

**National Park Service  
US Department of the Interior**

**Hagerman Fossil Beds National Monument  
Idaho**

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**Draft Foundation Document**

# CONTENTS

<b>Mission of the National Park Service .....</b>	<b>1</b>
<b>Introduction.....</b>	<b>2</b>
<b>Part 1: Core Components.....</b>	<b>3</b>
<i>Brief Description of the Park.....</i>	<i>3</i>
<i>Park Purpose.....</i>	<i>5</i>
<i>Park Significance.....</i>	<i>5</i>
<i>Fundamental Resources and Values.....</i>	<i>6</i>
<i>Other Important Resources and Values.....</i>	<i>7</i>
<i>Interpretive Themes.....</i>	<i>8</i>

## 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 401 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 – this will be a sidebar when formatted.]

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 Hagerman Fossil Beds National Monument can be accessed online at: <http://insideparkatlas.nps.gov/>.

## **PART 1: CORE COMPONENTS**

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

### **BRIEF DESCRIPTION OF THE PARK**

Hagerman Fossil Beds National Monument preserves the fossil remains of more than 140 Pliocene fossil species and is recognized as one of North America's most important localities concerning the evolution of the horse. The 3 million- to 4 million-year-old geologic strata found in the park provide a detailed record of an evolving environment spanning at least 500,000 years, and include many fossils found nowhere else in the world. The density, diversity, and quality of fossils led to the site being designated as a national natural landmark in 1975.

The 4,281-acre park lies just west of the town of Hagerman in southern Idaho. The unit was established November 18, 1988, through an act of Congress (Public Law 100-696) and is one of the few federally administered fossil sites specifically set aside for paleontological research. The park's fossil beds offer a world-class setting to conduct research that can better enable the scientific community, the public, and land managers to understand the past. The park annually attracts more than 23,000 visitors.

Hagerman's fossils are widely dispersed across the park's extent, and many are very small, such as the tiny teeth of voles. The diversity of species, and the breadth of information they offer, allow researchers to reconstruct the past and examine current and future climate change with a better understanding of how communities responded to similar environmental changes in the past.

In addition to the ongoing research at Hagerman Fossil Beds, the park has signed a sister park agreement with Sibiloi National Park in Kenya. The National Park Service fosters such relationships as mutual learning opportunities that can lead to efficiencies, collaboration, and discoveries. Both Hagerman and Sibiloi are important Pliocene fossil sites known for their faunal diversity and extensive nature (spatial and temporal) of their fossil deposits.

The park is located along the Snake River and includes 7 miles of river shoreline. Elevation of the park ranges from 3,508 feet at the top of the bluff to 2,799 feet at the base of the river. The climate in the region is semiarid. Precipitation averages less than 10 inches per year, with most occurring in the early spring and late fall. Winters are cold (average low is 19°F) and summers are hot (average high is 91°F).

The topography is characterized by large flat plateaus deeply dissected by water drainages. Sediment layers were deposited by rivers flowing into ancient Lake Idaho, a body of water that once flooded much of the region. The sediments on the bluffs include river sands, thin shale layers, clay flood deposits, and occasional volcanic deposits such as ash and basalt. There are many small and ephemeral riparian areas located in the park.

In contrast to the moist, warm, and thriving environment that characterized the area during the Pliocene, the park is now dominated by sagebrush steppe vegetation and riparian areas. Common

vegetation within the sagebrush steppe environment includes bitterbrush, greasewood, rabbitbrush, various bunchgrasses such as blue bunch wheat grass, crested wheat grass (nonnative), Indian rice grass, and Great Basin wild rye. Riparian areas are composed of black cottonwood, willow, bulrush, and cottontails.

Nonnative vegetation is established throughout the park. Some of the dominant nonnative species include Russian olive, tamarisk, and purple loosestrife along the shoreline of the Snake River and some of the drainages, Russian thistle, cheat grass, wheatgrass, blue mustard, tansy mustard, and tumble-mustard. Agricultural crops have replaced much of the natural vegetation on private lands adjacent to the park.

The Snake River and adjacent wetlands provide valuable resources for a wide range of mammals, birds, reptiles, amphibians, and fish. The upland sagebrush steppe and grasslands provide important habitat for the Brewer's sparrow, grasshopper sparrow, and willow flycatcher. The area also supports a variety of mammals, such as antelope ground squirrels, shrews and voles, pronghorn, and mule deer. Salamanders, lizards, and skink inhabit the shoreline and wetlands. Historically, salmon migrated up the Snake River but are no longer present.

Changes in fire frequency and precipitation challenge park managers. Nonnative species that can easily adapt may displace or harm native species. Species such as sagebrush, slow-growing trees, fish, and some small mammals are particularly at risk for survival because they have a limited ability to relocate and have very specific habitat needs.

During the Archaic and Historic periods, small groups of American Indians camped, hunted, fished, and gathered food throughout the area; salmon from the Snake River were an important source of food.

