM	Integrated Pest Management
IWM	Integrated Weed Management
LE	Law Enforcement
MFWP	Montana Fish and Wildlife and Parks
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NOAA	National Oceanic and Atmospheric Administration

NPS	National Park Service
NRA	National Recreation Area
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ORVs	Off-Road Vehicles
SFM	Statement for Management
SHPO	State Historical Preservation Office
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
WAPA	Western Area Power Administration
WGFD	Wyoming Game and Fish Department
WMP	Weed Management Plan
WNPA	Western National Parks Association
YCC	Youth Conservation Corps

CHAPTER 1: PURPOSE AND NEED FOR ACTION

Introduction to Bighorn Canyon NRA

Bighorn Canyon National Recreation Area was established in 1966 “In order to provide for public outdoor recreation and use and enjoyment of the Yellowtail Reservoir and lands, adjacent thereto in the States of Wyoming and Montana... and for preservation of the scenic, scientific, and historic features contributing to public enjoyment of such lands and waters” (16 USC§ 460i). The Yellowtail Reservoir, also known as Bighorn Lake, was constructed on the Bighorn River in 1965 as a part of the Missouri River Basin Project by the Bureau of Reclamation. The park encompasses approximately 120,000 acres, including the 12,700 acres of Bighorn Lake.

Bighorn Canyon offers a diversified landscape of desert shrubland, juniper woodland, mountain mahogany woodland, sagebrush steppe, basin grassland, riparian, and coniferous woodland. Currently approximately 56,000 acres within the Recreation area, and lying within the Crow Indian Reservation, are closed to public use.

Park Headquarters are located in Ft. Smith Montana, which lies within the Crow Indian Reservation. The south end of the park is managed out of offices in Lovell Wyoming. Because there is no direct road from the south end to the north end of the park it has been divided into the North District and the South District.

The Yellowtail Wildlife Habitat Management Area (YWHMA), located on the southwest end of Bighorn Lake, is included as part of the South District. However, it is primarily managed by the Wyoming Game and Fish Department through an agreement with the National Park Service, the Bureau of Land Management, and the Bureau of Reclamation. For the purposes of this plan it will be its own district. This creates three districts that will be managed for in this plan.

Background

Prior to the creation of Bighorn Canyon National Recreation Area as a unit of the National Park Service on October 15, 1966, wildlife, Native people, trappers, miners and homesteaders created a series of paths, trails and roads throughout much of the recreation area. Some of these paths and trails continue to be used by park visitors and staff for access to areas of interest or for maintenance and protection of park resources. Other paths and trails have been abandoned with little or no maintenance.

The focus of park management and visitor use has been directed toward the lake. Over the last 40 years minimal attention has been paid to the upland portions of the park which consist of over 107,000 acres, or approximately 89% of total park acreage. The focus on water resources has perpetuated a public view that the only recreational opportunities available are found on the lake or along the river. In so doing, the park has missed the opportunity to expose visitors to the richness of the natural and cultural opportunities that exist on lands within the park. Many visitors miss the opportunity to view wildlife species such as bighorn sheep, peregrine falcons, and wild horses. They also miss the incredible stories of human occupation in the dry arid uplands which supported native people for thousands of years, as well as, the development of homesteads and communities in the early 20th century.

Description of Trails in the Park

There are approximately 27 miles of described trails within the park, a majority of which are in the South District. There are 3 miles of trails in the North District and no formal trails currently exist in the Yellowtail Habitat Management Area. The thirteen existing trails offer varying sights and tranquil settings to better explore nature and the cultural history of Bighorn Canyon. Some trails access historic ranches where visitors may view the homes and facilities of past settlement and learn about daily life through interpretive signs and programs. Other hikes lead visitors to unique vistas,

offering opportunities to view wildlife, various habitats, evidence of a rich geologic and archaeological history and visual grandeur.

Horseback riding is permitted in the park and is not limited to established trails. Public corrals are available, but equestrian use is not allowed in campgrounds, parking areas, or historic ranch properties. Backcountry camping is allowed throughout the park, a minimum of ¼ mile from roads and pullouts. However, because the park is long and narrow with little opportunity to get far from the road, most backcountry camping activities occur on the lake. At present there are no trails specifically for backcountry use.

Purpose of and Need for Action

Purpose

The purpose of the proposed action is to provide Bighorn Canyon National Recreation Area with a comprehensive plan to establish, eliminate, improve, maintain and alter trails, roads and associated infrastructure to improve visitor access to land-based recreation in the park. These actions will not only improve visitor enjoyment but help ensure visitor safety while protecting natural and cultural resources.

Trail and Access management will be used to achieve desired future conditions and resource management objectives established through the planning process. The purpose in developing this Trail and Access Plan is to identify management objectives and strategies to guide the protection, management and use of resources, roads and trails in Bighorn Canyon.

Need

The lack of a plan for the maintenance and management of trails, paths and roads has impeded the protection of park resources. Without a comprehensive plan, the insurance of visitor safety in significant areas of the unit, and the enhancement of public understanding of park resources and recreational opportunities is extremely limited.

A plan will provide the park staff with a strategy to allocate funding and staff time for maintenance, enforcement, interpretation, and resource protection. A plan will also provide a comprehensive analysis to determine which trails, paths, and roads will be rehabilitated, maintained, altered to specific visitor needs, or will be eliminated.

Figure 1.1 Map of Bighorn Canyon National Recreation Area

Objectives in Taking Action

Objectives define what must be achieved to a large degree for the proposed action to be considered a success (NPS 2001). All alternatives selected for detailed analysis must meet all objectives to a large degree as well as resolve the purpose of and need for action. The following objectives are grounded in the park unit's enabling legislation, purpose, significance, and mission goals:

- Provide access to sections of the park containing significant natural and cultural points of interest.
- Ensure that trails are identifiable and passable
- Provide for a variety of trail experiences and recreational options
- Provide wheelchair accessible pathways at high visitation sites
- Provide for a clearly designated trails system
- Eliminate undesirable trails and roads that could negatively impact park resources
- Protect sensitive natural and cultural resources
- Enhance the visitor experience by directing use to areas where park stories are best communicated

Purpose and Significance of Bighorn Canyon National Recreation Area

Park Purpose

Bighorn Canyon was established by public law 89-664 dated October 15, 1966 "to provide for public outdoor recreational use and enjoyment of [Bighorn Lake] and lands adjacent thereto...and for preservation of the scenic, scientific, and historic features contributing to public enjoyment of such lands and waters".

