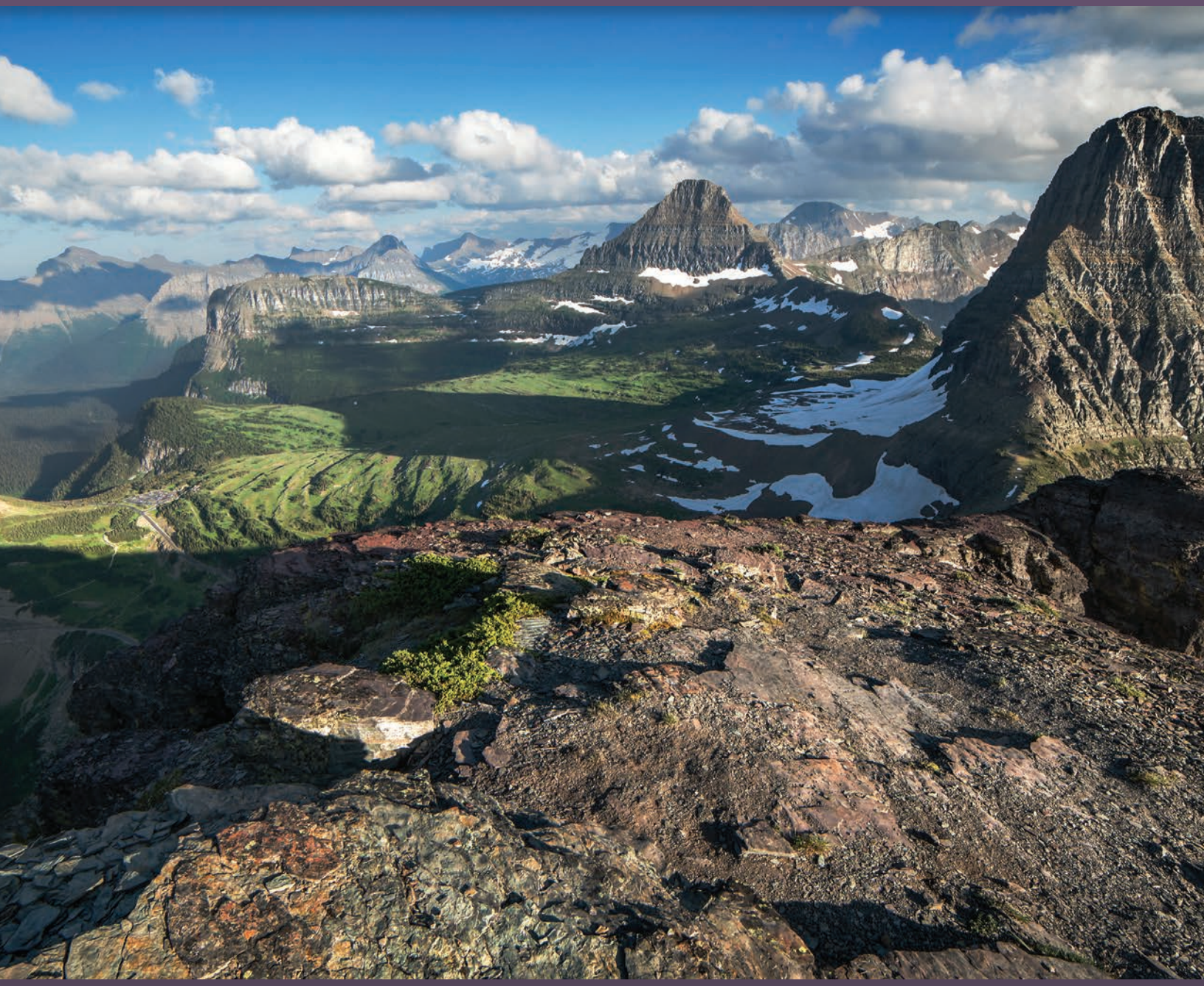
NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR

Foundation Document

Glacier National Park

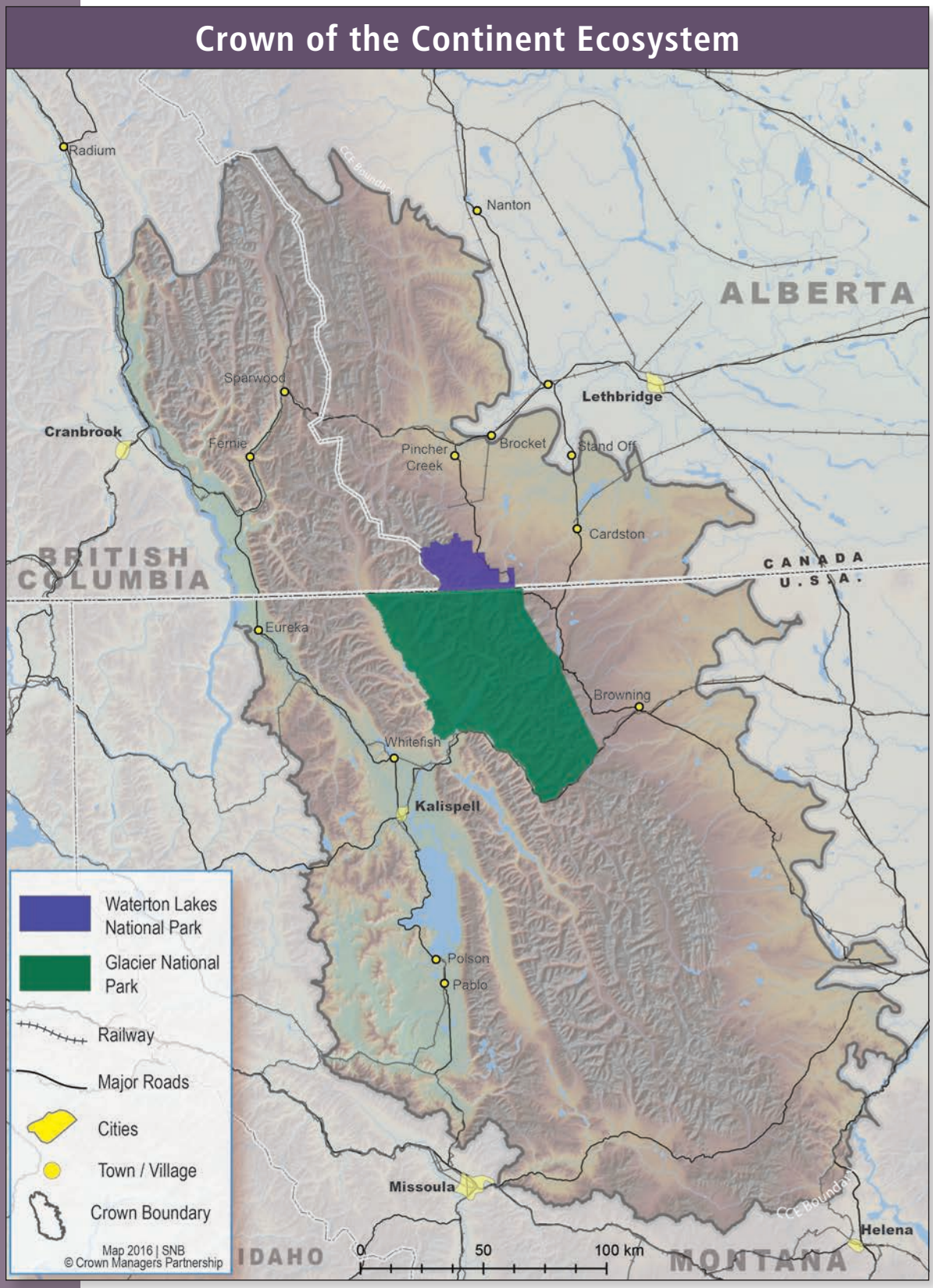
Montana

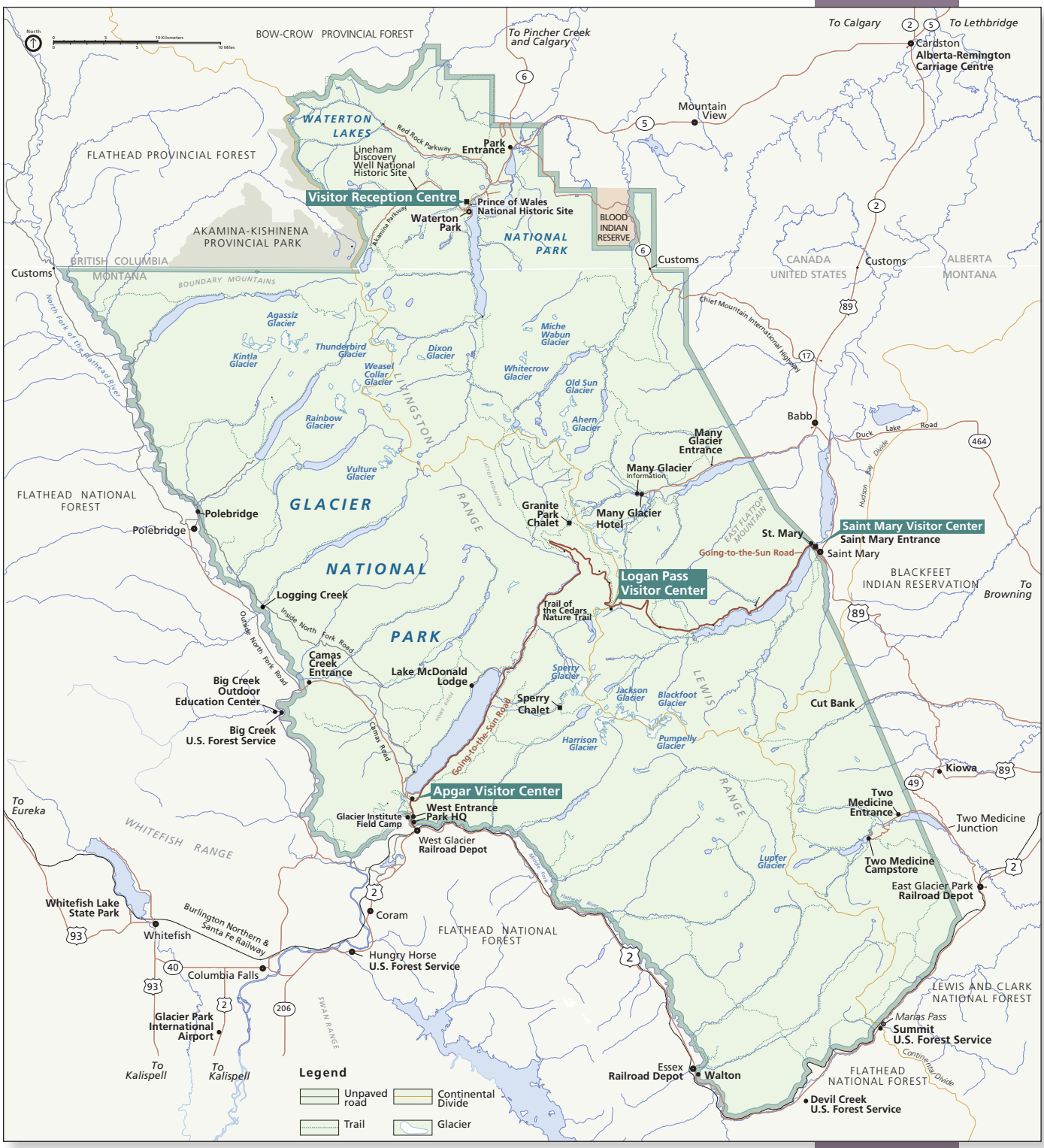
October 2016



Waterton-Glacier International Peace Park
Biosphere Reserve
World Heritage Site

Crown of the Continent Ecosystem




BOW-CROW PROVINCIAL FOREST
To Pincher Creek and Calgary
To Calgary
To Lethbridge
Cardston
Alberta-Remington Carriage Centre
Mountain View
WATERTON LAKES
Red Rock Parkway
Park Entrance
Lineham Discovery Well National Historic Site
FLATHEAD PROVINCIAL FOREST
Visitor Reception Centre
Prince of Wales National Historic Site
Waterton Park
Akamina Parkway
AKAMINA-KISHINENA PROVINCIAL PARK
NATIONAL PARK
BLOOD INDIAN RESERVE
Customs
BRITISH COLUMBIA
MONTANA
BOUNDARY MOUNTAINS
CANADA
UNITED STATES
Customs
ALBERTA
MONTANA
Chief Mountain International Highway
North Fork of the Flathead River
Agassiz Glacier
Kintla Glacier
Thunderbird Glacier
Dixon Glacier
Weasel Collar Glacier
Miche Wabun Glacier
Whitecrow Glacier
Old Sun Glacier
Ahern Glacier
Rainbow Glacier
Vulture Glacier
LIVINGSTON RANGE
Babb
Duck Lake Road
Many Glacier Entrance
Many Glacier Information
FLATHEAD NATIONAL FOREST
GLACIER NATIONAL PARK
Polebridge
Granite Park Chalet
Many Glacier Hotel
EAST FLATTOP MOUNTAIN
Saint Mary Visitor Center
Saint Mary Entrance
St. Mary
Saint Mary
Going-to-the-Sun Road
Logan Pass Visitor Center
BLACKFEET INDIAN RESERVATION
To Browning
Logging Creek
Trail of the Cedars Nature Trail
Outside North Fork Road
Inside North Fork Road
Camas Creek Entrance
Lake McDonald Lodge
Sperry Glacier
Jackson Glacier
Blackfoot Glacier
LEWIS RANGE
Big Creek Outdoor Education Center
Sperry Chalet
Cut Bank
Big Creek U.S. Forest Service
Harrison Glacier
Pumpelly Glacier
Kiowa
Apgar Visitor Center
West Entrance Park HQ
Glacier Institute Field Camp
West Glacier Railroad Depot
Two Medicine Entrance
Two Medicine Junction
To Eureka
WHITEFISH RANGE
Two Medicine Campstore
Lupfer Glacier
East Glacier Park Railroad Depot
Whitefish Lake State Park
Burlington Northern & Santa Fe Railway
Whitefish
Coram
FLATHEAD NATIONAL FOREST
Hungry Horse U.S. Forest Service
Columbia Falls
LEWIS AND CLARK NATIONAL FOREST
Marias Pass
Summit U.S. Forest Service
Glacier Park International Airport
SWAN RANGE
Continental Divide
To Kalispell
To Kalispell
Essex Railroad Depot
Walton
FLATHEAD NATIONAL FOREST
Devil Creek U.S. Forest Service
Legend
Unpaved road
Continental Divide
Trail
Glacier

Contents

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. 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 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 Glacier National Park 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 to be used to guide future planning and management efforts.

Brief Description of the Park

Surrounded by wilderness, bordered by Waterton Lakes National Park in Canada and two forks of the Flathead Wild and Scenic River, Glacier National Park is part of one of the largest, most intact ecosystems in North America—the Crown of the Continent. Together with Waterton Lakes National Park it is the world's first international peace park, a world heritage site, and a biosphere reserve. Most of the park is also recommended wilderness.

Established by Congress on May 11, 1910, Glacier National Park was the 10th national park created and protects 1,600 square miles of the scenic northern Rocky Mountains in Western Montana. Named for the powerful glaciers that carved the landscape during the last ice age, the park displays rugged peaks and crystalline turquoise lakes, and other remnants of extensive glaciation. This is a land of sharp, precipitous peaks and knife-edged ridges, girdled by forests. The last remnants of alpine glaciers, disappearing quickly due to climate change, lie in the shadow of towering walls at the heads of great ice-carved valleys.

In 1932, Glacier National Park became a portion of the world's first international peace park along with Canada's Waterton Lakes National Park, named Waterton-Glacier International Peace Park. This designation was legislated by the U.S. and Canadian governments to promote international cooperation and peace, and beyond guiding park management, it also serves as a model that has been repeated around the world.

The park lies on the North American Continental Divide, at the center of the Crown of the Continent ecosystem, an area which encompasses approximately 18 million acres and includes other public lands in Canada and the U.S. including national forests, wilderness areas, and Canadian national and provincial parks. This area is a large and mostly intact ecosystem, home to the entire suite of North America's endemic large carnivores and the greatest floristic and aquatic biodiversity in the Rocky Mountains.

Species such as the bald eagle, and North America's indigenous carnivores, including the grizzly and black bear, gray wolf, wolverine, and cougar live and travel through the park. The headwaters of major river systems are found within the park, including rivers that flow to the Pacific Ocean, Gulf of Mexico, and Hudson Bay.

Glacier National Park's resources and landscapes have drawn people to the region for 10,000 years. The 338 archeological sites and 397 historic properties document the physical evidence of human activity and the importance of the area to American Indians, First Nations, explorers, homesteaders, entrepreneurs, visitors, and scientists.

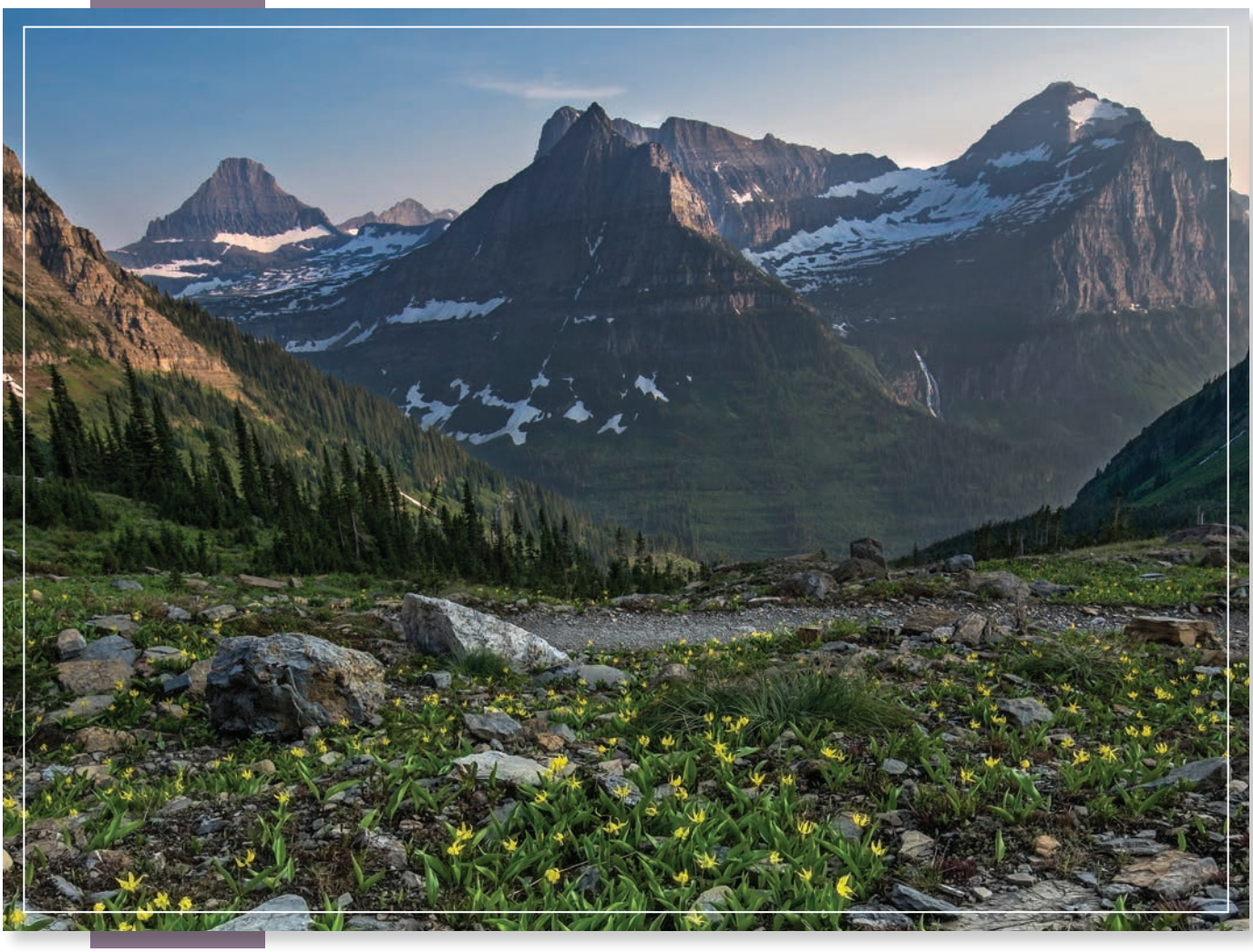
Today, the park attracts more than two million visitors a year from all over the world. Visitors are able to enjoy the park in their own vehicles or board an iconic red bus to ascend the Going-to-the-Sun Road to Logan Pass and cross the Continental Divide. Boundless opportunities exist to experience solitude and truly dark night skies in the backcountry of Glacier National Park. Approximately 735 miles of horse and foot trails interweave almost all sections of the park and allow visitors opportunities to experience the many facets of Glacier National Park.

Conditions within and around the park have changed significantly over the years, and new threats and issues such as climate change and energy development challenge park managers. Park managers are working with neighboring agencies and partners in Montana and Canada to address the changes in nearby land management, increasing visitation, and climate change while striving to meet the National Park Service mission to leave park resources unimpaired for future generations. And, because Glacier is the world's first international peace park, park managers are working to foster transboundary protected areas and peace and cooperation between nations.

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Glacier National Park was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The park was established when the enabling legislation adopted by Congress was signed into law on May 11, 1910 (see appendix A for enabling legislation and subsequent amendments). The purpose statement lays the foundation for understanding what is most important about the park.

The purpose of Glacier National Park, part of the world's first international peace park, is to preserve the scenic glacially carved landscape, wildlife, natural processes, and cultural heritage at the heart of the Crown of the Continent for the benefit, enjoyment, and understanding of the public.



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 Glacier National Park, 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 Glacier National Park. (Please note that the sequence of the statements does not reflect the level of significance.)

- **Geology and Hydrology –** Glacier's scenery dramatically illustrates a 1.6-billion-year geologic history and the many geological processes associated with mountain-building and glaciation.
    - Glacier has an outstanding assemblage of ice-age glacial features, and it has relatively accessible, small-scale active glaciers or their remnants.
    - Glacier provides an opportunity to see evidence of one of the largest and most visible overthrust faults in North America, exposing well-preserved Precambrian sedimentary rock formations.
    - Glacier is at an apex of the continent and one of the few places in the world with a triple hydrologic divide. Water flows to the Gulf of Mexico, Hudson Bay, and Pacific Ocean.

- **Wilderness Experience –** Glacier offers access to a diversity of spectacular scenery and increasingly rare primitive wilderness experiences.
    - The protection of Glacier's wilderness environment since 1910 has resulted in it becoming one of the few areas in the northern Rocky Mountains where dark skies are protected and natural sounds still predominate.
    - Two of the three forks of the Flathead Wild and Scenic River designate Glacier's western and southern boundary. The river, jointly managed with the Flathead National Forest, contains outstanding remarkable values, including recreation, scenery, wildlife, botany, geology, fisheries, water quality, ethnography, and history.

- **Intact Ecoregion –** Glacier is one of the most ecologically intact landscapes remaining in the temperate regions of the world.
    - Located at the narrowest portion of the entire Rocky Mountain chain and at the apex of three major continental river systems, Glacier National Park contains one of the most diverse combinations of plants and animals found in the Rocky Mountains, including threatened and endangered, rare, and sensitive species.
    - Because of the melting glaciers and the intact ecological processes, Glacier offers an outstanding opportunity for both research and adaptive responses to the impacts of climate change on a large landscape.
    - Glacier is one of the few places in the contiguous 48 states that continue to support natural populations of all indigenous carnivores and most of their prey species.
    - Waterton-Glacier International Peace Park has been designated as a World Heritage Site, and the parks are separately designated as biosphere reserves. As one of the largest areas of North America where ecological processes predominate, the peace park offers outstanding opportunities for protection and research.