Lifeways of many groups changed with the reintroduction of the horse around AD 1700. Some Northern Shoshone and Bannock groups obtained horses and vastly extended their range. Other groups (such as Western Shoshone) eschewed a dependence on horses and maintained their seasonal pedestrian nomadism with an emphasis on fishing. At the time of European contact, Bannocks, Paiutes, and Shoshones lived in the area.

During the early 1800s, American Indians along the Snake River traded fish and other products with traders and trappers. This trade extended to emigrants on the Oregon Trail, who began passing by in 1841. The trail through southern Idaho was typically hot, dry, and dusty; travelers were exhausted and a stop at the Snake River was a welcome respite. In the late 1800s, Indians were forcibly removed to reservations, and settlers of European descent followed with ferries, mining, farming, ranching, and other activities.

In 1928, a rancher named Elmer Cook showed some fossil bones to Harold T. Stearns of the US Geological Survey, who passed them on to James W. Gidley of the Smithsonian Institution. In 1929 and 1930, Gidley excavated what is now known as the Hagerman Horse Quarry. These excavations uncovered the largest assemblage of the first single-toed horse, *Equus simplicidens*. The Hagerman Horse later dispersed to Asia where it may have given rise to other species of extinct horse. The Hagerman Horse shows some similarities to today's East African Grevy's Zebra. However, the Hagerman Horse became extinct several million years before the earliest zebras appeared and is not the ancestor of zebras.

The fossil beds have yielded more than just horses. Many important species have been recovered, with animals ranging from the diminutive deer mouse to the giant mastodon. The park has the largest known assemblage of the giant river otter (*Satherium piscinarium*), a large badger-like

animal (*Ferinestrix vorax*) known only from Hagerman and Russia, and an exceedingly diverse number of carnivores. Hagerman was the locality where a number of turtles, birds, and rodents fossils were first described.

The Smithsonian excavations resulted in the collection of over 20 complete horse skeletons and material from over 200 more individuals; many of these were subsequently traded with museums across the nation and in Europe. Today, paleontological specimens from Hagerman Fossil Beds are housed on site in the park collections and at more than 40 academic institutions across the nation. Since the Smithsonian first excavated in 1929, tens of thousands of additional fossils have been found, and new fossils, including those of new species, continue to be discovered. These fossils contribute to a vast database that today's researchers can use to help reconstruct the evolutionary history of species and of changing paleoclimatic conditions. For visitors, the collections and fossil beds offer a rare glimpse into an ancient past and a greater understanding of the scientific process.

## **PARK PURPOSE**

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Hagerman Fossil Beds National Monument 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 November 18, 1988 (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 Hagerman Fossil Beds National Monument is to preserve outstanding Pliocene paleontological resources, to serve as a center for furthering scientific research, and to broaden public understanding of the science of paleontology and the significance of the Hagerman fossil record.*

## **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 Hagerman Fossil Beds National Monument, 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 Hagerman Fossil Beds National Monument. (Please note that the sequence of the statements does not reflect the level of significance.)

1. The park contains globally significant paleontological resources, representing a diversity of fossils from the Pliocene. Tens of thousands of fossils have been discovered in the park, including more than 140 species of animals and plants. This includes species that were first discovered here and species that have not been found anywhere else in the world.
2. The park's paleontological resources are contained in an extensive stratigraphic record, spanning at least 500,000 years. These fossil deposits are exposed across more than 4,000 acres of the park. They record a diverse fossil landscape representative of lake,

wetland, riparian, woodland, and grassland environments. The majority of the park is classified as a national natural landmark.

3. The fossil record at Hagerman Fossil Beds provides a detailed glimpse into life that occurred during the Pliocene period, one of the most recent geologic time periods that experienced global warming. The expansive timeframe exposed on the monument coupled with the species diversity it contains help to provide a framework for understanding climatic change and environmental response today and in the future.
4. The species found within the Hagerman fossil record include the ancestors of species living today. Some of these descendants occur in North America while others are now only found in distant places like Asia and South America. Hagerman's fossils contribute to a growing understanding of evolutionary relationships and distributions of species across continents.
5. The park features a historic fossil horse quarry recognized as one of North America's most important sites concerning the evolutionary history of the horse.
6. The fossil-rich landscape at the park is the result of 4.2 million years of geologic history of sedimentary deposition, fossilization, and erosion. The park reflects the accumulation of sediments associated with ancient Lake Idaho, the cataclysmic impacts of the Bonneville flood, and basalt flows that affected the course of the Snake River. Collectively, past and present geologic processes contribute to the ability to access, study, and understand this remarkable fossil record at Hagerman.
7. Hagerman Fossil Beds National Monument is one of the few federally administered fossil sites specifically set aside for paleontological research. Since the Smithsonian first excavated in 1929, tens of thousands of additional fossils have been found and new fossils continue to be discovered. Research since the 1930s has led to numerous scientific publications on the descriptions of new species, changing community dynamics throughout the geologic sequence, and on the site's geologic history. The opportunities and benefits from multidisciplinary research will continue to grow as additional fossil and geologic discoveries occur and new technologies emerge.