Management serves to coordinate administration of the recreation area with the other purposes of the Yellowtail Reservoir project so that it will best provide for:

- public outdoor recreation benefits,
- conservation of scenic, scientific, historic, and other values contributing to public enjoyment, and
- the management, utilization and disposal of renewable natural resources that promotes or is compatible with and does not significantly impair, public recreation and conservation of scenic, scientific, historic, or other values contributing to public enjoyment.

Park Significance

Bighorn Canyon is significant because of the following:

- Exposed sedimentary rock layers tell a long geologic story with exposed strata from the Cambrian through the Cretaceous Periods, which have been heavily faulted, uplifted, folded and eroded. Massive landforms as well as remnant fossils and evidence of ancient ecological conditions offer insight and comparison of the region's geologic history.
- The park contains evidence of a human past extending approximately 11,000 years. Remnants of Native American culture and travel, as well as early American settlement, are readily available to visitors at a number of sites in the park.

- The 19,000-acre Yellowtail Wildlife Habitat preserves one of the best examples of a Cottonwood Riparian area, left in the western United States.
- Wild horses, protected by the Pryor Mountain Wild Horse Refuge, are seen often in the park and represent a unique genetic line, believed to be descended from Conquistador era Spanish horses. These animals as well as other high desert range species offer visitors the opportunity to view wildlife and explore human impact over time.

Previous Trails Planning

With the exception of provisions made in the Bighorn Canyon General Management Plan (1981), no official trail planning has been established. The current trails system has evolved over time, using game trails, and other unofficially established routes to develop public access. Trail maintenance has thus far been a collateral duty of the interpretive staff with the help of the Youth Conservation Corps (YCC), a student work organization. Trail description, for many years, was provided by interpretive staff in the form of photocopied handouts. Only in the last few years has the park offered a hiking guide; a 24 page booklet published and sold by the Western National Parks Association.

The new guide has encouraged more activity on the trails. Many trails have become distinguishably worn, increasing the need for trail maintenance, creating concerns for visitor safety, and developing problems with erosion and environmental impact.

The North District has four trails. The Om-Ne-A trail was closed after 9-11-01 because of security concerning the Yellowtail Dam. The Beaver Pond Nature Trail is a short trail that has been extended, joining it with the head gate trail. The River Access Trail is a short walking path established by fisherman on the Bighorn River. Both the Beaver Pond and River Access trails have had some sustainable trail work, including graveling the hiking area.

The South District has ten established trails and two unmarked trails. Two of the established trails guide visitors into historic ranches and beyond the typical ranch tour, while the remaining eight offer scenic and wildlife watching opportunities. These trails are cleared of brush and rocks each year, but have had no sustainable trail work. In the past rock cairns were used to mark the trails. These have been replaced by carsonite markers, with the exception of Sykes Mountain trail. This trail is marked by both markers and cairns as the majority of it is on solid rock. Some trails maybe recommended to be discontinued if it is found they are located in culturally rich areas, are frequently used by wildlife or cause concern for visitor safety.

General Management Plan- 1981

A park's GMP provides vision and policy guidance for the preservation of park resources, visitor use and experience, the types and general intensities of development, and opportunity to address management issues internal and external to the park. It also identifies connections among the various park programs and provides a policy framework for more site-specific planning.

The goal of this plan is to provide more site-specific direction and a detailed course of actions needed to achieve resource conditions and visitor experiences described in the GMP.

Implementation plans typically focus on a particular area, but in more detail than the GMP. In accordance with *NPS Director's Order 2, Park Planning*, and *Director's Order 12, Conservation Planning*,

Environmental Impact Analysis, and Decision-making, this trails plan follows the park purpose and significance, goals and objectives, established in the GMP. From this direction, this trails plan provides implementation details regarding maintenance, trail addition and deletion, improvement, and types of visitor access.

Guidance from Other Plans

Several other documents including NPS documents, legislative acts, peripheral Bighorn Canyon plans and the trails plans of other parks were used in the planning process for this trails plan. Guidance was considered specifically in the context of Bighorn Canyon and the particular management needs and limitations of a National Recreation Area.

Bighorn Canyon Plans and Proposals

Wilderness Recommendation- 1981

Under the direction of the Wilderness Act of 1964 several areas within Bighorn Canyon were analyzed for wilderness designation. In the Wilderness Recommendation of 1981 an area between the Pryor Mountain Wild Horse Refuge and the main park road was suggested as a possible wilderness area. Wilderness designation must be enacted by a congressional act. At present the area is maintained as proposed wilderness.

Natural Resources Management Plan and EA- 1983

Several project statements, their needs, objectives and an environmental assessment for each is laid out in this planning document. Of particular interest here are the sections on vegetation management, rehabilitating damaged sites and wild horse management.

Statement for Management for BCNRA- 1992

The SFM provides an inventory of the park's conditions and an analysis of its problems. It does not involve any prescriptive decisions on future management and use of the park, but it provides a format for evaluating conditions and identifying major issues and information voids.

Wildland Fire Management Plan- 1999

The goals of *Bighorn Canyon's Wildland Fire Management Plan* address the problems of hazard reduction while protecting and restoring the parks historical and natural features. Fuels reduction, prescribed burning, fire suppression, bighorn sheep habitat improvement, vegetation types and ecosystem management are taken into consideration.

Strategic Plan- 2001

The *Strategic Plan* ensures that daily actions and expenditures of resources are guided by long- and short-term goal setting in pursuit of accomplishing Bighorn Canyon's primary mission, followed by performance measurement and evaluation. The goals in this plan are quantifiable and measure results or outcomes, rather than efforts or outputs (activities, services, and products). The established and proven performance management approach is to *establish goals, allocate resources to accomplish those goals, take action/ do the work, measure results, evaluate and report performance, use evaluation to adjust goals and reallocate resources, and continue the loop*. This process sharpens our focus on accomplishing our mission in the most efficient and effective ways, and holds managers and employees accountable on a clear and measurable basis.