- **Cultural Connections –** Glacier National Park's resources and landscapes have drawn people to the region for 10,000 years. The physical evidence of human activity provided by 338 archeological sites and 397 properties listed in the National Register of Historic Places and the park's collections document the importance of the area to American Indians, First Nations, explorers, homesteaders, entrepreneurs, visitors, and scientists.
  - Many Indian tribes have a strong connection with the area. From prehistoric times to the present, American Indians have identified this landscape and its resources as important to their identity and continuation of their way of life.
  - The park's historic roads, trails, chalets, hotels, administrative buildings, and other features exemplify the iconic western park experience and most are still in use today.

- **Going-to-the-Sun Road –** The Going-to-the-Sun Road provides access to five different ecoregions and is one of the most scenic roads in North America. Due to the preservation of scenery, advanced engineering, and landscape architectural design it was the first road designated as a national historic civil engineering landmark and later as a national historic landmark.

- **Transboundary Cooperation –** In 1932, the long-standing peaceful relationship between the United States and Canada was recognized when Waterton Lakes National Park and Glacier National Park were designated by the U.S. Congress and the Canadian Parliament as the world's first international peace park. In a world of shared resources, Waterton-Glacier International Peace Park serves as an inspiration and model of transboundary collaboration and cooperation.

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 Glacier National Park:

- **Glaciated Geologic Landscape / The Miistakis –** The landscape of the park, referred to as the Miistakis or "backbone of the world" by the Blackfeet, was built through plate tectonic processes and carved by the great ice-age glaciers. Today, virtually every glacial landform is present in the park, including alpine glaciers, moraines, arêtes, horns, cirques, and hanging and u-shaped valleys. The Lewis Overthrust, a klippe, viewable in the southern section of the park, is one of the world's finest examples of an overthrust fault. Overall, the park's rugged mountains, extremes in elevation, classic geologic features, and turquoise waters combine to create outstanding natural beauty.

- **Clean Water and Air –** Clean water (surface and groundwater) and air are critical to the health and support ecosystem function of Glacier National Park. The park's clean water and air are vital to ecosystem health and to the visitor experience. Clean air allows visitors to see hundreds of miles from the park's high peaks and to view stunning star-filled skies. The park is also a major source of clean water for three major river basins, the Columbia, Missouri, and Saskatchewan. Most notably, the Flathead Wild and Scenic River borders the park. The river is known nationally and internationally for its pure, clear waters that support fish, animal, and human populations throughout the region.

- **Diverse Habitats that Support Iconic Wildlife –** Glacier is a refuge for species on a continental scale. Thousands of plants and animals make their home in the park's diverse environments, ranging from cool, dark forests representative of the Pacific Northwest; rolling prairies typical of the Great Plains; clean and cold streams, rivers and lakes; abundant wetlands; as well as the jagged ridges and soaring peaks that characterize the Rocky Mountains. The park is widely known for the wildlife supported by these habitats. In fact, it is one of the few places where all of North America's native carnivores are present, including black bear, gray wolf, wolverine, cougar, and the federally listed grizzly bear, and Canada lynx. The park's streams, rivers, and lakes are home to numerous federally or state-listed aquatic species of concern including bull and westslope cutthroat trout.

- **Tribal Connections –** The Blackfeet, Salish, Pend d'Oreille, Kootenai, and other tribes have a relationship with this land that goes back thousands of years. Archeological sites and other cultural resources are tangible reminders of this long history. The entire area holds great spiritual importance to all these tribes and their connection with this landscape continues today. Tribal cultures remain vibrant and vital within and around the park and maintain strong partnerships with Glacier National Park to preserve American Indian history and culture.

- **Variety of Recreational Opportunities –** Visitors from all over the world discover that the park has something for everyone. Many enjoy viewing wildlife and the glaciated landscapes from Glacier's famous red buses along the Going-to-the-Sun Road. Other popular activities include hiking, horseback riding, staying in the only historic chalets in the park service, camping and backpacking, boating, fishing, viewing star-filled skies, hearing natural sounds, and photography. Visitors may also glimpse into past ways of life as experienced by tribes and past residents. Some visitors seek the solitude and challenge of the backcountry or climb the high peaks. Winter activities expand the opportunities with options such as cross-country skiing and snowshoeing. The park is one of only a few national parks accessible by passenger train.

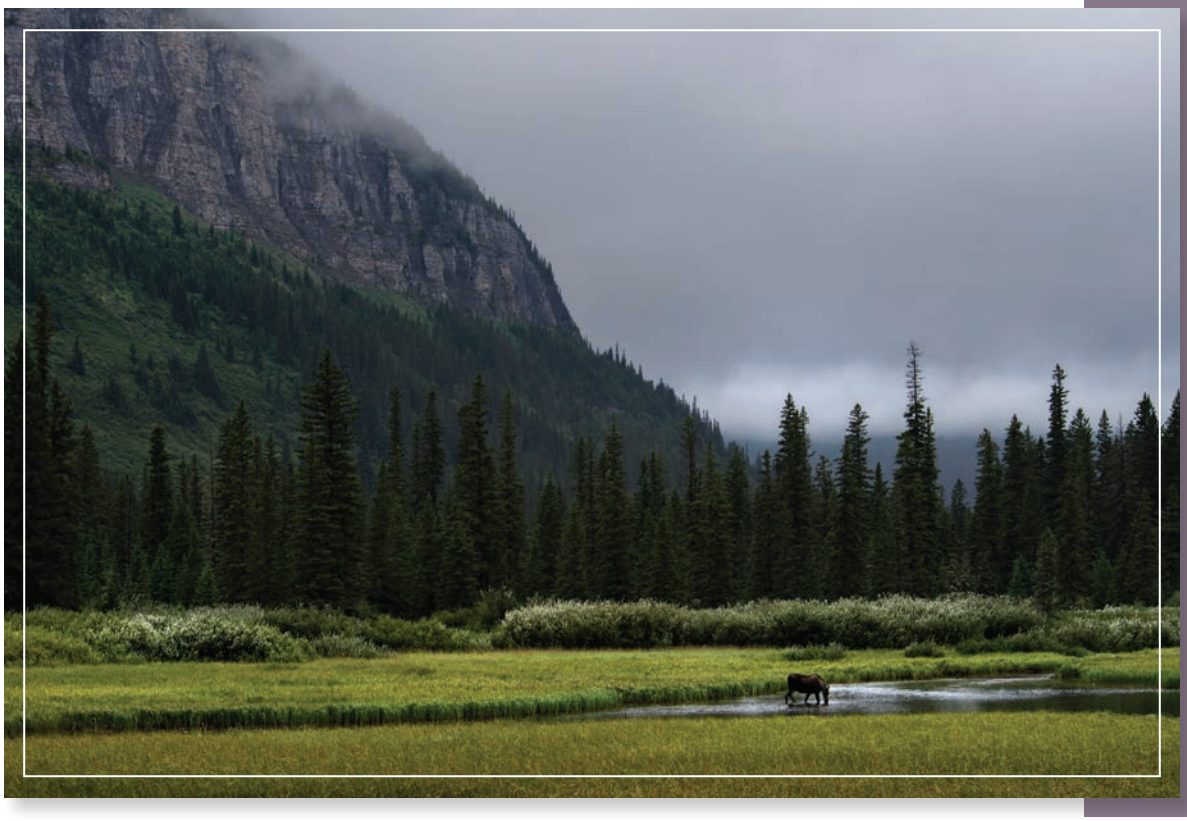
- **International Peace Park –** In 1932, Glacier National Park and Waterton Lakes National Park were legislated by Canada and the United States as the world's first international peace park. This designation signaled a commitment to collaborate between the two countries and park managers on both sides of the border for the ultimate benefit of visitors and regional ecosystems. The international peace park forever promotes the ideal of peace and international goodwill in a world of shared resources.

Other Important Resources and Values

Glacier National Park 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 and management.

The following other important resources and values have been identified for Glacier National Park:

- **The Going-to-the-Sun Road –** No other road combines the historic associations, the landscape design aesthetic and engineering significance, and the excellent state of preservation as the Going-to-the-Sun Road. The road connects the east and west sides of the park and, at the threshold of wilderness, provides views of five ecoregions as it ascends thousands of feet to the Continental Divide. Along the way, it gives visitors motorized and nonmotorized access to some of the park's most beautiful scenery. Both the design of the road and its setting contributed to its designation as both a national historic landmark and national historic civil engineering landmark. The Going-to-the-Sun Road is also designated as a cultural landscape.
- **National Historic Landmark Hotels and Chalets –** Glacier National Park is home to five national historic landmark hotels and chalets: Lake McDonald Lodge, Granite Park Chalet, Sperry Chalet, Many Glacier Hotel, and the Two Medicine Chalet Dining Hall (known as the Two Medicine Store). Most of these display Swiss chalet-style architectural details. The placement of these structures was designed to replicate a European system that linked hotels to backcountry chalets by a day's hike or ride and contributed greatly to the development of Glacier National Park.
- **Other Historic Resources –** The park also manages 397 structures listed in the National Register of Historic Places. These resources include historic motels, snowshoe cabins, lookouts, the extensive trail system, and historic archeology such as cabins and chalets that no longer stand.



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 Glacier National Park:

- The geologic features of Glacier National Park combine natural beauty, examples of mountain-building, and the effects of glaciation, revealing many chapters in the history of the earth.
- Glacier National Park offers a variety of wilderness experiences that provide the challenges and rewards of encountering nature on its own terms while conveying the necessity of stewardship for the land.
- Glacier National Park's designation as part of the world's first international peace park celebrates ongoing peace, cooperation, and goodwill between two nations and symbolizes the ideal of peace among all nations, in a world of shared resources and issues that transcend boundaries.
- Glacier's cultural resources chronicle the evolving history of human activities, interactions, and experiences in the American West, which reveal changes in societal attitudes about land and its uses.
- The enduring connection between the Blackfeet, Salish, and Kootenai peoples and the landscape and resources of the area known as Glacier National Park is reflected through their history, traditions, languages, and contemporary values.
- The establishment of Glacier National Park and its geographic location, surrounded by adjacent designated wilderness, a park to the north, and U.S. Forest Service lands, has enabled its ecological processes and biological diversity to survive relatively intact in a rapidly changing and encroaching world and may provide refugia for some species in the face of climate change.

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, Treaties and Agreements, 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. Treaties and agreements with American Indian tribes are also included in this section. 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 Glacier National Park.

Special Mandates

- **International Peace Park –** The act of May 2, 1932, defined the purpose of Waterton-Glacier International Peace Park and authorized the president to issue a proclamation (Presidential Proclamation No. 2003, June 20, 1932). The Canadian government also acted bilaterally through royal assent of the Canadian government on May 26, 1932, and passage through the House of Commons on June 16, 1932. This introduced the involvement of international diplomacy for management of the park. Rotary International played a significant role in establishing the peace park and continues to celebrate this accomplishment annually at the Hands Across the Border ceremony.

- **Flathead Wild and Scenic River –** The Wild and Scenic Rivers Act of October 2, 1968, (PL 90-542) designated the Flathead River, Montana, for study by the U.S. Forest Service. The proposal was passed by Congress on October 12, 1976 (PL 94-486). Passage of this act placed the river under edicts of the Wild and Scenic Rivers Act. The river is jointly managed by the Flathead National Forest and Glacier National Park under a memorandum of understanding and a river management plan.

- **Clean Air Act Class I Area Designation –** Glacier National Park is provided special protection for air quality, sensitive ecosystems and clean, clear views under the Clean Air Act. The Environmental Protection Agency and the State of Montana must engage with the National Park Service when issuing air pollution permits that would affect the park, or when developing plans to improve the air quality and clarity of views in the park.

- **Outstanding Resource Waters Designation –** Under the Clean Water Act (CWA), Glacier's waterways are classified as Outstanding Resource Waters and are protected by the highest nondegradation standards the CWA affords.

- **World Biosphere Reserve –** At the third meeting of the International Coordinating Council of the United Nations Educational, Scientific, and Cultural Organization, Glacier National Park was one of 20 areas in the United States designated as a World Biosphere Reserve. Waterton Lakes National Park in Canada was also designated. This action provides for scientific research and coordination, preserving genetic integrity of plants and animals, and monitoring trends and conditions in the terrestrial environment.
- **Recommended Wilderness –** A wilderness proposal of 927,550 acres was introduced into the 94th Congress (HR 5823 April 9, 1975, and S1079) for Glacier National Park. The National Park Service *Management Policies 2006* (§6.2) directs the National Park Service to manage potential, recommended, or proposed wilderness areas as wilderness.
- **World Heritage Site Designation –** Waterton-Glacier International Peace Park received this designation in 1995 because of its "distinctive climate, physiographic setting, mountain/prairie interface and tri-ocean hydrographical divide as well as its scenic values and the cultural importance of its International Peace Park designation." It was also designated because of the cultural importance of its designation as an international peace park. The designation of Waterton-Glacier provides greater protection for resources because Canada and the United States have agreed through the ratification of the World Heritage Treaty to refrain from taking actions that might damage the values of the other country's world heritage site. They have also each agreed to take the measures necessary within their own laws to protect their own sites.

Treaties and Agreements

- Treaty of Hellgate, July 16, 1855 (Salish, Kootenai, and Pend d'Orielles tribes)
- Treaty with the Blackfeet, 1855 (Nez Perce, Blackfoot, and Flathead nations)
- Blackfeet tribal agreement, June 10, 1896 (29 Stat 321, 353)

Administrative Commitments

For more information about administrative commitments for Glacier National Park, 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.

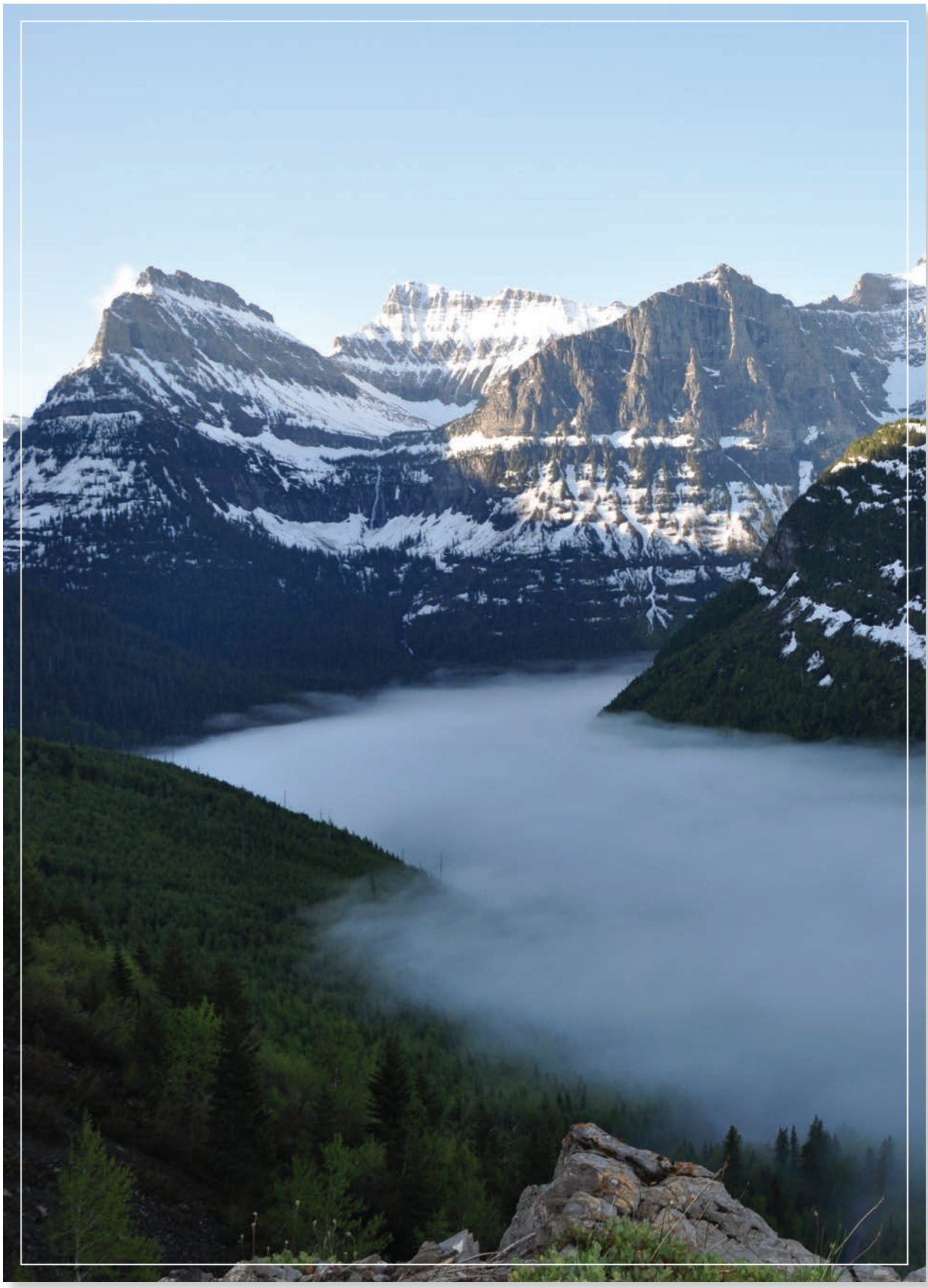
There are three sections in the assessment of planning and data needs:

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.

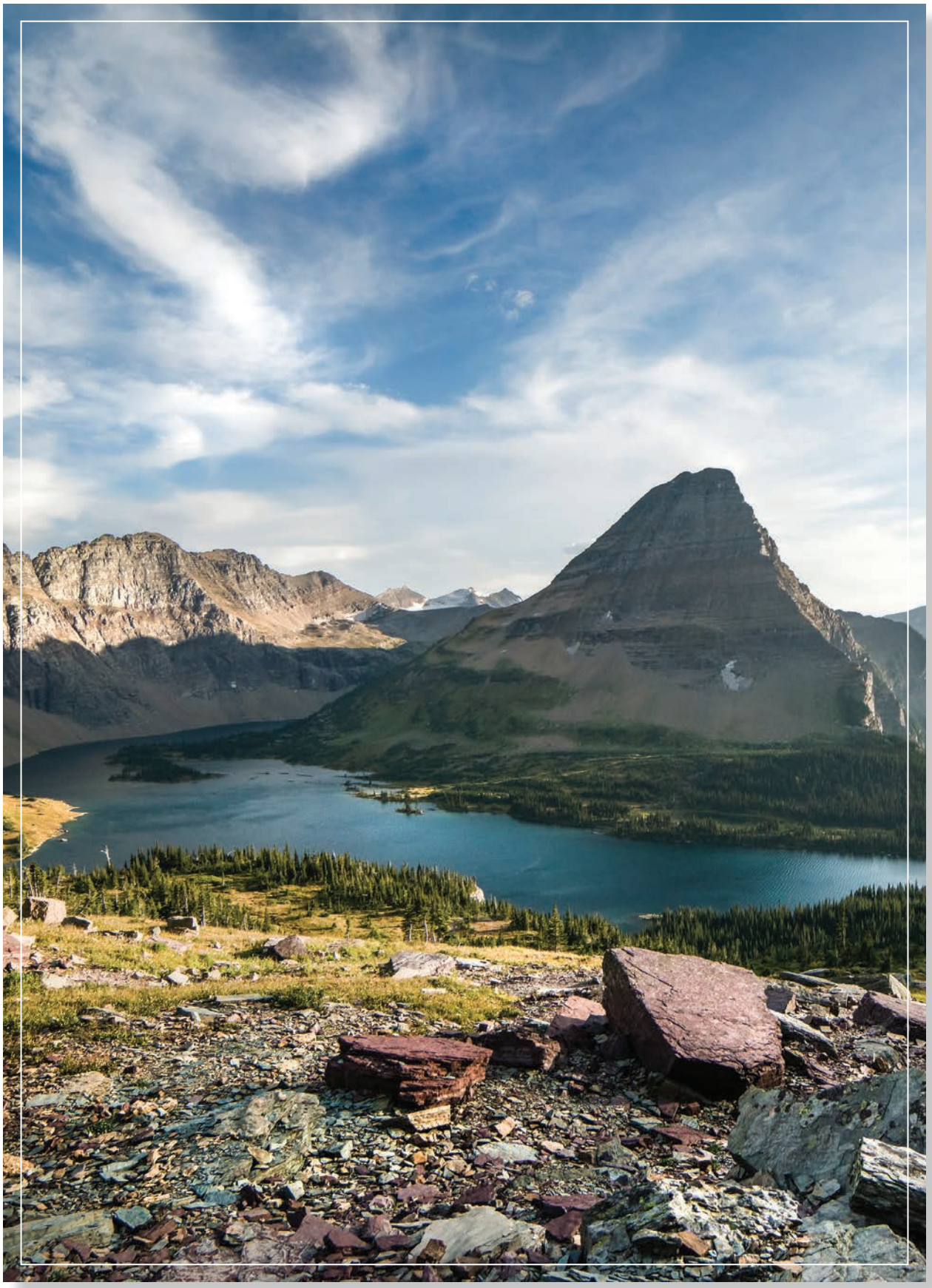
Analysis of Fundamental Resources and Values

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	Glaciated Geologic Landscape / The Miistakis
Related Significance Statements	• Geology and Hydrology – Glacier's scenery dramatically illustrates a 1.6-billion-year geologic history and the many geological processes associated with mountain-building and glaciation.
Current Conditions and Trends	**Conditions** • The park contains classic examples of every glacial feature and nearly every viewpoint in the park shows evidence of glaciation. The park's scenic beauty and the accessibility of its geologic and glacial features draw visitors from all over the world. • The park's glacial history is relatively recent, which contributes to the park's outstanding scenic beauty. • Glacial remnants, which had gradually been receding since the end of the Little Ice Age in the 1850s, have been melting at an increasingly accelerated pace over the past few decades due to climate change. • The park's geomorphic features include the Lewis Overthrust, Chief Mountain, Purcell lava flows, pillow basalts, and goat licks. In particular, Chief Mountain is considered one of the world's finest examples of a klippe. The Lewis Overthrust is seen among the scientific community as one of the earth's finest and most visible examples of an overthrust fault. • Geologic formations in the park are recognizable by dramatic exposures of Precambrian-age Belt series sedimentary rock. These ancient rocks record a shallow Belt sea environment that opened and closed intermittently over many millions of years. • The park's alpine landscape also holds paleontological resources. Park fossils include Precambrian-age algae (stromatolites) and later Cretaceous bivalves, brachiopods, and mammals. • There are at least 16 known caves in the park; the longest is over one mile, and the deepest is 265 feet. **Trends** • The park's alpine glaciers continue to recede. Some have become snowfields and others have disappeared completely. Some models predict all the glaciers will disappear within one to two decades due to climate change. • The distribution of vegetation in the park has changed as glaciers have receded. • Periodic landslides or mass wasting events alter the landscape on a local level. Soils in the Many Glacier valley are unstable causing slumping along the park's entrance road. An increasing number of severe flooding events are occurring in nontraditional times of the year such as in the fall. There has been recent avalanche activity on the Going-to-the-Sun Road in locations that have not been active for decades.
Threats and Opportunities	**Threats** • Geologic hazards, such as rockfall and mass-wasting, may present more serious threats to visitors and park infrastructure as climate, rainfall, and hydrology continue to change in the park. • Climate change will likely result in the disappearance of the parks' remaining glaciers. • Avalanches are a threat to visitors and some of the park's roads and other infrastructure during the winter and spring. **Opportunities** • Focus more interpretive services on the park's glaciers and climate change. • Enhance the park's collaboration with geologic specialists for the purpose of identifying and monitoring areas most susceptible to geologic hazards. • Conduct more exploration and surveying of the existing cave system. Implement long-term monitoring of the existing cave system. • Continue improving park sustainability, reduction of greenhouse gas emissions, and environmental leadership through the park's Climate Friendly Parks Program and Environmental Management Systems (Director's Order 13A). • Continued understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature) and impacts to the landscape, and assessment of projected climate futures (models) for the region.

