



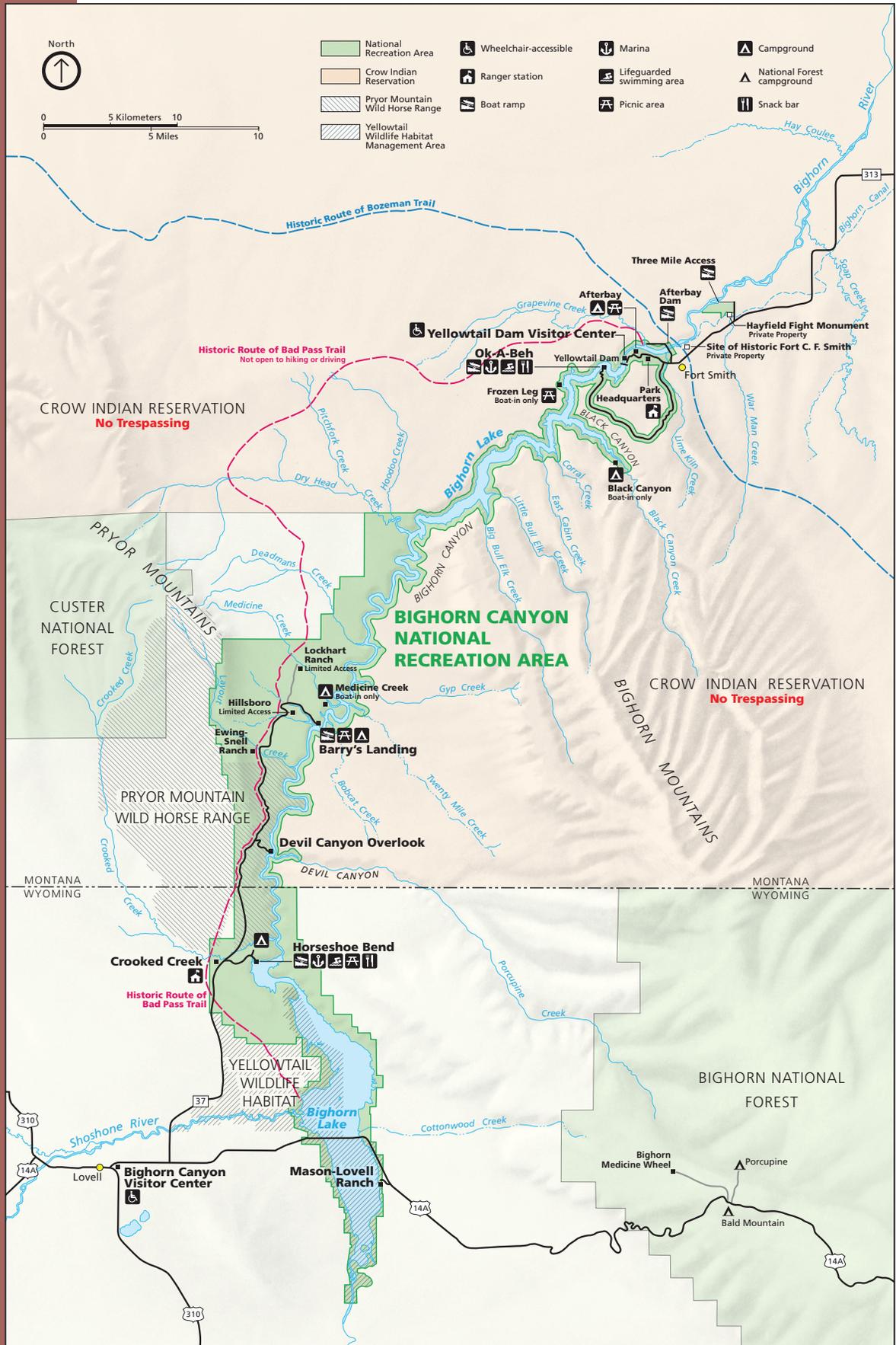
Foundation Document

Bighorn Canyon National Recreation Area

Montana and Wyoming

March 2016





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Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship:** We share a commitment to resource stewardship with the global preservation community.
- **Excellence:** We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity:** We deal honestly and fairly with the public and one another.
- **Tradition:** We are proud of it; we learn from it; we are not bound by it.
- **Respect:** We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior (USDI). While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and comprises more than 400 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the US Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.



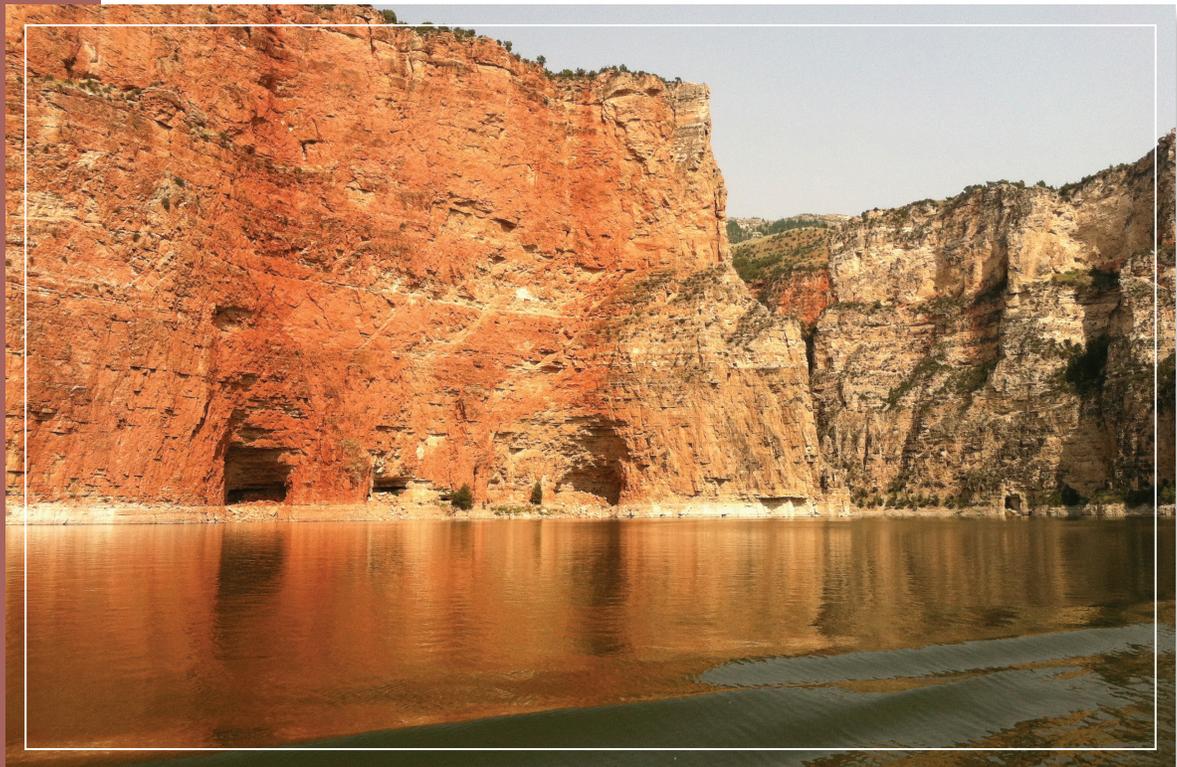
The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park’s purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for Bighorn Canyon National Recreation Area can be accessed online at: <http://insideparkatlas.nps.gov/>.



Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

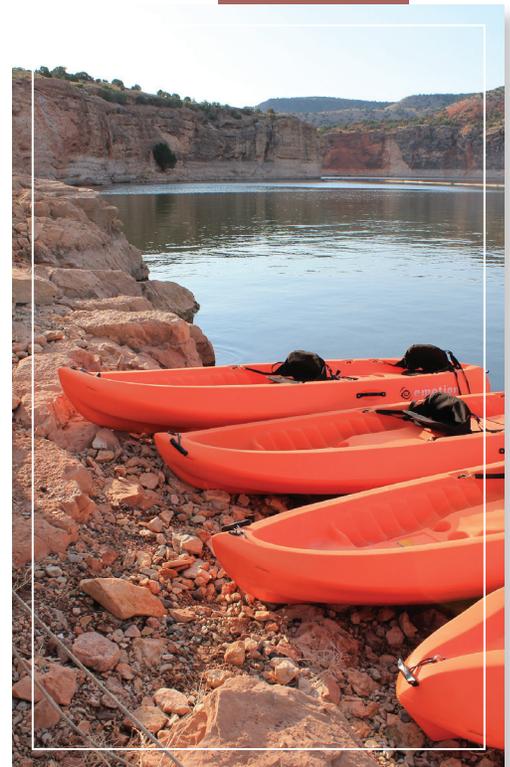
Brief Description of the Park

Bighorn Canyon National Recreation Area encompasses approximately 120,000 authorized acres straddling the border between southeastern Montana and north-central Wyoming. The dominant feature of the national recreation area is Bighorn Lake, which was created by construction of the Yellowtail Dam on the Bighorn River. The Bureau of Reclamation completed the dam and hydroelectric power station in 1967 as part of the Missouri River Basin Project. In addition to the 12,700-acre lake, the diversified landscape includes forest and mountains, upland prairies, and deep canyons. Broad, relatively flat valleys bordered by low grassy hills characterize the northern and southern portions of the national recreation area, with the rugged Bighorn Mountains on the east and Pryor Mountains on the west.

The national recreation area was established by an act of Congress (Public Law 89-664) on October 15, 1966, “to provide for public outdoor recreation use and enjoyment of Yellowtail Reservoir and lands adjacent thereto . . . and for the preservation of the scenic, scientific and historic features contributing to public enjoyment of such lands and waters. . . .” Adjoining lands are owned and managed by private landowners and multiple governmental and tribal authorities, including the Crow Nation, the US Forest Service (Custer National Forest on the west and Bighorn National Forest on the east), the US Bureau of Land Management, the US Bureau of Reclamation, and the states of Wyoming and Montana. Some areas and resources within the national recreation area are cooperatively managed among state and federal agencies, such as the Bighorn River/Lake and the Yellowtail Dam (managed by the Bureau of Reclamation), Yellowtail Wildlife Habitat Management Area (managed by the State of Wyoming), and the Pryor Mountain National Wild Horse Range (managed by the Bureau of Land Management). Approximately 56,000 acres of Crow Indian Reservation lands within the recreation area are closed to public use.

The Bighorn River flows northward through the Bighorn Basin in Wyoming and enters Bighorn Canyon north of Lovell, Wyoming. Geological processes occurring over millions of years formed the canyon primarily as the result of accelerated stream erosion and gradual regional uplift. Much of Bighorn Canyon is narrow and confined within sheer rock walls that rise to more than 2,000 feet at the canyon’s northern perimeter. The geology of Bighorn Canyon reveals evidence of ancient climates and depositional environments within layers of exposed limestone and other sedimentary rock strata. Researchers have found fossilized dinosaur bones and tracks from the Upper Jurassic period. The fossil bones of Pleistocene animals have also been discovered in debris piles at cave entrances.

The earliest American Indian inhabitants of the area were hunters and gatherers who seasonally traversed the region primarily by way of Bad Pass Trail. More than 500 archeological sites have been recorded, documenting successive cultural periods. Among the varied sites and cultural features are pictographs and petroglyphs, rock hunting blinds and cairns, vision quest sites, quarries, camp and tool-making sites, and bison jumps. The Crow Indians are believed to have migrated to the area in the early 1700s. For many years the Crows battled other tribes for control of the area until they were granted reservation lands by the US government in 1868. Several other tribes retain cultural associations with the area.





Trappers, explorers, and traders reached the area in the early 19th century. Range cattle were introduced in the Lovell area in 1879, and permanent settlement soon followed as represented by the establishment of area ranches and small farming communities. The four primary historic cattle and dude ranches preserved in the national recreation area are the Mason-Lovell Ranch, the Hillsboro (Cedarvale) Dude Ranch, the Lockhart Ranch, and the Ewing-Snell Ranch. The Ewing-Snell Ranch has been adapted as a science center (Bighorn Canyon Research Center) providing researchers with classroom and camp facilities. Fort C. F. Smith (located on private property but interpreted by NPS staff) garrisoned US Army troops from 1866–1869 to protect prospectors and other travelers along the Bozeman Trail route to the Virginia City (Montana) gold fields. Other historic properties include the Bighorn Canal and headgate, completed in 1904, largely by Crow workers, to irrigate some 35,000 acres for farming. The canal was used until completion of the Yellowtail Dam in the 1960s.

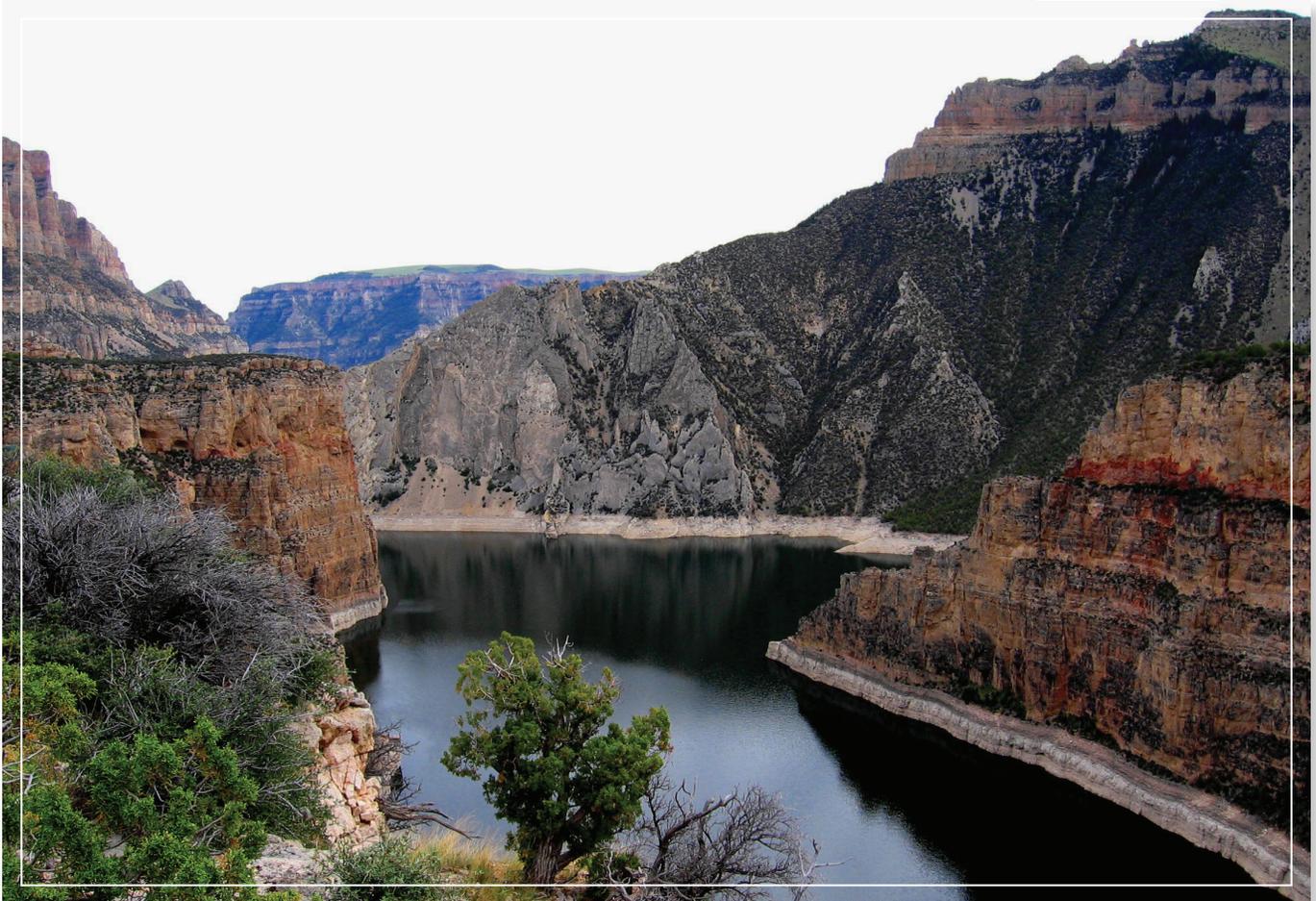
Wildlife in Bighorn Canyon National Recreation Area commonly includes bighorn sheep, wild horses, coyotes, mule deer, small mammals, mountain lions, bears, snakes, and more than 200 bird species. About one-fifth of the 39,000-acre Pryor Mountain Wild Horse Range lies within the national recreation area, providing habitat for approximately 160 wild horses managed by the Bureau of Land Management. The wild horses are genetically associated with horses introduced in the West by early Spanish explorers. Bighorn sheep also use the wild horse range as part of their habitat that extends throughout other portions of the national recreation area. More than half of the 19,000-acre Yellowtail Wildlife Habitat Management Area lies within the national recreation area. The habitat management area consists of riparian areas and wetlands, cottonwood forest, and shrubland that provide habitat for white-tailed deer, bald eagles, pelicans, and other waterfowl. The national recreation area's topography, geology, and high desert climatic conditions have contributed to the development of habitat for unique plant species—the area marks the northernmost extent for a diverse variety of endemic species commonly associated with the Great Basin. Vegetation communities include desert shrubland, juniper woodland, mountain mahogany woodland, sagebrush steppe, basin grassland, riparian areas, and coniferous woodland.

Bighorn Canyon National Recreation Area attracts some 200,000 visitors a year for a variety of outdoor recreation activities. Visitors can receive orientation and interpretation services at the Bighorn Canyon Visitor Center near Lovell, Wyoming, and at the Yellowtail Dam Visitor Center 2 miles past the community of Fort Smith, Montana. Fishermen are drawn to the reservoir and Bighorn River for a wide range of game fish including walleye, sauger, rainbow and brown trout, black crappie, yellow perch, ling, and channel catfish. Boating enthusiasts have access to Bighorn Lake at the marinas and boat ramps at Horseshoe Bend and Ok-A-Beh; boat ramps are also provided at Afterbay Dam and Barry's Landing. Other popular visitor activities include hiking, camping, wildlife viewing, photography, hunting, and opportunities to enjoy solitude. Many come to experience these recreational activities and to study and enjoy the scientific, cultural, and historical resources that are managed and interpreted at the national recreation area.