Reclamation of Abandoned Uranium Exploration Sites- 2003

Prior to its creation as a National Recreation Area, areas of Bighorn Canyon were explored for uranium and other mining opportunities. This activity left road scars, exploration pits and mounds that have not fully recovered in the arid climate of the park. An EA was done to begin the process of reclamation and

restoration. Abandoned roads, pits and mounds are slated for closure and rehabilitation to restore scenic aesthetics and improve visitor experience. Weed monitoring and the replanting of native vegetation would take place with negligible impact to resource topics.

Integrated Weed Management Plan- 2004

Weed control is considered to be critical part of management of vegetative communities to enhance biodiversity and maintain the native species that were there before disturbance and weed invasion. The primary goal of any weed management program is not just to kill weeds, but rather to restore or enhance native plant communities. To accomplish this goal, the objectives of the integrated weed management program are: (1) develop and maintain an inventory of known and new noxious weed infestations (inventory and mapping), (2) prevent further noxious weed dissemination, (3) control or contain weed infestations using an integrated pest management (IPM) approach (biological, mechanical, cultural, and chemical controls), (4) minimize negative impacts to surrounding native fauna and flora and (5) manage weed infested native plant communities in a manner that enhances the ecological health and long-term sustainability of these communities.

Pryor Mountain Wild Horse Range; Memorandum of Understanding- 2005

The intent of this memorandum of understanding (MOU) is to establish mutual goals and objectives relating to the management of the Pryor Mountain Wild Horse Range (which borders the western boundary of Bighorn Canyon South District) and outline the responsibilities of each agency for matters pertaining to the implementation of management actions to meet those goals and objectives. It also serves to establish the Forest Service and Park Service as cooperating agencies and ensure that the parties develop cooperative decision-making and long-range objectives for management of the area.

National Park Service Mandates and Policies

Organic Act

The NPS *Organic Act* of 1916 directs the U.S. Department of the Interior and the NPS to manage units of the national park system “to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (16 USC 1). The *Redwood National Park Expansion Act* of 1978 reiterates this mandate by stating that the NPS must conduct its actions in a manner that will ensure no “derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress” (16 USC 1 a-1).

Directors Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making

NPS *Director's Order 12* and its accompanying handbook (NPS 2001) lay the groundwork for how the NPS complies with the *National Environmental Policy Act* (NEPA). *Director's Order 12* and the handbook set forth a planning process for incorporating scientific and technical information and for establishing an administrative record for NPS projects.

Director's Order 12 requires that impacts on park resources be analyzed in terms of their context, duration, and intensity. In order to help the public and decision makers understand the implications of impacts, they are described in terms of how long they would last, in conjunction with other impacts (cumulative impacts), and within context, based on an understanding and interpretation by

resource professionals and specialists. *Director's Order 12* also requires that an analysis of impairment of park resources and values be made as part of the NEPA document.

Natural Resource Reference Manual 77

The *Natural Resource Reference Manual 77*, which supersedes the 1991 NPS 77: *Natural Resource Management Guideline*, provides guidance for NPS employees responsible for managing, conserving, and protecting the natural resources found in national park system units. Under this manual the following guideline is set for sustainability of trails:

Sustainability of backcountry trail corridors is defined as the ability of the travel surface to support current and anticipated appropriate uses with minimal impact to the adjoining natural systems and cultural resources. Sustainable trails have negligible soil loss or movement and allow the naturally occurring plant systems to inhabit the area while allowing for the occasional pruning and removal of plants necessary to build and maintain the trail. If well-designed, built, and maintained, a sustainable trail minimizes braiding, seasonal muddiness and erosion. It should not normally affect natural fauna adversely nor require rerouting and major maintenance over long periods of time.

NPS Management Policies 2006

The *NPS Management Policies 2006* provides further interpretation and policy guidance relative to laws, proclamations, executive orders, regulations, and special directives. Some of the management policies that provide direction to this trails plan/EA are discussed below.

Visitor Use. Enjoyment of park resources and values is part of the fundamental purpose of all parks. To provide for enjoyment of parks, the NPS will encourage visitor activities that;

- are appropriate to the purpose for which the park was established
- are inspirational, educational, or healthful, and otherwise appropriate to the park environment
- will foster an understanding of, and appreciation for, park resources and values, or will promote enjoyment through a direction of, interaction with, or relation to park resources
- can be sustained without causing unacceptable impacts on park resources or values.

Many forms of recreation enjoyed by the public do not require a national park setting and are more appropriate to other venues. The NPS will therefore

- provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in parks
- defer to local, state, and other federal agencies; private industry; and nongovernmental organizations to meet the broader spectrum of recreational needs and demands.

Unless mandated by statute, the NPS will not allow visitors to conduct activities that

- would impair park resources or values
- create an unsafe or unhealthful environment for other visitors or employees

- are contrary to the purposes for which the park was established
- unreasonably interfere with
 - the atmosphere of peace and tranquility or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park
 - NPS interpretive, visitor service, administrative, or other activities
 - NPS concessioner or contractor operations or services
 - other existing, appropriate park uses.

Management controls must be imposed on all park uses to ensure that park resources and values are preserved and protected for the future. If and when a superintendent has a reasonable basis for believing that an ongoing or proposed public use would cause unacceptable impacts on park resources or values, the superintendent must make adjustments to the way the activity is conducted in order to eliminate the unacceptable impacts. If necessary, the superintendent may (1) temporarily or permanently close a specific area; (2) prohibit a particular use; or (3) otherwise place limitations on the use to ensure that impairment does not occur (NPS 2006f sec. 8.2).

Carrying Capacity. Visitor carrying capacity is the type and level of visitor use that can be accommodated while sustaining the desired resource and visitor experience conditions in the park. The general management planning process determines the desired resource and visitor experience conditions that are the foundation for carrying capacity analysis and decision making (NPS 2006f sec. 8.2.1). For all zones, districts, or other logical management divisions within a park, superintendents identify visitor carrying capacities for managing public use. Superintendents also identify ways to monitor for, and address, unacceptable impacts on park resources and visitor experiences. The decision-making process is based on desired resource conditions and visitor experiences for the area, quality indicators and standards that define the desired resource conditions and visitor experiences, and other factors that lead to logical conclusions and the protection of park resources and values.