Fundamental Resource or Value	Glaciated Geologic Landscape / The Miistakis
Existing Data and Plans Related to the FRV	• Reports and summaries prepared by the Natural Resource Stewardship and Science Directorate (NRSS) Geologic Resources Division. • Geologic resources inventory. • Glacier trend data U.S. Geological Survey (USGS). • Comprehensive interpretive plan (2006). • Vista management plan for Going-to-the-Sun Road (2009). • Burlington Northern Santa Fe Railway Avalanche Hazard Reduction EIS (2008).
Data and/or GIS Needs	• Geohazard risk assessment along key road corridors. • Oral histories to describe "backbone of the world." • LIDAR mapping of park streams, floodplains, geologic areas, and habitats of interest. Delineation of all floodplains within developed areas in the park. • Ongoing monitoring of caves and glaciers. • Visual resource inventory, including along the park's boundary. • Continued monitoring of glaciers and impacts from climate change.
Planning Needs	• Cave and karst management plan. • Telecommunications infrastructure plan. • Risk assessment response plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Wilderness Act of 1964 • Wild and Scenic Rivers Act of 1968 • Endangered Species Act of 1973, as amended • Clean Water Act of 1972, as amended • Paleontological Resources Preservation Act of 2009 • Clean Air Act of 1977 (42 USC 7401 et seq.) gives federal land managers the responsibility for protecting air quality and related values, including visibility, plants, animals, soils, water quality, cultural resources, and public health, from adverse air pollution impacts • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Federal Cave Protection Act of 1988 • 16 U.S. Code § (1J), Cooperative Agreements for National Park Reserve Protection **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.1.4) "Partnerships" • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • *NPS-75 Natural Resources Inventory and Monitoring Guideline* • NPS *Natural Resource Management Reference Manual 77*



Fundamental Resource or Value	Clean Water and Air
Related Significance Statements	• Geology and Hydrology – Glacier's scenery dramatically illustrates a 1.6-billion-year geologic history and the many geological processes associated with mountain-building and glaciation. • Intact Ecoregion – Glacier is one of the most ecologically intact landscapes remaining in the temperate regions of the world.
Current Conditions and Trends	**Conditions** • Glacier's rivers and lakes are exceptionally clean and clear. They are categorized as Outstanding Resource Waters by the State of Montana. The north fork of the Flathead River is the most protected stream in North America. • Glacier is at the apex of three continental drainages. Because the park protects the headwaters of many rivers and streams, everything the park does affects downstream areas. • The park contains a large amount of critical habitat for federally listed bull trout. This is partially due to outstanding water quality in rivers and lakes. • There is some degradation of water quality due to atmospheric mercury and nitrogen deposition. There are other sources of pollutants, such as pesticides and agricultural runoff, in the streams and rivers as they flow outside of the park. • Glacial silt contributes to the unique color of lakes, rivers, and streams in the park. • Glacier is classified as a Class I area under the federal Clean Air Act. • Ozone is rated as good in the park but visibility is of moderate concern; and deposition of nitrogen, sulfur, mercury and air toxics are of significant concern. Scenic views are sometimes obscured by pollution-caused haze from human sources, such as combustion of fossil fuels, agriculture and other industry as well as natural sources such as dust and wildfire. Nitrogen and sulfur deposition threaten terrestrial and aquatic ecosystems by causing acidification or excess fertilization (eutrophication). Other pollutants of concern deposited in the park including historic and current use of pesticides in the surrounding area and polycyclic aromatic hydrocarbon (PAH). • There is an air quality monitoring station in West Glacier. • Park surface waters are free of artificial impoundments and are free flowing. • The USGS Field Station contributes significant information and research to the current and future conditions of park water quality through snow chemistry, water quality, and water quantity studies. • The park's research relationship with USGS has been and continues to be very beneficial and productive. **Trends** • For the 2004-2013 decade, visibility and sulfur deposition improved while ozone, nitrogen and mercury deposition remained relatively unchanged. • Glacier's dark night skies have received increased public attention and visitor interest in recent years. • Water temperatures have warmed over the last 15 to 20 years, leading to more outbreaks of didymo (an indigenous species of freshwater algae). • Data shows that Glacier is getting more of its annual precipitation in the spring and fall as rain rather than as snow.
Threats and Opportunities	**Threats** • Air and related resources (e.g., visibility, water, vegetation) are vulnerable to pollutants such as nitrogen, sulfur, and mercury. Air pollution in Glacier comes from local, regional, and international sources including power plants, agriculture, and potential future oil and gas development. The deposition of potentially acidifying and/or nutrient-enriching compounds such as nitrogen and sulfur are significant concerns due to the low natural potential for many park areas to buffer these compounds. Herbaceous plants, lichen, and forest communities are at risk for harmful effects. Also, park waters and biota are sensitive to such inputs, and potential acidification and/or enrichment of park waterways have been identified as a concern.

Fundamental Resource or Value	Clean Water and Air
Threats and Opportunities	**Threats (continued)** • Aquatic invasive species are the number one ecological and recreational threat to the park and the Crown of the Continent's watershed. Some invasive fish are present now in the park. • Increase in mean annual temperature, observed and projected for the region due to climate change, is accelerating the melting of the park's glaciers, with changes in species composition, loss in cold-water fish habitat, alterations in plants and animal distribution in the park, effects in the aquatic environment and recreational fishing, changes in seasonal runoff, and increases in wildfire projected for the region. Continued monitoring of glacier margins to measure glacier retreat is needed. • The increase in precipitation increases the risk of rain on snow events, causing early or midwinter floods. Midwinter floods may have an adverse impact on bull trout spawning and rearing. Similarly, summer flow data have shown declines in the average monthly stream discharge over time. These reductions, coupled with increasing stream temperatures, may have adverse impacts on the amount and quality of stream rearing habitat for native salmonids. • Forest fires in the area and region occasionally degrade air quality. The impacts are typically short term. • The park is located within the Montana Thrust Belt shale basin. While there is interest in the hydrocarbon resources in this region, and numerous exploratory wells have been drilled just east of the park's boundary, as of 2015, production from this area is not yet economically viable using hydraulic fracturing techniques. Should oil and gas extraction in the region become economically viable due to technological refinements or changing market conditions, oil and gas development may increase in this region and may become a significant air quality concern. Current exploratory wells are close to the park's eastern boundary and likely impact the park viewshed. • Large quantities of coal and gas are regularly transported on railroads near the park, including nearly 33 million gallons of oil per week. Derailments and other accidents could lead to major spills and harmful environmental effects. • International interest and support for protecting the Flathead River has halted energy development in the Canadian Flathead Valley. However, extractive pressure will likely return as energy exploration technology advances and energy reserves become more economically viable. • There is a threat from logging on government and private lands in the watershed for the North Fork of the Flathead River, both in the United States and Canada. • There is a threat from fire effects, short (water quality impacts) and long-term (high severity = loss of water holding capacity), on water quality / quantity. • Groundwater development on non-NPS lands could deplete connected groundwater within the park. • Point sources of pollution are a potential threat to streams. The threat comes primarily from local landowners on private septic systems. • At night, air pollution can scatter artificial light—increasing the impact of light pollution to the night sky and threatening the park's dark skies. • The Environmental Protection Agency's (EPA's) implementation of the Regional Haze Program in Montana may result in some emission reductions at coal-fired power plants and cement plants that may influence park air quality. However, efforts in 2015 have been remanded due to legal challenges. • The melting of the glaciers will reduce or completely eliminate the glacial silt, which, in turn, will alter the color of the park's famous lakes and rivers. **Opportunities** • The potential development of oil and gas on the east side of the park could affect air and water quality. The park does not have an air quality monitoring site on the east side of the Continental Divide and would benefit from such a site. • Expand research efforts with Cooperative Ecosystem Studies Units to reach out to community groups and encourage "citizen science."

Fundamental Resource or Value	Clean Water and Air
Threats and Opportunities	**Opportunities (continued)** • Continue snow science in the park to help park managers understand the effects of climate change on precipitation in the region. • Continue ongoing USGS monitoring program of high-elevation streams dependent on snow/ice melt and associated dependent biota. • Glacier and Waterton are applying as the International Peace Park to the International Dark Sky Association to be designated as the first transboundary international dark sky preserve. The park could also better market the opportunity to see dark night skies to park visitors. • Use more alternative fuels in its fleet and operations to reduce its carbon footprint. • The regional inventory and monitoring network has been doing stream ecological monitoring for 7 to 8 years. A summary will reveal trends and allow the park to take appropriate action. • Continue to support the Crown Managers Partnership work on collecting and merging air and water quality data for trend analysis. • Expand interpretive and educational tools to communicate the connections between air and water quality / pollution, sensitive park resources, biodiversity, scenic views, night sky, wilderness, climate change, transboundary cooperation, recreation, human health, and other associated resources. • Work cooperatively with other federal and state air quality agencies and local stakeholders to reduce air quality impacts in parks from sources of air pollution. Conduct education outreach to park neighbors and communities to increase awareness of the importance of park air quality, scenic views and dark skies. • Increase park air quality literacy by making available to park staff the "Air Resources in National Parks" free two-hour training course available online at DOI Learn. • Continue improving park sustainability and environmental leadership through the park's Climate Friendly Park action plan and Environmental Management System (Director's Order 13A) to conserve water resources. • Explore and expand relationships with area high schools to connect students with the resource through inventory and monitoring. • Continued understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature), and impacts to the water resources, and assessment of projected climate futures (models) for the region. • Continue to address invasive fish issues through research and management actions. • The park is working with the State of Montana, Alberta, and British Columbia to develop a transboundary detection response and containment plan to keep out zebra and quagga mussels, Eurasian watermilfoil, and eventually other aquatic invasive species.
Existing Data and Plans Related to the FRV	• ARM 17.30.702 & 75.5.103 MCA (Montana Code) – defines "Outstanding Resource Waters." • Flathead Lake Biological Station database – water data. • Dark sky measurements and data (from NRSS, Night Skies and Natural Sounds Division). • Air resource summaries and reports prepared by the NRSS Air Resource Division and others—see the air quality resource summary for Glacier National Park (September 2014) for a detailed list of references. • Climate change trends for Glacier National Park (July 2014). • Ongoing air quality monitoring in the park at West Glacier for visibility, ozone, nitrogen / sulfur / mercury deposition. • NPS Rocky Mountain Network vital signs. • Montana Department of Environmental Quality water quality monitoring.

Fundamental Resource or Value	Clean Water and Air
Data and/or GIS Needs	• Parkwide air quality monitoring (currently only monitored on the west side). • Water quality monitoring in high-elevation streams and lakes in the park. • Dark sky monitoring. • Aquatic invasive species monitoring in park lakes. • Continued monitoring of glaciers and impacts from climate change. • Inventory of cold-water-dependent macroinvertebrates (e.g., Lednia).
Planning Needs	• Water quality management plan. • Air quality management plan. • Commercial air tour management plan spill response plan for the middle fork of the Flathead River.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Clean Air Act of 1977 (42 USC 7401 et seq.) gives federal land managers the responsibility for protecting air quality and related values, including visibility, plants, animals, soils, water quality, cultural resources, and public health, from adverse air pollution impacts • Wild and Scenic Rivers Act of 1968 • Clean Water Act of 1972 • Endangered Species Act of 1973, as amended • Executive Order 13112, "Invasive Species" • Executive Order 11514, "Protection and Enhancement of Environmental Quality" • Executive Order 12088, "Federal Compliance with Pollution Control Standards" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • 16 U.S. Code § (1J), Cooperative Agreements for National Park Reserve Protection **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Natural Resource Management Reference Manual 77* • 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* (§4.10) "Lightscape Management" • NPS *Management Policies 2006* (§4.3.4) "National Wild and Scenic Rivers System" • NPS *Management Policies 2006* (§4.7) "Air Resource Management" • Director's Order 18: *Wildland Fire Management* • NPS *Wildland Fire Management Reference Manual 18*

Fundamental Resource or Value	Diverse Habitats That Support Iconic Wildlife
Related Significance Statements	• Intact Ecoregion – Glacier National Park is one of the most ecologically intact landscapes remaining in the temperate regions of the world.
Current Conditions and Trends	**Conditions** • Due to wide variations in elevation, climate and soil, five distinct vegetation zones overlap in Glacier and have produced strikingly diverse habitats that sustain plant and animal populations, including threatened and endangered, rare, and sensitive species. These are changing due to continual disturbance from fire, avalanche, flood, forest pathogens, etc. Whitebark pine habitat is changing due to blister rusts, fire exclusion, and potential beetle kill. • Glacier is one of the few places in the contiguous 48 states that continue to support natural populations of all indigenous carnivores and most of their prey species. • Glacier provides an outstanding opportunity for ecological management and research in one of the largest areas where natural processes predominate. • Fire, warming temperatures, nitrogen deposition, and forest pathogens are causing transitions in forest communities. • While data are lacking, existing information indicates that the park's wildlife is in good condition and that the numbers of most species appear to be stable with a few exceptions. • Naturally occurring fire is important to the health of many of the park's ecosystems. The last major fires in the park occurred in 2015. In the last 20 years, nearly 20% of the park has experienced fire. In the past couple of decades, the park has increased the frequency of prescribed burns and other fuel reduction activities in the park. • The park has three federally threatened and endangered species: the grizzly bear, lynx, and bull trout. • The park has approximately 70 rare plant species. This high number is due largely to the park's geology, hydrology, and the convergence of five floristic zones in the park. • Terrestrial invasives are a concern in the park. • Aquatic invasive species are a serious concern in the park. • Invasive lake trout have invaded the majority of the park's west side lakes and threaten the persistence of native fish in these waters while other nonnatives such as rainbow and brook trout threaten native species such as westslope cutthroat trout and bull trout with hybridization and competition. • The park's alpine areas support endemic or near-endemic aquatic invertebrate species at high risk of climate-change-induced habitat alteration. The park is a critical conservation area for many of these species. • To mitigate the threat from Eurasian watermilfoil, zebra, and quagga mussels, the park is conducting inspections of all watercraft brought into the park. There are also park regulations prohibiting the use of felt waders and live bait. To control the spread of terrestrial invasives, construction vehicles are inspected and only permitted in the park if they are clean and free of weed seeds. Any soil or gravel must come from areas outside the park that have been certified to be weed free. **Trends** • Whitebark pine habitat is changing due to higher elevational changes due to climate change. Climatic conditions favor other forest species such as subalpine fir moving into and out-competing stands of whitebark pine. Whitebark will also be subjected to mountain pine beetle infestations since higher elevations will be more climatically hospitable to this insect. • The park does not have sufficient data to determine all trends for flora and fauna occurring across the landscape. Park staff are working with other land managers and institutions to gather and share information to address this lack of data. • Historical temperature records (1895-2012) for the park show that the mean annual temperature increased approx. +0.14° F per decade and that warming has accelerated +0.8° F per decade since 1980, 1.8 times the global average. At elevations above 6,000 feet, temperatures increased even faster, three times the global average. • There has been an increase in forest insects and diseases in recent years; one likely cause is climate change and warming temperatures. • Nonnative invasive aquatic species have expanded across the region and now present a major threat to the park's aquatic environment.

Fundamental Resource or Value	Diverse Habitats That Support Iconic Wildlife
Threats and Opportunities	**Threats** • Increased fire intensity and fire exclusion threatens existing whitebark pine habitat. Climatic conditions may favor increased complexity from encroaching forest species and insect invasions. • Increased development, population growth, artificial light, and oil and gas development in the transboundary region may lead to fragmentation of habitat and disruption or closing of animal movement and migration corridors linking to lands outside the park. Increased rail and road traffic could lead to an increased avoidance of roads by certain wildlife, especially bears, thus decreasing connectivity in the ecosystem. • Climate change may alter or degrade a number of natural systems and processes in the park and region. For instance, climate change may result in less snow and more annual rainfall, lower spring snowpacks, higher average temperatures, more frost-free days, and higher occurrence of forest diseases. This may alter the distribution and abundance of many of the park's flora and fauna. • Continued treeline encroachment into alpine meadows. • Forest composition may change over time due to fires and climate regime changes. Changes in precipitation could affect hydrology and wetland communities. • Railroad accidents may result in oil and coal spills, which would likely have a serious negative impact on the park's flora and fauna along the Flathead River corridor. • Terrestrial invasive species are threatening native plant, aquatic, wildlife communities and water quality parkwide, especially east-side grasslands. • Nitrogen and sulfur deposition can cause acidification, excess fertilization, and changes in soil and water chemistry that can affect vegetation community composition and alter biodiversity. Deposition of mercury, pesticides, and other toxins can accumulate in wildlife and impair reproductive and neurological systems. • White-nose syndrome is a potential threat to the park's bat population; white pine blister rust and native insects and pathogens threaten forest populations; other pathogens may expand or migrate into the park as climate changes. • Continued understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature), and impacts to the water resources, and assessment of projected climate futures (models) for the region. Larger and hotter fires are occurring across the Crown of the Continent region. • Sensitive wildlife species such as pika, wolverine, mountain goats, marmots, harlequin ducks, and ptarmigan will be negatively affected by climate change and shrinking glaciers. • Aquatic invasive species are threatening native aquatic communities, especially on the west side. **Opportunities** • Continue implementing the park's five needle pine (whitebark and limber) restoration program. • Leverage monitoring efforts of NPS Rocky Mountain Network; fill priority knowledge gaps not addressed. • The park should continue to improve its interpretive services about "safe viewing" of wildlife. • Continue working with the Crown Managers Partnership and others to coordinate and collaborate on shared issues to maintain the ecological health of the Crown and together develop adaptation measures in response to climate change and improve wildlife connectivity. • Improve education of public and targeted audiences related to transboundary wildlife connectivity, migration routes, and climate change. • Implement the Many Glacier wildlife viewing opportunities as described in the *Many Glacier Wildlife Viewing Environmental Assessment.* • Expand interpretive and educational tools to communicate the connections between biodiversity, air and water quality / pollution, sensitive park resources, scenic views, night sky, wilderness, climate change, transboundary cooperation, recreation, human health, and other associated resources.

Fundamental Resource or Value	Diverse Habitats That Support Iconic Wildlife
Threats and Opportunities	**Opportunities (continued)** • Implement fire management strategies to protect and enhance native habitats and natural processes. • Continue to collaborate with agencies and others on aquatic invasive species inspection, response and containment. • Expand wildlife and aquatic resource monitoring using methods such as citizen science where appropriate. • Continue monitoring and actively managing terrestrial and aquatic invasive species and continue to work with park neighbors in Canada and the United States to identify other potential threats.
Existing Data and Plans Related to the FRV	• Whitebark and limber pine restoration and monitoring data (2000-2015). • Exterior lighting management and replacement plan (2015). • Wolverine and goat studies (2003–2009). • Resources management plan (1998). • Northern Continental Divide ecosystem grizzly bear population trend monitoring (ongoing). • Bear DNA study (2008). • Climate change research. See the report titled "Climate Change Trends for Planning at Glacier National Park" (July 2014) for a complete list of references. • Eastside grasslands ecology project (2010). • Waterton-Glacier International Peace Park vegetation map and characterization report (2007). • Many Glacier wildlife viewing plan environmental assessment (2010). • Rare and invasive plants monitoring report (2005). • Fire effects monitoring (ongoing). • Crown of the Continent climate change scenario plan (2010). • Fire management plan (2010). • Crown of the Continent Large Landscape Conservation Initiative (formerly known as the Ecological Health Project (2007) renamed Large Landscape Conservation Initiative (2015). • Exotic vegetation management plan (1991). • Atmospheric nitrogen, sulfur, and mercury deposition ecosystem effects studies (1992 - 2014). • Ongoing air quality monitoring in the park at West Glacier for visibility, ozone, nitrogen / sulfur / mercury deposition. • National Park Service, Air Resources Division. "Air Quality Conditions & Trends by NPS Units: For Glacier NP." National Park Service. Denver, Colorado. • Wildlife Observation Reporting Forms (WORF). • Bear Information Management System (BIMS). • Fisher study (2013-2015). • Goat study at Logan Pass (2013-2016). • Harlequin duck study (2011-2014). • Continue spring and fall monitoring of ducks. Underway for at least the last decade. • Bat study (2011-2013). Ongoing monitoring. • Bighorn sheep study (2012). • Plant phenology study (ongoing). • Stream monitoring (ongoing). • Periglacial insect study (2011-ongoing). • Migratory raptor survey (ongoing). • Wildlife connectivity (bear) study on Highway 2 (2010-2014). • Assessment of bull and lake trout trends in west side park waters (2002). • Status and habitat threats of Lednia tumana in Glacier National Park (2015). • Stream vital signs monitoring data 2009-2015 (ongoing). • Bull trout action plan for Glacier National Park (2008).