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Bighorn Canyon National Recreation Area was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The national recreation area was established when the enabling legislation adopted by Congress was signed into law on October 15, 1966 (Public Law 89-664). See appendix A for enabling legislation. The purpose statement lays the foundation for understanding what is most important about the park.

BIGHORN CANYON NATIONAL RECREATION AREA, the first designated area of its kind in the Missouri River Basin, provides the opportunity for recreational use and enjoyment of its waters and lands, and preserves the scenic, precontact, and historic cultural and scientific resources that include impressive canyon walls and other noteworthy natural features.



Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of Bighorn Canyon National Recreation Area, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for Bighorn Canyon National Recreation Area. (Please note that the sequence of the statements does not reflect the level of significance.)

- Bighorn Canyon National Recreation Area offers outstanding recreational opportunities, including hunting and fishing, boating, camping, photography, hiking, and other outdoor pursuits, in a spectacular environment and setting.
- Bighorn Canyon's cultural and historic resources document human presence along the Bighorn River that dates back to the earliest cultures. The national recreation area contains physical evidence of early American Indian cultures and the Western frontier, including resources of enduring importance to traditionally associated tribes and the descendants of pioneer ranchers and other settlers.
- The remote location and high-desert ecosystem that characterizes Bighorn Canyon National Recreation Area makes it an exemplary site for biological research and conservation for bighorn sheep and other plant and animal species.
- Landforms, remnant fossils, and evidence of ancient ecological conditions offer insight and comparison of the region's geologic history and processes. These actions were critical to forming the canyon, the surrounding mountains, and the region's water resources.



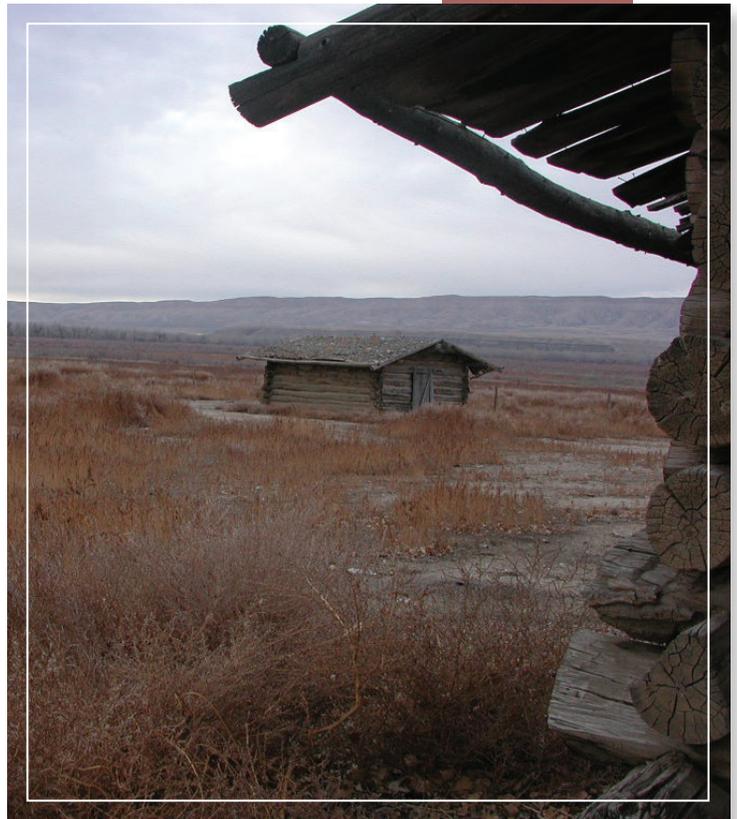
Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

The following fundamental resources and values have been identified for Bighorn Canyon National Recreation Area:

- Bighorn Canyon.** Created by geological processes of uplift and erosion beginning about 75 million years ago, Bighorn Canyon reveals a record of its origins, ancient climates, and depositional environments within layers of exposed limestone and other rock strata. Fossil plants and animals exist in sedimentary rock layers deposited by bygone seas. Additional sedimentary layers formed after the seas receded. The Bighorn River gradually carved out the 50-mile-long canyon, with walls that rise to approximately 1,000 feet at Devil Canyon Overlook and more than 2,000 feet where the canyon crosses the northern end of the Bighorn Mountains.
- Cultural Continuity.** Resources and places of enduring cultural importance to traditionally associated tribes are found in the national recreation area. Among these sites and resources are those that have sacred tribal significance or connect tribal members to stories and places that reinforce their cultural identities and document their long presence in the area. Descendants of pioneer ranching families, early settlers, and others of primarily European American background who settled in the area also retain connections to the national recreation area's historic ranches and other places of importance to their cultural histories.
- Precontact and Historic Sites.** The national recreation area's cultural resources span thousands of years from the Paleo-Indian period to modern historic presence and land use in this area of Montana and Wyoming along the Bighorn River. Among these resources, traces of the Bad Pass Trail reflect the area's importance for precontact and historic people as a vital transportation corridor crossing and linking the mountains to the plains. Other archeological sites and resources reflect precontact use by the area's earliest indigenous populations and later tribal inhabitants. Historic ranch buildings and other sites associated with late 19th and early 20th century European American ranching, homesteading, mining, and military activities contribute to the rich cultural history of the area.





- **Experiential Resources.** The national recreation area offers visitors outstanding opportunities to experience natural and cultural resources in an environment largely free from human-caused disturbances. The remote location, combined with minimal pressure from outside development, provides good water and regional air quality, which enhances the enjoyment of these resources. The preserved landscape provides unobstructed views of the canyon, surrounding mesas, mountain vistas, and distant scenic features. The secluded location and lack of large urban areas nearby result in minimal impact from light pollution, allowing excellent views of the dark night sky. Visitors also have opportunities to experience wilderness solitude with little disturbance from modern sounds or other intrusions.
- **Recreational Opportunities.** Bighorn Canyon National Recreation Area attracts some 200,000 visitors a year for a variety of outdoor activities. Water-related activities such as boating and fishing for brown and rainbow trout, walleye, and other game fish draw many visitors. On Bighorn Lake, boating enthusiasts are served by the marinas and boat ramps at Horseshoe Bend and Ok-A-Beh, along with boat ramps at Afterbay Dam and Barry’s Landing. Swimming at the lifeguarded areas of Horseshoe Bend and Ok-A-Beh is popular with the local community. Other popular visitor activities include hiking, camping, wildlife viewing, photography, hunting, and opportunities to enjoy solitude.

Other Important Resources and Values

Bighorn Canyon National Recreation Area contains other resources and values that are not fundamental to the purpose of the park and may be unrelated to its significance, but are important to consider in planning processes. These are referred to as “other important resources and values” (OIRV). These resources and values have been selected because they are important in the operation and management of the park and warrant special consideration in park planning.

The following other important resource and value has been identified for Bighorn Canyon National Recreation Area:

- **Bighorn Sheep.** Bighorn sheep (*Ovis canadensis*) are an iconic species having particular ecological and cultural importance to the area. They figure prominently in the cultural stories and traditions of the Crows and other associated tribes. Although the bighorn sheep population disappeared from the area several decades ago due to overhunting and disease, reintroduction efforts carried out in the 1970s enabled the herd to recover with a self-sustaining population of about 180 animals at present. The habitat for the bighorn sheep is managed by the National Park Service, and state agencies manage the herd. The Bighorn Canyon’s abundant diversity of wildlife and plant species is supported by habitat that encompasses five vegetation zones.

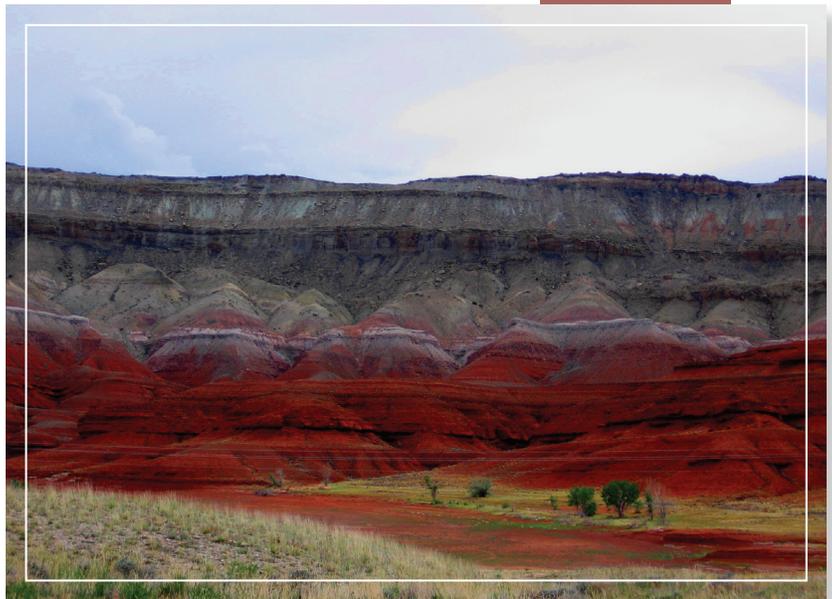
Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements, and fundamental and other important resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for Bighorn Canyon National Recreation Area (from the 2012 long-range interpretive plan):

- The vast, wild landscape of Bighorn Canyon National Recreation Area offers modern visitors unparalleled opportunities to immerse themselves in the natural world and experience the wonders of this extraordinary place.
- The 120,000 acres of land and water in Bighorn Canyon National Recreation Area display an astounding diversity of ecosystems supporting hundreds of species of plant life, birds, fish, and other wildlife.
- Bighorn Canyon, the river, and the surrounding environment are a vital part of the ancient and living culture of American Indians, including the Crows, Northern Cheyennes, Shoshones, Blackfeet, Arapahos, Lakotas, and other tribes of the region.
- The lives and stories of 19th- and early 20th-century settlers of European descent in this region illustrate the challenges, changes, perils, and personalities of America's Western frontier, with legacies that live on in the lifeways of their 21st-century descendants.
- Through the ages and into the present day, the water resources of the Bighorn River, Bighorn Lake, and watershed represent a vital, life-giving force in a tough, challenging environment.
- The ancient cliffs and exposed rocks of Bighorn Canyon provide a fascinating geological record of Earth's changes over many millions of years, as well as significant opportunities for archeological and paleontological discoveries.



Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental and other important resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in enabling legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for Bighorn Canyon National Recreation Area.

Special Mandates

- The National Park Service had proprietary jurisdiction within Bighorn Canyon National Recreation Area until 1980. On April 29, 1980, the State of Montana ceded concurrent jurisdiction (Montana House Bill 666) to the United States of all federally owned lands within Bighorn Canyon National Recreation area as established by Public Law 89-664 (80 Stat. 913). About the same time, Wyoming also ceded concurrent jurisdiction to the United States. It should be noted that no Crow Indian Reservation “Added Lands” were included in the change to concurrent jurisdiction. On jurisdictional matters, the National Park Service is guided by the Interior Field Solicitor’s opinion of August 7, 1973.
- In response to the Crow Indian Law and Order Committee’s quest to develop a Crow Law and Order Code in November 1977, cooperative efforts were initiated to clarify and redefine jurisdiction within the recreation area. The tribal committee challenged the opinion that the recreation area lands in Big Horn County, Montana, had been withdrawn from the Crow Indian Reservation. On February 1, 1978, Field Solicitor Al Bielefeld prepared a lengthy brief concerning the “Law Enforcement Jurisdiction in Bighorn Canyon National Recreation Area.” This traced the legal background, the issues, the applicable laws, and possible courses of action. Before the tribe could contest the brief, the Supreme Court ruled on the Oliphant case. “On March 6, 1978, the Supreme Court of the United States ruled that Indian Tribal Courts do not have inherent criminal jurisdiction unless specifically authorized to do so by Congress.” (*See Oliphant vs. Suquamish Indian Tribe et al., No. 76-5729.*)

- Section 4 – Public Law 89-664: “The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the recreation area in accordance with the appropriate laws of the United States and of the States of Montana or Wyoming to the extent applicable, except that the Secretary may designate zones where, and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment, and except that nothing in this section shall impair the rights under other law of the Crow Tribe and its members to hunt and fish on lands of the Crow Tribe that are included in the recreation area, or the rights of the members of the Crow Tribe to hunt and fish under section 2 (d) of the Act of July 15, 1958.”



Administrative Commitments

For more information about the existing administrative commitments for Bighorn Canyon National Recreation Area, please see appendix B.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park’s fundamental and other important resources and values, and develop a full assessment of the park’s planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

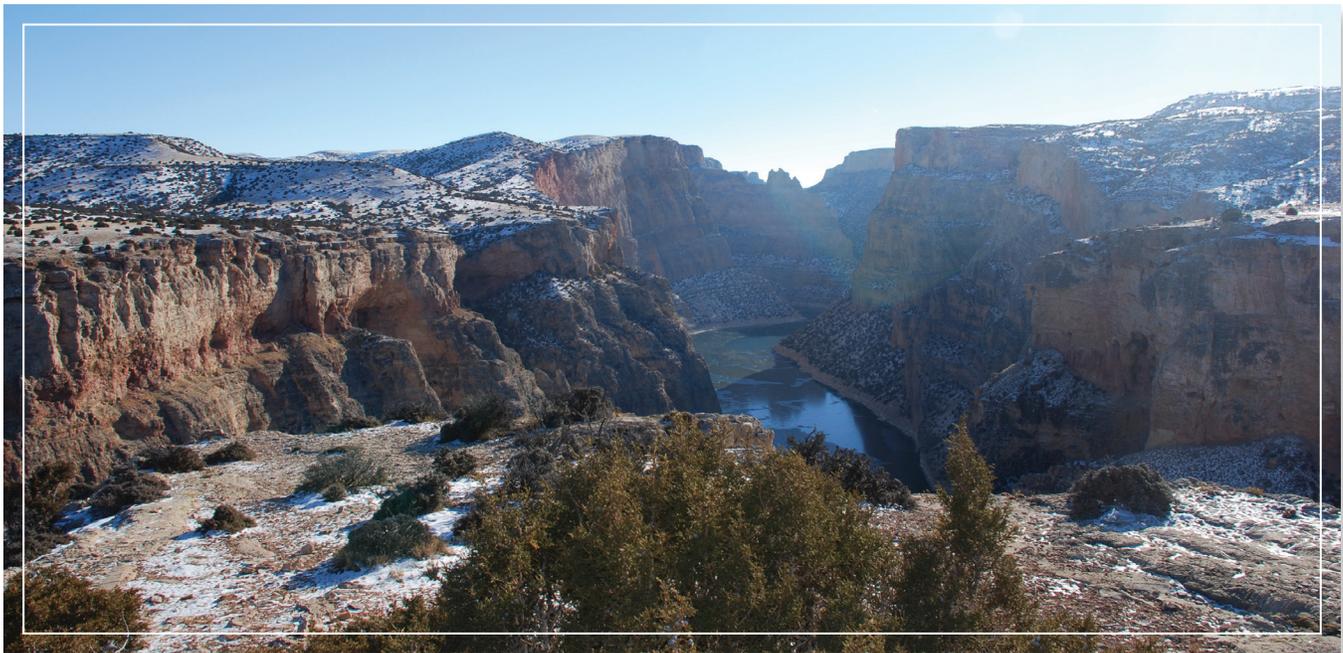
There are three sections in the assessment of planning and data needs:

1. analysis of fundamental and other important resources and values
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value.



Fundamental Resource or Value	Bighorn Canyon
Related Significance Statements	<ul style="list-style-type: none"> • Landforms, remnant fossils, and evidence of ancient ecological conditions offer insight and comparison of the region’s geologic history and processes. These actions were critical to forming the canyon, the surrounding mountains, and the region’s water resources.
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • The Laramide orogeny, which began about 75 million years ago, uplifted the Bighorn and Pryor Mountains. The Bighorn River gradually carved out the 50-mile-long Bighorn Canyon through the uplifted mountains. • The depositional environments of Bighorn Canyon date back to the Cambrian period at the start of the Paleozoic era (570 million years ago), and are nearly continuous through the Cretaceous period at the end of the Mesozoic era (65 million years ago). • The Madison Limestone layer, which is up to 750-feet thick and the layer most resistant to erosion, forms the canyon rim throughout its length. It is often reddened by minerals washed out of the overlying Amsden Formation. • Fossilized plants and animals are found in the sedimentary rock layers. • Steep canyon walls rise 1,000 feet at the Devil Canyon Overlook and more than 2,000 feet where the canyon crosses the north end of the Bighorn Mountains. • The canyon has been and continues to be shaped predominantly by natural processes of water and wind erosion. • Minerals in the water cause color changes on the canyon walls. When lake levels drop, minerals leach out creating a “bathtub ring” effect on the canyon walls. • Some geologic features have been digitally mapped (e.g., “Sentinel” and other rock spires). <p>Trends</p> <ul style="list-style-type: none"> • Completion of Yellowtail Dam altered the canyon’s geology by transforming the Bighorn River into a slowly moving lake. This ended the down-cutting erosion of the river, although the canyon continues to widen as a result of rock falls. • No longer carried through the canyon by a rapidly flowing river, sediments from upstream are forming a delta that is gradually extending farther down the lake. This ongoing human-caused change to the lake bottom will affect future management of the dam, lake ecology, and recreational use.