Recreational Activities. Superintendents will consider a wide range of techniques in managing recreational use to avoid adverse impacts on park resources and values or on desired visitor experiences. Examples of appropriate techniques include visitor information and education programs, separation of conflicting uses by time or location, “hardening” sites, modifying maintenance practices, and permit and reservation systems. Superintendents may also impose local restrictions and public use limits and closures and may designate areas for a specific use or activity. Any restriction of appropriate recreational uses will be limited to what is necessary to protect park resources and values, to promote visitor safety and enjoyment, or to meet park management needs (NPS 2006f sec. 8.2.2).

Visitor Safety. While recognizing that there are limitations on its capability to totally eliminate all hazards, the NPS and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees. The service will work cooperatively with other federal, tribal, state, and local agencies, organizations, and individuals to carry out this responsibility. The NPS will strive to identify recognizable threats to the safety and health of persons, and to the

protection of property, by applying nationally accepted codes, standards, engineering principles, and other NPS policies. When practicable, and consistent with congressionally designated purposes and mandates, the NPS will reduce or remove known hazards and apply other appropriate measures, including closures, guarding, signing, or other forms of education. In doing so, the NPS's preferred actions will be those that have the least impact on park resources and values (NPS 2006f sec. 8.2.5.1).

Transportation Systems. The location, type, and design of transportation systems and their components (e.g., roads, bridges, trails, and parking areas) all strongly influence the quality of the visitor experience. These systems also affect, to a great degree, how and where park resources will be impacted. Before a decision is made to design, construct, expand, or upgrade access to or within a park, non-construction alternatives -such as distributing visitors to alternative locations- must be fully explored. If non-construction alternatives will not achieve satisfactory results, then a development solution may be pursued if the project (NPS 2006f sec. 9.2)

- is appropriate and necessary to meet park management needs or to provide for visitor use and enjoyment
- is designed with extreme care and sensitivity to the landscape through which it passes
- will not cause unacceptable adverse impacts on natural and cultural resources, and will minimize or mitigate those that cannot be avoided
- will not cause use in the areas it serves to exceed the areas' visitor carrying capacity
- will incorporate universal design principles to provide for accessibility for all people, including those with disabilities
- will take maximum advantage of interpretive opportunities and scenic values
- is based on a comprehensive and multidisciplinary approach that is fully consistent with the park's GMP.

Hiking Trails. Trail design will vary to accommodate a wide range of users and will be appropriate to user patterns and site conditions (NPS 2006f sec. 9.2.2.2).

Equestrian Trails. Equestrian trails and related support facilities may be provided when they are consistent with park objectives and when site conditions are suitable (NPS 2006f sec. 9.2.2.3).

Bicycle Trails. The designation of bicycle routes, other than on park roads and in parking areas, requires a written determination that such use is consistent with the protection of a park's natural, cultural, scenic, and aesthetic values, safety considerations, and management objectives and that it will not disturb wildlife or other park resources (NPS 2006f sec. 9.2.2.4). Use of bicycles will require going through the rulemaking process.

Cultural Resource Management. The NPS will preserve and foster appreciation of the cultural resources in its custody, and it will demonstrate its respect for the people traditionally associated with those resources, through appropriate programs of research, planning, and stewardship (NPS 2006f sec. 5).

Wilderness Preservation and Management. The NPS will manage wilderness areas for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness. Management will include the protection of these areas, the preservation of their wilderness character, and the gathering and dissemination of information regarding their use and enjoyment as wilderness (NPS 2006f sec. 6.1).

All management decisions affecting wilderness must be consistent with the minimum requirement concept. This concept is a documented process used to determine whether administrative activities affecting wilderness resources or the visitor experience are necessary, and it also determines how to minimize impacts. The minimum requirement concept will be applied as a two-step process that determines

- whether the proposed management action is appropriate or necessary for administration of the area as wilderness and does not pose a significant impact on wilderness resources and character
- the techniques and types of equipment needed to ensure that impact on wilderness resources and character is minimized (NPS 2006f sec. 6.3.5).

The NPS will encourage and facilitate those uses of wilderness that are in keeping with the definitions and purposes of wilderness and that do not degrade wilderness resources and character. Appropriate restrictions may be imposed on any authorized activity in the interest of preserving wilderness character and resources or to ensure public safety (NPS 2006f sec. 6.4).

Related Laws, Regulating Policies, and Plans

In addition to the NPS-specific mandates and policies described above, the NPS is governed by other laws and regulations, described in further detail in Appendix E.

Wilderness Act, 1964

The Wilderness Act of 1964 (16 U.S.C. §§ 1131-1136) established the National Wilderness Preservation System. According to the law, wilderness is "an area where the Earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain...land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions." To protect these lands in a natural state, the Wilderness Act prohibits many activities that would impair the areas' wilderness character, but does not limit activities such as hunting and fishing. Some activities however, are "grandfathered" in if they pre-dated designation, such as pre-existing irrigation systems and hydroelectric dams.

Bighorn Canyon, under this law, surveyed areas within the park that might fit this definition and a wilderness proposal was subsequently written. The proposal has remained unchanged since its introduction in 1981, and the proposed area has remained as it was at that time.

Endangered Species Act, 1973

The Endangered Species Act of 1973 (16 U.S.C. §1531 et seq.) provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The lead federal agencies for implementing ESA are the U.S. Fish and Wildlife Service (USFWS) and the U.S. National Oceanic and Atmospheric Administration (NOAA) Fisheries Service. The USFWS maintains a worldwide list of endangered species. Species include birds, insects, fish, reptiles, mammals, crustaceans, flowers, grasses, and trees.

The law requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife. Likewise, import, export, interstate, and foreign commerce of listed species are all generally prohibited.

Bighorn Canyon could potentially have 2 endangered plant species within its boundaries. Special consideration has been given to these species as will be discussed in the Chapter 4 of this document.

National Historic Preservation Act, 1966

Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470) requires Federal agencies to take into account the effects of their undertakings on historic properties, and afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by ACHP.