Fundamental Resource or Value	Diverse Habitats That Support Iconic Wildlife
Data and/or GIS Needs	• Continue monitoring health of whitebark and limber pines; and restoration success of whitebark and limber pines. • Acoustic resource monitoring. • LIDAR mapping of park streams, floodplains, geologic areas, and habitats of interest Trend analysis of wildlife-human interactions. • Research the effects of climate change on the park's keystone species and species in the alpine / subalpine transitional area. • Communication strategy for climate change. • Continue monitoring mercury and other toxic contaminants in park biota. Special studies to examine pollution dose-response relationships in sensitive park ecosystems. • Continue monitoring of glaciers and impacts from climate change. • Continue to provide assistance to Crown Managers Partnership Large Landscape Transboundary Conservation Initiative. • Continue night sky monitoring. • Continue migratory raptor surveys. • Basic wildlife composition and distribution studies. • Continue fisheries trend monitoring. • Wildlife displacement research.
Planning Needs	• Develop a vegetation management plan that will include actions to address terrestrial invasives, protect five needle pines and rare plants, and develop fire management strategies. • Crown of the Continent adaptation plan for responding to climate change effects. • Update to the fire management plan. • Scenic air tour management plan. • Acoustic resource management plan. • Update comprehensive interpretive plan. • Backcountry/Wilderness management plan. • Potential reestablishment of bison management plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Blackfeet Tribal Agreement, June 10, 1896 • Bald and Golden Eagle Protection Act of 1940 • Wilderness Act of 1964 • Wild and Scenic Rivers Act of 1968 • Endangered Species Act of 1973, as amended • National Invasive Species Act of 1996 • Lacey Act, as amended (2008) • Federal Noxious Weed Act of 1974, as amended • Clean Water Act of 1972, as amended • Clean Air Act of 1977 (42 USC 7401 et seq.) gives federal land managers the responsibility for protecting air quality and related values, including visibility, plants, animals, soils, water quality, cultural resources, and public health, from adverse air pollution impacts (2004) • Federal-Tribal Trust Responsibilities • Secretarial Order 3206, "American Indian Tribal Rights" • 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" • "Audio disturbances" (36 CFR 2.12) • 16 U.S. Code § (1J), Cooperative Agreements for National Park Reserve Protection

Fundamental Resource or Value	Diverse Habitats That Support Iconic Wildlife
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.1.4) "Partnerships" • NPS *Management Policies 2006* (§4.4.1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (§ 4.7) "Air Resource Management" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate" • NPS *Natural Resource Management Reference Manual 77* • Director's Order 18: *Wildland Fire Management* • NPS *Wildland Fire Management Reference Manual 18* • Director's Order 47: *Soundscape Preservation and Noise Management* • NPS *Management Policies 2006* (§4.9) "Soundscape Management" • NPS *Management Policies 2006* (§5.3.1.7) "Cultural Soundscape Management"

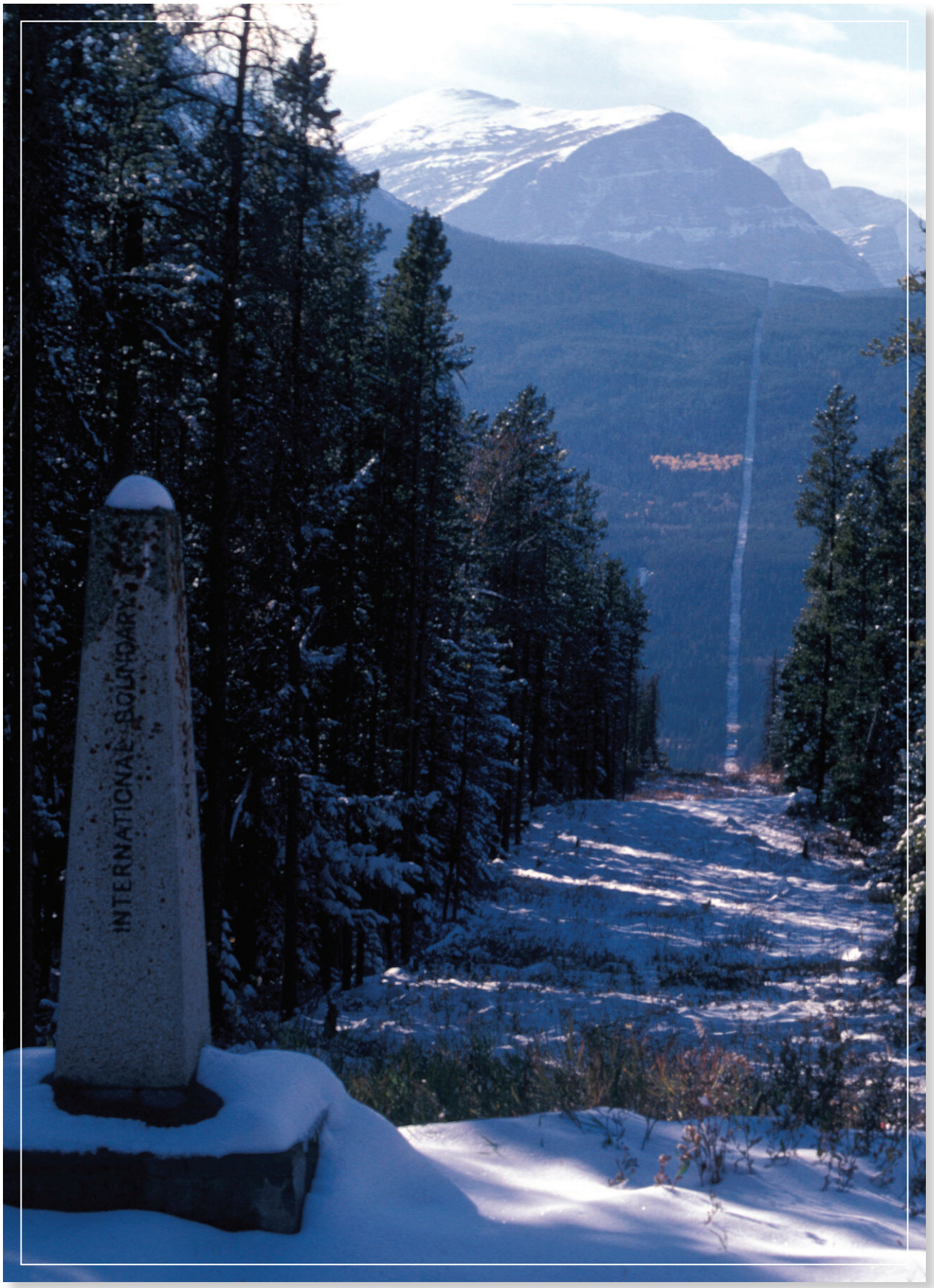
Fundamental Resource or Value	Tribal Connections
Related Significance Statements	• Cultural Connections – Glacier National Park's resources and landscapes have drawn people to the region for 10,000 years. The physical evidence of human activity provided by 338 archeological sites and 397 properties listed in the National Register of Historic Places documents the importance of the area to American Indians, First Nations, explorers, homesteaders, entrepreneurs, visitors, and scientists.
Current Conditions and Trends	**Conditions** • The entire area holds great spiritual importance to the Blackfeet, Salish, Pend d'Oreille, Kootenai, other tribes and First Nations in nearby Canada. • There is spotty baseline documentation on landscapes, historic resources, and archeological sites. Archeological sites are tangible reminders of the American Indian history in the area. • There is a lack of storage, exhibit, and work space for the park's museum collections. • The park acknowledges the close relationship between the landscape and flora and fauna and the associated tribes. The park provides free entry, fishing access, and, under a special use permit, gathering of plant materials upon request to tribal members. • Tribes place significance on cultural resources and have different perspectives and relationships to landscapes that are unique to their cultures. **Trends** • Continued and expanded collaboration and consultation with tribes on park management issues.
Threats and Opportunities	**Threats** • Need to manage appropriately the increase in visitor use, as this could encroach on or damage sacred and archeological sites and practices. • Natural fires are ecologically important but have resulted in damage to some ethnographic and archeological sites in the past. • Climate change will likely affect ethnographic resources in the park. • Inadequate storage and display facilities impact the park's ability to protect and provide robust interpretation of past human use. • Changes in visitor expectations could conflict with traditional tribal uses of the land. **Opportunities** • The park could increase interpretation of American Indian connections to the park's landscape and resources. Create and maintain strong partnerships with tribes to preserve American Indian history and cultural connection with Glacier National Park. Maintaining strong partnerships with tribes is key to helping preserve American Indian history and culture in relationship to Glacier National Park. • Support the efforts of partners to develop a new museum that would result in better curation of the park's collection and improved visitor understanding of human history in the park. • Establish a tribal liaison / ethnographer position on the park staff. • Develop strategy to protect backcountry arch sites from impacts by increasing visitor use.
Existing Data and Plans Related to the FRV	• General management plan / environmental impact statement (1999). • *Miistakis: The Archeology of Waterton-Glacier International Peace Park* (2003). • *"Our Mountains Are Our Pillows:" An Ethnographic Overview of Glacier National Park* (2001). • Glacier National Park museum collection facility storage estimate (2014). • Glacier National Park archeological geodatabase. • NPS Midwest Archeological Center database.

Fundamental Resource or Value	Tribal Connections
Data and/or GIS Needs	• Ethnographic overview and assessment. • Cultural affiliations study. • Cultural landscape inventories. • Update the parkwide evaluation of buildings for historic eligibility. • National register nominations.
Planning Needs	• Visitor use management plan. • Cultural landscape reports for all eligible landscapes. • Research and collections facility plan. • Protocols to handle inadvertent discovery of human remains.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Antiquities Act of 1906 • National Historic Preservation Act of 1966, as amended (54 USC §300101 et seq.) • Archeological and Historic Preservation Act of 1974 • American Indian Religious Freedom Act of 1978 (PL 95-341) • Archaeological Resources Protection Act of 1979 • Native American Graves Protection and Repatriation Act of 1990 • Management of Museum Properties Act of 1955 (PL 84-127) (16 USC 18f through 18f-3) • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) • 16 U.S. Code § 1J, Cooperative Agreements for National Park Reserve Protection • Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments" • Secretarial Order 3206, "American Indian Tribal Rights" • Federal-Tribal Trust Responsibilities • Endangered Species Act of 1973 • Secretarial Order 3335, "Reaffirmation of the Federal Trust Responsibility to Federally Recognized Indian Tribes and Individual Indian Beneficiaries" • Blackfeet Indian Agreement of June 10, 1896 • United Nations Declaration on the Rights of Indigenous Peoples • The Jay Treaty **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Intermountain Region Sacred Sites Policy • Department of the Interior Policy on Consultation with Indian Tribes • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • Director's Order 28A: *Archeology* • NPS *Museum Handbook,* parts I, II, and III • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* • Intermountain Region Sacred Sites Policy

Fundamental Resource or Value	Variety of Recreational Opportunities
Related Significance Statements	• Wilderness Experience – Glacier National Park offers access to a diversity of spectacular scenery and increasingly rare primitive wilderness experiences. • Going-to-the-Sun Road – The Going-to-the-Sun Road provides access to five different ecoregions and is one of the most scenic roads in North America. Due to the preservation of scenery, advanced engineering, and landscape architectural design it was the first road designated as a national historic civil engineering landmark and later as a national historic landmark.
Current Conditions and Trends	**Conditions** • The park offers a variety of recreation opportunities for visitors, including hiking, backpacking, climbing and mountaineering, staying in backcountry chalets, bicycling, boating, paddling, wildlife viewing, auto-touring, and a few accessible nature trails, among others. • Driving the Going-to-the-Sun Road is one of the most popular visitor activities in the park. • The park has multiple campgrounds for visitors, which include developed and primitive sites. These campgrounds routinely fill to capacity during the summer months. • Parking lots in popular visitor areas, such as the Going-to-the-Sun Road corridor, routinely fill beyond capacity during the summer months. • Permits are required for some of the park's most popular backcountry campsites. This makes it challenging for visitors to plan multiday backpacking trips. Some sites do not require advance reservations. • Some illegal recreation activities occur in the park, such as BASE jumping and off-road mountain biking. The park has had increased difficulty regulating these activities as the number of visitors has increased and the number of park law enforcement personnel has not. • The park has more than 730 miles of trails. The Going-to-the-Sun Road shuttle system allows visitors to connect trailheads and do through-hikes in the Going-to-the-Sun Road corridor. • The Going-to-the-Sun Road shuttle system and road construction has created pulses in visitor numbers at a few popular stops, such as Logan Pass and Avalanche Creek. • The park receives winter use in a number of areas, especially Lake McDonald and Avalanche, where cross-country skiing is popular. The park has winter trail use numbers for 2013 and 2014. There is some backcountry skiing in the park, but little data exists on winter use in general. • The park has a limited number of Architectural Barriers Act (ABA)-accessible trails; some are in need of repairs, such as the Trail of the Cedars and Running Eagle Falls nature trails. • The park has surveyed and counted trail levels in the Going-to-the-Sun Corridor from 2005-2016. One earlier study was done in 1988 on a few trails in the corridor. • The park has a number of caves and karst systems with sensitive resources that are of interest to some visitors. **Trends** • Higher visitation has decreased opportunities for solitude in the park; 2015 was a record year for visitor numbers (approximately 2.3 million). • There is increased demand for nontraditional recreation activities in the park, including kite and paddle boarding. • The park has observed changes in visitor preferences, especially in the last 10 years. For example, visitor demand for internet connectivity has increased. • The park has increased its social media and web presence to better communicate information about recreation activities in the park. • There has been an increase in bicycling along Going-to-the-Sun Road.

Fundamental Resource or Value	Variety of Recreational Opportunities
Threats and Opportunities	**Threats** • Overcrowding in some popular frontcountry areas is straining park facilities and is affecting the visitor experience. • Traffic congestion is a major issue along the Going-to-the-Sun Road. Park visitors are encouraged to travel the road before 10 a.m. in order to avoid congestion and parking problems. • Vehicular noise along Going-to-the-Sun Road, especially loud motorcycles, can negatively impact natural acoustic environment and the visitor experience in the backcountry. • Increase in mean annual temperature and changes in seasonal peak flows are some of the climate-related impacts that will likely influence recreational opportunities (e.g., rafting, snow sports) at the park. • Caving is becoming an increasingly popular visitor activity, which could threaten cave resources. • Recreational fishing is impacted by accumulation of mercury and or other contaminants that have been found in fish in some park waters. There is a recommended threshold for consumption of certain fish species such as lake trout. • Invasive fish species threaten native fish fishing opportunities for park visitors. • Climate change is affecting water availability at popular developed visitor areas both in the backcountry and frontcountry of the park. **Opportunities** • The park could better use its website and social media platforms to direct people to places that will meet their expectations—for instance, places to find solitude versus popular areas; and areas that require self-reliance versus places with lots of amenities. • The park could continue to carry out visitor and trail surveys to better understand visitor preferences and patterns. This data can also help to disperse use away from the Going-to-the-Sun Road corridor and into less visited parts of the park. • Study impacts from other recreational uses such as bicycles, cave use, kiteboarding, and other nontraditional activities. • Continued control and removal of invasive fish to maintain fishing opportunities for visitors.
Existing Data and Plans Related to the FRV	• Commercial services plan (2004). • General management plan / final environmental impact statement (1999). • Backcountry management plan (1994). • Bear management plan (1990). • North Fork management plan (1992). • Annual state of the backcountry report. • Integrated solid waste management plan (underway). • Glacier National Park site history: Logan Pass (2014). • Glacier National Park site history: Avalanche (2013). • Going-to-the-Sun Road visitor experience and support for management actions survey report (2014). • Glacier National Park visitor study (2007). • Initial season of the Going-to-the-Sun Road shuttle system at Glacier National Park visitor use study (2007). • Recreational use of selected viewpoints on the Going-to-the-Sun Road (2005). • Recreational use of selected viewpoints on the Going-to-the-Sun Road (2009). • Going-to-the-Sun Road shuttle system and visitor study synthesis report (2010). • Use of selected trails and parking areas on the Going-to-the-Sun Road (2011). • Use of selected trails on the Going-to-the-Sun Road hiking survey (2012). • Exploring detracting elements and coping mechanisms reported on four trails along the Going-to-the-Sun Road (2013).

Fundamental Resource or Value	Variety of Recreational Opportunities
Data and/or GIS Needs	• Trail use studies and surveys – outside the Going-to-the-Sun Road corridor. • Parkwide visitor use survey. • Integrate the computer-aided dispatch database with Crime Finder. • Complete condition assessment for all assets in the park's facility management software system portfolio. • Assess sustainable park operations. • Modeling of water availability at developed sites. • Monitor use / impacts to backcountry off-trail sites (e.g., Floral Park).
Planning Needs	• Visitor use management plan. • Accessibility self-evaluation and transition plan. • Youth engagement strategy. • Land protection plan. • Update comprehensive interpretive plan. • Cave and karst system management plan. • Telecommunications infrastructure plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Americans with Disabilities Act of 1990 • Architectural Barriers Act of 1968 • Architectural Barriers Act Accessibility Guidelines (36 CFR §1191) • Rehabilitation Act of 1973 • National Park Service Concessions Management Improvement Act of 1998 **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 7) "Interpretation and Education" • NPS *Management Policies 2006* (chapter 8) "Use of the Parks" • NPS *Management Policies 2006* (chapter 9) "Park Facilities" • NPS *Management Policies 2006* (chapter 10) "Commercial Visitor Services" • Director's Order 6: *Interpretation and Education* • Director's Order 42: *Accessibility for Visitors with Disabilities in National Park Service Programs and Services* • NPS *Transportation Planning Guidebook*


INTERNATIONAL BOUNDARY

Fundamental Resource or Value	International Peace Park
Related Significance Statements	• Transboundary Cooperation – In 1932, the long-standing peaceful relationship between the United States and Canada was recognized when Waterton Lakes National Park and Glacier National Park were designated by the U.S. Congress and the Canadian Parliament as the world's first international peace park. In a world of shared resources, Waterton-Glacier International Peace Park serves as an inspiration and model of transboundary collaboration and cooperation.
Current Conditions and Trends	**Conditions** • Overall, there is a strong working relationship between Glacier National Park and Waterton Lakes National Park at the park operations level. At the program level, cooperation has been less consistent, but has improved in the last decade. • The international border is a physical and administrative barrier that creates some challenges. These barriers have become even more pronounced in the wake of 9/11 and the heightened emphasis on border security that 9/11 created. • Waterton Lakes has placed more emphasis on the international peace park designation; Glacier has done less to emphasize this designation. • The Crown Managers Partnership (a group of federal, provincial, and state land managers, tribes, First Nations and universities that has been working together since 2001) has an extensive resource database for the entire Crown of the Continent that is available to both parks to help both parks manage more effectively and understand trends. • Other groups and efforts are working at a large landscape scale to address collaborative management and climate change impacts. Waterton-Glacier is at the center of the Crown. Waterton and Glacier are both active members of these large landscape efforts that include: the Crown Roundtable, The Great Northern Large Landscape Cooperative, the Crown of the Continent Initiative, and the Crown of the Continent Adaptation Partnership. **Trends** • Declining funds and travel restrictions / ceilings have reduced opportunities for transboundary cooperation and collaboration. • Changes in the funding and structure for Parks Canada has resulted in fewer positions in Waterton. This hurts the ability of both parks to coordinate their activities and initiatives. • Both parks are experiencing increasing visitation. • Both parks are impacted by climate change. • The Department of the Interior, the National Park Service, and Canada are encouraging government staff to work at and collaborate at a large landscape level with each other and nongovernment organizations.
Threats and Opportunities	**Threats** • Helicopters and border patrol activities more frequently disrupt the natural character and the visitor experience of the International Boundary. This impacts visitor perceptions of the International Peace Park. • Agency support in the United States and Canada of the park vision has, historically, been variable, but commitment is one of the most significant factors in keeping this idea relevant and alive. • Climate change is affecting management of resources at both parks. **Opportunities** • Implement a single entry fee for both parks. • Increase awareness of the peace park designation through expanded interpretive services. • Implement an employee exchange to share and improve management practices and build stronger cooperative relationships. • Improve adaptive management with shared ideas about successes and failures. • The community of Waterton Lakes is actively working to upgrade its conference center to be able to focus on international relations and diplomacy.

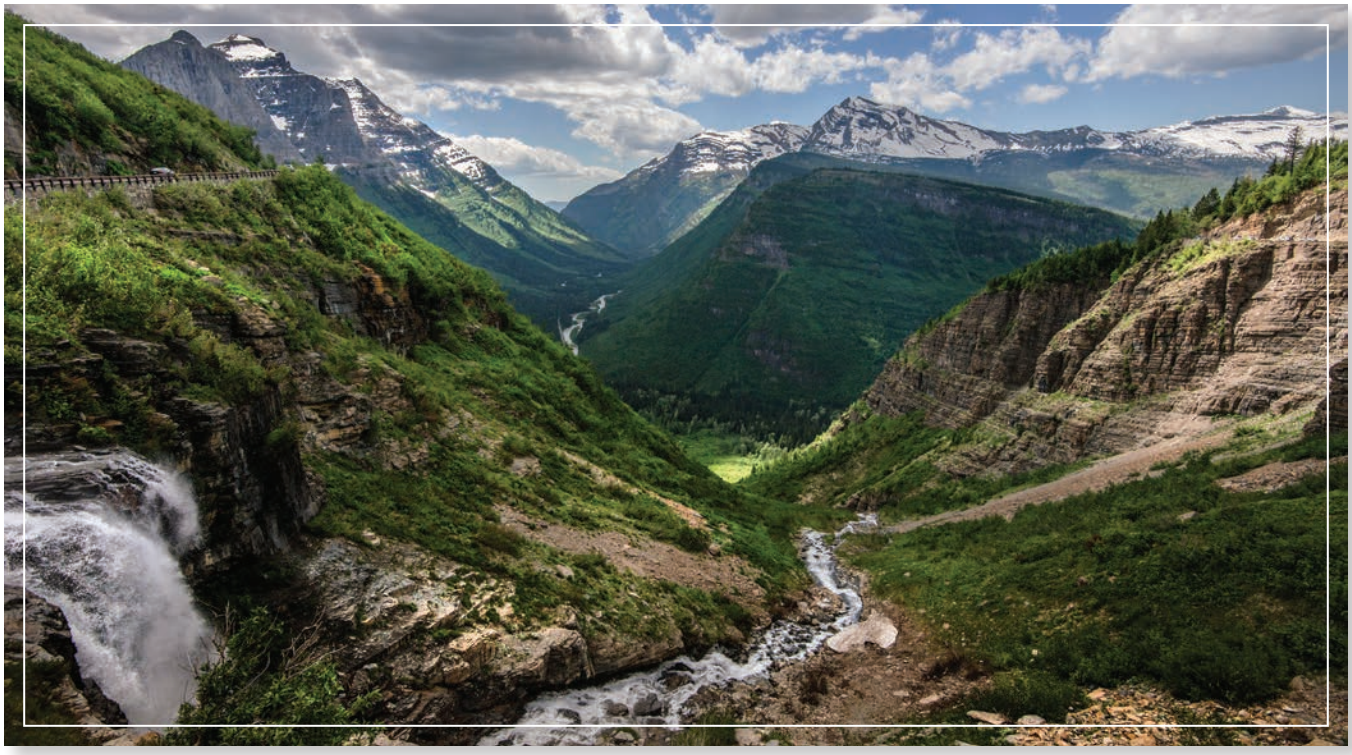
Fundamental Resource or Value	International Peace Park
Threats and Opportunities	**Opportunities (continued)** • Collaborate with the Alberta Visitor Center to better promote tourism at a regional level. • Become a designated joint international dark sky preserve (nomination effort underway). • 2016 Rotary Club is looking at hosting at Many Glacier (Hands Across the Border). • Continue to develop collaborative management responses to climate change and other resource challenges with our neighbors through the Crown Managers Partnership and other transboundary groups. • Other related partnerships are between Crown Managers Partnership, NPScape and University of Calgary and Montana to conduct trend analysis for the entire Crown of the Continent that will help inform management of Glacier National Park. • Respecting the procedural requirements of both the U.S. and Canadian governments, work with Waterton Lakes to prepare a Joint Biosphere Reserve application as recommended by World Heritage and the International Union for Conservation of Nature.
Existing Data and Plans Related to the FRV	• General management plan (1999). • Waterton Lakes National Park of Canada management plan (2000). • World Heritage Site (2009) and Biosphere Reserve status reports (2013). • U.S. Geological Survey-National Park Service vegetation mapping program: Waterton-Glacier International Peace Park.
Data and/or GIS Needs	• Continual updated transboundary data sets. • Analysis of transboundary conservation practices around the world.
Planning Needs	• Site plan for Goat Haunt to address law enforcement facilities and operations and interpretation programming and facilities (informed by comprehensive interpretive plan). • Crown of the Continent joint adaptation plan for responding to climate change effects.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • National Parks Air Tour Management Act of 2000 • National Parks Overflight Act of 1987 (PL 100-91) • "Audio disturbances" (36 CFR 2.12) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.1.4) "Partnerships" • Director's Order 47: *Soundscape Preservation and Noise Management* • NPS *Management Policies 2006* (§4.9) "Soundscape Management" • NPS *Management Policies 2006* (§5.3.1.7) "Cultural Soundscape Management" • NPS *Management Policies 2006* (§8.4) "Overflights and Aviation Uses"

Analysis of Other Important Resources and Values

Other Important Resource or Value	Going-to-the-Sun (GTSR) Road
Current Conditions and Trends	**Conditions** • The Going-to-the-Sun Road is considered one of the most scenic roads in North America. • The current condition of the Going-to-the-Sun Road is excellent, having almost completed a $170-million-dollar rehabilitation. The work included constructing transit infrastructure, amending and upgrading roadway drainage, stabilizing historic retaining walls and guard walls, and anchoring deep-seated roadway failures, as well as improving parking and other visitor use areas, including accessible opportunities for visitors with limited mobility. • The road is viewed as the primary economic driver for Northwest Montana. The road's status as a regional economic engine makes for intense pressure on the park to expand the time it is open. • The road is extremely congested during peak/summer season. • The average annual cost of operating the shuttle is $600,000 to $800,000 per year. This comes from fee dollars. • The majority of the road is within the original historical alignment. • The NPS economic models show that the park generates $270 million in economic spending in the area. Two thirds of this total is generated during the period when the road is open. • The road provides access to many areas of the park and offers scenic views and access to recreation opportunities, trails, and the park's backcountry and alpine environment. • The road provides a direct connection between the east and west side of the Continental Divide. • The road is designated as a national historic landmark and national historic civil engineering landmark. • It is the most dangerous road in terms of operating and opening in North America. **Trends** • There is regular degradation of the road and its supporting infrastructure due to harsh weather, geologic hazards, avalanches, and other natural causes. • Alternative use of the road (such as bicycles, quads, and hand-cycling) is increasing. • British Columbia and Alberta energy development is resulting in additional transboundary travel and economic development in the Flathead Valley.
Threats and Opportunities	**Threats** • Severe congestion is a major threat to the visitor experience along the road during peak season. • Limited parking throughout the road corridor during peak season results in increased traffic, visitor safety issues, and impacts the visitor experience. • Extended wait times at the entrance stations, particularly on the west side during peak season, are impacting the visitor experience at the outset of a visit to the park. • Increasing social trails on popular trails within the Going-to-the-Sun Road corridor could result in resource damage. • Human waste issues along the road and on popular trails are impacting the visitor experience and could result in resource damage. • Avalanche damage, flooding, and weather events (precipitation and drainage) are ongoing threats to the road. • Increased visitor demand for a longer operating season along the road can negatively impact staff safety (for instance, snowplow drivers subjected to increased avalanche risk). • The road is a conduit for invasive weeds in the park. • A longer season than at present, with increased visitor access and associated operational costs as mean annual temperature is projected to increase for the region due to climate change.