Fundamental Resource or Value	Bighorn Canyon
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Ongoing siltation of the lake and river will eventually impact the canyon. • The national recreation area has not seen vandalism or graffiti on the canyon walls, but this has been seen in other places and could become an issue. • Fluctuation in reservoir levels could cause undercutting and slumping of the canyon walls, which can lead to rock slides. • Increase in mean annual temperature, storm frequency/intensity, and extreme temperature events projected for the region due to climate change could result in changes in species composition, increases in invasive species, increases in wildfire frequency and/or changes in hydrology. <p>Opportunities</p> <ul style="list-style-type: none"> • The national recreation area's interpretive wayside panels and exhibits regarding geology are not readily understandable to average visitors. More accessible panels would help interpret the geology of the national recreation area and the canyon. • Employment of a geologist to aid with research and information to assist interpretive staff would be beneficial if the national recreation area's staffing and budget limitations could support the position. • Tactile displays could help interpret geologic resources. • Visitor accessibility to the geological resources of the canyon could be improved. • 3-D scanning and other methods could be pursued in the future to monitor geologic changes in the canyon.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Radio footprint map. • Geologic map of the canyon.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Federal Cave Resources Protection Act (1988) • Mining in the Parks Act (1976) • Paleontological Resources Preservation Act; 16 USC 470aaa et seq. (2012) • Secretarial Order 3289 "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS <i>Natural Resource Management Reference Manual 77</i> • NPS <i>Management Policies 2006</i> (4.8) provides general direction on the protection of geologic and soil resources • NPS <i>Management Policies 2006</i> (5.3.5.5) states that the National Park Service "will collect, protect, preserve, provide access to, and use objects, specimens, and archival and manuscript collections . . . in the disciplines of archeology, ethnography, history, biology, geology, and paleontology to aid understanding among park visitors, and to advance knowledge in the humanities and sciences"

Fundamental Resource or Value	Cultural Continuity
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Bighorn Canyon's cultural and historic resources document human presence along the Bighorn River that dates back to the earliest cultures. The national recreation area contains physical evidence of early American Indian cultures and the Western frontier, including resources of enduring importance to traditionally associated tribes and the descendants of pioneer ranchers and other settlers.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Places and resources in the national recreation area retain cultural importance for tribal members and descendants of early ranchers and settlers. • Families associated with historic sites still reside in the area. Some ranchers trail livestock through the national recreation area. • Consultation between the National Park Service and associated tribes occurs as appropriate on a government-to-government basis. NPS staff recognizes that more regular consultation could occur to exchange information. • Dam construction compounded Crow isolation from traditional/sensitive sites, and led to long-standing feelings among some tribal members of being excluded from certain areas of the national recreation area. • NPS relations with the descendants of pioneer families and some current ranchers have been strained due to federal government land acquisition in the area. • As part of the NPS/tribal cultural exchange, the tribal field school was created in response to a request for training in technical cultural resource preservation skills and practices. Tribal members provide NPS staff with oral histories. Colleges also host archeological field schools. • The national recreation area hosts Kane Cleanup Day, which reunites the former residents of Kane in efforts to maintain their cemetery. This event is periodically conducted based on cemetery needs. • Associated tribes are generally not open to NPS interpretation of sacred sites and have requested that modern tribal connections and ceremonies not be interpreted. <p>Trends</p> <ul style="list-style-type: none"> • The exchange of information is improving between NPS staff and associated tribes, the Kane community, and historic ranch descendants. There has been previous and some ongoing reluctance to share information with the federal government. • There are increasing instances of modern tribal use of the national recreation area. More Crow tribal activities and use of sacred sites are occurring, and the Northern Cheyenne are also carrying out more traditional activities in the national recreation area. • Greater sensitivity to protecting the locations and confidentiality of sites of particular sacred tribal importance is being carried out by NPS staff.
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • NPS contract negotiations with the Crow Tribe regarding access to and management of the Ok-A-Beh Marina are sensitive. NPS managers are hopeful the contract can be renewed and cooperative management solutions are being explored to resolve issues. • As the population of tribal, ranching, and Kane descendants continues to age, there is the potential for a loss of institutional local knowledge to sustain cultural connections. • Tribal members occasionally leave offerings in the national recreation area and these could potentially be vulnerable to disturbance by visitors. Two sites in high visitor use areas are particularly vulnerable. <p>Opportunities</p> <ul style="list-style-type: none"> • There are opportunities to work more proactively and in partnership with associated tribes to increase mutual education and exchange of information. • NPS staff can increase efforts to balance discussion and interpretation of tribal activities and cultural connections without unintentionally generating inappropriate interest. • Tribal artisans can participate in artist-in-residence programs and cultural fairs. The national recreation area does not currently have the means to reimburse artists.

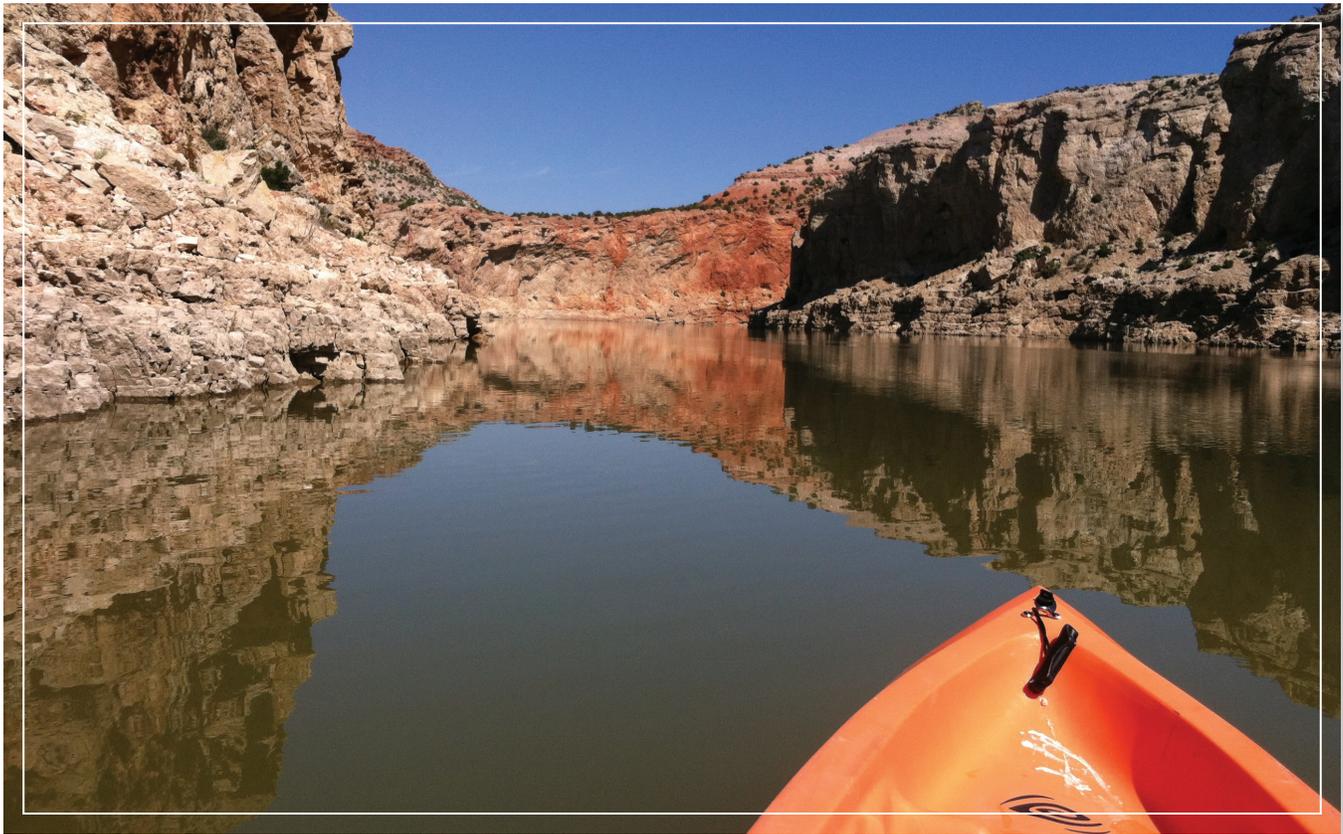
Fundamental Resource or Value	Cultural Continuity
Threats and Opportunities	<p>Opportunities (continued)</p> <ul style="list-style-type: none"> • NPS staff can work with the Crow cultural committee to provide demonstrations and input into local and reservation school programs. • NPS staff can continue to conduct oral histories with ranch families. • The “Ancestral Lands” program through AmeriCorps presents new opportunities. • Oral histories should be conducted with American Indian elders who helped construct the Yellowtail Dam before the opportunity to interview them is lost. • The national recreation area can support tribal efforts to conduct sun dances, weather dances, and other events. • The national recreation area can support a law enforcement training program for tribal youth. • The national recreation area can support tribal field schools. Tribal members initially wanted experience in archeology. Tribal elders are now exchanging tribal history with NPS staff. Colleges also host archeological field schools. • Investigations could be carried out to confirm certain unverified historical facts or stories (e.g., confirming whether President Theodore Roosevelt ever visited the area now included in the national recreation area; this could be done as a student project, perhaps as part of an internship or master’s degree thesis project).
Data and/or GIS Needs	<ul style="list-style-type: none"> • Ethnographic studies. • Oral histories. • Update List of Classified Structures database with additional data collected from oral histories.
Planning Needs	<ul style="list-style-type: none"> • Archive management plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • “Protection of Historic Properties” (36 CFR 800) • National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq.) • Antiquities Act of 1906 • Archaeological Resources Protection Act of 1979 • Archeological and Historic Preservation Act of 1974 • Historic Sites Act of 1935 • Native American Graves Protection and Repatriation Act of 1990 • Executive Order 11593, “Protection and Enhancement of the Cultural Environment” • Executive Order 13007, “American Indian Sacred Sites” • Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources” • Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments” • Secretarial Order 3206, “American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act” <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (chapter 5) “Cultural Resource Management” • <i>The Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation</i> • <i>The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i> • Director’s Order 28: <i>Cultural Resource Management</i> • Director’s Order 28A: <i>Archeology</i> • Department of the Interior Policy on Consultation with Indian Tribes • NPS Intermountain Region Indian Sacred Sites Policy (draft)

Fundamental Resource or Value	Precontact and Historic Sites
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Bighorn Canyon’s cultural and historic resources document human presence along the Bighorn River that dates back to the earliest cultures. The national recreation area contains physical evidence of early American Indian cultures and the Western frontier, including resources of enduring importance to traditionally associated tribes and the descendants of pioneer ranchers and other settlers.
<p>Current Conditions and Trends</p>	<p>Conditions – Precontact Sites</p> <ul style="list-style-type: none"> • Archeological surveys of about 20% of the national recreation area have been completed. More than 500 sites have been recorded, and all recorded sites are entered in the Archeological Sites Management Information System (ASMIS) database. • A broad range of precontact sites have been recorded in the national recreation area including campsites, tepee rings, a medicine wheel, aboriginal trails, flint workshop / tool-making areas, rock shelters, pictographs and petroglyphs, and buffalo kill sites. • Some cave dwelling sites exist along the canyon walls that were once occupied by the area’s precontact indigenous peoples. • The Bad Pass Trail was developed by Paleo-Indian peoples and later American Indian inhabitants of the region to traverse the rough canyon country between the Pryor and Bighorn Mountains. The route is occasionally marked by rock cairns placed by the early inhabitants and trail users. • As appropriate, some interpretive tours are led to precontact sites. • The conditions of precontact sites range from good to destroyed—some sites have been looted and others inundated by the formation of Bighorn Lake. Flash flooding has impacted the integrity of several historic and precontact sites. • A habitation site with tepee rings and other features has been impacted by the development of access roads that have caused erosion. A gully now runs through the site. • The Two Eagle site is in good condition. The site has been “hardened” (site artifacts have been collected and stored in collections) enabling the site to be more intensively interpreted and visited by the public. • The Pretty Creek archeological site (listed in the National Register of Historic Places) is near the Ewing-Snell Ranch, which provides research opportunities for those participating in field school activities at the science center. • No sites are currently identified as traditional cultural properties (properties meeting national register criteria). This is a sensitive topic requiring tribal input. <p>Conditions – Historic Sites</p> <ul style="list-style-type: none"> • The national recreation area has standardized condition assessment criteria for historic sites and condition assessments are completed for most structures. • Site surveys have been completed for approximately 20% of the national recreation area. • NPS staff actively preserves and interprets four historic ranches (Mason-Lovell, Ewing-Snell, Caroline Lockhart, and Cedarvale Hillsboro) that contain a wide variety of domestic and utilitarian log buildings dating from the late 19th century to the early 20th century. The properties reflect pioneer commercial cattle ranching and later dude ranching operations in the area. • The condition of the ranch complexes varies from poor to good. All are listed in the National Register of Historic Places and have had cultural landscape inventories completed. • The Mason-Lovell Ranch is the least preserved. Some stabilization/restoration work has been completed, and other restoration projects (e.g., replacing sod roofs) are scheduled. The site is easily accessible to visitors and a wayside interpretive panel is in place. • The Ewing-Snell Ranch was the best preserved of the four ranches. The accessible site was rehabilitated and repurposed as a research center. In December 2015 it burned down. Future planning efforts will be addressed outside of Foundation Document.

Fundamental Resource or Value	Precontact and Historic Sites
<p>Current Conditions and Trends</p>	<p>Conditions – Historic Sites (continued)</p> <ul style="list-style-type: none"> • The Lockhart Ranch is perhaps the most famous of the local ranches for its associations with Caroline Lockhart (writer, novelist, and cattle rancher). Most structures are listed in the List of Classified Structures database as having local to regional significance and are in poor to good condition. The south bunkhouse cabin is in good condition; the office and storage building is in the poorest condition. • Cedarvale/Hillsboro is important for its dude ranching associations. The buildings are in poor to good condition. The post office is the best preserved structure. The milk house is a significant stone structure at the site. • The 28-mile-long Bighorn Canal and its headgate were completed in 1904, mostly constructed by Crow workmen using horse-drawn equipment. The irrigation ditch ran from the mouth of Bighorn Canyon to Two Leggins Creek and opened 35,000 acres of arable land for irrigation to several hundred families. The Bighorn Canal was flooded upon completion of Yellowtail Dam; remnants of the headgate and beginning portions of the ditch are visible. • Fort C. F. Smith—the short-lived US Army outpost on the Bighorn River—garrisoned troops protecting travelers on the Bozeman Trail during the 1860s. The site is on private land. NPS staff interprets stories associated with Fort Smith. • The Kane Cemetery is associated with the former community of Kane that was submerged following construction of Yellowtail Reservoir. A new management plan for the cemetery has been completed. Volunteer clean-up activities occur to maintain the cemetery, and the site is accessible and stabilized. • The Abercrombie cabin is in poor condition (the property is isolated and has no roof). • The Ruth-Aldrich site consists of a single structure. The site is of unknown origin with no historical documentation. It is in the List of Classified Structures database but is not actively managed at present. NPS staff reduced fire fuels near the site and restricted cattle access. • During the historic period, the Bad Pass Trail was used by trappers and settlers. Trappers used it to transport furs, avoiding the dangers of floating the Bighorn River. Later, ranchers and settlers used the trail to access their properties on the Dry Head. • There are some historic mining sites in the national recreation area including early gold prospects / mines and historic uranium mines developed in the 1950s. Many sites have been reclaimed, and the national recreation area works with the NPS Abandoned Mineral Lands Program to correct environmental and safety problems. Mining history is linked to some ranching stories (e.g., there is a submerged gold dredge at Hillsboro). • Parts of the community of Fort Smith will become 50 years old in 2017, meeting the criterion of potential eligibility for listing in the national register. • More research is needed for historic-period tribal sites, but site information is often sensitive to associated tribes. <p>Trends</p> <ul style="list-style-type: none"> • As project funding declines, the national recreation area's ability to preserve historic structures will decrease. • Although accessibility at the historic ranch sites has not been improved, NPS staff has improved scheduling for access road gates to be unlocked, allowing opportunities to drive to the ranch sites for those with mobility impairments. • More site information has been made available to the public, although there has been a decrease in active site interpretation. • More people with personal relations/associations to historic ranches and other sites have been willing to share oral histories with NPS staff. • There is increased awareness of the need for protection of archeological and historic resources among NPS staff and others, and an increased trend for NPS law enforcement personnel to be involved in site protection.

Fundamental Resource or Value	Precontact and Historic Sites
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Wind and snow accumulation impact historic sites with standing structures (e.g., damage to the Lockhart Ranch garage). • Vandalism, looting, and graffiti can disturb historic and archeological sites. • Extreme weather events, including flash floods, can inundate and wash away both historic and prehistoric sites. These threats may intensify with climate change. • Damage to historic structural fabric occurs from burrowing rodents and insects. • Fire fuel loading presents a risk of fire damage and loss of historic structures. Fuel reduction measures are carried out. • Grazing cattle and other livestock can disturb historic site features, and cattle herds trailed through the national recreation area by local ranchers can also damage historic sites. • Relic hunting and the illegal collection of artifacts can impact the integrity of precontact and historic sites. • The Bighorn Canal headgate is deteriorating from lack of preservation and oxidation / corrosion. At times it is underwater, and fluctuating water levels complicate its preservation. • Parts of the Bad Pass Trail have been destroyed due to looting, NPS road construction, and other factors. Push for a trans-park highway to link the north and south districts would disturb the prehistoric Bad Pass Trail and associated sites on Crow and NPS lands. • Strong winds can disperse shallow soils covering certain prehistoric sites and blow away small artifacts such as lithic tool-making flakes. • Erosional processes such as the natural slumping of earthen banks can disturb archeological resources and site stratigraphy. <p>Opportunities</p> <ul style="list-style-type: none"> • There are opportunities to further interpret Fort C. F. Smith and the history of the Bozeman Trail through wayside exhibits. • There are opportunities to increase visitation to and interpretation of historic sites and nonculturally sensitive archeological sites. • Public education and outreach (perhaps in partnership with associated tribes and other partners) could be increased to inform visitors and others of the importance of protecting cultural resources. • Sites provide opportunities to capture oral histories and documentation; this can serve as a means to improve cultural connections and relations with local communities and descendants. • There are increased opportunities to work with volunteer groups and youth programs to document and preserve resources. • NPS-authorized geocaching could be used to increase visitation to historic sites. • The national recreation area could pursue a determination of national register eligibility for the Fort Smith community. • The national recreation area could conduct an inventory of submerged archeological sites within Bighorn Lake, perhaps with the use of remote-sensing technology. • Promotion of archeological field schools (college- and tribal-based) helps to improve tribal/NPS relationships. Crow involvement with these activities has been successful, and more efforts could be undertaken to involve the Northern Cheyenne tribe. Historic site preservation could be included in field school activities as well. • The national recreation area could explore opportunities to obtain Cooperative Ecosystem Studies Units funding for cultural resource projects (e.g., archeological field school training). • The national recreation area could reissue the Mason/Lovell Ranch audio tour on its website and/or provide similar interpretive information for other sites.