Bighorn Canyon NRA must first determine whether it has an undertaking that is a type of activity that could affect historic properties. Historic properties are properties that are included in the National Register of Historic Places or that meet the criteria for the National Register. If so, it must identify the appropriate State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO) to consult with during the process. It should also plan to involve the public, and identify other potential consulting parties. If it determines that it has no undertaking, or that its undertaking is a type of activity that has no potential to affect historic properties, the agency has no further Section 106 obligations.

Several trails in the park pass through or near sites of historical significance that are considered cultural resources. In order to continue maintenance or trail addition, all trails planning must first comply with Section 106 revised regulations for "Protection of Historic Properties" (36 CFR Part 800), which became effective January 11, 2001.

Wild Horse and Burro Act, 1971

The Wild Free-Roaming Horses and Burros Act (16 U.S.C. §§ 1331-1340) declares that it is the policy of Congress to protect wild horses and burros from capture, branding, harassment, or death. To accomplish this policy, wild free-roaming horses and burros on public lands are to be considered an integral part of the natural system. The Act directs the Bureau of Land Management and the Forest Service to manage wild horses and burros on lands under their jurisdiction.

Although this law is not specifically intended for Park Service policy, Bighorn Canyon has an agreement with the BLM, assisting in management of wild horses from the Pryor Mountain Wild Horse Range which includes park lands.

Scoping

Scoping is a process to identify the resources that may be affected by a project proposal and to explore the possible alternative ways of achieving the proposal while minimizing impacts. External scoping has been an extensive and ongoing effort to involve and gather input from interested and affected groups and agencies since the inception of the planning process.

Internal Scoping

Internal scoping was conducted by an interdisciplinary team of Park service staff. Team members representing various departments met to discuss the purpose and need for the project; various alternatives; potential environmental impacts; past, present, and reasonably foreseeable projects that may have cumulative effects; and possible mitigating measures. Park employees were also asked to review the draft plan and make comments. Most comments were positive. It is the overall view of park employees that changes need to be made to the trail system. Many comments included the addition of interpretation of sites, protection of soils and vegetation, enforcement of trail use, and general improvements to the overall trail plan.

Cooperating Agencies

Under NEPA, a cooperating agency is “any Federal agency other than a lead agency [in this case, the NPS] which has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal...Under request of the lead agency, any other Federal agency which has jurisdiction by law shall be a cooperating agency. However, agencies asked to become cooperating agencies are not required to do so.

Agencies that could affect, or be affected by, this plan include those with jurisdiction in areas immediately surrounding Bighorn Canyon NRA. Bighorn Canyon contacted the following agencies:

- U.S. Forest Service; Bighorn, Custer and Shoshone Districts
- Bureau of Land Management; Cody and Billings Field Offices
- Montana Fish, Wildlife and Parks
- Wyoming Game and Fish Department

External Scoping

In May of 2009 external scoping was initiated with the distribution of a press release to inform the public of the proposal to develop a trail and access plan and to generate input on the preparation of this Environmental Assessment. The press release was faxed to all area printed, radio, and television media outlets. Scoping information was also posted on the National Park Service Planning website (<http://parkplanning.nps.gov>). An invitational letter was sent to private stakeholders and local non-government organization, and tribes to attend public meetings. The public was invited to visit the planning website or contact the head of the resource division with questions and comments. Members of the public

were also invited to submit specific written comments on their hiking needs and suggestions at meetings, online and through the mail for 30 days.

Public meeting were held on the following dates and locations:

Fort Smith – Afterbay Contact Station - 5pm – 7 pm – June 8, 2009

Cody – Bighorn Federal- 5pm – 7 pm – June 11, 2009

Lovell – Bighorn Canyon Visitor Center – 5pm – 7 pm – June 17, 2009

Meeting attendees were asked questions including:

- What types of trails do you use? On foot/horse/bike or other?
- What types of trails would you like to see developed?
- What types of trails would you not like to see?
- What is important to you about Bighorn Canyon trails?
- Where would you like to see trails?

Summary of External Scoping

During the 30-day scoping period, 20 public responses were received. More information on the scoping procedures is outlines in Chapter 5: Consultation and Coordination of this document. The following summarizes comments received during the scoping period.

- Trails were used primarily by hikers
- Visitors would like to see more family friendly trails, more trail diversity and multi-use trails developed and improved.
- Visitors had mixed thoughts on mountain bikes, with positive thoughts on multiple-use but negative ideas of possible erosion, user conflict and other resource impacts.
- Trail users sited solitude, open-spaces and wilderness experiences as very important trail characteristics. The history of the Apsalooke (Crow) people and their land base was also an important resource.
- Visitors valued trails with outstanding scenery and natural features most.
- Concerns for resource protection such as erosion of soils and disturbance of archeological sites were important to visitors
- Trails were suggested leading up from the lake at different points where boats could be tied off and from boat-in campgrounds. Several biking trails were also suggested, along with lakeside fishing access, interpretive trails, handicap access, and trails along the canyon rim that allow for broader views than just the Devil Canyon overlook provides.

Other access issues addressed in the comment forms were snowmobile access on the lake in winter, improved swimming areas, and the desire for more interpretive signs about geology. Road access was also addressed by a few people who wanted to see road improvements in the Yellowtail Habitat and on the Southeast side of the lake.

Some suggestions and requests cannot be met for safety, resource protection and management reasons but all comments were taken into consideration when drafting alternatives.

Appropriate Use

Sections 1.4 and 1.5 of *NPS Management Policies 2006* direct that the NPS must ensure that park uses that are allowed would not cause impairment of, or unacceptable impacts on, park resources and values. A new form of park use may be allowed within a park only after a determination has been made in the professional judgment of the park manager that it would not result in unacceptable impacts. Section 8.1.2 of *NPS Management Policies 2006*, Process for Determining Appropriate Uses, provides evaluation factors for determining appropriate uses. All proposals for park uses are evaluated for

- consistency with applicable laws, executive orders, regulations, and policies
- consistency with existing plans for public use and resource management
- actual and potential effects on park resources and values
- total costs to the NPS
- whether the public interest will be served.

Park managers must continually monitor all park uses to prevent unanticipated and unacceptable impacts. If unanticipated and unacceptable impacts emerge, the park manager must engage in a thoughtful, deliberate process to further manage or constrain the use or discontinue it. More information on the definition of unacceptable impacts as cited in §1.4.7.1 of *NPS Management Policies 2006* can be found in “Chapter 4: Environmental Consequences.”