## **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 Hagerman Fossil Beds National Monument:

- **Pliocene Fossils**—The vertebrate, invertebrate, and plant fossils, including those from the area of the Smithsonian’s Hagerman Horse Quarry, are fundamental to the purpose and significance of Hagerman Fossil Beds National Monument. The number, variety, and quality of the fossils preserved at and excavated from the park define what makes the park worthy of being a national park unit and national natural landmark. Hundreds of fossils are found each year during annual monitoring. These fossils represent a great variety of life, from small rodents and frogs to the giant mastodon.
- **Public Understanding of Paleontology at Hagerman Fossil Beds**—Understanding the steps involved in paleontology—discovery, collection, cleaning, identification, cataloging, and research—and the importance of access to collections underscore the park’s mandated role as a paleontological research center. Interpretive displays, opportunities to observe researchers “in action,” public outreach, and virtual tours of the park and collections are tools for explaining how the park staff preserve and protect the Hagerman fossil record and how the results of research are shared regionally and globally. A heightened understanding of the park’s past, ongoing, and future contributions to paleontological research, including the study of past ecosystems, reinforce the park’s purpose and significance.
- **Lead and Facilitate Research**—The park, has the mandate to be a center for research. Place-based and facilitated research is critical to scientific progress and public understanding. The current fossil collection and new discoveries will allow important research on Pliocene fossils and their paleoecosystems to continue. The science is key to the understanding of changes that drove adaptation, migration, and extinction and data from the monument can serve as an analog for species undergoing climate change today. As a center for research, the park helps the public understand the scientific process, and the associated relevance of evolution and the study of past ecosystems and environments, to mankind and our world.
- **Geologic Processes**—Past and current geologic processes—including sedimentation, tectonic uplift, and erosion—help define what the landscapes and communities were like in the ancient past. They also define how landscapes and communities may change in the future. At Hagerman, such geologic processes have produced ideal conditions for the fossilization, preservation, and subsequent exposure of species’ remains.
- **A Record of Paleoecosystems**—Hagerman’s fossils contribute to the world’s understanding of fossil animals in their paleoenvironmental context. This allows researchers to reconstruct past ecological interactions and connections, including changes in an ecological community that may be linked to climate and environmental change. The changing climate and resulting ecosystem response observed during the Pliocene mirrors and can model—in some ways—today’s observed and anticipated climate and environmental changes.

## **OTHER IMPORTANT RESOURCES AND VALUES**

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

The following other important resources and values have been identified for Hagerman Fossil Beds National Monument:

- **Oregon Trail**—The park includes portions of the Oregon Trail that extend above the Snake River. The Oregon Trail crosses the southern portion of Hagerman Fossil Beds. The park is one of three NPS units that contain parts of the Oregon National Historic Trail. Trail ruts can be seen at the Oregon Trail Overlook parking lot. Remnants of the trail are iconic and are used to convey the story of migrating settlers and interactions with native peoples.
- **Scenic Geologic Landscape**—Views from scenic overlooks provide opportunities for visitors to see the Snake River Valley, active geologic processes, and the surrounding geologic landscape formed through these processes.
- **Modern Flora and Fauna Communities**—The park features sensitive vegetation resources including the sagebrush steppe and riparian and wetland areas that occur along the lower Snake River. These communities support a variety of native species and contribute to wildlife viewing and hunting in a small designated part of the park.

## **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 Hagerman Fossil Beds National Monument:

- Research and exploration at Hagerman Fossil Beds allows paleontologists, other scientists, park staff, and visitors to discover and understand evolutionary relationships, species distributions, and animal behavior both at the site and elsewhere in the world.
- The monument is a ‘window into the Pliocene past,’ a diverse array of fossils of animals (such as the Hagerman Horse) and plants that allow scientists to reconstruct ancient landscapes, revealing relationships between species in lake, wetland, riverine, woodland and grassland environments.

- Past and present geologic processes that formed the current landscape at Hagerman first preserved and are now exposing fossils, providing scientists, staff and visitors with the ability to view, study and understand Hagerman’s remarkable fossil record.
- The fossil record at Hagerman provides an opportunity for visitors to explore the “life of a fossil”: the chemical, physical and biologic processes that created the right environment for its fossilization, and the events leading up to its discovery.
- Fossils are fragile, and once destroyed, can never be replaced. When a fossil is removed without scientific documentation, paleontologists are unable to piece together the relationships between specific plants, animals and their environments. Stewardship of the fossils and respect for other monument resources is everyone’s responsibility.
- Hagerman Fossil Beds National Monument was set aside for scientific research because its Pliocene fossils provide the opportunity to understand an important portion of the history of life. The fossils include animals with ties to Eurasia, South America and Africa, as well as many that live in the Hagerman Valley today.
- People have lived in the Hagerman Valley for at least 10,000 years; their presence is recorded on the landscape in various ways.
- The Pliocene provides compelling evidence of the impact of climate change on animals and plants similar to those found in the world today. Hagerman Fossil Beds National Monument offers a venue for discussing the effects of past, current and future climate change.