Fundamental Resource or Value	Precontact and Historic Sites
Data and/or GIS Needs	<ul style="list-style-type: none"> • Historic site inventories/assessments. • Historic structure reports (updated). • Site surveys of precontact and historic sites. • Updated spatial data for historic and precontact sites. • Oral histories. • Historic resource study.
Planning Needs	<ul style="list-style-type: none"> • Cultural landscape reports.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • “Protection of Historic Properties” (36 CFR 800) • National Historic Preservation Act of 1966, as amended (54 USC 300101 et seq.) • Archaeological Resources Protection Act of 1979 • Archeological and Historic Preservation Act of 1974 • Historic Sites Act of 1935 • Native American Graves Protection and Repatriation Act of 1990 • Executive Order 11593, “Protection and Enhancement of the Cultural Environment” • “Curation of Federally-Owned and Administered Archaeological Collections” (36 CFR 79) • Museum Properties Management Act of 1955 • Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources” • Executive Order 13007, “Indian Sacred Sites” • Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments” <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (chapter 5) “Cultural Resource Management” • <i>The Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation</i> • <i>The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i> • Director’s Order 28: <i>Cultural Resource Management</i> • Director’s Order 28A: <i>Archeology</i> • Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008) • Director’s Order 24: <i>NPS Museum Collections Management</i> • <i>NPS Museum Handbook</i>, parts I, II, and III • NPS Intermountain Region Indian Sacred Sites policy (draft) • Department of the Interior Policy on Consultation with Indian Tribes



Fundamental Resource or Value	Experiential Resources
<p>Related Significance Statements</p>	<ul style="list-style-type: none"> • Bighorn Canyon National Recreation Area offers outstanding recreational opportunities, including hunting and fishing, boating, camping, photography, hiking, and other outdoor pursuits, in a spectacular environment and setting. • Landforms, remnant fossils, and evidence of ancient ecological conditions offer insight and comparison of the region's geologic history and processes. These actions were critical to forming the canyon, the surrounding mountains, and the region's water resources.
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Many national recreation area viewsheds are in good condition while others have been modified by development. • On the north end of the national recreation area, the Fort Smith developed area (government camp) and power plant are part of the viewshed. • The viewshed is good at Horseshoe Bend, but a "boneyard" for NPS equipment next to this area detracts from the setting and interpretation of geological features. • Air quality is generally good, which contributes to the clarity of scenic views. However, smoke from wildland fires and dust from agricultural activities can occasionally limit daytime scenic views. • The secluded location away from large urban areas results in minimal impact from light pollution, allowing excellent views of the dark night sky. The national recreation area could probably qualify for dark night skies designation, except for the presence of the government camp. • There is a power line that runs through the national recreation area that can be seen at several places, including Lockhart Ranch. • Visitors have opportunities to experience solitude with little disturbance from modern sounds or other intrusions although mining operations are occasionally heard at Horseshoe Bend, south through the narrows and into the Yellowtail Habitat area.

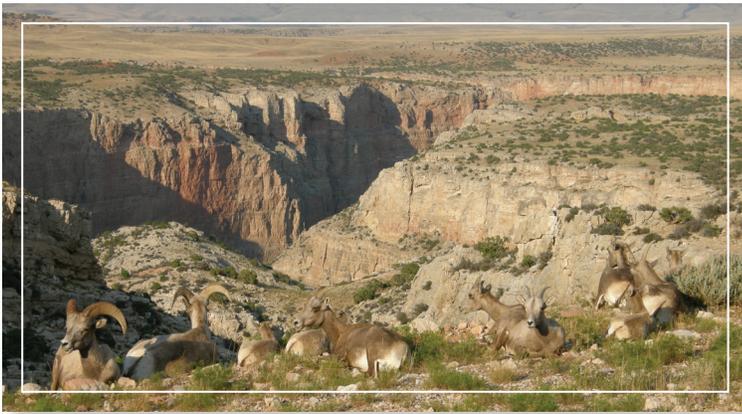
Fundamental Resource or Value	Experiential Resources
<p>Current Conditions and Trends</p>	<p>Trends</p> <ul style="list-style-type: none"> • The national recreation area has increased the placement of directional and other informational signage. • The natural environment and solitude of the national recreation area have been noted by visitors as positive qualities compared to other busier regional parks. This could increase visitation, as people tell others about their experience at the national recreation area (perhaps with increased use of social media). • In 2015, the national recreation area received an increase in spring break visitors. It is uncertain if this could represent an ongoing trend for increased visitation or was due to specific promotional activities or favorable weather conditions. • Visitors are looking for more amenities. • For the period between 2004 and 2013, the trend in visibility remained relatively unchanged. The visibility trend improved on the 20% clearest days and remained relatively unchanged (no statistically significant trend) on the 20% haziest days, resulting in an overall unchanging trend for visibility. • Despite current effects on air quality and scenic views from regional sources of air pollution, significant emissions reductions from the Colstrip power plant are scheduled by 2017 for the protection of regional class I areas. Combined with the expected shutdown of the Corrette Power Plant, this will also improve air quality conditions at the national recreation area.
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Siltation of the lake and river will eventually impact the canyon. • Potential development adjacent to the national recreation area could impact the soundscape, night sky, etc. • Sounds from hunting, mining blasts, and trains periodically interrupt the natural soundscape and acoustic environment. • Invasive vegetation species have changed the viewshed in natural areas and in historic ranch areas. • Fires are a threat to air quality and viewsheds. • Climate change and associated changes to precipitation could cause the area to become more arid. • The potential development of wind farms could impact viewsheds. • Increased signage visually disrupts the historic viewshed at some sites (Ewing-Snell Ranch) and signs could be better placed to reduce visual impacts. • Invasive plants (Russian olive, tamarisk) impact viewsheds. <p>Opportunities</p> <ul style="list-style-type: none"> • The proposed hydroelectric plant could improve water conditions and produce a sustainable power source for the Crow Tribe. • The national recreation area would like to replace outdoor lighting fixtures to comply with night sky standards. There is a project in the Project Management Information System to improve these fixtures. • The national recreation area could pursue International Dark Sky Park status. • Expand interpretative and educational tools to communicate the connections between scenic views, air quality/pollution, night sky, climate change, sensitive park resources, recreation, human health, and other associated resources. • Improve park sustainability and environmental leadership through the Climate Friendly Park certification including an environmental management system (Director's Order 13A). • Improved opportunities for visitors to view wild horses could be explored.

Fundamental Resource or Value	Experiential Resources
Data and/or GIS Needs	<ul style="list-style-type: none"> • Night skies study / light inventory guideline. • Climate change vulnerability assessment. • Visual resource inventory.
Planning Needs	<ul style="list-style-type: none"> • Climate change scenario planning. • Viewshed management plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Clean Air Act (42 USC 7401 et seq.) • "Audio disturbances" (36 CFR 2.12) • Architectural Barriers Act Accessibility Standards 2006; 36 CFR §1191.1 • Americans with Disabilities Act of 1990 • Architectural Barriers Act of 1968 • Rehabilitation Act of 1973 • NPS Concessions Management Improvement Act of 1998 • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (1.4) "Park Management" • NPS Management Policies 2006 (1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS Management Policies 2006 (3.1) "General" • NPS Management Policies 2006 (4.7) "Air Resource Management" • NPS Management Policies 2006 (4.10) "Lightscape Management" • NPS Natural Resource Management Reference Manual 77 • NPS Management Policies 2006 (4.9) "Soundscape Management" • NPS Management Policies 2006 (5.3.1.7) "Cultural Soundscape Management" • NPS Management Policies 2006 (8.2.3) "Use of Motorized Equipment" • NPS Management Policies 2006 (chapter 7) "Interpretation and Education" • NPS Management Policies 2006 (chapter 10) "Commercial Visitor Services" • Director's Order 6: <i>Interpretation and Education</i> • Director's Order 13A: <i>Environmental Management Systems</i> • Director's Order 42: <i>Accessibility for Visitors with Disabilities in National Park Service Programs and Services</i> • Director's Order 47: <i>Preservation of the Acoustic Environment and Noise Management</i> • NPS Transportation Planning Guidebook



Fundamental Resource or Value	Recreational Opportunities
Related Significance Statements	<ul style="list-style-type: none"> Bighorn Canyon National Recreation Area offers outstanding recreational opportunities, including hunting and fishing, boating, camping, photography, hiking, and other outdoor pursuits, in a spectacular environment and setting.
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> Approximately 200,000 visitors a year experience Bighorn Canyon National Recreation Area. Visitors to the recreation area have opportunities to pursue a broad variety of outdoor recreational activities. Water-related activities, such as boating and fishing for brown and rainbow trout, walleye, sauger, and other game fish, draw many visitors. Bighorn Lake boat access areas are limited to the marinas and boat ramps at Horseshoe Bend and Ok-A-Beh, and two additional boat launches at Afterbay Dam and Barry's Landing. Swimming at the lifeguarded areas at Horseshoe Bend and Ok-A-Beh is popular with the local community. There are a variety of popular land-based recreational opportunities including hiking, camping, wildlife viewing, photography, hunting, and opportunities to enjoy solitude. The lake and river levels change periodically, which can impact the availability of recreational opportunities. There is a broad range of hunting opportunities for a variety of species. Hunting is allowed in accordance with state laws. Trapping is prohibited. Habitat conditions strongly influence wildlife presence and accessible viewing opportunities. Access to water recreation is cost prohibitive for many visitors. Boats and associated equipment are expensive to own or rent. Bighorn Lake is currently free of nonnative mussels. Statewide fish advisories are in effect for Wyoming and Montana regarding mercury contamination with consumption guidelines for Bighorn Lake. A 2015–2017 study is underway to determine the source of high mercury levels in fish caught in Bighorn Lake. <p>Trends</p> <ul style="list-style-type: none"> There is increased demand for larger recreational vehicle sites with full hookups at campgrounds. An increase in nonmotorized lake recreation is occurring including paddleboards, kayaks, canoes, etc. Demand for larger health-oriented activities and events have been increasing, including triathlons, bike days, etc. Economic trends impact visitation numbers as a result of fuel prices and other factors, and affect the types of recreational activities that visitors pursue. The national recreation area has received increased requests for commercial services (e.g., photo trips, guided services, instructional services, etc.).
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> Continuing lake siltation will impact opportunities for water-based recreation. Water levels, which are controlled by the Bureau of Reclamation, impact both lake and river recreational activities. Droughts and floods can also impact water levels and recreational opportunities by altering or limiting customary access. Bureau of Reclamation and National Park Service missions do not always align.

Fundamental Resource or Value	Recreational Opportunities
<p>Threats and Opportunities</p>	<p>Threats (continued)</p> <ul style="list-style-type: none"> • Frequent changes to multiagency management staff can be confusing to NPS staff and the public. This can slow down management processes and pose challenges to uninterrupted operations. • Many visitor use opportunities are not accessible to disabled or mobility-impaired visitors. • NPS staff is trying to prevent invasion of quagga and zebra mussels in the lake and river. • Proposed relocation of the hydro-electric plant could impede lake access for fishermen unless the facility is appropriately sited. • As the river / lake level rises, there is more driftwood floating in the water, which can damage equipment and pose threats to visitor safety. • Possible high levels of mercury and / or selenium could impact recreation. • Fire is a threat to the Yellowtail habitat area, which can cause safety issues for visitors in certain areas. It also threatens the habitat itself. <p>Opportunities</p> <ul style="list-style-type: none"> • The national recreation area could modify existing campsites to accommodate larger recreational vehicles. • The national recreation area could continue to pursue “Ticket to Ride” funding and active trails grants through the National Park Foundation. • The national recreation area could pursue opportunities for mountain biking along appropriate trails. • Long-distance backcountry trails could be created for overnight hiking experiences. • The national recreation area could pursue new concessioners to offer more diverse visitor services. • The national recreation area could revisit its fishing policies to ensure greater consistency with state and tribal regulations.
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Visitor use data.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Recreation management plan. • Accessibility self-evaluation and transition plan.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Architectural Barriers Act Accessibility Standards 2006; 36 CFR §1191.1 • Americans with Disabilities Act of 1990 • Architectural Barriers Act of 1968 • Rehabilitation Act of 1973 • NPS Concessions Management Improvement Act of 1998 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • NPS <i>Management Policies 2006</i> (chapter 7) “Interpretation and Education” • NPS <i>Management Policies 2006</i> (chapter 8) “Use of the Parks” • NPS <i>Management Policies 2006</i> (chapter 9) “Park Facilities” • NPS <i>Management Policies 2006</i> (chapter 10) “Commercial Visitor Services” • Director’s Order 6: <i>Interpretation and Education</i> • Director’s Order 42: <i>Accessibility for Visitors with Disabilities in National Park Service Programs and Services</i> • NPS <i>Transportation Planning Guidebook</i>



Analysis of Other Important Resources and Values

Other Important Resource or Value	Bighorn Sheep
<p>Current Conditions and Trends</p>	<p>Conditions</p> <ul style="list-style-type: none"> • Bighorn sheep (<i>Ovis canadensis</i>) were hunted for millennia in Bighorn Canyon, although they were extirpated from the area in the 1800s following European American settlement. • Sheep that were reintroduced outside the national recreation area in the 1970s established a herd that presently favors the steep, rocky terrain near the edge of Bighorn Canyon. They occupy a range that extends west of the national recreation area on Bureau of Land Management land and Custer National Forest. Concerns about the long-term viability of this herd because of its small size have made its management important for Bighorn Canyon National Recreation Area. • After reaching a high of 211 in 1993–1994, the reintroduced sheep population declined to approximately 125 in 1995–1996, probably because of an outbreak of pasteurellosis (<i>Mannheimia haemolytica</i>). • In 2004 and 2006, the Wyoming Game and Fish Department translocated 40 bighorn sheep to Devil Canyon, about 12 miles east of the national recreation area, increasing the size of that herd to an estimated 110 sheep. Bighorn sheep selected for translocation are tested for disease before being released. • The sheep population in the national recreation area is generally healthy and now at a level where numbers can be sustained without human intervention. The population is large enough that some sport hunting can be allowed. • Following the recommendations of a US Geological Survey team that studied the population dynamics and habitat use of 30 collared sheep during 2000–2003, habitat treatments such as burning and clearing of juniper were carried out to improve otherwise suitable sheep habitat in the national recreation area. Bighorn sheep populations range from the Wyoming-Montana border to Mustang Flats. They are also concentrated on Sykes Ridge. • The sheep are starting to use the area near the state line, and are sometimes on the Wyoming side of the national recreation area. • The presence of wild horses and overlapping habitats may impact the sheep herd. <p>Trends</p> <ul style="list-style-type: none"> • Conditions appear stable as long as bighorn sheep habitats are adequately managed. • Despite population increases during recent years, the Bighorn Canyon herd remains below a threshold of approximately 300 sheep that would significantly improve its long-term prospects in the face of illness, harsh weather, and natural predation. • Hunting licenses are issued by state agencies, and in recent years only a few permits to hunt rams in the Bighorn Canyon herd have been issued. • The Devil Canyon herd (outside the national recreation area) could eventually interbreed with the sheep in Bighorn Canyon, improving the viability of both herds.

Other Important Resource or Value	Bighorn Sheep
<p>Threats and Opportunities</p>	<p>Threats</p> <ul style="list-style-type: none"> • Once widely distributed across the West, bighorn sheep persist chiefly in small, fragmented populations that are at ongoing risk of decline as a result of disease, forest encroachment caused by fire suppression, and disruption of their migratory routes by roads and other human activities. • Climate change may adversely impact the availability and distribution of primary vegetation food sources for bighorn sheep such as mountain mahogany. • Disease can significantly impact herd populations and dynamics. Bighorn sheep are especially vulnerable to domestic livestock diseases such as pasteurellosis, which causes bronchopneumonia. • Current habitats are threatened by juniper encroachment, which provides cover for predators. • Invasive plant species (e.g., Russian olive, tamarisk, thistle, cheatgrass) can adversely impact habitat and food sources used by bighorn sheep. • The arid and semi-arid ecosystem, grassland, and wetland may be vulnerable to nutrient-enrichment effects of excess nitrogen from atmospheric deposition and runoff, which can help invasive plant species to grow faster and out-compete native vegetation adapted to lower nitrogen conditions. <p>Opportunities</p> <ul style="list-style-type: none"> • The national recreation area could further use prescribed burning and mechanical thinning to open bighorn sheep travel corridors and expand habitat. However, these measures could inadvertently increase the spread of invasive plant species. • Viewing opportunities could be increased due to the current viability of existing populations. • The national recreation area could work more closely with state wildlife departments and tribal game and fish departments for scientific study and law enforcement strategies. • Increase use of citizen science and BioBlitz for inventory and monitoring. • Determine climate change data needed for effective bighorn sheep management.
<p>Data and/or GIS Needs</p>	<ul style="list-style-type: none"> • Mountain lion population monitoring study. • Mountain mahogany survey. • Citizen science BioBlitz. • Updated wildlife inventories.
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Climate change scenario plan. • Bighorn sheep habitat management plan.
<p>Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the OIRV</p> <ul style="list-style-type: none"> • National Environmental Policy Act of 1969, as amended • Endangered Species Act of 1973, as amended • State hunting regulations and license requirements • Federal Noxious Weed Act of 1974, as amended • Executive Order 11514, "Protection and Enhancement of Environmental Quality" • Executive Order 13112, "Invasive Species" • Secretarial Order 3289 "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Secretarial Order 3206 "American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act" <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (4.1.4, 4.2, 4.4) • NPS Natural Resource Management Reference Manual 77

Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but which still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for Bighorn Canyon National Recreation Area and the associated planning and data needs to address them:

- **Interagency Management and External Partners.** The ongoing deposition of sediments in Bighorn Lake following construction of Yellowtail Dam threatens the character of the lake, customary recreational uses, and access. A sedimentation study has been completed to inform potential efforts to improve the lake siltation dilemma. National recreation area users in Lovell and other south unit users, primarily from Wyoming, want lake access to deep water for boating and have expressed that they “want the lake back.” However it is beyond the means of the National Park Service or other agencies (Bureau of Reclamation, Bureau of Land Management, US Army Corps of Engineers) to feasibly implement remediation measures. The national recreation area needs to determine how to approach long-term management of the Horseshoe Bend area because of lake siltation, and could possibly consider relocating the marina.