This plan’s alternatives have been developed so that appropriate access would be provided for visitors to enjoy Bighorn Canyon and learn about its diverse natural and cultural resources as well as to ensure that unacceptable impacts on park resources and values would not occur. Basic visitor safety and services would be provided, and visitation would be managed and redirected, when necessary, to protect sensitive resources and minimize impacts on resources.

Scope of the Environmental Assessment

Issues and Impact Topics Retained for Detailed Analysis

In this section and the following section on *Impact Topics Dismissed from Further Analysis*, potential impact is considered by the direct, indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. Impacts are described in terms of context and duration. The context or extent of the impact is described as localized or widespread. The duration of impacts is described as short-term, ranging from days to three years in duration, or long-term, extending up to 20 years or longer. The intensity and type of impact is described as negligible, minor, moderate, or major, and as beneficial or adverse. The NPS equates “major” effects as “significant” effects. The identification of “major” effects would trigger the need for an EIS. Where the intensity of an impact could be described quantitatively, the numerical data is presented; however, most impact analyses are qualitative and use best professional judgment in making the assessment.

NPS Director’s Order 12, *Conservation Planning, Environmental Impact Analysis, and Decision-making* (2001), lists mandatory topics that must be considered in a NEPA plan. The impact topics and their associated issues listed below are described in more detail in Chapter 3 and impacts on each topic are analyzed in Chapter 4. If no issues are expected based on available information, then the topic was eliminated from further discussion.

The NPS defines “measurable” impacts as moderate or greater effects. It equates “no measurable effects” as minor or less effects. “No measurable effect” is used by the NPS in determining if a categorical exclusion applies or if impact topics may be dismissed from further evaluation in an EA or EIS.

Vegetation

According to the National Park Service’s *2006 Management Policies*, the National Park Service strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants (NPS 2006).

The basin grasslands and associated windswept plateaus are unique vegetative communities with many endemic plant species. There is potential for collateral damage to these plant communities from the use of social trails or erosion from trails built without proper sustainable design. Trails also serve as a vector for invasive species to move and be established in the park. Increased or new trail require heightened weed surveillance and treatment. Potential for damage to biotic communities and the potential to introduce non-native plant species exist so it will be discussed as an impact topic.

Wildlife

According to the National Park Service’s *2006 Management Policies*, the National Park Service strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of animals (NPS 2006).

Bighorn Canyon’s wild horses and bighorn sheep are the most visible of a wide array of wildlife which inhabit the park. Raptors, songbirds, reptiles, amphibians, small mammals, etc, all have the potential to be affected by trail use, which can increase the potential for disturbance, habituation, and changes in habitat. Wildlife will be retained as an impact topic.

Special Status Species

The Endangered Species Act of 1973 requires examination of impacts on all federally-listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service (or designated representative) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the *2006 Management Policies* and Director’s Order 77 *Natural Resources Management Guidelines* require the National Park Service to examine the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species (NPS 2006).

There are two federally listed threatened or endangered plant species that could potentially grow in the park; the endangered Blowout penstemon (*Penstemon haydenii*) and the threatened Ute ladies-tresses (*Spiranthes divialis*). Bighorn Canyon National Recreation Area is also home to several state plant species of concern including: *Sullivantia hapemanii*, *Rorippa calycina*, *Erigeron allocotus*, *Stanleya tomentosa*, *Astragalus oreganus* and *Eriogonum brevicaulis* var. *canum*. Most of these species have very specific habitat requirements.

Bighorn canyon contains suitable habitat for several state-listed wildlife special status species such as; the American peregrine falcon, Townsend’s big-eared bat, northern leopard frog, and the plains spadefoot toad.

Because special status species are present, this will be retained as an impact topic.

Geology and Soils

According to the National Park Service's *2006 Management Policies*, the National Park Service will preserve and protect geologic resources and features from adverse effects of human activity, while allowing natural processes to continue (NPS 2006). These policies also state that the National Park Service will strive to understand and preserve the soil resources of park units and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.

The soils of Bighorn Canyon National Recreation Area are diverse, reflecting the complex geology of the area. The skeletal, poorly developed soils located on the rocky plateaus are quite resistant to damage from compression, especially when dry. The pink clay soils and soils derived from the Chugwater Formation (a Triassic siltstone) compact easily if damp. When dry, they are fragile and use of social trails from the main trail may leave visible marks that take years to erase naturally.

Because of fragile soil types, existing trails and roads need to be evaluated for sustainable design including proper trail locations, design, drainage, width, and type. Some roads and trails may also require construction of bridges for foot or motorized traffic. To ensure roads and trails are sustainable, training will be provided for the trail crews through cooperation from IMBA and similar groups. Signs, along with user education brochures, will be developed to ensure appropriate use and regulation on the roads and trails. The proposed action has the potential to impact soils through increased erosion or compaction so soils will be addressed as an impact topic.

Archeological Resources

The National Historic Preservation Act and the National Park Service *2006 Management Policies* (NPS 2006), the National Park Service's Director's Order 28B *Archeology*, affirms a long-term commitment to the appropriate investigation, documentation, preservation, interpretation, and protection of archeological resources inside units of the National Park System. As one of the principal stewards of America's heritage, the National Park Service is charged with the preservation of the commemorative, educational, scientific, and traditional cultural values of archeological resources for the benefit and enjoyment of present and future generations. Archeological resources are nonrenewable and irreplaceable, so it is important that all management decisions and activities throughout the National Park System reflect a commitment to the conservation of archeological resources as elements of our national heritage. The National Park Service will protect and manage archeological resources in its custody through effective research, planning, and stewardship and in accordance with the policies and principles contained in the *2006 Management Policies* and the appropriate Director's Orders.

Bighorn Canyon has an estimate 2-3,000 archeological sites (450 documented) and has had human inhabitants for over 11,000 years. These sites include the Bad Pass Trail, one of the oldest and best marked prehistoric travel routes in the country. Other site types include stone circle sites (teepee rings), bison drivelines and vision quest sites. Bighorn Canyon is committed to working with the Wyoming and Montana State Historical Preservation Offices (SHPOs) and with affiliated tribes to ensure responsible stewardship of this resource. These resources will be maintained as an impact topic.