Other Important Resource or Value	Going-to-the-Sun (GTSR) Road
Threats and Opportunities	**Opportunities** • Manage increasing visitor use in the Going-to-the-Sun Road corridor. • Continue to explore opportunities to fund the shuttle as costs increase. • Accommodate nonmotorized modes of travel along the road, especially bikes. • Interpret road rehabilitation efforts to visitors to help them understand the engineering and maintenance feats involved in keeping the road open. • Redirect visitors and traffic away from the Going-to-the-Sun Road corridor to reduce congestion (via website information, highway signs, and digital boards). Visitors could be dispersed to other areas of the park and into the national forests and other protected lands that surround the park. • Continued understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature), and impacts to the Going-to-the-Sun Road, and assessment of projected climate futures (models) for the region.
Existing Data and Plans Related to the OIRV	• Going-to-the-Sun Road corridor transportation and visitor use management plan (underway). • Final environmental impact statement for rehabilitation of Going-to-the-Sun Road (2003). • Cultural landscape inventory and report for the Going-to-the-Sun Road. • Goat study (underway). • Avalanche atlas developed by the U.S. Geological Survey (identifies avalanche risks along the road). • Long-term monitoring of bald and golden eagle nests. • Harlequin and black swift studies and ongoing monitoring. • Bear Information Management System (BIMS). • Wildlife Observation Report Form (WORF). • Going-to-the-Sun overview: socioeconomic study (2001). • Traffic count data, National Park Service. • Recreational use of selected viewpoints on the Going-to-the-Sun Road, University of Montana, (2005). • Traffic counts by University of Montana and National Park Service along the Going-to-the-Sun Road (2012). • Glacier National Park transit summary report (2007-2013). • Going to-the-Sun road visitor experience and support for management actions survey report (2014). • Trail use levels, (2005, 2009, 2011, 2012, 2013, 2014, 2015). • Going-to-the-Sun Road shuttle stop photo monitoring (2007-2009). • Exploring visitor experiences on the Going-to-the-Sun Road in Glacier National Park (2002). • Going-to-the-Sun Road shuttle system and visitor study synthesis report (2010). • Recreational use of selected viewpoints on the Going-to-the-Sun Road (2009). • Initial season of the Going-to-the-Sun Road shuttle system at Glacier National Park (2007). • Exploring detracting elements and coping mechanisms reported on four trails along the Going-to-the-Sun Road corridor in Glacier National Park (2013). • Use of selected trails (2012). • Use of selected trails and parking areas along the Going-to-the-Sun Road (2011). • Glacier National Park site history: Logan Pass (2014). • Glacier National Park site history: Avalanche (2013). • An empirical test of the effectiveness of an indirect management tool in increasing optional shuttle use at Glacier National Park (2014).

Other Important Resource or Value	Going-to-the-Sun (GTSR) Road
Data and/or GIS Needs	• Update the comprehensive GIS inventory of road features. • GIS data and corresponding map layers for utilities in the park. • Geohazard risk assessment along key road corridors. • Continued monitoring of glaciers and impacts from climate change.
Planning Needs	• Cultural landscape treatment plan for the GTSR corridor. • Update the comprehensive interpretive plan.
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended (54 USC §300101 et seq.) • Executive Order 11514, "Protection and Enhancement of Environmental Quality" • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • NPS *Management Policies 2006* (chapter 7) "Interpretation and Education" • NPS *Management Policies 2006* (chapter 8) "Use of the Parks" • NPS *Management Policies 2006* (chapter 9) "Park Facilities" • NPS *Management Policies 2006* (chapter 10) "Commercial Visitor Services" • NPS *Management Policies 2006* (§1.6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (§4.1) "General Management Concepts" • NPS *Management Policies 2006* (§4.1.4) "Partnerships" • NPS *Management Policies 2006* (§4.7.2) "Weather and Climate"



Other Important Resource or Value	National Historic Landmark Hotels and Chalets
Current Conditions and Trends	**Conditions** • The park has five national historic landmark hotels and chalets: Lake McDonald Lodge, Granite Park Chalet, Sperry Chalet, Many Glacier Hotel, and the Two Medicine Chalet Dining Hall (known as the Two Medicine Camp Store). • All five of the national historic landmark hotels and chalets are managed and operated under concession contracts; these include: Granite Park Chalet, Sperry Chalet, Many Glacier Hotel, Two Medicine Chalet, and Lake McDonald Lodge. • Almost all historic buildings are in use for various purposes (administrative, visitor facilities, hotels, etc.). • Boat tours (using historic boats) depart from Lake McDonald Lodge, Two Medicine Camp Store, and Many Glacier Hotel. • Visitors may hike to Granite Park and Sperry Chalets for overnight accommodations. • Two Medicine Chalet Dining Hall (known as the Two Medicine Camp Store) is currently a camp store and backcountry staging area, but no longer provides overnight accommodations. **Trends** • The park's maintenance backlog has continued to increase for the last decade. Funding resources are directed at priority projects, however, the size of the backlog and the aging of structures contribute to an accelerating rate of deterioration. • The condition of many historic buildings has been improving over the last 10 years, but many still need ongoing work. The park's new concessions contract is contributing to preservation of these national historic landmark hotels and chalets. • Visitor expectations are changing—specifically, there is increased demand for more technology. In most cases, this demand conflicts with the historic character and integrity of buildings.

Other Important Resource or Value	National Historic Landmark Hotels and Chalets
Threats and Opportunities	**Threats** • The growing numbers of visitors may accelerate the wear and tear on the park's historic landmarks. • Climate change may accelerate the deterioration of park historic hotels and chalets and may increase operational costs due to an increase in the visitor season as mean annual temperature increases (e.g., increases in wildfire). Structural fire issues threaten structures and collections; alarm systems and fire suppression are lacking in some historic buildings or require repair or upgrades. • Funding constraints affect the park's ability to rehabilitate and maintain historic structures. **Opportunities** • The park could expand Architectural Barriers Act (ABA) access to backcountry historic landmarks, structures, and facilities and improve access to frontcountry landmarks. • Continue improving ABA trail access throughout the park. Enhance interpretation and education about the history of the National Park Service and how the design and strategic placement of the historic landmarks contributed to the development of Glacier National Park. • Continued understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature), and impacts to the park facilities and operations, and assessment of projected climate futures (models) for the region.
Existing Data and Plans Related to the OIRV	• General management plan / environmental impact statement (1999). • Commercial services plan and environmental impact statement (2004). • Road maintenance plan (2005). • Environmental management plan (2012). • Glacier National Park museum collection facility storage estimate (2014).
Data and/or GIS Needs	• Historic structures and cultural resources best practices for treatment guide. • National register nominations. • Cultural landscape inventories. • Archeological surveys. • Continued monitoring of glaciers and impacts from climate change.
Planning Needs	• Visitor use management plan. • Site plan for Apgar Village. • Cultural landscape reports for all eligible landscapes. • Research and collections facility plan. • Facility adaptation plan for responding to climate change effects.
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended (54 USC §300101 et seq.) • Archeological and Historic Preservation Act of 1974 • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Protection of Historic Properties" (36 CFR 800) • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 28: *Cultural Resource Management* • NPS *Museum Handbook,* parts I, II, and III • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*

Other Important Resource or Value	Other Historic Resources
Current Conditions and Trends	**Conditions** • The condition of the park's buildings and structures range from good to poor condition. • Many of the park's buildings and structures are deteriorating due to age and harsh climate. • The park has acquired additional buildings and structures due to the expiration of life estates and 25-year lease agreements that are now historic and listed in the national register. • Many of the park's administrative and visitor facilities and buildings do not meet current requirements under the Architectural Barriers Act. Almost all historic buildings are in use for various purposes (administrative, visitor facilities, etc.). • There is a lack of baseline documentation on historic landscapes, historic structures, and archeological sites. • There is a lack of storage, work, and exhibit space for the park's collections and archives. • Visitor demand has exceeded the capacity of historic facilities in some areas. • The Swiftcurrent Motor Inn & Cabins and Rising Sun Motor Inn & Cabins are both listed in the national register and are currently operated by a concessioner. • There are a total of 397 national register properties and 388 archeological sites. • Of the 397, 267 or 67% are listed in good condition. **Trends** • The park had 2.36 million visitors in 2015, making it the busiest year on record. Visitation is projected to continue to increase. • The park's maintenance backlog has continued to increase for the last decade. While the condition of some of the historic buildings in the park has improved due to recent rehabilitation or other preservation work by the park and the park's concessioners, many others are deteriorating at an accelerated rate due to maintenance backlog and the condition of the structures. • Visitor expectations are changing—specifically, there is increased demand for more technology. In most cases, this demand conflicts with the historic character and integrity of buildings.
Threats and Opportunities	**Threats** • The growing numbers of visitors may accelerate the wear and tear on the park's historic infrastructure. • Natural fires are ecologically important but have resulted in damage to some park facilities in the past; however, the park has largely been successful in protecting historic structures. • Climate change may accelerate the deterioration of park historic buildings and structures as mean annual temperature increases (e.g., increases in wildfire).Structural fire issues threaten structures and collections; alarm systems and fire suppression are lacking in some historic buildings or require repair or upgrades. • Funding constraints affect the park's ability to rehabilitate historic structures. **Opportunities** • The park could expand ABA access to more of its historic structures and facilities. • Support the efforts of partners to develop a new museum that would result in better curation of the park's collection and improved visitor understanding of human history in the park. • Partner with others for suitable museum quality storage space. • The park could seek partnerships to rehabilitate and use historic buildings using historic leasing and other arrangements. • Continued understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature), and impacts to the park facilities and operations, and assessment of projected climate futures (models) for the region.

Other Important Resource or Value	Other Historic Resources
Existing Data and Plans Related to the OIRV	• Housing management plan (2011). • Going-to-the-Sun Road cultural landscape report and narrative. • Headquarters historic district cultural landscape report and narrative. • Housing needs assessment (2012). • Underground utilities condition assessment (2014). • General management plan / environmental impact statement (1999). • Commercial services plan and environmental impact statement (2004). • Road maintenance plan (2005). • Environmental management plan (2012).
Data and/or GIS Needs	• Ethnographic overview and assessment. • Historic structures and cultural resources best practices for treatment guide. • Historic structure reports on newly possessed historic buildings. • Historic structure reports for rehabilitated structures. • National register nominations. • Cultural landscape inventories. • Update the parkwide evaluation of buildings for national register eligibility. • Continued monitoring of glaciers and impacts from climate change.
Planning Needs	• Visitor use management plan. • Site plan for Apgar Village. • Cultural landscape reports for all eligible landscapes. • Research and collections facility plan. • Facility adaptation plan for responding to climate change effects. • Historic structure reports on newly possessed historic buildings. • Historic structure reports for rehabilitated structures.
Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the OIRV** • Antiquities Act of 1906 • Historic Sites Act of 1935 • National Historic Preservation Act of 1966, as amended (54 USC §300101 et seq.) • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • Management of Museum Properties Act of 1955 (PL 84-127) (16 USC 18f through 18f-3) • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) • 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" • United Nations Declaration on the Rights of Indigenous Peoples **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • Director's Order 28A: *Archeology* • NPS *Museum Handbook,* parts I, II, and III • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*

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 Glacier National Park and the associated planning and data needs to address them:

- **Climate Change –** Climate change is a far-reaching and long-term issue that will affect all aspects of Glacier National Park. The statistically significant increase in mean annual temperature since 1950 and the projection for a continued increase in mean annual temperature of +4° to 5° F by 2050 and +5° to 9° F by 2100 will have a range of influences on the park's natural resources (e.g., melting of glaciers, changes in species composition); cultural resources (e.g., increased vulnerability of artifacts emerging from melting ice); park facilities (e.g., weathering of buildings and roads); and visitor season (e.g., increased operational cost due to increased access). Responding to climate change is a priority for the National Park Service, and Glacier National Park has prioritized this as a key issue. The Crown is warming at 2 to 3 times the rate of the global average, and by 2030, glaciers are no longer predicted to exist in Glacier National Park, one of the core, protected areas within the Crown of the Continent Ecosystem. However, there is strong science to support the Crown of the Continent as a "resilient landscape" with respect to the both vulnerability and resilience to climate change. The park is working with others to develop a collaborative and coordinated response and identify adaptation measures that would be implemented with other agencies and landowners within the Crown of the Continent.
    - *Associated planning need:* Crown of the Continent adaptation plan for responding to climate change effects
    - *Associated data needs:* communication strategy for climate change; parkwide research on effects of climate change on the park's keystone species and species in the alpine/subalpine transitional area

- **Wilderness Character –** Since 95% of Glacier National Park is recommended wilderness, maintaining wilderness character remains a priority. The park is facing difficult questions with regard to taking actions that protect species affected by nonnatives and climate change. Some responses have been and are being considered that require that actions be taken in the wilderness that otherwise would not be allowed. As park staff continue to take action to protect and enhance wilderness character, they also must carefully consider the intent of the Wilderness Act and the inherent tradeoffs which sometimes occur. Some adaptation actions in response to climate change and the protection of natural character may degrade the untrammeled qualities of the area, even for a short time. Development outside wilderness areas impacts dark night skies and natural soundscapes. The park is also responding to the poaching of protected species, bighorn sheep in particular. Implementation of the Going-to-the-Sun-Road corridor transportation and visitor use management plan may have unintended consequences on elements of wilderness character.
    - *Associated planning need:* visitor use management plan
    - *Associated data needs:* trail use studies – outside of Going-to-the-Sun-Road corridor

- **Ecological Integrity –** Glacier National Park is one of the many land managers in the Crown of the Continent tackling invasive species, both aquatic and terrestrial as well as other ecological landscape scale stressors. This challenge and need for management action is expected to be ongoing. Providing sound, credible, and current science to support decision making, and working together with other federal, provincial, and state agencies; tribes, First Nations, and nongovernment organizations is one of the current strategies being employed to combat invasive species.
  - *Associated planning needs:* response and action plans for various ecological stressors
  - *Associated data needs:* aquatic invasive species monitoring in park lakes; trend analysis of wildlife-human interactions; wildlife connectivity study

- **Deferred Maintenance –** Glacier National Park's facilities are aging, with nearly $150 million in deferred maintenance. Many of the facilities provide unique challenges to maintenance, particularly when they are also historic structures and buildings. Many of the facilities receive a high level of use, which increases the rate of deterioration. With fewer maintenance funds being appropriated to park units nationwide, this will be an ongoing challenge. In addition, climate change could exacerbate the deterioration of park facilities.
  - *Associated planning needs:* research and collections facility plan; site plan for Goat Haunt, including National Register of Historic Places nomination; sign management plan; site plan for Apgar developed area
  - *Associated data needs:* national register nominations; comprehensive condition assessments for all assets in the park's Facility Management Software System portfolio; historic structure reports for rehabilitated structures

- **Visitor Carrying Capacity –** With a short summer season, one main road, and more than two million visitors each year, many areas in the park become intensely crowded and congested. The park has responded with visitor education (on best times to travel), implementation of a shuttle system, and a transportation and visitor use management plan currently underway. However, additional proactive measures should be taken to address this issue, which causes visitor frustration as well as impacts on resources and operations. There is also a growing demand for nontraditional use of the park such as kiteboarding which must be proactively addressed and managed.
    - *Associated planning needs:* visitor use management plan; accessibility self-evaluation and transition plan
    - *Associated data need:* parkwide visitor use survey

- **Transportation –** The park has taken major strides in improving the transportation on the Going-to-the-Sun Road through implementation of the shuttle system. However, other locations in the park should be considered. Efficacy and efficiency of in-park transportation, providing a multimodal connectivity to gateway communities is an important opportunity for the park to address. Currently, the shuttle service terminates at Apgar Visitor Center / Transportation Center, which is 2.5 miles from the town of West Glacier, where lodging and connections to an Amtrak passenger train exist.
    - *Associated planning needs:* cultural landscape treatment plan for the Going-to-the-Sun Road corridor; environmental assessment for the Inside-North-Fork-Road; parkwide transportation plan
    - *Associated data needs:* geohazard risk assessment along key road corridors; update the comprehensive GIS inventory of road assets

- **Incompatible Development and Threats –** The railroads on the southern and eastern boundary of the park are major oil and gas transportation routes. One of the most pressing concerns for park resource management is the possibility of an oil spill from derailment in the watersheds shared with the park. Another concern is the energy development and exploration in areas immediately surrounding the park, which could cause ecological degradation and damage to park resources. Overall park air quality, and the resources that depend on clean air, are currently of moderate concern and further development may increase this concern. Oil, gas, and coal extraction is occurring upstream of the park's watershed in Canada. Further development on tribal lands, while currently at a low level, could become a major concern for air quality, water quality, wildlife, and aquatic resources. The regional population has also increased, with additional pressures such as development of residential dwellings near the park, potentially impacting park resources, including wildlife movements and connectivity. Private lands within the park are not zoned, and incompatible development has occurred within the park boundary, affecting resources and visitor experiences. The park has an opportunity to work with landowners to proactively address concerns and mitigate risks related to incompatible development.
    - *Associated data needs:* parkwide air quality monitoring; visual resource inventory; transboundary data sets; analysis of transboundary conservation practices around the world; compatibility standards for private lands inside the park

- **Relevance and the Visitor Experience –** Maintaining relevance of the park for all audiences originates to the NPS Organic Act—to preserve and protect resources for the enjoyment of the public. A pressing issue is making the park more accessible to people with disabilities. Changing national demographics, visitor use interests and patterns, technology expectations and opportunities, and even the extension of the summer season due to changes in climate are factors affecting visitor experiences and need consideration and action by park staff.
    - *Associated planning needs:* visitor use management plan; accessibility self-evaluation and transition plan; update to the comprehensive interpretive plan
    - *Associated data need:* parkwide visitor use survey

- **Optimize Relationships and Collaboration –** Fostering strong relationships and strengthening partnerships with the park's partners (federal, provincial and state agencies, tribes and First Nations, nonprofit organizations, local communities and neighbors in Canada and the U.S.) will guide Glacier National Park into the future and be invaluable in addressing the previously identified key and shared issues and better assure protection of park resources.
    - *Associated planning need:* youth engagement strategy
    - *Associated data needs:* collaborative scenic conservation strategy; visual resource inventory

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, or OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV and OIRV	Visitor use management plan	H	Should address visitor capacity in key areas of the park, including North Fork, Middle Fork, Many Glacier and Two Medicine areas. A parkwide visitor use plan has not been conducted in 30 years. A visitor use management plan would establish a proactive process for planning and managing characteristics of visitor use, the physical and social setting, and it would also establish a variety of strategies and tools to sustain desired resource conditions and visitor experiences. Visitor use characteristics could include the amount, type, timing, and distribution of visitor use, including visitor activities and behaviors. This planning process would also provide valuable information to Glacier to meet the needs of new demands for new and nontraditional uses in Glacier National Park, such as kiteboarding.
FRV	Telecommunications infrastructure plan	H	Create a comprehensive parkwide communication system (including but not limited to phones, radios, repeaters, alarm system). The goal would be to improve communication consistent with the Wilderness Act and park operation needs.
FRV and Key Issue	Accessibility self-evaluation and transition plan	H	Evaluate facilities, services, programs, and interpretive panels / materials and determine how to make them more accessible —the plan should include priorities.
FRV	Youth engagement strategy	H	No comprehensive strategy exists for engaging youth. The existing education plan focuses only on curriculum-based education. This strategy would incorporate climate change messages.
FRV and OIRV	Research and collections facility plan	H	Museum items and collections are in outdated facilities that don't meet environmental standards for museum collections and are not accessible to researchers; most items are not able to be viewed by the public due to inadequate space. This plan would determine park needs for updated research and collection facilities, and explore the options for partners to assist the park in upgrading museum and storage facilities.
FRV	Site plan for Goat Haunt, including National Register of Historic Places nomination	H	This site plan would address housing, administrative facilities, and boat operations for the park, Border Patrol, Customs, and Department of Homeland Security.
OIRV	Cultural landscape treatment plan for the Going-to-the-Sun Road corridor	H	Over the past decade of rehabilitation, the park has tested, evaluated, and implemented many rehabilitation techniques for the road. These must be documented in a plan to guide future maintenance and repair work.
FRV	Risk assessment response plan	H	Conduct floodplain mapping and analysis and identify other natural hazards for each developed area in the park, including along park roads, and develop risk assessment and update response plans for each location.
Key Issue	Response and action plans for various ecological stressors	H	Participate in a joint planning effort in conjunction with the Crown of the Continent managers at the Crown of the Continent scale.

Planning Needs – Where a Decision-Making Process Is Needed			
Related to an FRV, or OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV and OIRV	Update comprehensive interpretive plan	H	The update would include the Going-to-the-Sun Road corridor and encompass overall resource preservation, resource enjoyment, and safety messaging. It would address the effects of climate change, increased visitation, and enhance tribal connections.
OIRV	Facility adaptation plan for responding to climate change effects	H	Park facilities and infrastructure are susceptible to climate change impacts. This plan will account for sustainability in park facility planning, funding, design, maintenance, and construction and include an inventory of high-risk assets and identify appropriate protection actions.
FRV	Commercial air tour management plan	H	This plan would address commercial air tours over Glacier National Park as called for in the 1999 General Management Plan. The Federal Aviation Administration is the lead agency on developing this plan.
FRV	Backcountry/ wilderness management plan	H	This management plan addresses issues and provides guidelines for managing the areas of Glacier National Park that are defined as backcountry or recommended wilderness.
FRV	Potential reestablishment of bison in the Crown of the Continent management plan	H	The Blackfeet Tribe is returning bison that are original descendants of an American Bison herd from the Blackfeet Reservation (adjacent to Glacier National Park). The goal is to reestablish bison in the Crown of the Continent ecosystem. A management plan is needed to determine what role the park will play in reestablishment of a herd and assess potential impacts to park lands and resources.
Key Issue	Parkwide transportation plan	H	This plan would consider areas outside of the GTSR corridor and improve efficacy and efficiency of in-park transportation, and evaluate opportunities for multimodal connectivity to gateway communities.
FRV	Crown of the Continent joint adaptation plan for responding to climate change effects	M	The plan would use a large landscape approach and be collaboratively prepared with other agencies and partners in the Crown of the Continent ecosystem. This could also be a series of plans; adaptation planning may also be integrated into individual plans.
OIRV	Site plan for Apgar Village	M	This is a popular destination for visitors. It provides access to Lake McDonald. This place also has tribal significance for the Kootenai.
FRV	Spill response plan for the Middle Fork of the Flathead River	M	There is heavy rail traffic along the Middle Fork, including the transportation of coal and oil. A rail crash and spill could have severe environmental impacts.
FRV and OIRV	Sign management plan	M	This plan would guide the design and placement of park signs.
Key Issue	Environmental assessment for the Inside-North-Fork-Road	M	The assessment would include an analysis of the road failures at Anaconda, Logging Lake and Lover's Leap, analyze the road's impact on water quality and fish habitat, and consider other recreational uses for the road.
FRV	Update to the fire management plan	M	Components are updated annually, but the overall plan is dated, especially in regard to using new technologies, traditional ecological knowledge, and issues such as climate change.