The Bureau of Reclamation has primary responsibility for Bighorn Lake and Yellowtail Dam, and the National Park Service does not have control over Bureau of Reclamation actions regarding water levels in the lake. Climate change as well as the water demands of reservoir users contributes to lake level variability. Visitors and stakeholders accustomed to previous access opportunities often question NPS staff about the lake level although the issue is beyond NPS control. The Bureau of Reclamation currently maintains data on lake water levels.

In addition to the need for cooperative interagency management, the national recreation area can benefit from productive partnership relationships with its multiple stakeholders and visitors. Transparency in government is important, and national recreation area projects and critical issues could be more effectively conveyed to the public. It is important that the public recognizes the distinct NPS mission and how the agency cooperatively manages the national recreation area. The national recreation area does not currently have an official friends group, and one would be helpful in contributing to fundraising activities, volunteer / staffing capacity, and interpretation.

The rural nature of the national recreation area makes it difficult to attract a broad-based friends group.

Data needs:

- community/partner assessment
- climate change vulnerability assessment
- cottonwood survey
- mountain mahogany analysis

Planning needs:

- collaboration clinic
- park partner action strategy
- strategic communications plan
- climate change scenario planning

- **Housing in the South District.** The national recreation area has limited options to provide seasonal staff housing in the south district, and the expense of available housing in the local gateway community of Lovell hinders the hiring of seasonal staff. A housing assessment was completed in March 2014, but the challenges in the south district may not have been appropriately evaluated to represent staffing needs at that time. The housing needs assessment identified that three units were needed for housing and available in the south district. The data for this assessment were collected in the spring / summer of 2013 and reflects the seasonal staffing situation at that time. If the national recreation area has increased funding for seasonal positions since the spring / summer of 2013, then there could be a justification to lease additional housing in Lovell.

Data need:

- housing needs assessment

- **Concessions and Special Use Permit Programs.** These programs have dramatically increased and the additional complexity and time associated with addressing program requirements should be assessed.

Planning need:

- commercial services strategy

- **Lake / Ok-A-Beh Marina Access.** A road provides public and NPS operational access to the Ok-A-Beh Marina and is outside the national recreation area boundary. The National Park Service has a partial easement for use of this road (from the second cattle guard crossing to just above Pretty Eagle Point access road). The current NPS agreement with the Crow Tribe for use of the road extends to 2017, and the National Park Service is pursuing renewal of the agreement to provide continued access. The Federal Highway Administration performs road maintenance work, and NPS staff is mostly responsible for plowing and crack repair. Road condition inventories are conducted periodically. However, the national recreation area has had difficulties recruiting commercial service vendors at the Ok-A-Beh Marina. Renewal of the agreement is necessary to provide continued access. Ongoing and additional tribal consultation is necessary to resolve access issues.

Data need:

- road inventory



- **Facilities Operations.** Various critical elements of the national recreation area's infrastructure (access roads, utilities, etc.) are deteriorating and unsustainable. The national recreation area could enhance its ability to compete for scarce project and staffing funds in part by improving the prioritization of projects and the preparation of effective project funding requests (PMIS). Deteriorating infrastructure affects the availability of certain visitor services and experiences, including accommodation of large recreational vehicles at campsites. The ability to continue to provide electricity and potable water at the campgrounds and marinas is also a concern. There has been a lack of adequate staff and funding to perform repairs. The lack of certified dive staff limits the national recreation area's ability to perform needed underwater maintenance at the marinas (these services have been contracted in the past). Limited visitor numbers also hinder the national recreation area's competitive status when applying for funding.

Data needs:

- facility management operational review
- facility condition assessment

Planning needs:

- accessibility self-evaluation and transition plan

- **Internal Communications and Operational Efficiency.** The geography of the national recreation area and the distant separation of north and south districts provide challenges for effective communication and collaboration among NPS staff. These challenges have occasionally led to operational inefficiencies. There is a recognized need among NPS staff and managers to improve communications. Operational efficiency could also be improved with the hiring of adequate numbers of full-time and seasonal staff to carry out maintenance and other divisional responsibilities. There is also a backlog of facility maintenance projects that need to be addressed.

Data need:

- facility management operational review

Planning need:

- strategic communications plan

Planning and Data Needs

To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Planning Needs – Where A Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
Key Issue	Park partner action strategy	H	The strategy (undertaken perhaps with existing agency partners) would reach out to additional partnership organizations from the public and private sectors (e.g., sport/fishing supply companies; Youth Conservation Corps). It would help the national recreation area determine if a friends group would be appropriate or feasible in achieving goals.
Key Issue; Recreational Opportunities	Accessibility self-evaluation and transition plan	H	The plan would assess visitor accessibility conditions with recommendations for improvements as needed.
Precontact and Historic Sites	Cultural landscape reports	H	Cultural landscape reports are needed for all historic ranches, Bad Pass Trail, and possibly other sites to provide preservation treatment and management recommendations. These would expand on information included in existing cultural landscape inventories.
Key Issue	Strategic communications plan	H	The plan would promote agency transparency, provide guidance for improving public and internal NPS staff communications, and would develop a strategic vision for the future of the national recreation area.
Recreational Opportunities	Recreation management plan	H	The plan would assess how visitors are currently using the national recreation area and where the National Park Service could more effectively direct efforts to manage visitor recreational activities.
Key Issue	Collaboration clinic	M	The clinic would be developed to open communications with cooperating agencies, partners, tribes, and stakeholders to come to mutual understanding of the feasibility and limitations of actions regarding lake siltation and other critical issues. Public meetings could be held in the local communities as part of the communication process.
Key Issue	Commercial services strategy	M	The commercial services strategy would help ensure that concession facilities and services are necessary and appropriate, financially viable, and are addressed in an approved management plan.
Cultural Continuity	Archive management plan	M	A strategy is needed to adapt existing archival information into a form more useful for interpretation, research, resource management, and law enforcement. It could include digitizing records/maps to meet the needs of multiple divisions.
Bighorn Sheep	Bighorn sheep habitat management plan	L	The plan would assess strategies for improving bighorn sheep habitat such as managing vegetation by controlled fire or other means.
Key Issue; Experiential Resources	Climate change scenario planning	L	Climate change scenario planning would provide a process based on credible science that explores a range of plausible climate futures for the national recreation area and identifies the associated impacts and management implications.
Key Issue; Bighorn Canyon	Resource stewardship strategy	L	The strategy would provide overall management guidance for the national recreation area's natural and cultural resources.
Experiential Resources	Viewshed management plan	L	The plan would incorporate visual resource inventory information to assist with the development of strategies to protect important scenic views.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	Data and GIS Needs	Priority (H, M, L)	Notes
Key Issue	Facility management operational review	H	The review would be undertaken by the Intermountain Region facilities division to assess and document maintenance needs, upcoming projects, and associated staffing needs. It would include operations and maintenance for Ok-A-Beh Road, and would provide guidance for the facility manager. The review could include a sustainability assessment to determine if operations are energy efficient or could be undertaken in a manner that minimizes the consumption of scarce/depletable energy resources. The review could also examine noise and artificial lighting sources and whether operations could be undertaken in a manner that minimizes noise and artificial light impacts.
Recreational Opportunities	Visitor use data	H	The collection of baseline visitor use data is needed to assess types and patterns of visitor use to assist management efforts.
Precontact and Historic Sites	Sites surveys of precontact and historic sites	H	Ongoing class III archeological surveys and surveys of historic sites need to be conducted of unsurveyed portions of the recreation area. These would include recording spatial/GIS data.
Key Issue	Facility condition assessment	H	The assessment would help determine the facility condition index and costs of work that needs to be completed for facility maintenance. It would allow the national recreation area to accurately update the Facility Management Software System and address repair/rehab and cyclic maintenance requirements.
Key Issue	Housing needs assessment	H	An amendment to the existing March 2014 housing assessment may be justified to appropriately assess staff housing challenges in the south district.
Precontact and Historic Sites; Cultural Continuity	Ethnographic studies / oral histories	H	More oral history data and focused ethnographic investigations are needed (e.g., historic Crow use of Bighorn Canyon; stories from people who worked on the dam and lived in the government camp during dam construction; American Indian perspectives on the building of the dam). Information has been obtained from the Crow Tribe and is needed from other associated tribes (e.g., Northern Cheyennes). Information is also needed from the descendants of the former Kane community and historic ranch families. Efforts can be undertaken in cooperation with local colleges.
Key Issue; Bighorn Sheep	Mountain mahogany survey	H	The survey of mountain mahogany would be linked to overall habitat condition and climate change data affecting the bighorn sheep population. The national recreation area could partner with a university through a Cooperative Ecosystem Studies Unit agreement. Efforts could be coordinated with the Greater Yellowstone Network.
Bighorn Canyon	Radio footprint map	M	The map would help identify areas in the national recreation area that can/cannot be accessed by radio to assist visitor and employee protection efforts.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	Data and GIS Needs	Priority (H, M, L)	Notes
Key Issue	Community/partner assessment	M	The assessment would identify appropriate groups/ needs for collaborative partnerships and a potential friends group.
Bighorn Sheep	Mountain lion population monitoring study	M	A baseline mountain lion study has been completed. However, an ongoing study is needed to identify and monitor population trends over time. Investigations conducted at regular intervals would provide better understanding of the dynamics of predator/prey interactions affecting bighorn sheep, wild horses, and other species.
Precontact and Historic Sites	Update spatial data for historic and precontact sites	M	Updated spatial data for historic and precontact sites is needed (accurate locations for historic Smithsonian and other legacy data). Existing data and condition assessments would be digitized, as needed, for the GIS database and/or entered for sites that currently lack adequate documentation and data. Some sites may need to be relocated to confirm on-ground locational information.
Experiential Resources	Light inventory guideline	M	The inventory and guideline would assess existing conditions at the national monument and potential sources of light impacts on the night sky. It would provide guidance on ways to improve conditions to pursue dark night sky designation.
Bighorn Canyon	Geologic map of the canyon	L	An updated large-scale (1–24,000 scale) geologic map of the national recreation area would assist research and interpretation activities. As part of the national inventory effort, the NPS Geological Resources Division completed a map of the national recreation area in 2007 and a geologic report in 2011.
Key Issue	Cottonwood survey	L	The survey would assess the health of cottonwood habitat areas and how native cottonwood stands are impacted by changing water conditions.
Key Issue	Climate change vulnerability assessment	L	Vulnerability to climate change is the degree to which a system, asset, or resource is susceptible to and unable to cope with adverse effects associated with climate change and other stressors such as habitat fragmentation or water pollution. Vulnerability assessments are needed to help set priorities for conservation and adaptive action.
Key Issue	Road inventory	L	These inventories are provided by the Federal Highway Administration; the information could assist with the identification of maintenance costs (e.g., Ok-A-Beh Road).
Precontact and Historic Sites	Inventory assessments and updated historic structure reports needed for historic structures	L	Much of the existing historic structure report information is out of date and needs to be updated. Newly identified historic structures (e.g., Abercrombie, Ruth-Aldrich, turkey coop, rock cabin) also require assessments and potential historic structure reports.
Cultural Continuity	Update List of Classified Structures database with additional data collected from oral histories	L	Oral history Information can be incorporated into the List of Classified Structures database and the Facility Management Software System. New information can also be included in updated cultural landscape inventories, historic structure reports, and other relevant reports.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	Data and GIS Needs	Priority (H, M, L)	Notes
Bighorn Sheep	BioBlitz and updated plant and animal inventories	L	The BioBlitz data would be used to update inventory and monitoring information regarding plant and animal species. Updated inventories are needed for many wildlife species, particularly amphibians.
Experiential Resources	Visual resource inventory	L	The inventory would identify the scenic quality of viewsheds as well as the NPS/visitor values of the views and serve as the baseline for a viewshed management plan. The inventory would help assess the visual effects of future development in the national recreation area and determine if incompatible development (e.g., cell or radio towers) could intrude on the viewsheds and settings of historic sites and other critical places. Baseline viewshed information was gathered for the Natural Resource Condition Report, and a Landscape Dynamics Report was also recently completed.
Precontact and Historic Sites	Historic resource study	L	The study would incorporate updated, in-depth research and documentation to support management of historic properties.



Part 3: Contributors

Bighorn Canyon National Recreation Area

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Appendixes

Appendix A: Enabling Legislation and Legislative Acts for Bighorn Canyon National Recreation Area

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significantly impair, public recreation and conservation of scenic, scientific, historic, or other values contributing to public enjoyment.

(b) In the administration of the area for the purposes of this Act, the Secretary may utilize such statutory authorities relating to areas administered and supervised by the Secretary through the National Park Service and such statutory authorities otherwise available to him for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this Act.

SEC. 4. The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the recreation area in accordance with the appropriate laws of the States of Montana or Wyoming to the extent applicable, except that the Secretary may designate zones where, and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment, and except that nothing in this section shall impair the rights under other law of the Crow Tribe and its members to hunt and fish on lands of the Crow Tribe that are included in the recreation area, or the rights of the members of the Crow Tribe to hunt and fish under section 2(d) of the Act of July 15, 1958. Except in emergencies, any regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Montana Fish and Game Department or the Wyoming Game and Fish Commission.

SEC. 5. There is hereby authorized to be appropriated not more than \$355,000 for the acquisition of land and interests in land pursuant to this Act.

The principal purpose of the amendments are for the purpose of making certain that the rights of the Crow Indian Tribe to develop and operate recreational facilities on that portion of the shoreline adjacent to the Indian reservation are protected. The rights of the tribe to continue their present practices of hunting, fishing, and administration of tribal lands are not in any way interfered with.

The bill as amended also authorizes the Department of the Interior to purchase private lands within the area, but limits the authority for acquisition to the sum of \$355,000.

THE PROJECT

The bill would set aside some 63,300 acres along the Big Horn River above Yellowtail Dam as a unit of the national park system. The proposed national recreation area in south-central Montana and north-central Wyoming would include the spectacular Big Horn Canyon and would cover about one-third of the 195-mile shoreline created by the reservoir backed up behind the Yellowtail Dam, scheduled for completion by the Bureau of Reclamation in 1966.

The proposed area has outstanding scenic and recreation values. It straddles the Montana-Wyoming border. The river runs through the Big Horn Canyon, a narrow precipitous gorge 47 miles long, with walls rising from 800 to 2,200 feet above the river. On these walls are

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the strata of various geological periods dating back for millions of years.

In addition to the impressive scenery and geology presented here there are sites of significant archeological and historical interest. The Smithsonian Institution is studying a narrow strip of land running the length of the canyon, on which has been found evidence of habitation by an unknown prehistoric tribe. Near the damsite are the remains of Fort C. F. Smith, an Army infantry post established in 1866 to protect travelers on the Bozeman Trail from the Sioux and Cheyenne Indians. The area also has immense possibilities for development of facilities for boating, camping, hiking, horseback riding, pack trips, swimming, fishing, and possibly winter sports. The reservoir behind Yellowtail Dam also will provide a safe water highway into what was formally an almost inaccessible region.

The proposed Big Horn Canyon national recreation area is situated in one of our Nation's major vacation lands. It is only 110 miles east of our oldest and largest national park, Yellowstone, which last year attracted 1,872,500 visits. It is near well traveled vacation routes, such as U.S. Highways 87 and 212, and Interstate 90, now under construction, to the north and east. Wyoming State Highway 14 will also provide access to the area from the south.

Since this is the only proposed reservoir national recreation area in the Missouri River Basin, it would serve the water-oriented recreation needs of thousands of people from the Rocky Mountain region and the Great Plains.

For example, about 177,000 persons reside within a 100-mile radius of either end of the Yellowtail Reservoir. Assuming initial recreational developments are in operation, the Park Service estimates that by 1970 use of the proposed recreational area by these local residents will amount to some 154,000 visitor-days per year. In addition, the Park Service estimates that annual use by people from other parts of the country will amount to 406,000 visitor-days so that total usage by 1970 would be 560,000 visitor-days per year.

From the standpoint of economy, all but about one-ninth of the land involved is already in Federal ownership. Within the area, more than 29,200 acres are being acquired by the Bureau of Reclamation for dam and reservoir purposes. Of the remainder, almost 27,000 acres are in the Federal land reserve. There are some 719 acres of Montana State lands, which under our bill could only be acquired with the concurrence of the State. Some 4,760 acres are privately owned. The Park Service estimates cost of acquiring this land at \$355,000 based on the experience of the Bureau of Reclamation with land acquisition at Yellowtail Dam. It is the studied view of the sponsors of S. 491 that this unique area should be established, and blocked out at this time, with development to come as appropriations are made available and on a priority list with comparable areas.

This view is shared by the Bureau of the Budget and the Interior Department's National Park Service and the Bureau of Outdoor Recreation. The latter agency has documented the finding that the proposed Big Horn Canyon national recreation area meets the criteria for recreation areas.

Both the Subcommittee on Public Lands and the full Interior and Insular Affairs Committee unanimously endorse the early enactment of this bill.

BIGHORN CANYON NATIONAL RECREATION AREA

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DEPARTMENTAL REPORTS

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., February 2, 1965.