Historic Structures

Structures such as those on BICA's historic ranches are included in Archeological Resources. The ranches as a whole are considered part of cultural landscapes. Structures also include the Headgate in the North District and the Kane Cemetery in the Yellowtail Wildlife Habitat.

Cultural Landscapes

According to the National Park Service's Director's Order 28 Cultural Resource Management Guideline, a cultural landscape is a reflection of human adaptation and use of natural resources, and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built.

Bighorn Canyon has 4 historic ranches: Mason-Lovell, Ewing-Snell, Hillsboro and Lockhart. The Bad Pass Trail and the Pretty Creek complex of archeological sites also qualify as cultural landscapes. Many historically used paths have become the basis of the existing trail system, and can therefore connect park users with the history and important cultural landscapes. Improper usage could potentially damage these landscapes it is therefore an impact topic.

Ethnographic Resources

Per the National Park Service's Director's Order 28 *Cultural Resource Management*, ethnographic resources are defined as any site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. According to DO-28 and Executive Order 13007 on sacred sites, the National Park Service should try to preserve and protect ethnographic resources.

Most recently the Crow tribe is associated with the park, and archeologists in the park have discovered several significant sites within Bighorn Canyon that qualify under Director's Order 28.

In 1971, the Crow Tribal Council passed resolution 71-12 that specifically called for the preservation of the archeological resources of the Grapevine and Dryhead Drainages. Other sites have been named by the Crow to be areas of spiritual, legendary and religious importance as well. Sites such must therefore be protected as important ethnographic resources to be monitored and managed with careful consideration. Although the proposed alternatives have taken these sites into consideration, some routes may bring the public into closer proximity to areas of concern, where off-trail hiking could create conflict with management goals. Since ethnographic resources are perishable if tampered with, we must consider them a topic of impact.

Wilderness Values

NPS *Management Policies 2006* states that planning for wilderness resources must ensure that the wilderness character is preserved (as defined under the *Wilderness Act of 1964*). Although Bighorn Canyon does not have any officially designated wilderness, an area within the park was recommended for wilderness designation in 1981. The area in question contains power lines maintained by Western Area Power Administration (WAPA), with associated maintenance roads. Because no official action has been taken, but wilderness has been recommended, it will be retained as an impact topic.

Visitor Use and Experience

According to *2006 Management Policies*, the enjoyment of park resources and values by people is part of the fundamental purpose of all park units (NPS 2006). The National Park Service is committed to providing

appropriate, high quality opportunities for visitors to enjoy the parks, and will maintain within the parks an atmosphere that is open, inviting, and accessible to every segment of society. Further, the National Park Service will provide opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the parks. The National Park Service *2006 Management Policies* also state that scenic views and visual resources are considered highly valued associated characteristics that the National Park Service should strive to protect (NPS D1416).

Hiking is an activity that visitors have come to expect in their National Parks. As part of the Trail and Access plan Bighorn Canyon plans to provide visitors with reasonable access to the road and trail network, provide visitors with a variety of trail experiences, and to meet the needs and desires of the public. ADA accessibility needs will be addressed in this plan. Currently historic ranch service roads are used to provide ADA access to the ranches. A sustainable ADA designed trail or virtual trail station located in the visitor centers could also help to fill the need for more ADA accessibility. Closing of some visitor created roads is also likely to impact some users. Because visitor use and experience will be affected, this will be retained as a topic of interest.

Park Operations

NPS *Management Policies 2006* calls for parks to be managed holistically as part of a greater ecological, social, economic, and cultural system. Because many of the park trails and access roads follow paths, trails, and roads that were blazed by wildlife, native people, trappers, miners and homesteaders, before the park was created, there had never been a trail and access management plan. This has caused some confusion as to what activities can occur on the trails and what motorized access should be given off of the main roads. It is often confusing for staff and visitors as to what regulations are. This plan will direct park operations in regards to trails planning, maintenance and regulation. For these reasons, the topic of park operations has been carried forward for further analysis in this document.

Impact Topics Dismissed From Further Consideration

Some impact topics that commonly are considered during the planning process were not relevant to the development of this plan for Bighorn Canyon due to the following: (a) implementing the alternatives would have no effect, a negligible effect, or a minor effect on the topic or resource or (b) the resource does not occur in the national park.

General definitions for *Negligible*, *Minor*, *Moderate* and *Major* effects are

- *Negligible*: the action would result in a change at the lowest level of detection, or not measurable
- *Minor*: the action would result in a detectable change but the change would be slight and local
- *Moderate*: the action would result in a clearly detectable change
- *Major*: the action would result in the permanent loss or there would be highly noticeable, widespread changes

The following issues were eliminated from further analysis for the reasons stated below.

Air Quality

The Clean Air Act of 1963 (42 U.S.C. 7401 *et seq.*) was established to promote the public health and welfare by protecting and enhancing the nation's air quality. The act establishes specific programs that provide special protection for air resources and air quality related values associated with National Park Service units. Section 118 of the Clean Air Act requires a park unit to meet all federal, state, and local air pollution standards. Bighorn Canyon National Recreation Area is designated as a Class II air quality area under the Clean Air Act. A Class II designation indicates the maximum allowable increase in concentrations of pollutants over baseline concentrations of sulfur dioxide and particulate matter as specified in Section 163 of the Clean Air Act. Further, the Clean Air Act provides that the federal land manager has an affirmative responsibility to protect air quality related values (including visibility, plants, animals, soils, water quality, cultural resources, and visitor health) from adverse pollution impacts (EPA 2005).

The actions proposed for this plan could create temporary dust associated with trail work in localized areas. The amount of dust created by trail work and visitor use is considered no more than minor and short-term, which under NPS *Director's Order 12, Conservation Planning, Environmental Impact Analysis, and Decision-making* (2001) is considered to be "no measurable effect" and can be dismissed as an impact topic.

Water Quality

NPS *Management Policies 2006* requires protection of water quality consistent with the *Clean Water Act*. Water drainages within Bighorn Canyon are second and third order streams draining into the main channel of the Bighorn River and Bighorn Lake. Erosion control methods would be used during ground disturbing construction, which would minimize the amount of sediment that reaches springs, creeks, and eventually the river.

Trail construction activities could have adverse negligible impacts on the park's water quality. Water quality could be affected by storm water runoff with increased sediment from trails if not designed or managed properly. With proper trail construction and mitigating methods trails would have "no measurable effect" on water quality and are therefore dismissed as an impact topic.

Wetlands and Floodplains

For regulatory purposes under the Clean Water Act, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas." Executive Order 11990 *Protection of Wetlands* requires federal agencies to avoid, where possible, adversely impacting wetlands. Further, Section 404 of the Clean Water Act authorizes the U.S. Army Corps of Engineers to prohibit or regulate, through a permitting process, discharge or dredged or fill material or excavation within waters of the United States. National Park Service policies for wetlands as stated in *2006 Management Policies* and Director's Order 77-1 *Wetlands Protection*, strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1 *Wetlands Protection*, proposed actions that have the potential to adversely impact wetlands must be addressed in a Statement of Findings for wetlands.

Executive Order 11988 *Floodplain Management* requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The National Park

Service under *2001 Management Policies* and Director's Order 77-2 *Floodplain Management* will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to Director's Order 77-2 *Floodplain Management*, certain construction within a 100-year floodplain requires preparation of a Statement of Findings for floodplains.

The proposed action will not have construction activities within the 100-year floodplain or in wetland areas. Therefore, floodplains and wetlands have been dismissed as an impact.

Museum Collections

According to Director's Order 24 *Museum Collections*, the National Park Service requires the consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript material), and provides further policy guidance, standards, and requirements for preserving, protecting, documenting, and providing access to, and use of, National Park Service museum collections.

No specimens or artifacts are displayed in the project area, and no collections of specimens are planned. Therefore, the topic of museum collections has been dismissed from further consideration.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects to prime and unique farmlands that would result in the conversion of these lands to non-agricultural uses. Prime or unique farmland is classified by the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), and is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts.

The proposed project areas do not contain prime or unique farmlands. Therefore, the topic of prime and unique farmlands has been dismissed.

Socioeconomic Impacts

The proposed action would neither change local and regional land use nor appreciably impact local businesses or other agencies. Implementation of the proposed action could provide a negligible beneficial impact to the economies of nearby Lovell, Wyoming, Fort Smith, Montana, and Hardin, Montana due to minimal increases in employment opportunities for the construction workforce and revenues for local businesses and governments generated from these additional construction activities and workers. Any increase in workforce and revenue, however, would be temporary and negligible, lasting only as long as construction. Most of the sites are in remote areas, so there is little socioeconomic impact on surrounding communities other than usual tourism.

Because the impacts to the socioeconomic environment would have "no measurable effect", this topic has been dismissed.

Environmental Justice

Executive Order 12898 *General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities.

The proposed action would not have disproportionate health or environmental effects on minorities or low-income populations or communities. Therefore, environmental justice has been dismissed as an impact topic in this document.

Paleontological Resources

According to *2006 Management Policies*, paleontological resources (fossils), including both organic and mineralized remains in body or trace form, will be protected, preserved, and managed for public education, interpretation, and scientific research (NPS 2006). The Fossil Protection Act of 1996 was enacted to secure, for the present and future benefit of the people of the United States, the protection, including collection and preservation, of fossils that are on Federal lands.

No paleontological resources have been identified in the immediate project areas. Therefore, the proposed project areas are not expected to contain paleontological deposits. However, Fossils resources do exist in the park and appropriate steps would be taken to protect any paleontological resources that are inadvertently discovered during construction trail work.

Because the project will not disturb any known paleontological sites, the affect of the project on paleontological resources is expected to be negligible, and this topic has been dismissed from further analysis.

Soundscape Management

In accordance with *2006 Management Policies* and Director's Order 47 *Sound Preservation and Noise Management*, an important component of the National Park Service's mission is the preservation of natural soundscapes associated with national park units (NPS 2006). Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and durations of human-caused sound considered acceptable varies among National Park Service units as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

Bighorn Canyon National Recreation Area is known for its quiet, remote desert setting. On the plateaus above the canyon rims, the soundscape is one of silence, interrupted only by the wind, birds and bighorn sheep. There is noise from motorboats on Bighorn Lake, but the canyon is so deep that the boats are barely heard if one is on the canyon rim and not heard at all away from the rim. Use of motorized equipment is limited to the park road and developed areas.

Trail construction would have a temporary, localized impact on the soundscape, while trail use has only minor potential to impact the soundscape. Since the impact would be negligible to minor it is considered to have "no measureable effect" and is dismissed as an impact topic.

Lightscape Management

In accordance with *2006 Management Policies*, the National Park Service strives to preserve natural ambient landscapes, which are natural resources and values that exist in the absence of human

caused light (NPS 2006). Bighorn Canyon National Recreation Area strives to limit the use of artificial outdoor lighting to that which is necessary for basic safety requirements. Bighorn Canyon National Recreation Area has sources of human caused light only at two campgrounds, two marinas and the Visitor Centers. The park also strives to ensure that all outdoor lighting is shielded to the maximum extent possible, to keep light on the intended subject and out of the night sky.

Since the proposed action and alternatives involve no use of human caused light, lightscape management is dismissed as an impact topic.

Indian Trust Resources

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by the Department of Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and it represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes.

There are no Indian trust resources at Bighorn Canyon National Recreation Area. The lands comprising the park are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians. Therefore, the project would have negligible effects on Indian trust resources, and this topic was dismissed as an impact topic.

Energy resources

The action alternatives do not call for major development and will not affect current workings of the energy infrastructure of the dam. Consequently, the alternatives would have negligible effects on energy consumption for very short-term periods, during trail construction. It is therefore removed as a topic of impact.

Climate Change and Sustainability

Although climatologists are unsure about the long-term results of global climate change, it is clear that the planet is experiencing a warming trend that affects ocean currents, sea levels, polar sea ice, and global weather patterns. Although these changes will likely affect winter precipitation patterns and amounts in the parks, it would be speculative to predict localized changes in temperature, precipitation, or other weather changes, in part because there are many variables that are not fully understood and there may be variables not currently defined. Therefore, the analysis in this document is based on past and current weather patterns and the effects of future climate changes are not discussed further.