Planning Needs – Where a Decision-Making Process Is Needed			
Related to an FRV, or OIRV, or Key Issue?	**Planning Needs**	**Priority (H, M, L)**	**Notes**
FRV	Land protection plan	M	The last plan was done in 1985; it does not provide useful guidance, especially for inholdings. A new plan would include design guidelines and compatibility standards for inholdings in the park.
OIRV	Update the parkwide evaluation of buildings for historic eligibility	M	While many structures are already listed in the national register, there are a number of structures that have become eligible and need to be evaluated.
FRV and OIRV	Historic structure reports for rehabilitated structures	M	Only a few historic structure reports have been completed. These are needed to guide rehabilitation efforts.
FRV	Vegetation management plan	M	Develop a vegetation management plan that includes actions to address terrestrial invasives, protect five needle pines and rare plants, and develop fire management strategies.
FRV	Protocols to handle inadvertent discovery of human remains	M	
OIRV	Cultural landscape reports for all eligible landscapes	M	
FRV	Water quality management plan	M	
FRV	Air quality management plan	M	
FRV	Cave and karst management plan	L	With 16 known caves in the park, management actions for this resource need to be developed to protect resources.
FRV	Scenic air tour management plan	L	
FRV	Acoustic resource management plan	L	Increased visitation and some recreational uses are altering the natural soundscape in the park and may be affecting certain species.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, or OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV	Aquatic invasive species monitoring in park lakes	H	Aquatic invasive species monitoring (including fish) is currently conducted annually by park fisheries staff and should continue as high priority into the future. Aquatic invasive species have a high potential to seriously damage park resources and change forever the park's aquatic ecosystems and the Crown of the Continent.
FRV	Parkwide visitor use survey	H	A parkwide survey of use levels and activities has not been done in 30 years.
FRV and OIRV	Geohazard risk assessment along key road corridors	H	A risk assessment for certain geologic hazards needs to be completed for visitor safety. The assessment would determine the impacts of climate change on slope stability in the park, especially along key road corridors such as Going-to-the-Sun Road.
FRV	Parkwide research on effects of climate change on the park's keystone species and species in the alpine/ subalpine transitional area	H	Data are needed on moose, mountain goat, pika, white-tailed ptarmigan, and their habitats. Data are decades old, except for more scant data from the 2000s on ptarmigan and citizen science data on pika (Integrated Resource Management Applications search). While the older data may be used to establish baselines related to these species, the park needs new and continuing data to track effects of climate change. In addition, continued evaluation and assessment of climate change impacts on rare or endemic alpine aquatic macroinvertebrates and cold-water obligate fish species will be needed.
FRV	Continued monitoring of glaciers and impacts from climate change	H	Climate change threatens park resources both within the park and at a larger landscape scale. Due to the size and elevation of the park, it offers refugia for native species and systems. More understanding is needed of how the park can provide refugia and what the limitations are, given changes at a global scale as well as downscaled to the Crown of the Continent.
FRV	Continue monitoring health of existing whitebark pine and limber pines; and restoration success of whitebark and limber pines	H	Whitebark pine habitat is changing due to higher elevational changes caused by climate change. Climatic conditions favor other forest species such as Douglas fir moving into and out-competing whitebark pine. Whitebark will also be subjected to mountain pine beetle infestations since higher elevations will be more climatically hospitable to this insect.
FRV	Trail use studies – outside of GTSR corridor	H	Data are lacking on use of trails outside of the GTSR corridor, especially in backcountry areas. Would include winter use data.
FRV	LIDAR mapping of park streams, floodplains, geologic areas and habitats of interest	H	This would allow for detailed flood mapping in tributary streams, floodplains, geologic areas, and habitats of interest.
FRV and OIRV	GIS data and corresponding map layers for utilities in the park	H	This data would aid with compliance reviews.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, or OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV and OIRV	National register nominations	H	The last systematic evaluation of properties in Glacier occurred in 1995. Many buildings have passed the 50-year mark since then.
FRV	Modeling of water availability at developed sites	H	Climate change is affecting availability of water at developed sites in the park.
FRV	Cultural affiliations study	H	Would identify tribes in the U.S. and First Nations in Canada with a connection to the park.
FRV	Continue to provide assistance to Crown Managers Partnership (CMP) Large Landscape Transboundary Conservation Initiative	H	Continue to support the CMP collaborative efforts to ensure future Crown-scale land cover monitoring and trend analysis continues.
FRV	Inventory of cold-water-dependent macroinvertebrates (e.g., Lednia)	H	Continue inventorying cold-water-dependent macroinvertebrates (e.g., Lednia [*Lednia tumana]* a rare, sensitive, and potentially endemic stonefly) to evaluate the current status and changes in distribution potentially due to climate change impacts and stressors.
FRV	Continue night sky monitoring	H	Continue monitoring and documenting the effects of light pollution in order to track the condition, health, and trends of the resource in part to maintain the park's eventual International Dark Sky status.
FRV	Continue migratory raptor surveys	H	Continue to survey migrating raptors, such as golden eagles, Cooper's hawks, peregrine falcons, prairie falcons, and other raptors.
FRV	Continue fisheries trend monitoring	H	Continue monitoring of native salmonids inhabiting park streams and lakes to determine changes in populations over time.
FRV	Wildlife displacement research	H	Further research on wildlife displacement within Glacier due to climate change stressors and impacts, increased visitation, and activities occurring on land adjacent to the park.
FRV	Parkwide air quality monitoring	M	Baseline data are lacking across the park. This information would be useful in the event of oil and gas and other development on the east side of the park. There is currently no recent data for the park's east side.
FRV and OIRV	Ethnographic overview and assessment	M	The most comprehensive background study, this document reviews existing information on park resources traditionally valued by stakeholders. The information comes mostly from archives and publications; interviews with community members and other constituents—often on trips to specific sites—supply missing data. This study also identifies the need for further research.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, or OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV	Comprehensive condition assessments for all assets in the park's Facility Management Software System portfolio	M	The concession facilities had comprehensive conditions assessments completed in the early 2000s. However no other structures have had condition assessments completed.
FRV	Visual resource inventory	M	The analysis should be done from inside the park looking out (beyond the boundary). Would be valuable if oil and gas development is proposed or begins.
FRV	Assess sustainable park operations	M	Small scale hydropower study.
FRV	Ongoing monitoring of glaciers and caves	M	This would assist with climate change research and with interpretive programs.
FRV and OIRV	Trend analysis of wildlife-human interactions	M	Determine where wildlife is becoming habituated to visitors, especially near the park's most popular areas and monitor the occurrence. Conduct research to determine the impacts to visitors and wildlife.
FRV	Communication strategy for climate change	M	Would emphasize how the park experience will change, and how visitors will be affected.
FRV	Integrate the computer aided dispatch database with Crime Finder	M	Need technical assistance on how to integrate computer aided dispatch database and Crime Finder.
FRV	Delineation of all floodplains within developed areas in the park.	M	100- and 500-year floodplains need to be mapped in all developed areas throughout the park with the exception of a few that have been completed.
OIRV	Archeological surveys	M	For National Historic Landmark hotels and chalets. In addition, only 2% of the park has been surveyed. Future surveys should include the area near the international border due to regular clearing activity that occurs every 10 years. And older surveys need to be redone to include better techniques and geospatial information.
FRV	Basic wildlife composition and distribution studies	M	
FRV	Monitor use / impacts to backcountry off-trail sites (e.g., Floral Park)	M	
FRV	Oral histories to describe "backbone of the world"	L	This phrase originated with the Blackfeet Tribe. Collect relevant ethnographic information.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, or OIRV, or Key Issue?	**Data and GIS Needs**	**Priority (H, M, L)**	**Notes**
FRV	Compatibility standards for architectural style, setbacks, etc., for private lands inside the park	L	Would provide guidance to landowners on appropriate types, design, and location of development to ensure property development does not adversely affect the character of the park.
FRV	Water quality monitoring of high elevation streams and lakes in the park	L	This would address gaps in existing inventory and monitoring network coverage.
FRV	Dark sky monitoring	L	Two types of monitoring need to continue over time: 1) Monitor sources of artificial light; and 2) Monitor to track impact on natural lightscape, for example, how much artificial light is visible from a particular point in the park.
Key Issue	Collaborative scenic conservation strategy	L	Transboundary approach is needed.
FRV	Transboundary data sets	L	This work is underway by the Crown Managers Partnership and in partnership with the Universities of Calgary, Montana, NPScape, and NPS Rocky Mountain Monitoring Network. Need to support this effort with current data to enable trend analysis to be done.
Key Issue	Wildlife connectivity study	L	Work is underway by the Crown Managers Partnership. Need to link to and work with this data to maintain a current data set and conduct trend analysis.
FRV and OIRV	Update the comprehensive GIS inventory of road assets	L	Would ensure better management of road assets.
FRV	Acoustic resource monitoring	L	Need to continue to collect baseline data to conduct trend analysis.
OIRV	Historic structure reports on newly possessed historic buildings	L	Would guide rehabilitation work.
FRV and OIRV	Cultural landscape inventories	L	Twenty-nine sites / areas were identified by the region for study.
FRV	Analysis of transboundary conservation practices around the world	L	Would inform best management practices.
FRV	Historic structures and cultural resources best practices for treatment guide	L	Best practices for the treatment of historic structures and cultural resources would guide regular maintenance and preservation.

Part 3: Contributors

Glacier National Park

Tracy Ammerman, Chief of Interpretation and Partnerships
Paul Austin, Chief Ranger
Mark Biel, Natural Resource Program Manager
Lisa Brewster, Chief of Administration (retired)
Tara Carolin, Director, Crown of the Continent Research Learning Center
Chris Downs, Supervisory Fisheries Biologist
Jim Foster, Chief of Facility Management
Eric Gabriel, Chief Ranger (Acting) (transferred)
Denise Germann, Public Information Officer / Management Assistant (transferred)
Bill Hayden, Chief of Interpretation and Partnerships (Acting)
AJ Johnson, Safety Officer
Lon Johnson, Cultural Resource Specialist (retired)
Jan Knox, Chief of Concessions (retired)
Richard Menicke, GIS Specialist
Jeff Mow, Superintendent
Mary Riddle, Chief of Planning and Environmental Compliance
Eric Smith, Deputy Superintendent
Dave Soleim, Fire Management Officer
Mark Wagner, District Interpreter, Hudson Bay
Phil Wilson, Chief of Science and Resources Management (Acting Deputy Superintendent)

NPS Intermountain Regional Office

Michele D'Arcy, Landscape Architect, IMR Liaison
Sami K. Powers, Archeologist

NPS Denver Service Center, Planning Division

Tracy Atkins, Project Manager
Melody Bentfield, Contract Librarian
Sarah Bodo, Project Manager
Ray McPadden, Project Manager
Laura Pernice, GIS Specialist
Aleksandra Pitt, Project Specialist
Tabitha Carver-Roberts, Contract Editor (former)
Angela Wing, Visual Information Specialist (former)
John Paul Jones, Visual Information Specialist
Nancy Shock, Foundation Coordinator
Laura Watt, Contract Editor

NPS Washington Office of Park Planning and Special Studies

Pam Holtman, Quality Assurance Coordinator

Appendixes

Appendix A: Enabling Legislation and Legislative Acts for Glacier National Park

1910 Enabling Legislation for Glacier National Park

May 11, 1910.
[S. 2777.]
[Public, No. 171.]

CHAP. 226.—An Act To establish "The Glacier National Park" in the Rocky Mountains south of the international boundary line, in the State of Montana, and for other purposes.

The Glacier National Park, Mont. Land set apart as. Description.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the tract of land in the State of Montana particularly described by metes and bounds as follows, to wit: Commencing at a point on the international boundary between the United States and the Dominion of Canada at the middle of the Flathead River; thence following southerly along and with the middle of the Flathead River to its confluence with the Middle Fork of the Flathead River; thence following the north bank of said Middle Fork of the Flathead River to where it is crossed by the north boundary of the right of way of the Great Northern Railroad; thence following the said right of way to where it intersects the west boundary of the Blackfeet Indian Reservation; thence northerly along said west boundary to its intersection with the international boundary; thence along said international boundary to the place of beginning, is hereby reserved and withdrawn from settlement, occupancy, or disposal under the laws of the United States, and dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people of the United States under the name of "The Glacier National Park;" and all persons who shall locate or settle upon or occupy the same, or any part thereof, except as hereinafter provided, shall be considered trespassers and removed therefrom: *Provided*, That nothing herein contained shall affect any valid existing claim, location, or entry under the land laws of the United States or the rights of any such claimant, locator, or entryman to the full use and enjoyment of his land: *Provided further*, That rights of way through the valleys of the North and Middle forks of the Flathead River for steam or electric railways may be acquired within said Glacier National Park under filings or proceedings heretofore or hereafter made or instituted under the laws applicable to the acquisition of such rights over or upon the unappropriated public domain of the United States, and that the United States Reclamation Service may enter upon and utilize for flowage or other purposes any area within said park which may be necessary for the development and maintenance of a government reclamation project: *And provided further*, That no lands within the limits of said park hereby created belonging to or claimed by any railroad or other corporation now having or claiming the right of indemnity selection by virtue of any law or contract whatsoever shall be used as a basis for indemnity selection in any State or Territory whatsoever for any loss sustained by reason of the creation of said park.

Removal of trespassers.

Provisos. Valid rights not affected.

Rights of way for railways.

Reclamation projects.

No indemnity selections allowed corporations.

Regulations for protection, etc.

SEC. 2. That said park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be, as soon as practicable, to make and publish such rules and regulations not inconsistent

with the laws of the United States as he may deem necessary or proper for the care, protection, management, and improvement of the same, which regulations shall provide for the preservation of the park in a state of nature so far as is consistent with the purposes of this Act, and for the care and protection of the fish and game within the boundaries thereof. Said Secretary may, in his discretion, execute leases to parcels of ground not exceeding ten acres in extent at any one place to any one person or company, for not to exceed twenty years, when such ground is necessary for the erection of buildings for the accommodation of visitors, and to parcels of ground not exceeding one acre in extent and for not to exceed twenty years to persons who have heretofore erected or whom he may hereafter authorize to erect summer homes or cottages; he may also sell and permit the removal of such matured, or dead or down timber as he may deem necessary or advisable for the protection or improvement of the park.

Leases for hotels, etc.

Removal of dead, etc., timber.

Approved, May 11, 1910.

1914 Legislation (Acceptance of Cessation Lands from State of Montana)

CHAP. 264.—An Act To accept the cession by the State of Montana of exclusive jurisdiction over the lands embraced within the Glacier National Park, and for other purposes.

August 22, 1914.
[S. 654.]
[Public, No. 177.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the provisions of the act of the Legislature of the State of Montana, approved February seventeenth, nineteen hundred and eleven, ceding to the United States exclusive jurisdiction over the territory embraced within the Glacier National Park, are hereby accepted, and sole and exclusive jurisdiction is hereby assumed by the United States over such territory, saving, however, to the said State the right to serve civil or criminal process within the limits of the aforesaid park in suits or prosecution for or on account of rights acquired, obligations incurred, or crimes committed in said State but outside of said park, and saving further to the said State the right to tax persons and corporations, their franchises and property, on the lands included in said park. All the laws applicable to places under the sole and exclusive jurisdiction of the United States shall have force and effect in said park. All fugitives from justice taking refuge in said park shall be subject to the same laws as refugees from justice found in the State of Montana.

Glacier National Park, Mont.

Sole jurisdiction of United States over, ceded by Montana.

State process, etc.

SEC. 2. That said park shall constitute a part of the United States judicial district of Montana, and the district court of the United States in and for said district shall have jurisdiction of all offenses committed within said boundaries.

Jurisdiction of Montana judicial district.

SEC. 3. That if any offense shall be committed in the Glacier National Park, which offense is not prohibited or the punishment is not specifically provided for by any law of the United States, the offender shall be subject to the same punishment as the laws of the State of Montana in force at the time of the commission of the offense may provide for a like offense in said State; and no subsequent repeal of any such law of the State of Montana shall affect any prosecution for said offense committed within said park.

Punishment of offenses under Montana laws.

Hunting, fishing, etc., prohibitions.

SEC. 4. That all hunting or the killing, wounding, or capturing at any time of any bird or wild animal, except dangerous animals when it is necessary to prevent them from destroying human lives or inflicting personal injury, is prohibited within the limits of said park; nor shall any fish be taken out of the waters of the park in any other way than by hook and line, and then only at such seasons and in such times and manner as may be directed by the Secretary of the Interior.

Regulations, etc.

That the Secretary of the Interior shall make and publish such rules and regulations as he may deem necessary and proper for the management and care of the park and for the protection of the property therein, especially for the preservation from injury or spoliation of all timber, mineral deposits other than those legally located prior to the passage of the Act of May eleventh, nineteen hundred and ten (Thirty-sixth Statutes, page three hundred and fifty-four), natural curiosities, or wonderful objects within said park, and for the protection of the animals and birds in the park from capture or destruction, and to prevent their being frightened or driven from the park; and he shall make rules and regulations governing the taking of fish from the streams or lakes in the park. Possession within said park of the dead bodies, or any part thereof, of any wild bird or animal shall be prima facie evidence that the person or persons having the same are guilty of violating this Act.

Vol. 36, p. 354.

Evidence of violations.

Punishment for violations.

Any person or persons, or stage or express company, or railway company, who knows or has reason to believe that they were taken or killed contrary to the provisions of this Act and who receives for transportation any of said animals, birds, or fish so killed, caught, or taken, or who shall violate any of the other provisions of this Act or any rule or regulation that may be promulgated by the Secretary of the Interior with reference to the management and care of the park or for the protection of the property therein, for the preservation from injury or spoliation of timber, mineral deposits, other than those legally located prior to the passage of the Act of May eleventh, nineteen hundred and ten (Thirty-sixth Statutes, page three hundred and fifty-four), natural curiosities, or wonderful objects within said park, or for the protection of the animals, birds, or fish in the park, or who shall within said park commit any damage, injury, or spoliation to or upon any building, fence, hedge, gate, guidepost, tree, wood, underwood, timber, garden, crops, vegetables, plants, land, springs, mineral deposits other than those legally located prior to the passage of the Act of May eleventh, nineteen hundred and ten (Thirty-sixth Statutes, page three hundred and fifty-four), natural curiosities, or other matter or thing growing or being thereon, or situated therein, shall be deemed guilty of a misdemeanor and shall be subject to a fine of not more than $500, or imprisonment not exceeding six months, or both, and be adjudged to pay all costs of the proceedings.

Forfeiture of guns, traps, horses, etc.

SEC. 5. That all guns, traps, teams, horses, or means of transportation of every nature or description used by any person or persons within said park limits when engaged in killing, trapping, ensnaring, or capturing such wild beasts, birds, or wild animals shall be forfeited to the United States and may be seized by the officers in said park and held pending the prosecution of any person or persons arrested under charge of violating the provisions of this Act, and upon conviction under this Act of such person or persons using said guns, traps, teams, horses, or other means of transportation, such forfeiture shall be adjudicated as a penalty in addition to the other punishment provided in this Act. Such forfeited property shall be disposed of and accounted for by and under the authority of the Secretary of the Interior.

Commissioner. Appointment, authority, etc.

SEC. 6. That the United States district court for the district of Montana shall appoint a commissioner, who shall reside in the park,

and who shall have jurisdiction to hear and act upon all complaints made of any violations of law or of the rules and regulations made by the Secretary of the Interior for the government of the park and for the protection of the animals, birds, and fish, and objects of interest therein, and for other purposes authorized by this Act.

Judicial powers, in violation of rules, etc.

Such commissioner shall have power, upon sworn information, to issue process in the name of the United States for the arrest of any person charged with the commission of any misdemeanor, or charged with a violation of the rules and regulations, or with a violation of any of the provisions of this Act prescribed for the government of said park and for the protection of the animals, birds, and fish in said park, and to try the person so charged, and, if found guilty, to impose punishment and to adjudge the forfeiture prescribed.

Appeals.

In all cases of conviction an appeal shall lie from the judgment of said commissioner to the United States district court for the district of Montana, and the United States district court in said district shall prescribe the rules of procedure and practice for said commissioner in the trial of cases and for appeal to said United States district court.

Procedure in criminal cases.

SEC. 7. That any such commissioner shall also have power to issue process as hereinbefore provided for the arrest of any person charged with the commission, within said boundaries, of any criminal offense not covered by the provisions of section four of this Act, to hear the evidence introduced, and if he is of opinion that probable cause is shown for holding the person so charged for trial, shall cause such person to be safely conveyed to a secure place of confinement within the jurisdiction of the United States district court for the district of Montana, and certify a transcript of the record of his proceedings and the testimony in the case to said court, which court shall have jurisdiction of the case: *Provided*, That the said commissioner shall grant bail in all cases bailable under the laws of the United States or of said State.

Proviso. Bail.

Service of process.

SEC. 8. That all process issued by the commissioner shall be directed to the marshal of the United States for the district of Montana, but nothing herein contained shall be so construed as to prevent the arrest by any officer or employee of the Government, or any person employed by the United States in the policing of said reservation, within said boundaries, without process, of any person taken in the act of violating the law or this Act, or the regulations prescribed by said Secretary as aforesaid.

Salary.

Provisos. Residence.

SEC. 9. That the commissioner provided for in this Act shall be paid an annual salary of $1,500, payable quarterly: *Provided*, That the said commissioner shall reside within the exterior boundaries of said Glacier National Park, at a place to be designated by the court making such appointment: *And provided further*, That all fees, costs, and expenses collected by the commissioner shall be disposed of as provided in sections eleven and twelve of this Act.

Disposal of fees, etc.

United States fees, etc.

SEC. 10. That all fees, costs, and expenses arising in cases under this Act and properly chargeable to the United States shall be certified, approved, and paid as are like fees, costs, and expenses in the courts of the United States.

Deposit of fines and costs.

SEC. 11. That all fines and costs imposed and collected shall be deposited by said commissioner of the United States or the marshal of the United States collecting the same with the clerk of the United States district court for the district of Montana.

Acceptance of cession.

SEC. 12. That the Secretary of the Interior shall notify, in writing, the governor of the State of Montana of the passage and approval of this Act.

Approved, August 22, 1914.

1932 Legislation (Establishment of the Waterton-Glacier International Peace Park)

[CHAPTER 157.]

AN ACT

For establishment of the Waterton-Glacier International Peace Park.

May 2, 1932.
[H. R. 4752.]
[Public, No. 116.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That for the purpose of permanently commemorating the long-existing relationship of peace and good will existing between the people and Governments of Canada and the United States and upon the enactment by the proper authority of the Canadian Government of a similar provision respecting the Waterton Lakes National Park in the Province of Alberta and upon the proclamation of the President of the United States, who is hereby authorized to issue such a proclamation, the Glacier National Park in the State of Montana shall become a part of an international park to be known as the Waterton-Glacier International Peace Park.