Hon. HENRY M. JACKSON,
*Chairman, Committee on Interior and Insular Affairs,
U.S. Senate, Washington, D.C.*

DEAR SENATOR JACKSON: This responds to your request for the views of this Department on S. 491, a bill to provide for the establishment of the Bighorn Canyon National Recreation Area, and for other purposes.

We recommend that the bill be enacted, with the perfecting amendments indicated herein.

The bill establishes the Bighorn Canyon National Recreation Area in the States of Montana and Wyoming in order to provide for public outdoor recreation use and enjoyment of the proposed Yellowtail Reservoir and adjacent lands in those States, and for the preservation of the scenic, scientific, and historic features which will contribute to public enjoyment of the area.

The Yellowtail Dam, now under construction on the Bighorn River near Hardin, Mont., will be a 500-foot high, concrete arch structure with a crest length of 1,445 feet. The dam will create a riverlike reservoir 71 miles long. The dam itself—one of the largest in America—will be a significant feature of the area and will be situated at the end of a spectacular canyon which extends 47 miles through the Bighorn Mountains.

The Bighorn Canyon, more deeply carved than any canyon lying east of this point, is the result of an erosional history associated with the uplift period of the building of the mountains of the region—the Bighorn and the Pryor. During the uplift period, streams were at work removing the less-resistant materials and as a consequence formed the Bighorn River along its present course through the mountains. When the river had eroded a channel deep enough to expose the hard Bighorn Mountain limestone fold, it could not change its course, but was forced to carve steep canyons. These canyons range in depth from 800 to 2,200 feet and present on their walls the various strata of geological periods dating back many millions of years with colors ranging from pale yellow to the intense red of the Triassic chugwater shale.

To the east of the canyon are the Bighorns, to the west the Pryor Mountains. A deeply incised upland prairie forms a vast green pedestal from the mountain wall to the canyon rim. The combination of uplifting and erosional forces has created a topography of extreme contrast—gently rolling land cut by sheer gorges and bounded by irregular mountains. The change in elevation from canyon floor to adjacent mountain tops approximates 4,000 feet.

In addition to the impressive scenery and geological story presented here, there are sites of significant archeological and historical interest. The Smithsonian Institution is presently studying a narrow strip of land running the length of Bighorn Canyon on which are situated campsites, tepee rings, a medicine wheel, aboriginal trails, flint workshop areas, rock shelters, petroglyphs, and buffalo kills. These sites and objects present conclusive evidence of habitation of the area by a prehistoric people, but it is not known who these inhabitants were.

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BIGHORN CANYON NATIONAL RECREATION AREA

In historic times it is known that the Crow, or Absaroka Indians, were among the earliest people to dwell in this area and they have remained to this day.

A few miles downstream from the damsite are the remains of Fort C. F. Smith (to be distinguished from Fort Smith Village, the Bureau of Reclamation construction camp). This Infantry post was established in 1866 to protect the travelers on the Bozeman Trail from attacks of hostile Sioux who considered the trail an encroachment on their hunting grounds. Traces of the trail, which forded the Bighorn River about 3 miles below the damsite, can still be seen where it passed the fort on the right bank of the river. Still farther downstream is the site of the Hayfield Fight. Here a small force of haycutters and their soldier guards successfully repulsed greatly superior numbers of attacking Sioux warriors. This result has been attributed to the use of newly issued breech loading .50 caliber Springfield rifles rather than muzzle-loading weapons. The Hayfield Fight thus became a classic of the Western Indian wars, being the first battle in which these greatly improved weapons were used. These historic sites—composed of a mixture of tribal and allotted lands—are located within the Crow Indian Reservation.

Impoundment of water by the Yellowtail Dam will provide a safe water highway into what has formerly been an almost inaccessible region. But more significantly, the impoundment will afford an opportunity for water-based recreational activities as varied as the imagination of the American traveler. Here will be a reservoir large enough for boating of all sorts; fishing should be excellent whether on the reservoir or along the river; and the surrounding terrain is interestingly adapted to associated activities, such as camping, picnicking, hiking, observation of birds and wildlife, horseback riding, scenic drives, historical, geological and archeological interpretation, and appreciation of the engineering accomplishments represented by the dam and its related facilities.

The proposed Bighorn Canyon National Recreation Area will comprise approximately 63,300 acres, of which over 90 percent (57,840 acres) is presently in Federal ownership. There are about 719 acres of Montana State lands and 4,760 acres of private lands. The bill also provides for the inclusion of Crow Indian Reservation lands in the recreation area at the request of the Crow Tribal Council. The Indian lands so included will be developed and administered under the laws and regulations applicable to the recreation area "subject to any limitation specified by the tribal council and approved by the Secretary."

The proposed Bighorn Canyon National Recreation Area, situated in one of the Nation's major vacation lands, will be used by visitors from all over the country. Well traveled vacation routes such as U.S. Highways 87 and 212, and Interstate 90 (now under construction) to the north and east, and Wyoming State Highway 14 to the south will provide access to the area. Since this is the only reservoir in the Missouri River Basin proposed as a national recreation area, it will also fulfill the water-oriented recreation needs of a large number of people from the Rocky Mountain region and the Great Plains of the United States.

Based on the foregoing, the proposed Bighorn Canyon National Recreation Area has been found to satisfy the criteria for national recreation areas set forth in Policy Circular No. 1, adopted by the

80 STAT.] PUBLIC LAW 89-664—OCT. 15, 1966

913

Public Law 89-663

AN ACT

To provide for the disposition of judgment funds on deposit to the credit of the Skokomish Tribe of Indians.

October 14, 1966
[H. R. 3596]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the unexpended balance of funds on deposit in the Treasury of the United States to the credit of the Skokomish Tribe of Indians that were appropriated by the Act of January 6, 1964 (77 Stat. 857), to pay a judgment granted by the Indian Claims Commission in docket numbered 296 and the interest thereon, less litigation expenses, may be advanced or expended for any purpose that is authorized by the Skokomish tribal governing body and approved by the Secretary of the Interior. Any part of such funds that may be distributed to the members of the tribe shall not be subject to the Federal or State income tax.

Skokomish Tribe
of Indians.
Judgment funds.

Income tax
exemption.

Approved October 14, 1966.

Public Law 89-664

AN ACT

To provide for the establishment of the Bighorn Canyon National Recreation Area, and for other purposes.

October 15, 1966
[S. 491]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) in order to provide for public outdoor recreation use and enjoyment of the proposed Yellowtail Reservoir and lands adjacent thereto in the States of Wyoming and Montana by the people of the United States and for preservation of the scenic, scientific, and historic features contributing to public enjoyment of such lands and waters, there is hereby established the Bighorn Canyon National Recreation Area to comprise the area generally depicted on the drawing entitled "Proposed Bighorn Canyon National Recreation Area", LNPMW-010A-BC, November 1964, which is on file in the Office of the National Park Service, Department of the Interior.

Bighorn Canyon
National Recreation
Area, estab-
lishment.

(b) As soon as practicable after approval of this Act, the Secretary of the Interior shall publish in the Federal Register a detailed description of the boundaries of the area which shall encompass, to the extent practicable, the lands and waters shown on the drawing referred to in subsection (a) of this section. The Secretary may subsequently make adjustments in the boundary of the area, subject to the provisions of subsection 2(b) of this Act, by publication of an amended description in the Federal Register.

Boundaries.
Publication in
Federal Regis-
ter.

SEC. 2. (a) The Secretary is authorized to acquire by donation, purchase with donated or appropriated funds, exchange, or otherwise, lands and interests in lands within the boundaries of the area. The Secretary is further authorized to acquire, by any of the above methods, not to exceed ten acres of land or interests therein outside of the boundaries of the area in the vicinity of Lovell, Wyoming, for development and use, pursuant to such special regulations as he may promulgate, as a visitor contact station and administrative site. In the exercise of his exchange authority the Secretary may accept title to any non-Federal property within the area and convey in exchange therefor any federally owned property under his jurisdiction in the States of Montana and Wyoming which he classifies as suitable for exchange or other disposal, notwithstanding any other provision of law. Property so exchanged shall be approximately equal in fair market value:

Acquisition of
land.

Provided, That the Secretary may accept cash from, or pay cash to, the grantor in such an exchange in order to equalize the values of the properties exchanged. Any property or interest therein owned by the State of Montana or the State of Wyoming or any political subdivision thereof within the recreation area may be acquired only by donation or exchange.

Crow Indian
tribal lands.

(b) No part of the tribal mountain lands or any other lands of the Crow Indian Tribe of Montana shall be included within the recreation area unless requested by the council of the tribe. The Indian lands so included may be developed and administered in accordance with the laws and rules applicable to the recreation area, subject to any limitation specified by the tribal council and approved by the Secretary.

Recreational
facilities.

(c) (1) Notwithstanding any other provisions of this Act or of any other law, the Crow Indian Tribe shall be permitted to develop and operate water-based recreational facilities, including landing ramps, boathouses, and fishing facilities, along that part of the shoreline of Yellowtail Reservoir which is adjacent to lands comprising the Crow Indian Reservation. Any such part so developed shall be administered in accordance with the laws and rules applicable to the recreation area, subject to any limitations specified by the tribal council and approved by the Secretary. Any revenues resulting from the operation of such facilities may be retained by the Crow Indian Tribe.

“Shoreline.”

(2) As used in this subsection, the term “shoreline” means that land which borders both Yellowtail Reservoir and the exterior boundary of the Crow Indian Reservation, together with that part of the reservoir necessary to the development of the facilities referred to in this subsection.

Administration.

SEC. 3. (a) The Secretary shall coordinate administration of the recreation area with the other purposes of the Yellowtail Reservoir project so that it will in his judgment best provide (1) for public outdoor recreation benefits, (2) for conservation of scenic, scientific, historic, and other values contributing to public enjoyment and (3) for management, utilization, and disposal of renewable natural resources in a manner 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.

(b) In the administration of the area for the purposes of this Act, the Secretary may utilize such statutory authorities relating to areas administered and supervised by the Secretary through the National Park Service and such statutory authorities otherwise available to him for the conservation and management of natural resources as he deems appropriate to carry out the purposes of this Act.

Hunting, fish-
ing areas.

SEC. 4. The Secretary shall permit hunting and fishing on lands and waters under his jurisdiction within the recreation area in accordance with the appropriate laws of the United States and of the States of Montana or Wyoming to the extent applicable, except that the Secretary may designate zones where, and establish periods when, no hunting or fishing shall be permitted for reasons of public safety, administration, fish or wildlife management, or public use and enjoyment, and except that nothing in this section shall impair the rights under other law of the Crow Tribe and its members to hunt and fish on lands of the Crow Tribe that are included in the recreation area, or the rights of the members of the Crow Tribe to hunt and fish under section 2 (d) of the Act of July 15, 1958. Except in emergencies, any regulations of the Secretary pursuant to this section shall be put into effect only after consultation with the Montana Fish and Game Department or the Wyoming Game and Fish Commission.

72 Stat. 363.

Appropriation.

SEC. 5. There is hereby authorized to be appropriated not more than \$355,000 for the acquisition of land and interests in land pursuant to this Act.

Approved October 15, 1966.

Appendix B: Inventory of Administrative Commitments

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Memorandums of Understanding			
Law Enforcement NPS/Bureau of Land Management (BLM)	Procedures and guidelines for designating law enforcement authority between USDI, BLM, and NPS.	Signed 3/7/2006	
Structural Fire NPS/ Bureau of Reclamation (BOR)	Being drafted – to help support BOR structural fire response at Fort Smith.		
MOU # PMWHR MOU (FS)/06- MU-11010802-023 (BLM)/GS-1320-F-0001 (NPS)	Pryor Mountain Wild Horse Range: To establish mutual goals and objectives for the management of the Pryor Mountain Wild Horse Range and outline the responsibilities of each agency for the implementation of management actions.	8/1/2005	NPS, US Forest Service (USFS), BLM
Memorandums of Agreement			
CA-SECY-67-01	Note: in 1976, the Crow Tribal Council passed Resolution No. 76-32 which rescinded the memorandum of agreement. The resolution reaffirmed tribal opposition to the construction of the trans-park road over reservation lands.	1967-2017 (50-year agreement), but rescinded in 1976	Crow Tribe of Montana, Secretary of the Interior, and NPS
Joint Resolution 135	Providing for payment to the Crow Tribe of Montana for right-of-way for Yellowtail Dam and Reservoir, Hardin Unit, Missouri Basin Project, Montana-Wyoming.	1/3/1957	House of Representatives
Memorandum of Agreement with the Advisory Council on Historic Preservation, Montana State Historic Preservation Officer and NPS	The agreement details mitigation measures the National Park Service would implement to minimize impacts on the Bad Pass Trail and Pretty Creek Archeological Site by construction of Bad Pass Road.	Started in 1974; disbanded in late 1980s early 1990s	Advisory Council on Historic Preservation, Montana State Historic Preservation Officer, NPS
Memorandum of Agreement among NPS, USDI, and Bighorn Canyon Natural History Association	Agreement to provide interpretive and educational services to the visiting public and to assist the National Park Service in providing the same.	Started in 1978	NPS, USDI, Bighorn Canyon Natural History Association
Infrastructural Agreement	Agreement for water and sewer service and for the construction of sewer and water facilities to serve the Bighorn Canyon Visitor Center. This includes property access recorded by the NPS Intermountain Region Lands Office in the right-of-way database, but does not include a permitted right-of-way.	Started 1976	NPS and the Town of Lovell, WY

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
General Agreements			
Wyoming Department of Transportation (WYDOT) Landscaping Agreement	Agreement to let NPS maintain roadside between visitor center and US Highway 14A.	7/17/2006	WYDOT, NPS
Law Enforcement General Agreement between Bighorn Canyon National Recreation Area (BICA), Little Bighorn Battlefield National Monument (LIBI), and Big Horn County, Montana	Agreement that the National Park Service is authorized under certain conditions to help in out-of-park emergency rescue, firefighting and cooperative law enforcement assistance — Big Horn County will do dispatch.	Signed 3/22/2010; expires five years from last signature	LIBI, BICA, Bighorn County, MT
Secondary Terminal Users and Criminal Justice Information Exchange Agreement	Providing telecommunications service for the National Park Service.	Signed 6/8/2012	NPS, Lovell Police Department
Big Horn County, WY Search and Rescue	Guidelines to allow the Big Horn County search and rescue group to use the services of NPS boat for search and rescue incidents, training, and occupy in standby mode during large incidents in the district.	Signed 8/12/2009	
Cottonwood Camp Sewer Agreement	Cottonwood Camp had a previously expired permit for two sewage treatment ponds on NPS property. When the camp was changing ownership, part of the sales agreement was for the new owner to upgrade the sewage treatment system, remove the ponds and rehab the site. BICA issued a special use permit that was part of the sales documents that gives the new owners the responsibility to clean up the ponds meeting DEQ, EPA, and NPS guidelines. SUP #1320-14-03.		
Water Rights Compact between the State of Montana and the National Park Service (M.C.A. 85-20-401)	The compact describes the federal reserved water rights for BICA and other NPS units in Montana for administrative uses as well as for instream flow purposes. The water rights listed in the compact apply only to the Montana portion of the unit. The Wyoming portion has no federal reserved water rights and is required to contact the BOR to satisfy any water needs.	1/31/1994	State of Montana, BICA, (other NPS units in Montana)

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Special Park Uses - Rights-of-Way			
Western Area Power Authority	Right-of-way for access roads, electric powerlines, and fiber optic cables. This agreement exists throughout the national recreation area. Sole purpose of operating and maintaining two 115-kV transmission lines and approved access roads. RW BICA 2012-2.	Term is from 2/2012/2022	
Burlington Northern Railroad	Unpermitted right-of-way for the railroad that predates the establishment of the national recreation area. Originally for the Chicago, Burlington, Quincy Railroad. Located in the Yellowtail unit.		
Permit No. 114 E Wardwell Ditch	Water Right from Wardwell Ditch 0.32 CFS.	3/21/2007	Wyoming State Engineer's Office, NPS
Special Use Permits (SUP)			
Trailing permits 1320-14-18,09,10,11,14,15,18 (permits are being sent out for 2015)	Trailing permits for Bischoff, Tippetts, Bassett, Tillet, Meeker, Snell, Mickelson, Neeves.	4/2014–3/2015	Ranchers, NPS
1320-14-12	Bighorn Lake Celebration (Annual event run by the Friends of Bighorn Lake).		Friends of Bighorn Lake, NPS
1320-14-16	Fireworks at Horseshoe Bend is an annual event with the Lovell Fire Department.		
1320-14-17	Boy Scouts (three years doing a day camp—2015 was the last year).		
1320-14-05 and 1320-14-06	Annual Bass Tournaments.		
1320-14-01	Annual Walleye Tournament.		
1320-14-04	Annual River Alliance.		
	There are currently 18 SUPs in place for 2015 (nine of those are livestock trailing permits; five fishing tournaments/contests; one fireworks event; one friends of Bighorn Lake Day/triathlon; one reunion at Horseshoe Bend picnic pavilion; one for Hidden Treasure Charters that covers five band/parties and three fishing tournaments during their season). Two SUP film permits – Seatac Creative, Q2 TV Find Your Park.		

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Commercial Use Authorizations (CUA)			
	Sandy Elmore Filming/ Guiding permit.	Expired 10/2014	
	Lynne Pomerantz Filming/ Guiding permit.	Expired 9/30/2014	
	Dryhead Ranch – Dude ranching/ trailing.	Expired 3/31/2015	
	TX Ranch – Dude ranching/trailing.	Expired 3/31/2015	
	<p>Horseshoe Bend Marina – CUA expires 12/31/2015 the NPS has been trying to get this moved to a contract for the past five years. It is most likely going to continue as a CUA for one more year.</p> <p>Seven CUAs in 2015, one more is pending with Western Waterfowlers, LLC for guided hunts: (2 – hidden treasures, 1 for boat tours, catering, shuttle service, 1 for marina operations); Randonnee Plein Air, Guided Tour Service; Matt Bassett-Dryhead Ranch, commercial stock trailing; Hip Tillett-TX Ranch, commercial stock trailing; Wild in the Pryors, guided tour service; Wyoming Outdoor Adventures, paddleboard tours and instruction).</p>		
Interagency Agreements			
R14PG60001 BOR Yellowtail Security Agreement	Cooperative administration of security guards, patrols, and emergency response within the Yellowtail Unit and Bighorn Canyon National Recreation Area.	Signed 12/17/2013	BOR and NPS
IA R13PG60211 BOR Camp Agreement	Cooperative administration for weed management, interpretation at the Yellowtail Dam, and shared maintenance responsibilities.	Signed 8/28/13	BOR and NPS
BIA Agreement	Cross designation of USDI law enforcement officer to provide law enforcement and investigative support in areas under the responsibility of the NPS, BLM, US Fish and Wildlife Service (USFWS), BOR and Bureau of Indian Affairs (BIA).	Signed 6/17/2014	NPS, BOR, BIA, BLM, USFWS
Interagency Agreement for Fire Management	Fire management agreement between, BLM, BIA, NPS, US Fish and Wildlife Service, Forest Service.	Signed 2/11/1997	BLM, BIA, NPS, USFWS, USFS
Interagency Agreement for Fire Management	Fire management agreement between, BLM, BIA, NPS, USFWS, USFS.	Signed 6/25/1991	BLM, BIA, NPS, USFWS, USFS

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Interagency Agreements			
F1320070001 NPS 13-FI-11020200-01 FS Forest Service and BICA Wildland Fire	Provide mutually beneficial wildland fire management support.	Signed 7/12/2013 (five-year agreement with yearly modifications); agreements back to at least 2004	NPS, USFS
BLM Horse Darting L13PG00267/NPS TAS# 14X1036	The BLM Billings Field Office (BiFO) and Bighorn Canyon National Recreation Area will work in cooperation to treat selected wild horse mares with Zona-Stat H fertility control treatments in accordance with BLM's management decisions for the wild horses in the Pryor Mountain Wild Horse Range.	7/16/2013 to 7/16/2018	BLM, NPS
IAA (NPS Agreement #F1580090002 aerial survey agreement)	To plan and conduct a composition aerial count of mule deer, bighorn sheep, and wild horses to complement the cougar predation research study being done at the national recreation area. To further establish and define each party's responsibilities in executing reimbursable wildlife predation aerial surveys at NPS.	7/5/2011 9/30/2011	NPS, United States Department of Agriculture Animal and Plant Health Inspection Service
IAA #11-RMR-2265	Road reclamation, revegetation, weed control, and archeological survey and mitigation within Bighorn Canyon National Recreation Area for Lovell-Yellowtail #1 and #2 transmission lines. To articulate the working arrangement whereby WAPA and NPS will coordinate: (1) in preparing a detailed site specific revegetation plan; (2) reclamation of items included in the revegetation plan; (3) weed control; and (4) archeological survey and mitigation.	9/5/2013 9/30/2016	NPS, Western Area Power Administration (WAPA)
IAA #R13PG60211	cooperative administration of certain activities and operations within the Yellowtail Unit and BICA (Camp Agreement)	8/8/2013 9/30/2017	BICA/BOR
	Differentiating natural vs. anthropogenic mercury inputs and subsequent Se/Hg interactions and biogeochemical cycling in Bighorn Lake, Bighorn Canyon National Recreation Area, Montana and Wyoming.		BICA/USGS/GRYN.

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Cooperative Agreements			
1406-600-453A	Cooperative management agreement to specify the responsibilities of the respective agencies relating to the development and administration of the portion of the Yellowtail Unit. Notes: Superseded a cooperative agreement of December 31, 1964, coordinating management responsibilities of the BOR and NPS.	Started 3/9/1972	BOR and NPS
Wyoming Game and Fish Commission	General plan for fish and wildlife management for Yellowtail Reservoir in Wyoming. Relates to management in the Yellowtail Habitat Management Unit Lands within the national recreation area. Notes: Made available 11,600 acres of NPS lands ("Area B") to the Wyoming Game and Fish Commission for administration, conservation, and management of wildlife.	Started 1971	State of Wyoming and NPS
Navigational Aids Agreement	Clarifies interagency responsibilities and cooperation for the establishment, operation, and maintenance of a system of navigational aids conforming to established standards. Agreement applies to aids to navigation and regulatory markers.	Started in 1972 and revised in 1977	US Coast Guard (USCG) and NPS
Forest and Range Fire Suppression	Clarifies responsibilities for fire management on Crow Indian Reservation land within and immediately adjacent to the recreation area.	Started in 1985	BIA, Crow Indian Agency, NPS
Wyoming Game and Fish Commission – Management of the Yellowtail Wildlife Habitat Management Area (1443CA1320980002)	To improve the management of the Yellowtail Wildlife Habitat Management Area. Such improvement will result in benefits to both the commission and NPS and will ultimately help achieve the maximum public benefit from the lands and waters involved.	Signed 7/7/1998	NPS, Wyoming Game and Fish Commission
North Bighorn Hospital Ambulance EMS Agreement	To establish patient care and transport procedures.	Signed 6/28/2006	North Bighorn Hospital – Lovell, WY, NPS
Bighorn County Ambulance EMS Agreement	To establish patient care and transport procedures.	Signed 8/20/2012 – good for five years (previous agreement signed in 2005)	Bighorn County, MT and NPS
Wilderness and Emergency Medicine Consulting Medical Director	Medical director cooperates with other medical facilities as necessary for purposes of assisting with or providing medical sponsorship, emergency medical training endorsement for certifying NPS EMS personnel.	Signed 10/10/2014	

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Cooperating Association Agreements			
Western National Parks Association (WNPA)	National Cooperating Association Agreement with WNPA to provide support and assistance to the interpretive, educational, and research activities of the NPS and provide interpretive and educational materials to visitors.	February 24, 2011 to February 24, 2016	NPS WASO Coordinator for Cooperating Associations; Regional Coordinators for Cooperating Associations; Park Coordinators; and WNPA Executive Director and/or on-site WNPA manager
Task Agreements			
P10AC00173 Visual Database	Establishing a visual database of current natural and cultural resource-related programs available for visitor education in Bighorn Canyon National Recreation Area.	Start 4/23/2010 End 6/1/2015	University of Wyoming, Northwest College, NPS
P11AC90649 Tribal Field School 2011-2013	Tribal Field School 2011-2013.		University of Wyoming
Working on 2015 MCC Agreements	Montana Conservation Corp: Trails and backcountry projects.	FY 2015 (Have used for many years)	Montana Conservation Corp, NPS
Working on 2015 YCC Agreements	Wyoming Conservation Corps–CESU interim task agreement for trail work and cultural restoration projects.	FY 2015 (Have used for many years)	University of Wyoming, WCC, NPS
NWC Internships P12AC10485	Student intern opportunities at Bighorn Canyon National Recreation Area.	Start 5/1/2011 End 5/31/2017	University of Wyoming, Northwest College, NPS
Bad Pass Trail Cultural Landscape Inventory P12AC1083	Cultural landscape inventory / ethnography for Bad Pass Trail, field work, and national register nomination revision.	Start 7/15/2012 End 12/31/2016	University of Wyoming, St. Cloud State, NPS
P13AC00216 Northwest College	This agreement is for a dendrochronology research project. Total funding for the project was \$5,000 (invoices totaling \$549.92 have been spent as of January 8, 2015).	Start 5/1/2013 End 5/31/2016	NWC, NPS
914AC00354	Agreement for a Youth Partnership Program project.	Starts 5/1/2014 End 7/30/2015	
P14AC00478 2014 Tribal Field School	2014 Tribal Field School funds for school costs, educator costs, student internships, and fees.	Starts 6/11/2014 Ends 1/31/2019	NWC, NPS
P14AC00615 White-Nose Bat	Study white-nose syndrome in bats.	Start 5/15/2014 End 7/30/2018	University of Wyoming, NPS
CESU Agreement Peregrine Survey	As part of the post delisting plan for falcons in Montana, major survey efforts are undertaken every three years; 2012 was a survey year and was a good time to reassess falcons in the canyon in conjunction with this statewide effort. The NPS will work with University of Montana and the Montana Peregrine Institute to complete the survey to the same standards as the statewide effort.	Start 5/1/2012 End 12/31/2012	University of Montana, NPS

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Task Agreements			
CESU	This project is to determine if Boer goats are an effective tool for weed management. It will collect more detailed data on goat usage of weeds, and help determine which weed species they are likely to be most effective on. We will find out which species of plant (native and nonnative) are preferred by the goats, and if treatments of sufficient intensity to have the desired effect on weeds have unacceptable consequences to desired native vegetation.	Start 5/1/2007 End 9/30/2007	BICA, University Wyoming, Dept. Renewable Resources
CESU	Wyoming Conservation Corps work on historic structures: work at historic ranches, replace sod roofs, reconstruct historic corrals at Mason-Lovell Ranch, assist with invasive plant management, fence repair, and road removal project.	Start 5/25/2009 End 12/31/2009	BICA, University of Wyoming, Wyoming Conservation Corps
CESU	Mountain Lion Predation Ecology at Bighorn Canyon National Recreation Area: This study will allow NPS managers to interpret population trends and interactions between three ungulate prey species (bighorn sheep, wild horses, deer) and their predator (mountain lion) to provide important baseline information and inform habitat improvement decisions.	9/30/2009 8/1/2013	BICA, Utah State University
CESU	Bighorn Canyon National Recreation Area ASMIS Condition Assessment Assistance: Northwest College, in cooperation with the University of Wyoming, will assist the NPS in preparing new condition assessments for archeological sites. This work will involve travel to the national recreation area, the preparation of updated condition assessments on prehistoric sites, and the preparation of new site forms for those archeological sites.	Start 9/30/2009 End 12/31/2012	BICA, Northwest College, University of Wyoming
CESU	Wyoming Conservation Corps Assistance on Historic Structures and Cultural Landscapes: reinstall historic fences and corrals within the Mason-Lovell Historic Ranch site.	Start 5/24/2010 End 12/31/2010	BICA, University of Wyoming, Wyoming Conservation Corps
CESU	Building Common Ground, Bighorn Canyon National Recreation Area Tribal Field School Program: The national recreation area will join Northwest College and the University of Wyoming to establish an accredited six-week archeological field school tailored to fit the needs of American Indian tribes.	Start 5/1/2011 End 4/30/2012	BICA, Northwest College, University of Wyoming

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Task Agreements			
CESU	Wyoming Conservation Corps Assistance on Historic Structures and Cultural Landscapes: The first half of the project will be excavating and assisting the NPS preservation crew with log replacements on the historic Lockhart Blacksmith Shop. The second half of the project will be working on reclaiming roads that were bladed during the uranium rush and reclaim 3 miles of these abandoned roads.	Start 6/1/2011 End 12/31/2011	BICA, University of Wyoming, Wyoming Conservation Corps
CESU	Montana Conservation Corps Assistance on Historical Structures and Cultural Landscapes: Chinking and restoration work will be performed on the Lockhart Main Ranch House, and Mason-Lovell South Cabin roof system. Crews will also work on several revegetation and road restoration projects.	Start 6/1/2013 End 9/30/2013	BICA, Montana Conservation Corps
CESU	Implementation of a Bat Monitoring Plan for Bighorn Canyon National Recreation Area: Phase 2: The Wyoming Natural Diversity Database proposes to implement a bat monitoring plan that is currently under development and to conduct initial searches of recently documented cave-like structures in the national recreation area that have not yet been evaluated for evidence of bat occupation.	Start 5/15/2016 End 7/30/2018	BICA, University of Wyoming, Wyoming Natural Diversity Database
CESU #H1574060003	Montana Conservation Corps Assistance on Historical Structures and Cultural Landscapes: Work on Lockhart Ranch historic garage, replace sod roofs on structures at Lockhart and Hillsboro Ranches, restore and revegetate old abandoned mine roads.	Start 6/1/2008 End 9/30/2008	BICA, Montana Conservation Corps
CESU #J132006N261	ASMIS Archeological Field School and Magnetic Survey: NPS Intermountain Region and Northwest College, in cooperation with the University of Wyoming, will work cooperatively to update ASMIS information within the Rocky Mountain Cluster, specifically ASMIS information for Bighorn Canyon National Recreation Area.	Start 9/1/2008 End 12/31/2010	BICA, Northwest College, University of Wyoming
CESU #J132009N067	Montana Conservation Corps Assistance on Historical Structures and Cultural Landscapes: Revegetation of cattle-grazed impacted areas, construct and repair trails, work on historic structures at Lockhart and Hillsboro Ranches, restore and revegetate abandoned mine roads.	Start 3/1/2009 End 10/30/2009	BICA, Montana Conservation Corps

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Task Agreements			
CESU #J1320119097	Survey for Emergency Habitat Expansion / Improvement and Unknown Archeological Sites: University of Memphis researchers will conduct a class III pedestrian inventory with evaluation of archeological resources at Bighorn Canyon National Recreation Area. The project will be conducted as part of the NPS Systemwide Archeological Inventory Program. The project will provide cultural resources training opportunities for participants from the Crow and Northern Cheyenne Tribes as part of a Tribal Historic Preservation Officer development initiative led by the tribal cultural committees, national recreation area, and the University of Memphis.	Start 5/1/2012 End 12/31/2014	BICA, University of Memphis
CESU #J1320119110	Montana Conservation Corps Assistance on Historical Structures and Cultural Landscapes: Construction of buck-and-rail fence, Lockhart Ranch Blacksmith Shop and Garage.	Start 4/1/2011 End 9/30/2011	BICA, Montana Conservation Corps
CESU #P12AC10256	Montana Conservation Corps Assistance on Historical Structures and Cultural Landscapes: Crews will restore and revegetate disturbed landscapes and assist NPS preservation crew with restoration of the Lockhart Blacksmith Shop.	Start 4/1/2012 End 9/30/2012	BICA, Montana Conservation Corps
CESU #P13AC00680	Rehabilitate and Restore Vegetation and Historic Features Along Obsolete Roads: The corps crew will work directly with the NPS natural resource crew in the control of noxious weeds, trail building, and maintenance. This will involve rehabilitating obsolete and abandoned roads for future trails as well as to return them back into the natural landscape.	Start 5/27/2013 End 6/30/2014	BICA, University of Wyoming, Wyoming Conservation Corps
CESU #P14AC00615	Development and Testing of a Bat Monitoring Plan including white-nose syndrome detection: Phase 1: WYNDD proposes to develop and test a bat monitoring plan for the national recreation area. This plan will draw on evolving national bat monitoring strategies, but will be tailored to meet the needs of NPS managers.	Start 5/15/2014 End 7/30/2018	BICA, University of Wyoming, Wyoming Natural Diversity Database

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Task Agreements			
CESU #P14AC01434	Application of Logjam on the Lockhart Two-Story Structure: The Lockhart Two Story Structure is in need of replacement chinking using a synthetic brand of logjam. The Montana Conservation Corps will work with the NPS resource crew to remove the nonhistoric concrete chinking and apply the synthetic log chinking.	Start 9/15/2014 End 9/24/2014	BICA, Montana Conservation Corps
CESU #P14AC00354	Trail and Amphitheater Improvements and Restore Hillsboro Historic Orchard: Trail maintenance and remediation, re-establishment of a historic orchard and a tuck-point project on the amphitheater.	Start 7/21/2014 End 7/30/2015	BICA, University of Wyoming, Wyoming Conservation Corps
CESU #P14AC01632	Digital Herbariums for Bighorn Canyon NRA, Fort Union Trading Post NHS, Knife River Indian Villages NHS, and Theodore Roosevelt NP. Digitize Bighorn Canyon herbarium specimens and make them publically available through the web.	September 2014 – March 2017	BICA, University of Wyoming. The Greater Yellowstone Network funded this project for the park.
Interpark Agreement			
Interpark Agreement between GRTE and BICA	Define mutual responsibilities of GRTE fire management office and the national recreation area in terms of wildland fire, prescribed fires, fuels management, and aviation management activities.	Signed 6/3/2012 (previous agreements in 2010 and 2009)	
Greater Yellowstone Inventory and Monitoring Network, NPS	The network conducts long-term vital signs monitoring for water resources (rivers and springs), vegetation (sagebrush steppe, mountain mahogany, juniper), climate, and landscape dynamics. It supports inventory efforts such as the recently completed vegetation inventory and map. The network also supports educational outreach such as biological resource studies (e.g., a recent dragonfly and mercury study), an intensive mercury study funded through the USGS, aspen genetics research as part of the vegetation inventory, and other research efforts. The network has also been working closely with the interpretation and resource staff to develop meaningful resource briefs related to topics such as water levels, spring flows, landscape dynamics, etc.		

Title / Agency / Organization	Purpose / Description	Dates	Responsible Party/ Parties
Commercial Services			
Concession Contract BICA007-09-CC LuCon Corporation	Ok-A-Beh Marina	12/31/2014	
Concession Contract CC-IMFA001-13 Western National Parks Association	Category III Concession Contract for sale of visitor convenience items by WNPAs.	February 22, 2013 to December 31, 2022	The contract is managed by NPS Intermountain Region (IMR) Concessions and IMR Concessions is the recipient of the franchise fee paid on an annual basis
Other			
Bighorn Cavern Management	The national recreation area manages the key for Bighorn Cavern. The entrance is on Crow reservation land. The agreement needs to be updated to proceed with other cave management documents.		
Kayak Program	Work with Northwest College to plan, train, and staff kayak program.	Start 2013 End 2016	Grant from National Park Foundation given to NWC to partner with NPS so they can present programming
2014 Wildland Fire Management Annual Operation Plan	Wildland fire management and support for Big Horn, Fremont, Hot Springs, national recreation area and Washakie Counties – Wyoming State Forestry Division, District 3.	Signed 3/4/2014	
Ticket To Ride	Bring students from Crow schools by bus to take a boat ride in the canyon.		Grant from the National Park Foundation given to the national recreation area to partner with the schools to get the students on the boats.
Community Recycling Program	The national recreation area has partnered with the USFS, American Colloid, Barico Construction, Town of Lovell, and 15 volunteers in the community to organize recycling for the community of Lovell. Lovell is on track to take over management of the program in 2016.	Started in 2008	

Appendix C: Past and Ongoing Park Planning and Data Collection Efforts

Planning / Data Document	Year
<i>Interpretive Prospectus for Bighorn Canyon</i>	6/7/1967
<i>Master Plan - Bighorn Canyon National Recreation Area</i>	6/1/1971
<i>Bearss, E. C. Historic Structure Report, Historical Data Section and Historic Resource Study. Ewing-Snell and ML Ranches, and Hillsboro</i>	3/1/1974
<i>National Register of Historic Places Inventory – Nomination Form: Pretty Creek Archeological Site</i>	11/19/1974
<i>Snell, P. Historic Structure Report Architectural Data Section M-L Ranch and Hillsboro</i>	1/1/1975
<i>National Register of Historic Places Inventory – Nomination Form: Cedarville, Hillsboro</i>	8/19/1975
<i>National Register of Historic Places Inventory – Nomination Form: Fort C.F. Smith Historic District</i>	10/10/1975
<i>National Register of Historic Places Inventory – Nomination Form: Bad Pass Trail (Sioux Trail)</i>	10/29/1975
<i>National Register of Historic Places Inventory – Nomination Form: Bighorn Ditch Headgate</i>	10/12/1976
<i>National Register of Historic Places Inventory – Nomination Form: Ewing-Snell Ranch</i>	5/12/1977
<i>Wilderness Study</i>	7/1/1977
<i>Interpretive Plan</i>	10/1/1979
<i>Final General Management Plan, Environmental Impact Statement, Wilderness Recommendation, Development Concept Plan: Horseshoe Bend, Hough Creek, Barry's Landing, Ok-A-Beh, Afterbay</i>	6/1/1981
<i>Wilderness Recommendation</i>	12/1/1981
<i>Road Inventory and Needs Study</i>	1/1/1983
<i>Grazing Management Plan for The Dryhead Allotment</i>	2/1/1985
<i>Natural Resources Management Plan and Environmental Assessment</i>	4/24/1986
<i>Concessions Economic Feasibility Study Proposed Ok-A-Beh Marina</i>	1/1/1987
<i>National Register of Historic Places Registration Form: Caroline Lockhart Ranch</i>	2/3/1989
<i>The Bighorn Sheep and Pryor Mountain Wild Horse Range: Ecological Relationships and Management Recommendations</i>	7/1/1989
<i>Land Protection Plan with Updates</i>	8/1/1989
<i>Afterbay/River Ranch: General Management Plan / Development Concept Plan Amendment / Environmental Assessment</i>	10/1/1989
<i>Afterbay/River Ranch General Management Plan / Development Concept Plan Amendment</i>	2/1/1990
<i>National Register of Historic Places Registration Form: Mason-Lovell Ranch</i>	7/15/1992

Planning / Data Document	Year
<i>Statement for Management</i>	11/2/1992
Nobokov, P. <i>Ethnographic Overview and Assessment: Crow Oral History Interviews Volume One and Two</i>	8/1/1993
Nobokov, P., and L. Loendorf. "Every Morning of the World." <i>Ethnographic Resources Study, Bighorn Canyon National Recreation Area: Including Information on Adjacent Lands Managed by Custer National Forest and the Bureau of Land Management</i>	1/1/1994
<i>Resources Management Plan</i>	1/9/1995
Jacobs, R. W., T. Peters, and D. Sharrow. <i>Water Resources Management Plan</i>	3/25/1996
<i>Strategic Plan</i>	9/26/1997
<i>Baseline Water Quality Data Inventory and Analysis</i>	10/1/1998
<i>Cultural Landscapes Inventory: Caroline Lockhart Ranch</i>	1/1/1999
Zelt, R. B., et al. <i>Environmental Setting of the Yellowstone River Basin, Montana, North Dakota, and Wyoming</i>	1/1/1999
<i>Cycle 3 Road Inventory</i>	2/1/2000
Heidel, B., and W. Fertig. <i>Rare Plants of Bighorn Canyon National Recreation Area</i>	6/1/2000
Hektner, M., et al. <i>Greater Yellowstone Network: Vertebrate and Vascular Plant Inventory Study Plan</i>	12/1/2000
<i>Strategic Plan 2001–2005</i>	4/25/2001
<i>Environmental Assessment and Gather Plan: Pryor Mountain Wild Horse Range. FY 2001 Wild Horse Population Gather & Selective Removal</i>	6/19/2001
<i>Personal Watercraft Use Environmental Assessment</i>	4/1/2003
<i>Reclamation of Abandoned Uranium Exploration Sites Environmental Assessment</i>	5/1/2003
Koch, A. L., and V. L. Santucci. <i>Paleontological Resource Inventory and Monitoring: Greater Yellowstone Network</i>	6/1/2003
<i>Integrated Weed Management Program Environmental Assessment</i>	1/1/2004
Ricketts, M. J., et al. <i>Pryor Mountain Wild Horse Range Survey and Assessment</i>	4/1/2004
Rodman, A., T. Koel, and S. Savage. <i>Watershed Classification Project: Greater Yellowstone Network</i>	4/1/2004
Arnold, J. L., and T. M. Koel. <i>Evaluation of Stream Quality in the Greater Yellowstone Network Parks using Benthic Macroinvertebrate Communities as Biological Indicators</i>	9/1/2004
Napoli, J., A. Rodman, and L. Terrill. <i>Geologic Resource Extraction in the Areas Surrounding Bighorn Canyon NRA, Grand Teton NP, and Yellowstone NP</i>	11/1/2004
Peterson, C. R., and R. E. Baum. <i>Occurrence, Distribution, Relative Abundance, and Habitat Relationships of Amphibians and Reptiles in Bighorn Canyon National Recreation Area</i>	1/1/2005
Wood, S. D., and Dr. L. J. Rew. <i>Non-Native Plant Survey</i>	8/1/2005

Planning / Data Document	Year
Jean, C., et al. <i>Vital Signs Monitoring Plan for the Greater Yellowstone Network</i>	9/30/2005
Keinath, D. A. <i>Bat Inventory of the Greater Yellowstone Network: Final Report</i>	10/1/2005
<i>Cultural Landscapes Inventory: Caroline Lockhart Ranch</i>	1/1/2006
<i>Cycle 3 Road Inventory</i>	3/30/2006
<i>Environmental Assessment for the Pryor Mountain Wild Horse Range, Population Control 2006</i>	4/7/2006
Davey, C. A., K. T. Redmond, and D. B. Simeral. <i>Weather and Climate Inventory – Greater Yellowstone Network</i>	7/1/2006
<i>Bighorn Canyon Resource Brief: Bighorn Sheep</i>	8/4/2006
Finley, J. B., and L. L. Scheiber. <i>Documenting Domestic Landscapes at Crow Stone Circle Sites in Bighorn Canyon, Southern Montana and Northern Wyoming</i>	4/1/2007
<i>Bighorn Canyon Resource Brief: Ewing-Snell Ranch</i>	9/24/2007
<i>Bighorn Canyon Overview: Wild Horses</i>	1/23/2008
<i>Bighorn Canyon Resource Brief: Prehistoric Resources</i>	2/7/2008
<i>Bighorn Canyon Resource Brief: Invasive Plants</i>	2/11/2008
<i>Bighorn Canyon Resource Brief: Prescribed Fire</i>	2/12/2008
<i>Bighorn Canyon Resource Brief: Wild Horses</i>	2/12/2008
<i>Bighorn Canyon Resource Brief: Lake & River Use</i>	2/22/2008
Stagliano, D. M. <i>Aquatic Macroinvertebrate Inventory & Assessment of Springs and Seeps within Bighorn Canyon National Recreation Area</i>	3/1/2008
<i>Bighorn Canyon Resource Brief: Water Quality</i>	5/6/2008
<i>Bighorn Canyon Resource Brief: Bats</i>	8/4/2008
<i>Bighorn Canyon Resource Brief: Kane Cemetery</i>	10/9/2008
<i>Bighorn Canyon Resource Brief: Aquatic Macroinvertebrates</i>	10/17/2008
<i>Bighorn Canyon Resource Brief: Geology</i>	10/17/2008
Gray, S., et al. <i>Greater Yellowstone Network Climate of 2007</i>	1/1/2009
<i>Bighorn Canyon Resource Brief: Soil Structure & Stability</i>	4/1/2009
O’Ney, S. <i>Regulatory Water Quality Monitoring Annual Report for the Greater Yellowstone Network June–September 2005</i>	4/1/2009
O’Ney, S., J. Arnold, and C. Bromley. <i>Greater Yellowstone Network Water Quality Monitoring Annual Report. October 2005–December 2006</i>	4/1/2009
<i>Pryor Mountain Wild Horse Range/Territory: Environmental Assessment MT-010-08-24 and Herd Management Area Plan</i>	5/1/2009
<i>Bighorn Canyon Resource Brief: Amphibians</i>	6/8/2009
Schmitz, D. <i>Bighorn Canyon NRA Spring Vegetation Characterization</i>	8/1/2009

Planning / Data Document	Year
<i>O'Ney, S., et al. Greater Yellowstone Network Water Quality Monitoring Annual Report January 2007–December 2008</i>	12/1/2009
<i>Gray, S., C. M. Nicholson, and M. D. Ogden. Greater Yellowstone Network Climate of 2008</i>	1/1/2010
<i>Remus, J., et al. Reclamation: Managing Water in the West. Bighorn Lake Sediment Management Study</i>	3/1/2010
<i>Frakes, B., et al. Rocky Mountain Climate Protocol: Climate Monitoring in the Greater Yellowstone and Rocky Mountain Inventory and Monitoring Networks</i>	7/1/2010
<i>Sigler, A. Bighorn Canyon National Recreation Area 2009 Water Quality Report</i>	7/16/2010
<i>McWethy, D. B., et al. Climate and Terrestrial Ecosystem Change in the U.S. Rocky Mountains and Upper Columbia Basin: Historical and Future Perspectives for Natural Resource Management</i>	10/1/2010
<i>Bighorn Canyon Resource Brief: Climate</i>	10/29/2010
<i>Tercek, M. T., et al. Greater Yellowstone Network Climate of 2009</i>	11/1/2010
<i>Bingham, B., et al. Enhanced Monitoring to Better Address Rapid Climate Change in High-Elevation Parks: A Multi-Network Strategy</i>	1/1/2011
<i>Sullivan, T. J., et al. Evaluation of the Sensitivity of Inventory and Monitoring National Parks to Nutrient Enrichment Effects from Atmospheric Nitrogen Deposition. Greater Yellowstone Network</i>	2/1/2011
<i>White, C. M., et al. Integrated Monitoring of Bird Conservation Regions (IMBCR): 2010 Annual Report</i>	3/1/2011
<i>Sullivan, T. J., et al. Evaluation of the Sensitivity of Inventory and Monitoring National Parks to Acidification Effects from Atmospheric Sulfur and Nitrogen Deposition: Greater Yellowstone Network</i>	4/1/2011
<i>Sigler, A. Bighorn Canyon National Recreation Area 2010 Water Quality Report</i>	7/24/2011
<i>Bighorn Canyon Resource Brief: Land Use</i>	7/25/2011
<i>Bighorn Canyon Trails and Access Plan, Environmental Assessment/Assessment of Effect</i>	8/1/2011
<i>Geologic Resources Inventory Report</i>	9/1/2011
<i>O'Ney, S., et al. Greater Yellowstone Network Water Quality Monitoring Annual Report January 2009–December 2009</i>	9/1/2011
<i>Jean, C., et al. High Elevation National Parks 2010 Climate Summary Report</i>	11/1/2011
<i>Resource Brief. Climate in Bighorn Canyon National Recreation Area and Little Bighorn Battlefield National Monument, Greater Yellowstone Network, Rocky Mountain Network</i>	12/1/2011
<i>Tercek, M., PhD Upland Vegetation Monitoring in Bighorn Canyon National Recreation Area: Analysis of 2011 Pilot Data</i>	4/1/2012
<i>Greater Yellowstone Network Resource Brief: Upland Vegetation Monitoring at Bighorn Canyon NRA</i>	4/1/2012
<i>Bighorn Canyon National Recreation Area Long-Range Interpretive Plan</i>	5/1/2012
<i>Komp, M. R., et al. Bighorn Canyon National Recreation Area Natural Resource Condition Assessment</i>	7/1/2012

Planning / Data Document	Year
<i>Bighorn Canyon National Recreation Area Superintendent's Compendium</i>	8/31/2012
Tercek, M. T., et al. <i>Greater Yellowstone Network Upland Vegetation Monitoring Protocol Narrative</i>	1/1/2013
Jean, C., et al. <i>Greater Yellowstone Network Upland Vegetation Monitoring Protocol Standard Operating Procedures</i>	1/1/2013
Jean, C., R. Daley, and M. Tercek, PhD <i>Upland Vegetation Monitoring in Bighorn Canyon National Recreation Area 2012 Data Summary</i>	4/1/2013
Ray, A., K. Kleehammer, and W. A. Sigler. <i>Water Quality Data Summary Report for Bighorn Canyon National Recreation Area: Preliminary Analysis of 2011 and 2012 Data</i>	5/1/2013
Olp, S. <i>Crow Tribe Asserts Rights Through Tribal Resolutions. Billings Gazette</i>	5/16/2013
<i>Resource Brief: Climate in Bighorn Canyon National Recreation Area</i>	8/1/2013
<i>Greater Yellowstone Network Resource Brief: Climate in Bighorn Canyon National Recreation Area</i>	8/1/2013
Jean, C., R. Daley, and M. T. Tercek. <i>Greater Yellowstone Network Climate: 2012 Data Summary Report</i>	8/1/2013
Jean, C., R. Daley, and M. T. Tercek. <i>Upland Vegetation Monitoring in Bighorn Canyon National Recreation Area 2013 Data Summary</i>	1/1/2014
<i>Bighorn Canyon National Recreation Area Superintendent's Compendium</i>	1/27/2014
<i>Kane Cemetery Management Plan</i>	1/27/2014
<i>Bighorn Canyon National Recreation Area Superintendent's Compendium Explanatory Amendment</i>	2/20/2014
<i>Greater Yellowstone Network Resource Brief: Upland Vegetation Monitoring at Bighorn Canyon NRA</i>	3/1/2014
<i>Greater Yellowstone Network: Natural Resource Monitoring at Bighorn Canyon National Recreation Area</i>	7/1/2014
Monahan, B., and N. Fisichelli. <i>Climate Change Resource Brief: Recent Climate Change Exposure of Bighorn Canyon National Recreation Area</i>	7/25/2014
<i>Bighorn Canyon National Recreation Area Superintendent's Compendium – Unmanned Aircraft Amendment</i>	8/20/2014
<i>Bighorn Canyon National Recreation Area – List of Classified Structures (InsideNPS)</i>	11/5/2014
<i>Bighorn Canyon National Recreation Area – Species Full List with Details (InsideNPS)</i>	11/15/2014
Daley, R., M. Kinseth, K. Legg, and W. B. Monahan. 2015. <i>Landscape Context of Bighorn Canyon National Recreation Area. Natural Resource Report NPS/NRSS/NRR—2015/995. National Park Service, Fort Collins, CO.</i>	2015
Hiking Trail and Access Plan	8/18/15
Preliminary analysis of 2013 data. <i>Natural Resource Data Series NPS/GRYN/NRDS—2015/751. National Park Service, Fort Collins, CO.</i>	2015
Ray, A. M., K. Kaylor, and W. A. Sigler. <i>Water quality summary for Bighorn Canyon National Recreation Area: Preliminary analysis of 2013 data. Natural Resource Data Series NPS/GRYN</i>	2015

Planning / Data Document	Year
K. Kaylor, W. A. Sigler, and A. Ray. <i>Water quality data summary report for Bighorn Canyon National Recreation Area: Preliminary analysis of 2014 data. Natural Resource Data Series NPS/GRYN/NRDS—2015/810. National Park Service, Fort Collins, CO.</i>	2015
<i>Fire and Security Survey</i>	(funded in 2016)
Study assessing mercury and selenium levels in Bighorn Lake	(underway)
<i>Scope of Collections Statement</i>	(underway)
<i>Integrated Pest Management Plan</i>	(underway)
Bad Pass Trail oral history	(underway with the Crow Tribe)
<i>Housekeeping Plan</i>	(underway)
GIS overlay map of archeological sites and surveyed areas (to assist law enforcement protection efforts)	(underway)
Bad Pass Trail cultural landscape inventory and ethnographic study	(underway with St. Cloud University)
Cultural landscape inventories for the Mason-Lovell ranch, Ewing-Snell ranch, and the Hillsboro-Cedarville dude ranch	(underway)
<i>Interpreting the Night Sky</i>	(unknown)
Studies on interaction between wild horses and bighorn sheep	(unknown)
Montana Bureau of Geology and Mines map	(unknown)
Mapping of geological features	(unknown)
<i>Fire Management Plan</i>	(unknown)



Appendix D: Tribes Traditionally Associated with Bighorn Canyon National Recreation Area

Traditionally associated tribes refer to those groups that have had a significant connection to a place that has endured for two generations or more. The following list was derived from the NPS Intermountain Region's tribal contact database:

Absentee-Shawnee Tribe of Indians of Oklahoma

Arapaho Tribe of the Wind River Reservation, Wyoming

Confederated Salish and Kootenai Tribes of the Flathead Reservation

Crow Tribe of Montana

Northern Cheyenne Tribe of the Northern Cheyenne Indian Reservation, Montana

Oglala Sioux Tribe

Pueblo of Cochiti, New Mexico

Shoshone-Bannock Tribes of the Fort Hall Reservation

Shoshone Tribe of the Wind River Reservation, Wyoming



Intermountain Region Foundation Document Recommendation Bighorn Canyon National Recreation Area

March 2016

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Intermountain Regional Director.


RECOMMENDED
John Bundy, Superintendent, Bighorn Canyon National Recreation Area
Date
3/4/2016


APPROVED
Sue E. Masica, Regional Director, Intermountain Region
Date
3/21/16



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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