Watertown-Glacier International Peace Park. Establishment of.

Concurrent action by Canada.

Proclamation to issue. *Post*, p. 2519.

Glacier National Park to become a part.

SEC. 2. For purposes of administration, promotion, development, and support by appropriations that part of the said Waterton-Glacier International Peace Park within the territory of the United States shall be designated as the Glacier National Park.

Designation of portion within the United States.

Approved, May 2, 1932.

1932 Act by Canadian Parliament establishing Waterton Lakes National Park as part of Waterton-Glacier International Peace Park (Waterton-Glacier International Peace Park Act, S. C. 1932, c. 55)

22-23 GEORGE V.

CHAP. 55.

An Act respecting the Waterton Glacier International Peace Park.

[*Assented to 26th May, 1932.*]

Preamble.

WHEREAS it is desirable for the purpose of permanently commemorating the long existing relationship of peace and good will existing between the peoples and Governments of the United States of America and the Dominion of Canada to create and establish memorials thereof: Therefore His Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

Proclamation.

1. Upon proclamation of the Governor in Council, Waterton Lakes National Park shall be deemed to be a part of the Waterton Glacier International Peace Park.

Canadian section.

2. The Canadian section of the Waterton Glacier International Peace Park shall continue to be one of the National Parks of Canada set apart by chapter thirty-three of the statutes of Canada, 1930.

OTTAWA: Printed by FREDERICK ALBERT ACLAND, Law Printer to the King's Most Excellent Majesty.

1932 Presidential Proclamation for the International Peace Park

WATERTON-GLACIER INTERNATIONAL PEACE PARK

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

June 30, 1932.

A PROCLAMATION

Waterton-Glacier International Peace Park, Preamble.

WHEREAS it being desired to commemorate permanently the long-existing relationship of peace and good will existing between the people and Governments of the United States and Canada; and

Ante, p. 145.

WHEREAS this desire was crystallized into law by an act of the Congress of the United States on May 2, 1932 (Public No. 116, 72d Cong., 1st sess.), said act being entitled "AN ACT For establishment of the Waterton-Glacier International Peace Park"; and

WHEREAS, as provided by section 1 of the aforementioned act, a similar provision respecting the Waterton Lakes National Park, in the Province of Alberta, has been enacted into law by Royal assent of the Canadian Government on May 26, 1932;

Glacier National Park, Mont., made a part of.

NOW, THEREFORE, I, HERBERT HOOVER, President of the United States of America, by virtue of the power and authority in me vested by section 1 of the act of Congress entitled "AN ACT For establishment of the Waterton-Glacier International Peace Park," approved May 2, 1932 (Public No. 116, 72d Cong., 1st sess.), do proclaim that the Glacier National Park in the State of Montana shall be, and is hereby, made part of an international park to be known as the Waterton-Glacier International Peace Park.

Administration, etc.

For purposes of administration, promotion, development, and support by appropriations, that part of said Waterton-Glacier International Peace Park within the territory of the United States shall be designated as the Glacier National Park, to be supervised, managed, and controlled by the Director of the National Park Service, under the direction of the Secretary of the Interior, as provided in the act of Congress entitled "AN ACT To establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat., 535–536).

IN WITNESS WHEREOF, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 30th day of June, in the year of our Lord nineteen hundred and thirty-two, and of the [SEAL] Independence of the United States of America the one hundred and fifty-sixth.

HERBERT HOOVER

By the President:
HENRY L. STIMSON
Secretary of State.

[No. 2003]

1976 Flathead Wild and Scenic River Designation

Public Law 94–486
94th Congress

An Act

To amend the Wild and Scenic Rivers Act, and for other purposes.

Oct. 12, 1976
[S. 1506]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

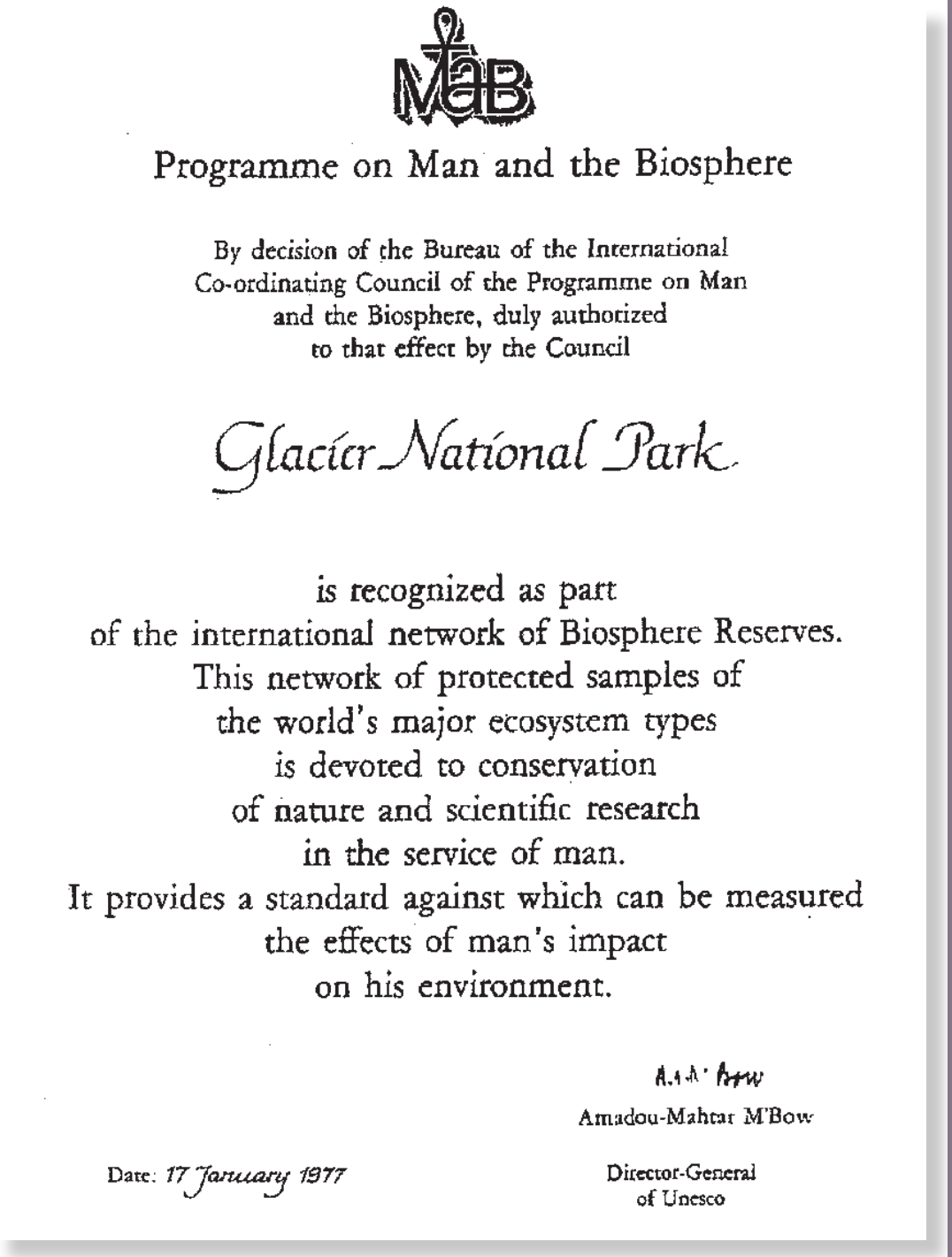
Wild and Scenic Rivers Act, amendments.

TITLE I—FLATHEAD, MONTANA

SEC. 101. Section 3(a) of the Wild and Scenic Rivers Act (82 Stat. 906; 16 U.S.C. 1271 et seq.) is amended by adding the following new paragraph at the end thereof: 16 USC 1274.

"(13) FLATHEAD, MONTANA.—The North Fork from the Canadian border downstream to its confluence with the Middle Fork; the Middle Fork from its headwaters to its confluence to the South Fork; and the South Fork from its origin to the Hungry Horse Reservoir, as generally depicted on the map entitled 'Proposed Flathead Wild and Scenic River Boundary Location' dated February 1976; to be administered by agencies of the Departments of the Interior and Agriculture as agreed upon by the Secretaries of such Departments or as directed by the President. Action required to be taken under subsection (b) of this section shall be taken within one year from the date of enactment of this paragraph. For the purposes of this river, there are authorized to be appropriated not more than $6,719,000 for the acquisition of lands and interests in lands. No funds authorized to be appropriated pursuant to this paragraph shall be available prior to October 1, 1977.". Appropriation authorization.

1977 Biosphere Reserve Designation



MaB

Programme on Man and the Biosphere

By decision of the Bureau of the International
Co-ordinating Council of the Programme on Man
and the Biosphere, duly authorized
to that effect by the Council

Glacier National Park

is recognized as part
of the international network of Biosphere Reserves.
This network of protected samples of
the world's major ecosystem types
is devoted to conservation
of nature and scientific research
in the service of man.
It provides a standard against which can be measured
the effects of man's impact
on his environment.

A.-M. M'Bow

Amadou-Mahtar M'Bow

Director-General
of Unesco

Date: *17 January 1977*

1995 World Heritage Site Designation

US Observer Mission
American Embassy
2 Avenue Gabriel
75382 Paris Cedex 08

Reference WHC/74/533.2/MR/HE

8 January 1996

Subject: Waterton Glacier International Peace Park (Canada/United States of America)(354rev.)

Dear Sir,

I have the pleasure to inform you that the World Heritage Committee at its nineteenth session held in Berlin (Germany) from 4 to 9 December 1995 inscribed the nominated property on the World Heritage List under criteria (ii) and (iii). The site has a distinctive climate, physiographic setting, mountain/prairie interface and tri-ocean hydrographical divide as well as its scenic values and the cultural importance of its International Peace Park designation.

The Committee recommended that the State Party should consider creating a single "Biosphere Reserve" from the three Biosphere Reserves already existing in the area. It furthermore recommended that the World Heritage site be eventually expanded with the cooperation of the Government of British Colombia to include the adjacent protected area in the Akamina/Kishinena. It was further agreed that the World Heritage site should be known as Waterton Glacier International Peace Park.

It is recommended to organize on the occasion of the inscription of the site on the World Heritage List, preferably jointly with the Canadian Authorities, a World Heritage dedication ceremony. You may wish to invite the World Heritage Centre to present at this occasion the World Heritage certificate. Such an event normally tends to be well covered by the media and would thus help to promote World Heritage.

Your correspondent

7, place de Fontenoy
75352 Paris 07 SP France
Tel + (33.1) 45 68 10 00
Fax + (33.1) 45 67 16 90

I would like to take the opportunity to thank you for your help in implementing the World Heritage Convention.

Please accept my best wishes for 1996.

Yours sincerely,

Bernd von Droste
Director
UNESCO World Heritage Centre

Landsnet Summary

AREA: GLACIER NATIONAL PARK, MONTANA

AUTHORIZATION

Act of May 11, 1910 P.L. 61-171 (36 Stat. 354)

ACQUISITION AUTHORITY

Act of August 22, 1914 P.L. 63-177 (38 Stat. 699) acceptance of cession of said land from the State of Montana.

Act of July 1, 1916 P.L. 64-132 (39 Stat. 308) authorizes acceptance of patented lands by donation.

Act of March 3, 1917 P.L. 64-382 (39 Stat. 1122) authorizes acquisition of land in area described by exchange.

Act of February 28, 1923 P.L. 67-453 (42 Stat. 1324) authorizes acquisition of lands within the Park boundary by exchange.

Act of August 8, 1946 P.L. 79-695 (60 Stat. 949) authorizes acquisition of lands within the Park boundary by exchange.

ESTABLISHED

May 11, 1910

BOUNDARY REVISIONS

Act of February 10, 1912 P.L. 61-78 (37 Stat. 64) authorized the sale of not more than 200 acres in area described.

Act of February 27, 1915 P.L. 63-260 (38 Stat. 814) authorizes area described to become a part of the Lewis & Clark National Forest.

Act of February 27, 1915 P.L. 63-260 authorized acquisition of the area described to become a part of Glacier National Park.

Act of March 2, 1917 P.L. 64-370 (39-994) authorized the sale of 5 acres of land in area described.

Act of July 31, 1939 P.L. 76-243 (39 Stat. 1142) authorized addition of property described.

Act of December 13, 1944 P.L. 78-479 (58 Stat. 1944) authorized elimination of area described.

Act of April 11, 1972 P.L. 92-272 (86-Stat. 120) revises boundary by adding 267.90 acres and excluding 68.47 acres.

ACREAGE LIMITATIONS

None

STATUTORY CEILING FOR LAND ACQUISITION

Act of April 11, 1972 P.L. 92-272 (86-Stat. 120) authorizes an appropriation of not more than $6,000 for acquisition of lands described.

AREA NUMBER

MIS-2380
PFM-1430

Appendix B: Inventory of Administrative Commitments

Administrative Commitments

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
Memorandums of Understanding (MOU)			
NPS and Parks Canada	Cooperation in management, research, protection, conservation, and presentation of national parks and national historic sites.	2018	NPS and Parks Canada
Wild and Scenic River	Management of the Flathead Wild and Scenic River.	Ongoing	U.S. Forest Service and Glacier NP
Border Patrol	Law enforcement and border protection.	No expiration	USDI, Homeland Security, USDA
Fire	Wildland firefighting.	Ongoing	U.S. Forest Service; various state agencies; Canadian government
Fisheries (Flathead River)	Fisheries investigations in Flathead River drainage.	2008	Montana Fish, Wildlife, and Parks
University of Montana (G-143411-0021)	To involve students and faculty in historic preservation of buildings in the park.	July 20, 2017	University of Montana
Flathead County (G1437100004)	Mutual aid response for structural fire, dispatch, emergency medical requests, law enforcement emergencies, searches, rescues, and other emergencies on adjacent lands.	June 24, 2020	Flathead County
Glacier County (G1437100002)	Mutual aid responses for structural fires, emergency medical requests, law enforcement emergencies, search, rescues, and other emergencies on lands adjacent to each entity.	June 24, 2020	Glacier County
Professional Ranger Program (Proranger)	Cooperation to provide access to college, appropriate academic and student services support, and a clearly defined pathway through Blackfeet Community College and Salish Kootenai College toward eventual access to permanent and seasonal employment with the National Park Service.	End of 2017 school year	NPS Intermountain Region and Blackfeet Community College and Salish Kootenai College
U.S. Forest Service Northern Region	Procedures and guidelines for cross-designation of law enforcement authority and cooperative law enforcement assistance.	August 24, 2010	U.S. Forest Service, Northern Region
Cooperative National Security and Counter Terrorism	Provide consistent goals, principles, and guidance related to border security.	No expiration	U.S. Department of Homeland Security; U.S. Department of Agriculture (USDA), USDI
State of Montana	Wildlife management, assistance with research on animals inside/outside park.	March 31, 2019 5-year agreement	Glacier NP and Montana Fish Wildlife and Parks

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
Memorandums of Understanding (MOU) (continued)			
Implementing Service First Agreements	Describes implementation of Service First Agreements to clarify use of agreements and facilitate best practices and provides waiver for overhead charges if all agree.	No expiration	BLM, NPS, USFWS, U.S. Forest Service
Cooperative Smoke Management in Montana and Idaho	Cooperative smoke management.	No expiration	Montana Department of Environmental Quality
Sister Park Arrangement with Gorkhi-Terelj National Park in Mongolia	Exchange technical information and cultivate a better relationship with a strictly protected area in Eastern Mongolia and familiarize staff with other park's resources and management challenges.	October 24, 2020 – 5-year renewable arrangement	Glacier National Park and Gorkhi-Terelj National Park
NPS Glacier National Park and Parks Canada-Waterton Lakes National Park	Mutual Aid Agreement.	Can be renewed every 5 years	Glacier National Park and Waterton Lakes National Park
NPS Glacier National Park and West Glacier-Coram Volunteer Fire Department	Mutual Aid Agreement.	2016 – Can be renewed every 5 years	Glacier National Park and West-Glacier Coram Volunteer Fire Department
NPS Glacier National Park and Babb Volunteer Fire Department	Mutual Aid Agreement.	2016 – Can be renewed every 5 years	Glacier National Park and Babb Volunteer Fire Department
NPS Glacier National Park and East Glacier Volunteer Fire Department	Mutual Aid Agreement.	Can be renewed every 5 years	Glacier National Park and East Glacier Volunteer Fire Department
Medical Sponsor and Medical Directive	Provides medical direction to park EMS staff.	Can be renewed every 5 years	Kalispell Regional Medical Center and North Valley Hospital
Emergency Operations	Provide location for emergency operations and shelter in event of failure of Hungry Horse Dam.	2012	Bureau of Reclamation-Hungry Horse and Glacier National Park
Memorandums of Agreement (MOA)			
Montana Cooperative Fire Management and Stafford Act Response Agreement (Six-Party Agreement)	Define a framework of cooperation for the operating procedures and responsibility for wildland fire management among the named parties. There are operating plans with Flathead County, Glacier County, State of Montana, Bureau of Indian Affairs, Blackfeet Agency, U.S. Forest Service, Lewis and Clark NF, Babb, Browning Cut Bank, East Glacier and Heart Butte Volunteer Fire Departments under this agreement.	No expiration	Regional Director

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
Memorandums of Agreement (MOA) (continued)			
Northwest Border Arrangement for Fire Protection	Between: Province of British Columbia, Ministry of Forests, and U.S. Forest Service Pacific Northwest and Northern Regions, the National Park Service Pacific West and Intermountain Regions, and the BLM, Oregon/Washington and Idaho state offices.	August 2019	Regional Director
Emergency Services Operating Plan with Waterton Lakes National Park	Identifies the mutual duties, responsibilities, and expectations of each park when tasked to support emergency operations in either's jurisdiction.	2011	Waterton Lakes National Park, Parks Canada
Cooperative Wildfire Management Operating Plan. There are two Zone Operating Plans underneath this. One is with Glacier County, Lewis and Clark NF, Montana DNRC, Blackfeet Tribe, BIA and rural fire districts and the other is with Flathead County, Flathead NF, DNRC and all volunteer fire districts and municipalities.	Provides for interagency wildland fire cooperation.	Glacier County expires in 2016. Flathead County expires in 2020	Glacier National Park and Montana State Department of Natural Resources and Conservation
Interagency Agreements (IA)			
USGS	Administrative storage and office space, housing when available and supplies.	September 30, 2019	USGS and Glacier National Park
USGS	Avalanche forecasting.	Can be renewed every year. 9/30/2015	USGS and Glacier National Park
WAN Infrastructure	Network connection and equipment.	Can be renewed every 5 years. Will be signed by end of 2015	USGS and USDI
U.S. Coast Guard	Inspection of vessels per coast guard regulations.	Can be renewed annually	Glacier National Park and U.S. Coast Guard
International Boundary Commission	Clearing along boundary of park.	2017. Will be renewed every 10 years	Glacier National Park and the International Boundary Commission
General Services Administration	Reimbursement for vehicle repairs.	No expiration	Local towns and communities near park
Interagency Agreement for Fire Management	Supports Kalispell Dispatch.	Annually renewed	USDA and USDI agencies

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
Interagency Agreements (IA) (continued)			
Interagency Agreement for Fire Management	Agreements with the U.S. Forest Service and other NPS sites for prescribed burning and initial attack.	September 30, 2016	National Park Service, Glacier National Park and Grant Kohrs Ranch National Historic Site, Big Hole National Battlefield, and U.S. Forest Service, Beaverhead-Deerlodge National Forest
Meteorological and Other Technical Services	USDI agencies, the U.S. Forest Service, and the National Weather Service.	FY 2012	USDI
Cooperative Wildfire Management 2010 Operating Plan	Wildfire management.	2015	Montana Department of Natural Resources & Conservation – Northwestern Land Office, the Badrock, Bigfork, Big Mountain, Blankenship, Columbia Falls, Coram / West Glacier, Creston, Evergreen, Ferndale, Hungry Horse, Marion, Martin City, Olney, Smith Valley, Somers/ Lakeside, South Kalispell, West Valley Rural Fire Districts and the Flathead County and Whitefish Fire Service Areas, and the Columbia Falls, Kalispell and Whitefish City Fire Departments, and the National Park Service, Glacier National Park, and the U.S. Forest Service Flathead National Forest
Natural Resources Conservation Service and Glacier National Park Native Plant Material Agreement	Collecting, evaluating, and growing native plant materials.	5/30/2018	U.S. Department of Agriculture Soil Conservation Service and Glacier National Park
NPS-FHWA Interagency Agreement-Park Roads and Parkways	Implementation of planning, design, and construction for the park roads system and funding for above.	None	NPS and FHWA

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
Cooperative Agreements			
Glacier Institute	To provide in-depth cultural and natural history field-oriented learning experiences.	September 30, 2018	Park and the Glacier Institute
Glacier National Park Conservancy	To provide financial support to the park through earned and donated revenue.	Cooperating Association Agreement – 1/21/2020 Scope of Sales – to be renewed on annual basis	
Glacier National Park Volunteer Associates	To provide support to the park through coordinated volunteer efforts.	Basic Fundraising Agreement – 5/13/2019 Backcountry Preservation Fund Agreement – 5/13/2019	Park and Glacier National Park Volunteer Associates
Student Conservation Association	National agreement for volunteers and research.	Expiration date not known	Park and Student Conservation Association and National Park Service
Flathead County – Eagle Transit	Operation of and winter use of shuttle system.	2016	Glacier National Park and Flathead County
General Agreements			
Divide Mountain Radio Site	Location of 80-foot tower and prefab communication building. Tribe and FBI also have equipment inside building.	September 30, 2015	FBI, State of Montana, Blackfeet EMS and Blackfeet Fire and Glacier NP
Duck Lake Radio Site	Have a land lease agreement for 1 acre of land that houses radio communications equipment.	September 30, 2012	Park and Blackfeet Tribe
Coram-West Glacier	To provide personal services and equipment required for prevention/suppression of vehicle, structural fires, and the protection of life and property from these fires on park-administered land and lands adjacent to the park boundary.	February 1, 2016	Coram / West Glacier Volunteer Fire Department
Firefighting Assistance Relationship between Glacier National Park and Coram-West Glacier Volunteer Fire Department	Firefighting assistance.	No expiration	Glacier National Park and Coram-West Glacier Volunteer Fire Department

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
General Agreements (continued)			
East Glacier Fire Fighting Assistance (G1437-11-0002)	To provide personal services and equipment required for prevention/suppression of vehicle, structural fires, and the protection of life and property from these fires on park-administered land and lands adjacent to the park boundary.	February 1, 2016	East Glacier Volunteer Fire Department
Bureau of Reclamation	Exchange of engineering equipment.		
Firefighting Assistance Relationship between Glacier National Park and Babb Volunteer Fire Department	Firefighting assistance.	No expiration	Glacier National Park and Babb Volunteer Fire Department
Firefighting Assistance Relationship between Glacier National Park and East Glacier Volunteer Fire Department	Firefighting assistance.	No expiration	Glacier National Park and East Glacier Volunteer Fire Department
Special Park Uses			
Special Use Permits	In 2014 the park issued 107 special use permits for weddings, commercial filming and still photography, and First Amendment and special park uses.	Issued annually	Glacier National Park and individuals
Landowners and Life Estates	There are approximately 400 acres of private lands within the boundary of Glacier NP. There is one Life Estate Agreement.	The life estate will terminate upon the death of the last surviving child	Glacier National Park and private landowner
Duck Lake Mountain Radio Site	Land lease agreements.	September 30, 2015	Glacier Electric and Glacier NP
Right-of-Way	Utilities, infrastructure, communications.	Qwest-St. Mary-4/4/2023 Qwest-West Glacier-6/29/2016 NW Energy-5/16/2023 Flathead Electric-8/27/2024 Glacier Electric-3/19/2024	CenturyLink and Legacy Quest, Flathead Electric, Glacier Electric, Northwestern Energy
Water Rights Compact between the State of Montana and the United States National Park Service (MCA 85-20-401).	To settle for all time water rights for National Park Service lands within Montana, including Glacier National Park.	No expiration	May 30, 1995

Title / Agency / Organization	Purpose / Description	Expiration Date	Responsible Party
Concession Contracts			
Xanterra Parks and Resorts	Provides lodging, camp stores, historic red bus tours, and restaurant services throughout the park. They operate the Village Inn Motel, Lake McDonald Lodge, Rising Sun Motor Inn, Swiftcurrent Motor Inn, and the Many Glacier Hotel.	December 31, 2029	Director of NPS and Xanterra
Glacier Park Boat Co.	Provides boat trips (some with guided hikes as an option) and rental boats at Apgar Village, Lake McDonald Lodge, Many Glacier, Rising Sun, and Two Medicine.	December, 13, 2019	IMR Regional Director and Glacier Park Boat Co.
Glacier Guides, Inc.	Offer guided day hikes and backpacking trips into Glacier's backcountry. They also provide camping equipment rentals.	December 31, 2016	IMR Regional Director and Glacier Guides, Inc.
Sun Tours	Offers interpretive bus tours highlighting Blackfeet culture.	December 31, 2016	IMR Regional Director and Sun Tours
Swan Mountain Outfitters	Offers guided horseback rides inside the park at Many Glacier, Lake McDonald, and Apgar. They also provide drop camp service (packing visitor's gear using stock) into certain backcountry campgrounds.	December 31, 2016	IMR Regional Director and Swan Mountain Outfitters
Belton Chalets, Inc.	Operates Granite Park and Sperry Chalets—Glacier's two remaining historic backcountry chalets.	December 31, 2024	IMR Regional Director and Belton Chalets
Commercial Use Authorizations			
Glacier Park Ski Tours	Cross-country ski tours.	May be renewed every 1 to 2 years.	Glacier National Park and Glacier Park Ski Tours
Izaak Walton Inn	Cross-country ski tours.	May be renewed every 1 to 2 years.	Glacier National Park and Izaak Walton Inn
Waterton Inter-Nation Shoreline Cruise Co.	Offers scenic boat cruises on Waterton Lake. They leave from the town site of Waterton (in Canada) and cross the international boundary in the United States and land at Goat Haunt.	May be renewed every 2 years. Current expiration 12/31/2016	Glacier National Park and Waterton Inter-Nation Shoreline Cruise Co.
Glacier Park Incorporated	East Side shuttle services.	12/31/15 May be renewed every year.	Glacier National Park and Glacier Park Inc.

In addition, the following loose (not formalized) agreements exist for Glacier National Park:

Scalplock Lookout: Flathead County, the U.S. Forest Service, and State of Montana have communication equipment in and on the Lookout.

Numa Lookout: Flathead County and the U.S. Forest Service have communication equipment in and on the Lookout.

Porcupine Lookout: Customs and Border Patrol have communications equipment in and on the Lookout.

Chief Mountain: The park owns a radio site at the Chief Mountain Port of Entry between Canada and the U.S. that is shared with Customs and Border Patrol.

Cyclone Lookout: The park has a radio site at the Lookout that is shared with the U.S. Forest Service and Customs and Border Patrol, and is on U.S. Forest Service lands.

Appendix C: Basics for Wilderness Stewardship

Wilderness Character Narrative

Excerpted from *Keeping It Wild in a Crown Jewel: Wilderness Building Blocks for Glacier National Park* (2012)

This wilderness character narrative describes what is unique and special about the Glacier National Park recommended wilderness organized under the framework of the five qualities:

Untrammeled: Wilderness is essentially unhindered and free from modern human control or manipulation.

Natural: Wilderness maintains ecological systems that are substantially free from the effects of modern human civilization.

Undeveloped: Wilderness retains its primeval character and influence, and is essentially without permanent improvements or modern human occupation.

Solitude or Unconfined Recreation: Wilderness provides outstanding opportunities for solitude or a primitive and unconfined type of recreation.

Other Features of Value: Wilderness may also contain ecological, geological, or other features of scientific, educational, scenic, or historical value.

Wilderness Background Information

Overview: The Wilderness Act of 1964 directed the Secretary of the Interior to "review every roadless area of five thousand contiguous acres or more in the national parks" and to "report to the President his recommendation as to the suitability or nonsuitability of each such area . . . for preservation as wilderness."

Wilderness Status – Glacier National Park completed a study and environmental impact statement in 1973 to comply with the Wilderness Act. As a result, over 90% of the park was proposed to be formally designated wilderness. President Richard Nixon submitted the Glacier National Park wilderness recommendation to Congress on June 13, 1974. It was recommended that 927,550 acres of wilderness within Glacier National Park be designated by an act of Congress. A bill was subsequently introduced to formally designate the land as wilderness. The bill was never enacted, but since that time every president has reaffirmed the recommendation.

Amendments to the 1974 wilderness recommendation were made in 1984 and 1994 to make adjustments that increased the amount of proposed wilderness to 963,155 acres. This latest proposal was presented and reviewed in the environmental impact statement for the 1999 general management plan. Areas currently not managed as wilderness include: the buffered visitor service and rustic zones along with road and utility corridors delineated in the 2004 commercial services plan, areas adjacent to these zones that are smaller "island" areas, private inholding parcels not within the aforementioned zones, and access areas associated with the inholdings.

Natural Quality – Glacier is at the core of the Crown of the Continent ecosystem, one of the most ecologically intact areas remaining in the temperate regions of the world.

Glacier is one of the few places in the contiguous 48 states that continue to support natural populations of all indigenous carnivores and most of their prey species.

Glacier is noted for its remarkable number and diversity of plant and animal species, a result of the park's unusual geographic position and elevation. Five floristic provinces and three major watersheds converge in an area influenced by both maritime and continental climates. While predominantly associated with the northern Rocky Mountains, Glacier is at the southern edge of arctic-boreal influences. Pacific Coast and Great Plains plant and animal associations reach their eastern and western limits in these parks. Past glaciation has isolated many plant and animal populations, and the steep terrain provides a broad range of climates for a wide variety of plant communities.

The geographic location, climate, and topographic gradients of Glacier have fostered and sustained an ecology that includes the plants and animals of a much larger region. The park supports about 1,200 species of vascular plants, 675 bryophytes and lichens, 261 birds (including accidentals), 63 mammals, 23 fish, and at least 8 reptiles and amphibians. Invertebrate inventories are incomplete but show a few hundred species for Lepidoptera (butterflies and moths), coleopteran (beetles), and hymenoptera (flies, ants, bees, and wasps) combined.

Five large ecoregions are found in Glacier: alpine tundra, subalpine forest, montane forest, aspen parkland, and fescue grassland. These include extensive stands of lodgepole and mixed conifer forests, riparian vegetative zones, and intermediate alpine plant associations.

Glacier is noted for its abundant wildlife. There is habitat for over 300 terrestrial wildlife species, including several endangered or threatened birds and mammals and many rare species. The Glacier area offers a sanctuary and a corridor for wildlife interaction, migration, and genetic exchange. Due to the distinct ecological setting, a number of southern and prairie subspecies appear in this area.

The aquatic resources of the park have been examined in some detail. Many drainages where there were originally no fish were stocked at an early date, often with nonnative species. Native fish were probably restricted to the main drainages and those portions of tributary streams that lie below waterfalls and other migration barriers. Twenty-three species of fish have been documented in Glacier. Glacier National Park provides one of the last strongholds for the native subspecies of westslope cutthroat trout.

Several hundred aquatic invertebrate species have been identified in the park, and scientists believe that many undescribed plankton species are yet to be discovered. Researchers have relatively recently discovered two amphipod species new to science, the first troglobites (aquatic cave dwelling insects) to be identified in Glacier National Park. The opossum shrimp

(*Mysis relicta*) occurs naturally in Upper Waterton Lake. This shrimp is a relic species that exists in the park because of the pattern of continental glaciers and the glacial lakes associated with them. As the southern margin of the ice retreated, the shrimp were left stranded in a series of lakes, and slight differences were fixed so that they are now known as separate species.

Nonnative plant species such as spotted knapweed and common timothy grow in the park as the result of human activity, and the presence of such nonnatives reduces the diversity of plant communities. It is unlikely that future management actions would totally remove nonnatives from the park. At best their numbers would be contained. New populations of nonnative species are being controlled through management actions.

Changes in nearby land management, increasing visitation, and climate change are challenging Glacier's resource managers. To maintain the natural quality it is important for the stewards of Glacier's wilderness to protect the healthy populations of native species, study adaptations or remove invasive nonnative species, restore unhealthy populations of native species to health, and restore or perpetuate natural processes that have been disrupted.

Solitude or a Primitive and Unconfined Quality – The total value of wilderness to humanity is incalculable. The capacity of wilderness to provide for increasingly rare recreational experiences is challenging to gauge. However, Glacier's wilderness provides outstanding opportunities for people to engage their own wild side in the context of the greater wilderness.

There is a diversity of experiences available to visitors to Glacier's wilderness. Visitors may experience solitude, a deep connection with nature, discovery, revitalization, freedom from the pressures of society, or personal challenge and self-reliance. The wrinkled topography with its deep valleys gives people remoteness from occupied and modified areas outside the wilderness. The wilderness setting gives visitors the opportunity to sense humility while recognizing the role and involvement of humanity in the wider world and universe.

Glacier offers a diversity of wilderness experiences. The majority of backcountry camping is regulated with travel restrictions through permits, prearranged itineraries, and designated campgrounds. However, it is a flexible system with access to reserved and walk-up permits. Visitors to the Nyack and a few other areas of the park are not restricted to camping in designated campgrounds. There are greater opportunities for primitive experiences in those regions lacking facilities that decrease self-reliant recreation.

There are some threats to this quality as well. In regard to the remoteness from occupied and modified areas outside the wilderness, energy development on adjacent lands may rise into visitor sight lines and engine noise from land and air traffic impacts the wilderness soundscape. Opportunities for solitude are changing with transitions in visitor use patterns. The Going-to-the-Sun Road transit system may be shifting the predominant patterns of visitor use along the Sun Road corridor.

Within the wilderness matrix of Glacier National Park, managers have a variety of leverage points at which they can take action to facilitate opportunities for solitude or primitive and unconfined recreation. As they have done in the past, they will continue to take a calculated approach to ensure that visitors have a diversified range of opportunities to engage the wilderness.

Undeveloped Quality – The vast expanses of Glacier's wilderness exemplify the undeveloped quality. Etymologically, a thing is developed when it is "unrolled" and put to purposes for improvement. These may be improvements for administrative or scientific ends. While there are many administrative and scientific structures within the wilderness, the majority of the landscape retains its primeval character and influence.

The Glacier countryside has an adequately structured ecosystem enveloping a community of life that is thrown from the past and continues now and in the future with no strict need for human designed improvement or oversight. Glacier's wilderness character is diminished by the presence of hovels and fences, just like the sensibility expressed in Montanan Robert Fletcher's *Don't Fence Me In*.

Several areas within the wilderness do, however, contain modern developments. Remote patrol cabins and ranger stations dot the landscape, along with fire lookouts, scientific instrumentation, dams, and other administrative structures. The enclaves at Granite Park and Sperry Chalets, despite their iconic status in the cultural history of the park, are commercial developments that greatly contrast their wild surroundings and remain high profile sites in an otherwise undeveloped horizon.

Overall, the majority of the recommended wilderness remains primarily free from permanent improvements or human habitation. This unspoiled condition must be preserved in order to render the Glacier wilderness truly wild. National Park Service stewards must be continually vigilant by carefully considering the minimum tool required to achieve stewardship goals.

Untrammeled Quality – A trammel can be an instrument used for gauging and adjusting parts of a machine. The processes that perpetually make the place called Glacier National Park operate organically, not mechanically. There is an irreducible integrity that fundamentally binds all things concretely in Glacier National Park.

The park is involved in a dramatic and exceptionally long geologic history with processes associated with mountain-building and glaciation. The unrestrained tectonic forces have created one of the largest and most visible overthrust faults on the North American continent. A continental apex rises up in the park at one of the few oceanic triple divides on earth. Wild waters that begin flowing to three oceans come from the wilderness of Glacier National Park. These flows begin freely and autonomously and represent the self-willed untrammeled quality.

Perpetuating the untrammeled quality requires managers to restrain themselves, rather than the wilderness. Often, upholding the untrammeled quality may degrade another quality. Trade-offs are required. For example, invasive nonnative species may be removed for natural species composition, but it is recognized as a trammeling manipulation of the wilderness.

Other Features Quality – The fifth quality is unique to the park and is based on the features in Glacier. Human influence has created a wide range of cultural resources. These include archeological sites, modern American Indian ceremonial sites and ethnographic places of importance, and historic park administration structures.

Cultural resources represent the human experience of our nation and preservation of these resources is one of the three primary objectives of the National Park Service mission. Cultural resources can benefit wilderness areas by allowing visitors to understand and feel connected to the vital and varied relationships between people and nature.

Glacier encompasses over 200 known prehistoric sites, some dating back to 10,000 BCE. The Chief Mountain and Two Medicine areas continue to be important ceremonial and religious focal points for members of the Blackfoot Nation. The Kootenai perceive significant meanings along the trail of the cedars, among other areas near McDonald Lake, and within the park. Tribal entities place significance on cultural resources and have different perspectives and relationships to landscapes that are unique to their cultures. The tangible aspect of wilderness character might seem like an alien concept to the people whose ancestors walked these lands long before the arrival of western explorers.

Issues for Wilderness Planning

Wilderness is a foundational value for the park and should be a guiding concept for park planning and management. While managing for preservation of wilderness character requires consideration of the five qualities previously outlined, the park currently needs to address certain specific challenges for wilderness within this framework, including climate change, air and water pollution, proliferation of nonnative species, encroaching development, impacts on night skies, soundscape, acoustic environment, and increased visitation throughout the park, including in frontcountry road corridors on the edge of Glacier's recommended wilderness.

Appendix D: Wild and Scenic River Values

In 1968, Congress passed the Wild and Scenic Rivers Act. The act "declared to be the policy of the United States that certain selected rivers of the Nation, which with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations."

Under the Wild and Scenic Rivers Act, designated rivers are classified as wild, scenic, or recreational. The classifications primarily relate to the degree of development along the river. Regardless of the classification, each designated river in the national system is to be managed in a way that protects and enhances the values that prompted its designation. According to the act, the three classifications are defined as follows:

"Wild" River Areas: Those rivers or sections of rivers free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

"Scenic" River Areas: Those rivers or sections of rivers free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

"Recreational" River Areas: Those rivers or sections of rivers readily accessible by road or railroad, which may have some shoreline development, and that may have undergone some impoundment or diversion in the past.

Designations of the Flathead River

Excerpted from *Outstanding Remarkable Values Assessment of the Flathead River System* (2013) – Flathead National Forest and Glacier National Park

Each outstandingly remarkable value was determined to be unique, rare or exemplary in an appropriate region by Flathead National Forest and Glacier National Park. The two agencies collaborated to procure and evaluate the information in all nine categories and to make ORV determinations. In 1976, Congress designated the three forks of the Flathead River as part of the National Wild and Scenic Rivers System. Wild and scenic rivers are designated for their free flowing character and outstanding natural, cultural, or recreational values. The Flathead River is located within the Crown of the Continent ecosystem and specifically located in northwest Montana in Flathead and Powell Counties. The headwaters are located just west of the Continental Divide. The three forks include segments that have been classified as wild, recreational, and scenic. From the snowcapped, stunning peaks of Glacier Park that line the North Fork to the wild, trout-filled waters of the South Fork in the Bob Marshall Wilderness, the Flathead River is one of exceptional value in all categories. With an intriguing history, unique plants and wildlife, and nationally acclaimed recreational opportunities, the Flathead River System is a wild and scenic river that will be preserved to benefit many generations to come.

The Flathead Wild and Scenic River is 219 miles of free flowing water in northwest Montana that spans an area from the Canadian border to the heart of the Bob Marshall Wilderness. The three forks of the Flathead travel through some of the most wild, rugged country in the United States.

The designated reach of the Flathead includes the North, Middle, and South Forks of the river. Together, these three forks flow through Glacier National Park, the Great Bear Wilderness, and the Bob Marshall Wilderness before joining near Hungry Horse to create the main stem Flathead River, a major tributary to the Columbia River. Two of the three forks of the Flathead Wild and Scenic River form Glacier's western and southern boundary and contain outstanding remarkable values including recreation, scenery, wildlife, botany, geology, fisheries, water quality, ethnography, and history.

The Flathead River is currently co-managed by Glacier and the Flathead National Forest, with the latter designated as the lead agency. The boundary between the Flathead National Forest and Glacier National Park is defined by the centerline of the North Fork, and by the mean high water line of the Middle Fork. The Flathead River Management Plan was crafted in 1980 and was revisited in the mid-2000s. The revision focused on the eligibility of new rivers and did not update the past river plan. A comprehensive wild and scenic river planning discussion took place in 2013. In recent years, the Flathead National Forest and Glacier have developed ORVs for the Flathead River and also have begun discussions of future comprehensive wild and scenic river planning.

The North Fork of the Flathead River is classified as a scenic river from the Canadian border to the Camas Creek Bridge. This scenic river extends 36.9 miles. From this point to the confluence with the Middle Fork at the Blankenship Bridge, it is a recreational river for 21.4 miles. The Middle Fork of the Flathead River is classified wild from its headwaters at the junction of Strawberry and Bowl Creeks to Bear Creek. Of this 46.6-mile stretch, 13.5 miles are within the Bob Marshall Wilderness and 33.1 miles are located in the Great Bear Wilderness. From Bear Creek to its confluence with the South Fork, a 54-mile segment, the Middle Fork is a recreational river. The South Fork of the Flathead River is classified wild for 51.3 miles from its headwaters at the confluence of Youngs and Danaher Creeks in the Bob Marshall Wilderness to the Spotted Bear Ranger Station (46.6 miles in the Bob Marshall Wilderness). From the ranger station to the upper end of the Hungry Horse Reservoir, 8.8 miles, the South Fork is a recreational river.

The boundary between the Flathead National Forest and Glacier National Park is defined by the centerline of the North Fork, and by the mean high water line of the Middle Fork.

Figure 1. Designated river segments and their classifications.

Upper North Fork – scenic

Border to Camas Bridge

Lower North Fork – recreational

Camas Bridge to Confluence with Middle Fork at Blankenship

Upper Middle Fork – wild

Junction of Strawberry and Bowl Creeks to Bear Creek

Lower Middle Fork – recreational

Bear Creek to Confluence with South Fork

Upper South Fork – wild

Junction of Youngs and Danaher Creeks to Bob Marshall Wilderness Boundary (near Meadow Creek Gorge)

Central South Fork – wild

Wilderness Boundary to Spotted Bear Ranger Station

Lower South Fork – recreational

Spotted Bear Ranger Station to start of Hungry Horse Reservoir

Figure 2. River segments and Outstandingly Remarkable Value (ORV) determinations

River Segment	ORV Category								
	Fisheries	Geologic	Water Quality	Wildlife	Botanic	Recreation	Scenic	Historic	Ethno-graphic
North Fork Flathead Scenic	X	X	X	X	X	X	X	X	X
North Fork Flathead Recreational	X	X	X	X		X		X	X
Middle Fork Flathead Wild	X	X	X	X	X	X	X	X	
Middle Fork Flathead Recreational	X	X	X	X		X	X	X	
South Fork Flathead Wilderness	X	X	X	X	X	X	X	X	X
South Fork Flathead Wild, non-Wilderness	X	X	X	X		X	X	X	X
South Fork Flathead Recreational	X	X	X	X		X	X	X	X

Appendix E: Key Glacier National Park Planning Documents 1974-2015

Plan	Year
Wilderness Recommendation: Glacier National Park	1974
Proposed Over-snow Vehicle Use at Glacier National Park Environmental Assessment	1975
Final Environmental Statement Master Plan: Glacier National Park, Montana	1976
Flathead Wild & Scenic River recreation management direction	1980
Flathead Wild & Scenic River Management Plan	1980
Glacier-Apgar Headquarters Area Development Plan	1982
Memorandum: new wilderness proposal	1984
Glacier National Park Land Protection Plan	1985
Lake McDonald, Sun Point, Rising Sun, St. Mary, Many Glacier, and Swiftcurrent Development Concept Plans	1986
Resource Management Plan: Glacier National Park	1988
Proposed Northern Continental Divide Visitor Center Environmental Assessment	1988
Rehabilitation of Concessions Facilities	1990
Glacier National Park Statement for Management	1990
Going-to-the-Sun Road Transportation Plan	1990
Going-to-the-Sun Road Cultural Resource Plan & Rehabilitation Projects	1991
Flood Hazard Evaluation for Divide and Wild Creeks – Glacier National Park	1991
Going-to-the-Sun Road Environmental Assessment	1991
Interpretive Prospectus – Glacier National Park	1992
North Fork Management Plan	1992
Value analysis – Glacier National Park Divide Creek	1992
Management of Backcountry Chalets Environmental Assessment	1993 / 1995
Identification of Sensitive Wildlife Areas and Time Periods with Respect to Helicopter Overflights	1994
Memorandum: Changes to 1984 Wilderness Proposal	1994
World Heritage Committee: Crown of the Continent report by Canada and the USA	1995
Final General Management Plan Environmental Impact Statement	1999
Lake McDonald / Park Headquarters Wastewater Treatment System Rehabilitation Environmental Impact Statement	2000
Waterton Lakes National Park of Canada Management Plan	2000
Bear Management Plan	2001
Many Glacier Hotel Historic Structure Reports	2002
Fire Management Plan Environmental Assessment	2003

Plan	Year
Going-to-the-Sun Road Rehabilitation Plan Environmental Impact Statement	2003
Final Commercial Services Plan	2004
Road maintenance guidelines	2005
Avalanche Hazard Reduction by Burlington Northern Santa Fe Railway in Glacier National Park and Flathead National Forest, Montana Environmental Impact Statement	2006
Glacier National Park Comprehensive Interpretive Plan	2006
Going-to-the-Sun Road Vista Management Plan	2009
Large-scale Removal of Lake Trout in Quartz Lake Environmental Assessment	2009
Divide Creek flood plain study	2010
Outstanding remarkable values assessment of the Flathead River system	2013
Continued Lake Trout Suppression on Quartz Lake and Lake Trout Removal and Bull Trout Conservation in the Logging Lake Drainage Environmental Assessment	2013

Appendix F: List of Traditionally Associated American Indian Tribes

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

Assiniboine and Sioux Tribes of the Fort Peck Indian Reservation, Montana

Blackfeet Tribe of the Blackfeet Indian Reservation of Montana

Chippewa-Cree Indians of the Rocky Boy's Reservation, Montana

Confederated Salish and Kootenai Tribes of the Flathead Reservation

Fort Belknap Indian Community of the Fort Belknap Reservation of Montana

Kalispell Indian Community of the Kalispell Reservation

Kootenai Tribe of Idaho

Skokomish Indian Tribe

The park also consults with the following First Nations in Canada who are related to some of the U.S. tribes listed above. These include the Ktunaxa, Blood, Kanai, and Piikuni.

Intermountain Region Foundation Document Recommendation
Glacier National Park

September 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.

9/7/2016

RECOMMENDED
Jeff Mow, Superintendent, Glacier National Park **Date**

10/18/16

APPROVED
Sue E. Masica, Regional Director, Intermountain Region **Date**

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.

GLAC 117/133300
October 2016

Foundation Document • Glacier National Park

NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR