

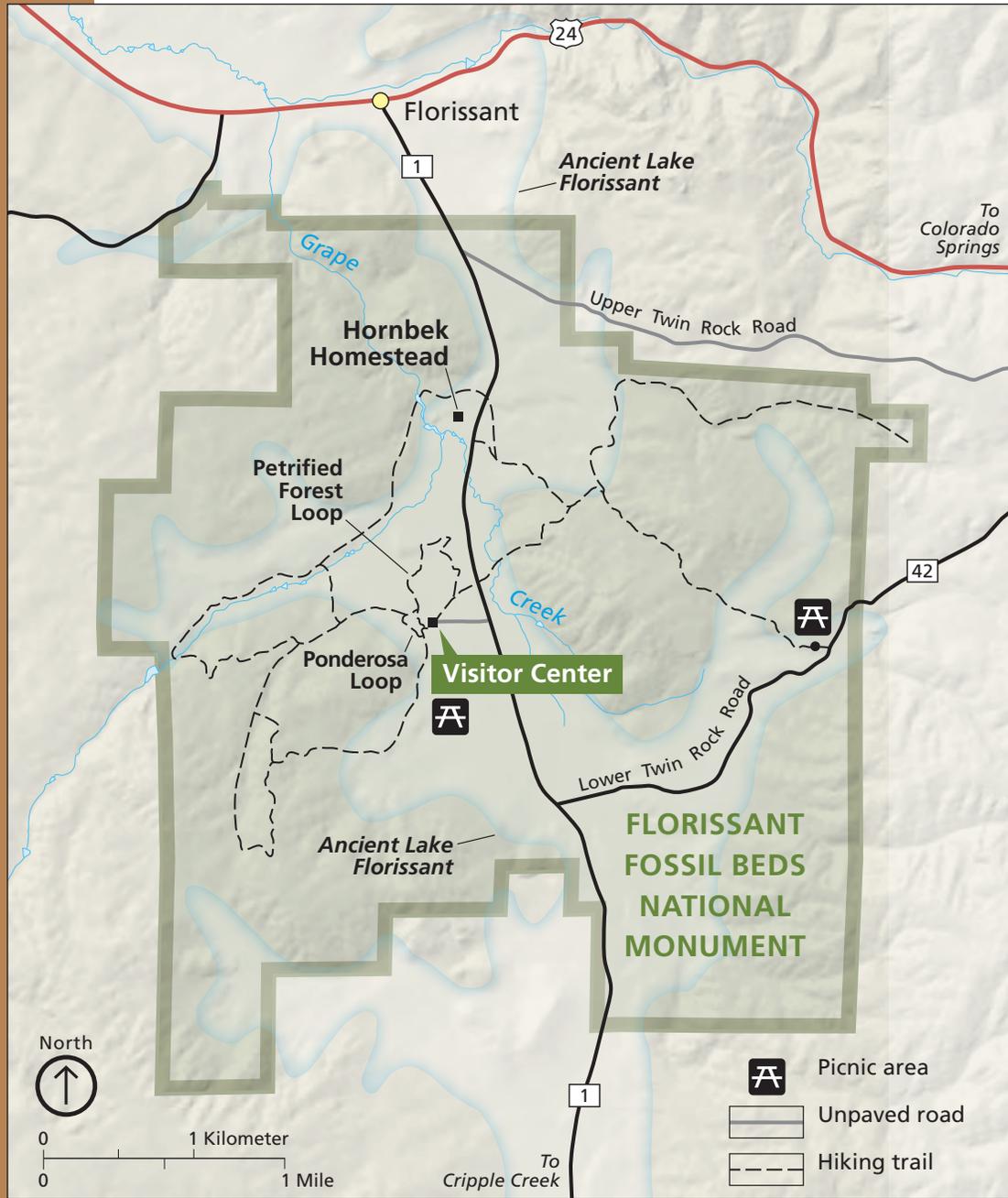


# Foundation Document Florissant Fossil Beds National Monument

Colorado

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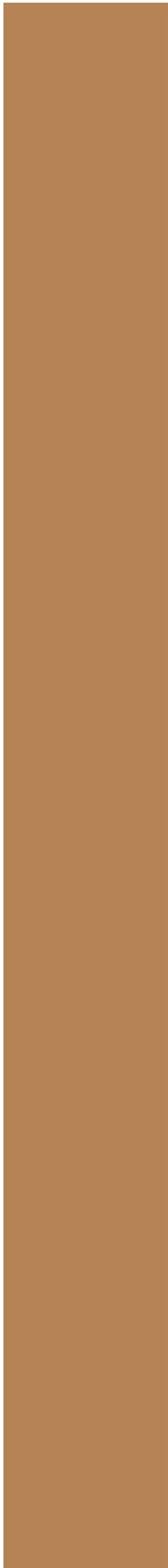
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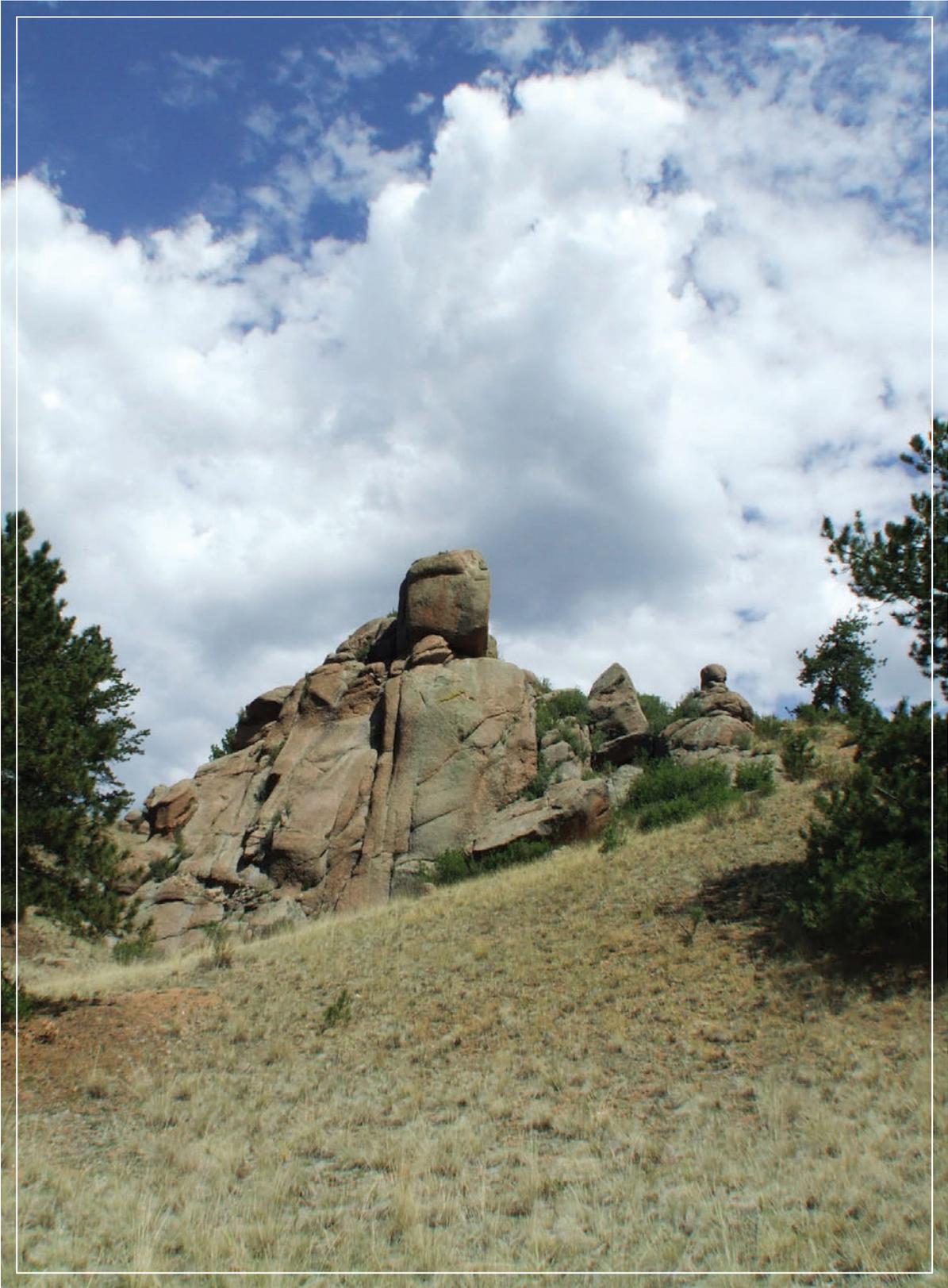
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## Mission of the National Park Service

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

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

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

The National Park Service is a bureau within the Department of the Interior. 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 Florissant 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

Florissant Fossil Beds National Monument is located in a high mountain valley 35 miles west of Colorado Springs, Colorado, and was established as a national monument in 1969. Beneath the monument's 5,998 acres of montane forests and meadows lies one of the richest fossil deposits in the world. Because of the diversity of its flora and fauna, Florissant ranks as one of the world's best known and richest paleontological resources. Together, the fossil biota and geology provide an incredibly detailed snapshot of the western interior of the United States at the Eocene-Oligocene transition (34.07 million years old)—a period in Earth's history when there was a dramatic change from a warm, temperate, almost subtropical climate to a cooler climate. The fossil flora also tells us that during the late Eocene, Florissant was at a similar elevation as today—8,500 feet (2,590 meters). From the geology, we know that Lake Florissant formed in an area with an active volcanic eruptive center, the Guffey volcano, which spewed ash and violent pyroclastic flows that buried and killed plants and animals alike, but in the end aided in their preservation.

Among the hallmarks of the monument are the remains of the massive petrified redwood trees that once dominated the Florissant forest of 150 plant species. The famous “Redwood trio” at Florissant is the only known fossil occurrence of a redwood “family circle.” Modern coast redwoods (*Sequoia sempervirens*) reproduce from sprouts that grow from the base of the parent tree. These root sprouts can grow to normal size trees, especially in cases where the parent dies, as was the case at Florissant. In addition to the redwoods, there were other conifers and hardwoods growing around the lake margin and at higher elevations that provided food and shelter to populations of insects (~1,500 species), birds, and a growing list of mammals that include a pigmy opossum, rodents, horses, rhinoceros-like brontotheres, sheep-sized oreodonts, deer-like animals, a tapir-like ancestor of the rhinoceroses, and the oldest fossil mole. Lake Florissant was also home to shorebirds, numerous freshwater gastropods, clams, ostracods, insect larvae, aquatic plants, and fish—their remains sandwiched between layers of paper-thin, diatom-rich shales like beautifully illustrated pages of a book.

The fossil resources at the park have allowed scientists to describe the local ecosystem of the late Eocene and have been important in past and present climate change studies. In addition to climate research, the park maintains a collection of specimens, regularly conducts inventory and monitoring of the fossil sites, has ongoing university collaborations, and continues to be the subject of scientific publications.

Today, the park also offers a variety of recreational experiences, including sightseeing, interpretive visitor center exhibits, hiking, picnicking, daily ranger-guided programs during the summer, Junior Ranger programs, and curriculum-based education programs for visiting school groups. Florissant Fossil Beds National Monument provides opportunities for exploration and discovery, as well as trails that offer easy day-hiking experiences for visitors.



## Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Florissant 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 August 20, 1969 (see appendix A for enabling legislation). The purpose statement lays the foundation for understanding what is most important about the park.

*The purpose of FLORISSANT FOSSIL BEDS NATIONAL MONUMENT is to preserve and protect the insect and leaf fossils of the Florissant Formation and related paleontological, geological, and scenic resources, thus providing for scientific research and interpretation, leading to public understanding and stewardship of these significant resources.*



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

1. Unusual geologic circumstances 34 million years ago resulted in the deposition of the Florissant Formation preserving one of the world's most species-rich assemblages of fossil plants and insects, including more than 1,700 described species.
2. The fossils of the Florissant Formation provide important evidence to interpret global climate changes and consequent biotic responses during the Eocene-Oligocene transition, providing insight into the ongoing processes of evolution, extinction, biogeography, and climate changes.
3. The petrified redwood tree stumps of the Florissant Formation, which are some of the largest fossilized tree stumps in the world, are impressive examples of an ancient forest preserved by a volcanic debris flow and include the world's only known fossilized stump trio.
4. Today's scenic landscape, including the geological features, meadows, and forest, provide a rare opportunity for visualizing the ancient redwood forest and the footprint of the ancient lake environment critical to the deposition of the Florissant Formation.
5. The Florissant Fossil Beds National Monument has been an outdoor research laboratory for paleontology since the early 1870s, resulting in more than 600 scientific publications and providing opportunities for exploration, discovery, and education by scientists, students, visitors, and the public. Ongoing excavations and new scientific techniques provide for new discoveries and the reevaluation of scientific concepts.



## 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 Florissant Fossil Beds National Monument:

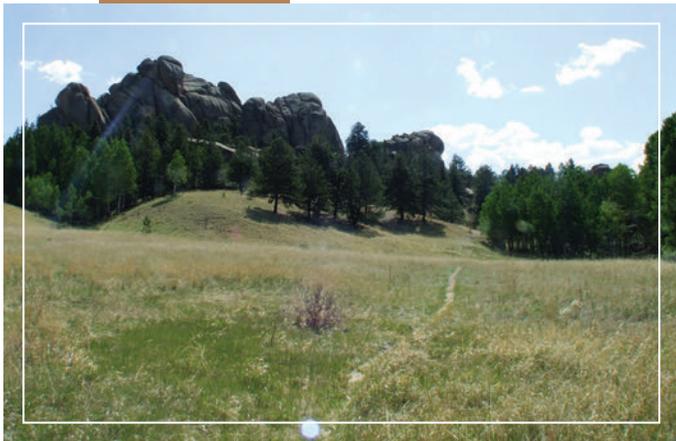
- **Paleontological Resources**
- **Geological Resources**
- **Collaborative Conservation, Science, and Scholarship**
- **Museum Collections**
- **Opportunities to Connect to Resources**
- **Scenic Resources/Views**

## Other Important Resources and Values

Florissant 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 Florissant Fossil Beds National Monument:

- **Continuum of Human Connection to the Land**
- **Natural Systems**





## 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 Florissant Fossil Beds National Monument:

- The Florissant Formation’s world-class fossil resources, comprising one of the most complete records of a late Eocene biotic community, provide excellent opportunities to explore changes in Earth’s systems over time using science as a way of understanding.
- The paradoxical aspects of fossilization in the Florissant Formation fuel our drive to explore Earth’s mysteries and inspire us to marvel at the complexity and subtlety of the natural world.
- The successes of Adeline Hornbek, Charlotte Hill, Estella Leopold, and other women exemplifies the challenges faced by women in the Florissant valley through time and inspires us to recognize and overcome the challenges of our own time.
- The natural and cultural resources of Florissant Fossil Beds National Monument provide a contemplative environment in which to ponder the great questions of life.

## Part 2: Dynamic Components

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

### Special Mandates and Administrative Commitments

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

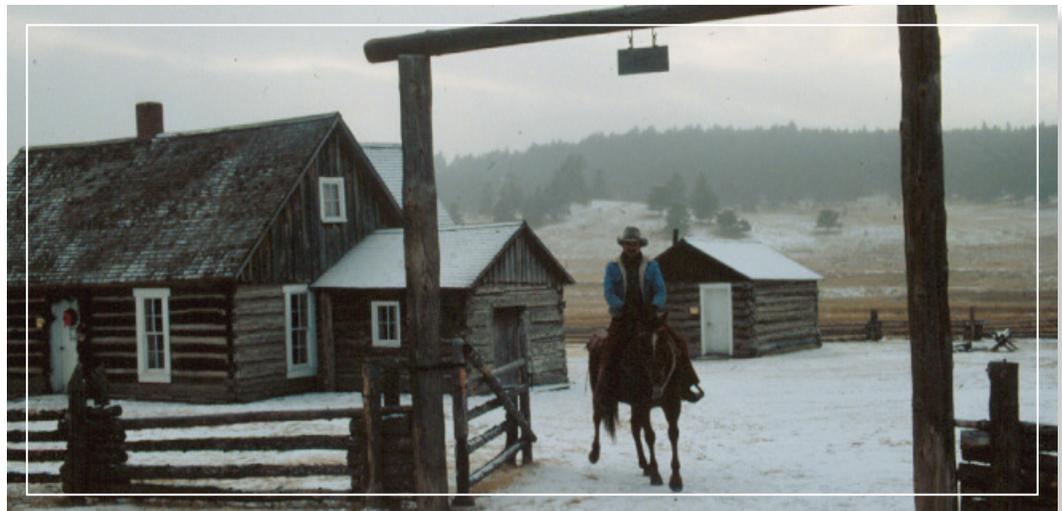
#### Special Mandates

##### Acreage Ceiling

There is a legislative ceiling of 6,000 acres. The actual acreage attained is 5,993.32.

##### Development Ceiling

Original legislation authorized the expenditure of not more than \$3,727,000 for land acquisition and development. The original estimate was \$1,165,000 for land acquisition and \$2,562,000 for development. The actual land acquisition costs were \$1,940,000, leaving a legislative ceiling balance of \$1,787,000 for development. Current estimates for development exceed the legislative ceiling balance. Congressional action is necessary to provide funds for development.



## Jurisdiction

Florissant Fossil Beds National Monument has concurrent jurisdiction. With this authority the United States and the State of Colorado jointly hold and exercise all rights accorded a sovereign, with the broad qualification that such authority is held concurrently. Administrative law regulations, codified under Title 36, *Code of Federal Regulations* (36 CFR), have been promulgated under the provisions of statutes codified in Title 16, United States Code. Enforcement of regulations is usually handled by Teller County Sheriff, Colorado Parks and Wildlife (wildlife infractions), or a law enforcement commissioned park ranger.

## Air Quality

The State of Colorado, under the auspices of the Clean Air Act, has designated Florissant Fossil Beds National Monument as Category II, which parallels the federal designations in the Clean Air Act, as amended August 1977 (42 U.S.C. § 7401 et seq.). The Clean Air Act 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. In the Clean Air Act, Congress set a national goal “to preserve, protect, and enhance the air quality in national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic or historic value.” This goal applies to all units of the national park system. While the most stringent protections are provided to Class I areas, the legislation also aims to limit the level of additional pollution allowed in Class II areas, and potential impacts to these areas are to be considered.

## Administrative Commitments

For more information about the existing administrative commitments for Florissant Fossil Beds National Monument, please see appendix C.

## 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)

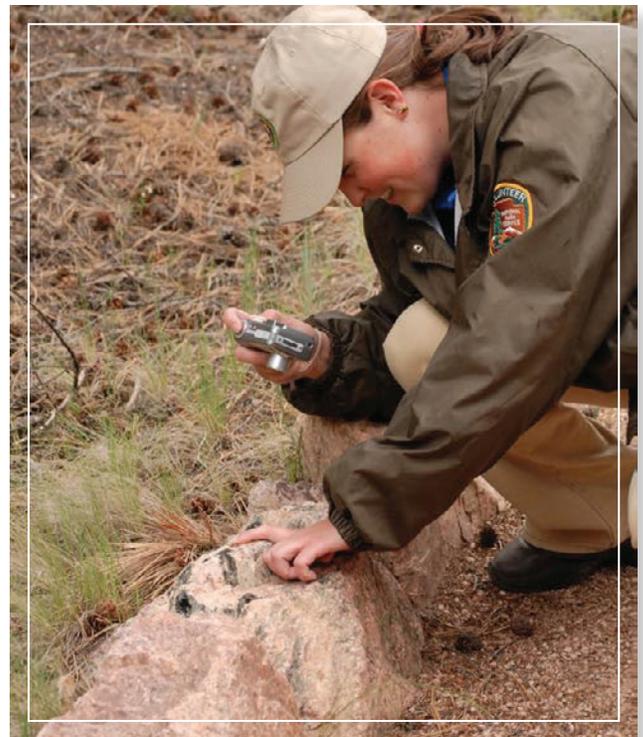
The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

## 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	Paleontological Resources
<p><b>Related Significance Statements</b></p>	<ul style="list-style-type: none"> <li>• Unusual geologic circumstances 34 million years ago resulted in the deposition of the Florissant Formation preserving one of the world’s most species-rich assemblages of fossil plants and insects, including more than 1,700 described species.</li> <li>• The fossils of the Florissant Formation provide important evidence to interpret global climate changes and consequent biotic responses during the Eocene-Oligocene transition, providing insight into the ongoing processes of evolution, extinction, biogeography, and climate changes.</li> <li>• The petrified redwood tree stumps of the Florissant Formation, which are some of the largest fossilized tree stumps in the world, are impressive examples of an ancient forest preserved by a volcanic debris flow and include the world’s only known fossilized stump trio.</li> </ul>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• The Florissant Formation contains one of the largest varieties of fossil arthropods (insects and spiders) found anywhere in the world.</li> <li>• The monument has an established paleontological sites inventory and monitoring program.</li> <li>• The monument has a full-time paleontologist who continues to conduct and oversee research supported by project-specific interns.</li> <li>• Some of the stumps are stable; however, some of the significant visible specimens are vulnerable to disintegration and need additional stabilization and protection.</li> <li>• Under protection of the National Park Service, the human impacts on the paleontological sites have been minimized.</li> <li>• Available space for storage of paleontological collections does not meet ongoing conservation needs.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• The majority of sites are in good condition.</li> </ul>
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Continued limited staffing to support operational and maintenance needs.</li> <li>• Vandalism and theft of fossil resources; increased protection is critical in protecting the exposed paleontological resources.</li> <li>• Potential change in erosion/weathering rates due to warming, drought, and greater frequency and magnitude of extreme weather events attributable to anthropogenic climate change.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Establish historic and recent paleontological collection sites database.</li> <li>• Describe new fossil discoveries.</li> <li>• Increase security of resources.</li> <li>• Excavate fossils to prevent loss due to future weathering.</li> <li>• Provide ongoing professional training/education of staff and volunteers.</li> <li>• Pursue official partnership with Florissant Fossil Quarry for ongoing research and educational opportunities to help minimize theft of park resources.</li> <li>• Use photogrammetry for high-resolution monitoring of changes in stumps.</li> <li>• Risk assessment of paleontological resources to comply with Paleontological Resources Preservation Act of 2009.</li> <li>• Continue to increase understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature) and impacts on the paleontological resources, and assessment of projected climate futures (models) for the region. When identified, integrate climate change adaptation strategies into applicable planning documents.</li> </ul>

Fundamental Resource or Value	Paleontological Resources
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• Study of stone conservation methods.</li> <li>• Study of fossil vertebrate localities.</li> <li>• Methods to conserve and stabilize fossil specimens.</li> <li>• Inventory and GIS documentation of historic and ongoing collection sites and of geological features of special interest.</li> <li>• Assessment of variation in fossil composition between paleontological sites.</li> <li>• Resource security assessment.</li> <li>• Magnetic susceptibility analysis of Florissant shales.</li> <li>• Isotopic analyses of fossil mollusks.</li> <li>• Fossil leaf cuticle analysis.</li> <li>• Taphonomic assessment of fossil preservation.</li> <li>• Volcanic source analysis.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Resource stewardship strategy.</li> <li>• State of the park report.</li> </ul>
<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</b></p>	<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV</b></p> <ul style="list-style-type: none"> <li>• 1979 Archaeological Resources Protection Act</li> <li>• Paleontological Resources Preservation Act</li> <li>• Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources"</li> </ul> <p><b>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</b></p> <ul style="list-style-type: none"> <li>• NPS Management Policies 2006 (5.3.5.5) states that the National Park Service "will collect, protect, preserve, provide access to, and use objects, specimens, and archival and manuscript collections...in the disciplines of archeology, ethnography, history, biology, geology, and paleontology to aid in understanding among monument visitors, and to advance knowledge in the humanities and sciences"</li> </ul>



Fundamental Resource or Value	Geological Resources
Related Significance Statements	<ul style="list-style-type: none"> <li>Unusual geologic circumstances 34 million years ago resulted in the deposition of the Florissant Formation preserving one of the world’s most species-rich assemblages of fossil plants and insects, including more than 1,700 described species.</li> </ul>
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>Under protection of the National Park Service, the human impacts on the geological resources have been minimized.</li> <li>Geological research is ongoing by representatives from universities and geological societies.</li> <li>Minimal weathering and erosion of features has occurred.</li> <li>Monument staff is in the process of completing a geochemical analysis of volcanic ash.</li> <li>Some of the stumps are stable; however, some of the significant visible specimens are vulnerable to disintegration and need additional stabilization and protection.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>Geological resources are stable.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Potential changes in erosion/weathering rates due to warming, drought, and greater frequency and magnitude of extreme weather events attributable to anthropogenic climate change.</li> <li>Excavated and exposed stumps increase risk of vandalism and deterioration from weather. Ongoing weathering and erosion of other fossil material.</li> <li>Potential visitor impacts due to foot traffic and social trails, vandalism, and theft.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Improvements to the fossil stump shelters are needed to mitigate the icing and freezing problems that occur and may be accelerating the degradation of the tree stump resources.</li> <li>Develop new conservation techniques to preserve exposed stumps.</li> <li>Additional research opportunities could inform and/or reinforce monument interpretation.</li> <li>Opportunities for additional recreational uses in appropriate areas.</li> <li>Additional interpretation of Pleistocene deposits.</li> <li>Continue to increase understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature) and impacts on the geological resources, and assessment of projected climate futures (models) for the region. When identified, integrate climate change adaptation strategies into applicable planning documents.</li> </ul>
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>Stump photogrammetry analysis.</li> <li>Inventory and GIS documentation of historic and ongoing collection sites and of geological features of special interest.</li> <li>Equine use and impact study.</li> </ul>
Planning Needs	<ul style="list-style-type: none"> <li>Stump stabilization plan.</li> <li>Resource stewardship strategy.</li> <li>Trail management plan.</li> </ul>
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV</b></p> <ul style="list-style-type: none"> <li>Paleontological Resources Preservation Act</li> <li>Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources”</li> </ul> <p><b>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</b></p> <ul style="list-style-type: none"> <li>NPS <i>Management Policies 2006</i> (4.8) provides general direction on the protection of geological and soil resources</li> <li>NPS <i>Natural Resource Management Reference Manual 77</i></li> </ul>

Fundamental Resource or Value	Collaborative Conservation, Science, and Scholarship
Related Significance Statements	<ul style="list-style-type: none"> <li>The Florissant Fossil Beds National Monument has been an outdoor research laboratory for paleontology since the early 1870s, resulting in more than 600 scientific publications and providing opportunities for exploration, discovery, and education by scientists, students, visitors, and the public. Ongoing excavations and new scientific techniques provide for new discoveries and the reevaluation of scientific concepts.</li> </ul>
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>Active research producing peer-reviewed publications.</li> <li>Partnerships – established and growing with universities.</li> <li>Established intern program for paleontology.</li> <li>Public education to grow appreciation and sense of stewardship; limited by staffing, not able to send staff members into community.</li> <li>Stewardship of stumps – condition unstable and deteriorating.</li> <li>Established collaboration with “sister site” in Peru for research and conservation and exploring networking possibilities to unite multiple petrified forest sites worldwide.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>Managing too many partnerships may be unmanageable with limited monument resources (staff and funding).</li> <li>Dwindling school budgets lead to fewer field trips – not enough money for transportation.</li> <li>Ongoing deterioration of stumps.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Limited staffing hinders public outreach/education programs that would foster appreciation and sense of stewardship.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Opportunities exist to research, compare, and contrast ancient ecosystems with the present, providing insights to current ecological dilemmas.</li> <li>Fund Project Management Information System project for conservation techniques for stumps.</li> <li>Identify ongoing and new projects for intern projects.</li> <li>Opportunities for educating youth attending residential camps at Sanborn Western Camp.</li> <li>Pursue funding from F. Martin Brown Fund for scientific and educational publications.</li> <li>Use technology to reach and educate new audiences about ongoing research and provide data for scientific audiences.</li> <li>Continue to increase understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature) and impacts on resources, and assessment of projected climate futures (models) for the region. When identified, integrate climate change adaptation strategies into applicable planning documents.</li> </ul>
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>Soil and hydrology studies.</li> <li>Climate change study for montane ecosystem.</li> <li>Identification of fossil insects and plant collections.</li> </ul>
Planning Needs	<ul style="list-style-type: none"> <li>Resource stewardship strategy.</li> <li>State of the park report.</li> </ul>
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV</b></p> <ul style="list-style-type: none"> <li>Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and other Natural and Cultural Resources”</li> </ul> <p><b>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</b></p> <ul style="list-style-type: none"> <li>Director’s Order 6: <i>Interpretation and Education</i></li> <li>NPS Management Policies 2006 (2.3.1.4, 4.2, 5.1)</li> <li>Director’s Order 77: <i>Natural Resource Protection</i></li> <li>Climate Change Adaptation Policy (523 DM1)</li> </ul>

Fundamental Resource or Value	Museum Collections
<p><b>Related Significance Statements</b></p>	<ul style="list-style-type: none"> <li>The Florissant Fossil Beds National Monument has been an outdoor research laboratory for paleontology since the early 1870s, resulting in more than 600 scientific publications and providing opportunities for exploration, discovery, and education by scientists, students, visitors, and the public. Ongoing excavations and new scientific techniques provide for new discoveries and the reevaluation of scientific concepts.</li> </ul>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>Inadequate space and environmental controls (temperature and humidity) for the onsite collection housed in visitor center.</li> <li>Much of the historic paleo collection and information is not NPS property.</li> <li>Archeological collections, herbarium, and modern insect collections are housed at Rocky Mountain National Park facilities.</li> <li>Archives are currently stored in the monument administrative building that does not meet standards (i.e., security, controlled environment).</li> <li>Lack of museum core documents – management plan and condition survey.</li> <li>Fossils in collection are subject to deterioration (i.e., flaking of shale).</li> <li>Limited access/ability for public to see collection items.</li> <li>Digitization of records is ongoing, approximately 40% complete.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>Virtual tours are being used by parks to engage visitors.</li> <li>Continued reliance on and use of existing website to distribute information.</li> <li>Inadequacy of collection space becoming increasingly apparent as collection grows.</li> </ul>
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Loss of fossils due to deterioration due to lack of environmental controls in storage areas.</li> <li>Loss of fossils due to inadequate conservation techniques requiring research into new techniques.</li> <li>Inability to adequately maintain collections and meet annual NPS reporting requirements.</li> <li>Inability to address backlog in cataloging collection and deterioration of bulk fossil collection (approximately 10,000 specimens).</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Increased accessibility through virtual tours; identify and provide links to other websites with information on Florissant fossil bed collections.</li> <li>Implement projects for creating museum collection core documents (pending funding).</li> <li>Determine long-term storage for archives and address deficiencies identified on the museum checklist (i.e., environmental condition deficiencies identified in visitor center).</li> <li>Develop strategy for growth of collections storage area to accommodate ongoing fossil excavations.</li> <li>A new kiosk is planned for the exhibit area to increase outreach/education.</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>Archive literature searches.</li> <li>Identification of fossil insects and plant collections.</li> <li>Digitizing collections to add to Integrated Collection Management System.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>Collections management plan.</li> </ul>

Fundamental Resource or Value	Museum Collections
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV</b></p> <ul style="list-style-type: none"> <li>• Museum Act (16 USC 18f through 18f-3)</li> </ul> <p><b>NPS Policy-level Guidance (NPS <i>Management Policies 2006</i> and <i>Director's Orders</i>)</b></p> <ul style="list-style-type: none"> <li>• NPS <i>Management Policies 2006</i> (5.3.5.5), states that the park service will collect, protect, preserve, provide access to and use objects, specimens, and archival and manuscript collections . . . in the disciplines of archeology, ethnography, history, biology, geology, and paleontology, to aid understanding among monument visitors, and to advance knowledge in the humanities and sciences</li> <li>• Director's Order 24: <i>NPS Museum Collections Management</i></li> <li>• <i>NPS Museum Handbook</i></li> </ul>





Fundamental Resource or Value	Opportunities to Connect to Resources
<p><b>Related Significance Statements</b></p>	<ul style="list-style-type: none"> <li>• The fossils of the Florissant Formation provide important evidence to interpret global climate changes and consequent biotic responses during the Eocene-Oligocene transition, providing insight into the ongoing processes of evolution, extinction, biogeography, and climate changes.</li> <li>• The petrified redwood tree stumps of the Florissant Formation, which are some of the largest fossilized tree stumps in the world, are impressive examples of an ancient forest preserved by a volcanic debris flow and include the world's only known fossilized stump trio.</li> <li>• Today's scenic landscape, including the geological features, meadows, and forest, provide a rare opportunity for visualizing the ancient redwood forest and the footprint of the ancient lake environment critical to the deposition of the Florissant Formation.</li> <li>• The Florissant Fossil Beds National Monument has been an outdoor research laboratory for paleontology since the early 1870s, resulting in more than 600 scientific publications and providing opportunities for exploration, discovery, and education by scientists, students, visitors, and the public. Ongoing excavations and new scientific techniques provide for new discoveries and the reevaluation of scientific concepts.</li> </ul>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Florissant Fossil Beds National Monument and its resources are not well known to the general public.</li> <li>• A new sustainably designed visitor center was opened in 2013.</li> <li>• Publications and wayside exhibits are current and in good condition.</li> <li>• Educational programs are developed and successful.</li> <li>• Interpretive opportunities that include seasonally guided talks, walks, and demonstration lab are developed and successful.</li> <li>• The monument's website and other related websites provide good resources for outreach and education.</li> <li>• There is limited staff capacity to keep media (websites and other materials) current.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Declining visitation.</li> <li>• Increasing tasks and workload associated with maintaining outreach tools and social media.</li> </ul>
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Decreased Recreation Fee Demonstration Program monies to support projects and infrastructure.</li> <li>• High demand on limited staff to raise awareness through social media and other outlets.</li> </ul>

Fundamental Resource or Value	Opportunities to Connect to Resources
<p><b>Threats and Opportunities</b></p>	<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Continue collaborative relationships with regional schools, military sites, tribes, and partnership bureaus to expand public engagement and support for the resources in Florissant Fossil Beds National Monument.</li> <li>• Development of Geoheritage program.</li> <li>• Extend outreach within Pikes Peak region in order to grow visitation.</li> <li>• Expand media coverage.</li> <li>• Increase availability and type of publications / marketing materials to public (e.g., on website, multilingual translations for key interpretive messaging, etc.); build virtual experiences and educational opportunities for visitors.</li> <li>• Increase use of interns to support communication and outreach needs.</li> <li>• Increase use of Cooperative Ecosystem Studies Units partnerships.</li> <li>• Coordinate with friends group to leverage volunteers to supplement staffing.</li> <li>• Support friends group fundraising opportunities.</li> <li>• Explore opportunities to expand appropriate visitor activities, including wildlife watching, photography, and/or horseback riding. Encourage use of the monument as an exercise destination (14 miles of trails in monument).</li> <li>• Increase visitor awareness and understanding of climate-related influences on resources.</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• Visitor use and demographic survey.</li> <li>• GIS and data integration of data/reports from Colorado Parks and Wildlife on usage and carrying capacity.</li> <li>• Equine use and impact study.</li> <li>• Study of regional land use.</li> <li>• Accessibility conceptual site plan.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Site plan for visitor use areas (not including visitor center area).</li> <li>• Site design and landscape plan for visitor center.</li> <li>• Cultural landscape report.</li> <li>• Visitor use management plan.</li> <li>• Trail management plan.</li> <li>• Sign management plan.</li> <li>• Update comprehensive interpretive plan.</li> </ul>
<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</b></p>	<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV</b></p> <ul style="list-style-type: none"> <li>• Americans with Disabilities Act of 1990</li> <li>• Architectural Barriers Act of 1968</li> <li>• Architectural Barriers Act Accessibility Standards 2006</li> <li>• Rehabilitation Act of 1973</li> <li>• National Park Service Concessions Management Improvement Act of 1998</li> </ul> <p><b>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</b></p> <ul style="list-style-type: none"> <li>• Superintendent's Compendium</li> <li>• NPS Management Policies 2006 (chapters 7, 8, 9, and 10)</li> <li>• Director's Order 6: Interpretation and Education</li> <li>• Director's Order 42: Accessibility for Visitors with Disabilities in National Park Service Programs and Services</li> <li>• Director's Order 53: Special Park Uses</li> <li>• NPS Transportation Planning Guidebook</li> </ul>



Fundamental Resource or Value	Scenic Resources/Views
<p><b>Related Significance Statements</b></p>	<ul style="list-style-type: none"> <li>• Today's scenic landscape, including the geological features, meadows, and forest, provide a rare opportunity for visualizing the ancient redwood forest and the footprint of the ancient lake environment critical to the deposition of the Florissant Formation.</li> </ul>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• The monument is surrounded by more than 70 private landowners.</li> <li>• The monument is bisected by two county roads serving as major commuter arteries.</li> <li>• The monument is bisected by a large water pipeline leaving a lasting scar on the landscape.</li> <li>• Increased development, including housing, is resulting in light pollution and impacts on the viewshed.</li> <li>• Historically, the open ponderosa pine and grassland communities that are now characteristic of the monument experience had very frequent, but low severity fires. This type of fire regime maintains the open appearance of the landscape by eliminating young woody plants and rejuvenating perennial grasses and forbs.</li> <li>• Daytime scenic views are sometime obscured by pollution-caused haze. At night, air pollution scatters artificial light, increasing the effect of light pollution on the night sky.</li> <li>• Air quality conditions and trends continue to be monitored.</li> <li>• The modeled average anthropogenic light ratio for Florissant is 1.68. At these light levels, anthropogenic light dominates natural celestial features such as the Milky Way.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Increased amount of litter, noise, and resource impacts along road corridors; increased county road signage and the road itself impact the viewshed.</li> <li>• Increasing development surrounding the monument.</li> <li>• Encroachment of ponderosa pines into the meadow areas reduces open meadow appearance and alters the landscape.</li> <li>• Lack of frequent natural fires is adding to fuel loads and increasing the potential for high-intensity wildfires. Stand-replacing fire is possible and would alter the viewshed landscape.</li> <li>• Coal fired power plant and vehicle emissions are believed to be major contributors to air quality impacts in Colorado. Emissions from both sources have been reduced significantly since 2000 to reduce ozone and fine particles, and these reductions should also improve air quality conditions in the park. Between 2000 and 2014, sulfur dioxide emissions were reduced by 69%, and nitrogen oxide emissions were reduced by 42% from power plants in Colorado. Additional reductions are expected as new emission controls come on line at power plants in Colorado Springs and northwestern Colorado.</li> <li>• For the 2004–2013 decade, the trend in visibility remained relatively unchanged. Based on the 2009–2013 estimated visibility data, average visibility on mid-range days was 3.2 deciviews (dv) above estimated natural conditions of 2.5 dv, and falls within the moderate concern category based on NPS Air Resources Division benchmarks. The degree of confidence in the visibility condition is high because there is a nearby visibility monitor at Great Sand Dunes National Park and Preserve.</li> </ul>

Fundamental Resource or Value	Scenic Resources/Views
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Increasing development around the monument has the potential to impact upon the viewshed and night skies; impacts of incompatible uses.</li> <li>• High traffic volume and vehicle speeds on county roads result in resource impacts from accidents, noise, fires, gas/oil spills, etc.</li> <li>• Lack of frequent natural fires is adding to fuel loads and increasing the potential for high-intensity wildfires.</li> <li>• An increase in mean annual temperature, storm frequency/intensity, and drought events projected for the region due to climate change could result in changes in species composition, increases in invasive species, increases in wildfire frequency, and/or changes in hydrology.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Conservation easements (Palmer Land Trust).</li> <li>• Expand interpretative and educational tools to communicate the connections between scenic views, air quality/pollution, climate change, sensitive park resources, recreation, human health, and other associated resources.</li> <li>• Educational outreach to community, how to be good neighbors (how to help reduce impacts of light pollution/noise; how to help minimize fires, etc.).</li> <li>• Work cooperatively with other federal and state air quality agencies and local stakeholders to reduce or mitigate air quality impacts within Florissant Fossil Beds National Monument.</li> <li>• When updating interpretive themes, consider including topic of scenic resources.</li> <li>• Coordination with local/regional planning departments on planning projects to provide monument input.</li> <li>• Although the night sky at Florissant is degraded due to the proximity of population centers, the conditions may be better than surrounding areas and present an opportunity for outreach on night skies.</li> <li>• Continue hazard fuels reduction and prescribed fire treatment.</li> <li>• Continue ongoing regional air quality monitoring for visibility, ozone, and atmospheric deposition.</li> <li>• Continue to increase understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature) and impacts on resources, and assessment of projected climate futures (models) for the region. When identified, integrate climate change adaptation strategies into applicable planning documents.</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• Visual resource inventory.</li> <li>• Study of fire history in Florissant Fossil Beds National Monument.</li> <li>• Study of regional land use.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Viewshed management plan.</li> </ul>

Fundamental Resource or Value	Scenic Resources/Views
<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</b></p>	<p><b>Laws, Executive Orders, and Regulations That Apply to the FRV</b></p> <ul style="list-style-type: none"> <li>• The Clean Air Act (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</li> <li>• Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and other Natural and Cultural Resources"</li> <li>• Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments"</li> <li>• Executive Order 13007, "Indian Sacred Sites"</li> </ul> <p><b>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</b></p> <ul style="list-style-type: none"> <li>• Climate Change Adaptation Policy (523 DM1)</li> <li>• NPS Management Policies 2006 (1.4, 1.6, 3.1, 4.7) requires the National Park Service to conserve and protect scenery and scenic vistas</li> <li>• NPS Management Policies 2006 (1.6, 4.1, 4.1.4, 4.4.1) provides general direction for managing park units from an ecosystem perspective</li> <li>• NPS Management Policies 2006 (4.9 and 4.10) provides general direction for soundscape and lightscape management</li> <li>• Directors Order 77: <i>Natural Resource Protection</i></li> <li>• Director's Order 47: <i>Soundscape Preservation and Noise Management</i></li> <li>• NPS Natural Resource Management Reference Manual 77</li> </ul>





### Analysis of Other Important Resources and Values

Other Important Resource or Value	Continuum of Human Connection to the Land
<p><b>Related Significance Statements</b></p>	<ul style="list-style-type: none"> <li>Florissant Fossil Beds National Monument has been an outdoor research laboratory for paleontology since the early 1870s, resulting in more than 600 scientific publications and providing opportunities for exploration, discovery, and education by scientists, students, visitors, and the public. Ongoing excavations and new scientific techniques provide for new discoveries and the reevaluation of scientific concepts.</li> </ul>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>Homesteaders and settlers came to the valley in the late 1800s. Adeline Hornbek came to the valley in 1878; her story is included in an interpretive theme that highlights challenges faced by women in the Florissant Valley.</li> <li>Environmental activism was paramount in establishing the monument.</li> <li>Many Ute people still live in the area and have an ongoing connection to the monument. There are 14 traditionally associated tribes.</li> <li>Ethnographic resources, sacred sites, and ties with associated American Indian tribes are not adequately identified.</li> <li>Scientific exploration and discovery are ongoing.</li> <li>A comprehensive archeological survey has never been completed; 30–50 sites have currently been identified.</li> <li>Culturally modified trees have been identified in the monument. These provide evidence of the Ute and other tribes’ use of the area; the pine trees were peeled for food or medicinal use.</li> <li>Maytag Barn had been used as an interim maintenance facility; layout and lack of amenities limit future use of the structure.</li> <li>Analysis and structural condition report for Cusack Potato Barn completed in 2015 with recommendations for adaptive reuse documented.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>There is an emphasis on a narrow part of story (Hornbek Homestead) rather than the broader story of homesteading and settlers in the valley.</li> <li>Increased interest from visiting public to learn more about the associated tribal uses of the monument area and archeological sites in the monument.</li> </ul>

Other Important Resource or Value	Continuum of Human Connection to the Land
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Vandalism to historic structures.</li> <li>• The buildings that constitute the Hornbek Homestead are log construction and highly subject to deterioration due to the adverse climatic conditions.</li> <li>• Bats and rodents (health concern) at Hornbek Homestead.</li> <li>• Oral histories are time sensitive due to aging people.</li> <li>• Increasing potential for catastrophic wildfire(s).</li> <li>• Potential changes in erosion/weathering rates due to warming, drought, and greater frequency and magnitude of extreme weather events attributable to anthropogenic climate change.</li> <li>• Inadequate staff capacity for implementing necessary monitoring (including analyzing and reporting on monitoring results).</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Ethnographic studies could increase understanding of historic uses of land.</li> <li>• Ethnographic studies can lead to partnerships/relationships with associated tribal members; increased tribal consultation.</li> <li>• Oral histories can increase educational/interpretive programs and visitor understanding.</li> <li>• Site stewardship program.</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• Visual resource inventory.</li> <li>• Study of fire history in Florissant Fossil Beds National Monument.</li> <li>• Study of regional land use.</li> <li>• Equine use and impact study.</li> <li>• Historic structures condition assessments.</li> <li>• Comprehensive archeological survey.</li> <li>• Cultural landscape inventory.</li> <li>• Ethnographic overview.</li> <li>• Oral histories.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Viewshed management plan.</li> <li>• Historic structure preservation plan.</li> <li>• Structure reuse plan (applies to both historic and nonhistoric).</li> <li>• Collections management plan.</li> <li>• Cultural landscape report.</li> </ul>

Other Important Resource or Value	Continuum of Human Connection to the Land
<p><b>Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance</b></p>	<p><b>Laws, Executive Orders, and Regulations That Apply to the OIRV</b></p> <ul style="list-style-type: none"> <li>• American Indian Religious Freedom Act of 1978</li> <li>• Antiquities Act of 1906</li> <li>• Archaeological Resources Protection Act of 1979</li> <li>• Archeological and Historic Preservation Act of 1974</li> <li>• Executive Order 11593, "Protection and Enhancement of the Cultural Environment"</li> <li>• Executive Order 13007, " Indian Sacred Sites"</li> <li>• Executive Order 13175, "Consultation and Coordination with Indian Tribal Governments"</li> <li>• Historic Sites, Buildings, and Antiquities Act of 1935</li> <li>• National Environmental Policy Act of 1969</li> <li>• National Historic Preservation Act of 1966, as amended (54 USC §300101 et seq.)</li> <li>• National Trust Act</li> <li>• Native American Graves Protection and Repatriation Act of 1990</li> <li>• "Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities Conducted by the Department of the Interior" (43 CFR 17)</li> <li>• "Protection of Historic Properties" (36 CFR 800)</li> <li>• Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources"</li> <li>• Religious Freedom Restoration Act of 1993</li> </ul> <p><b>NPS Policy-level Guidance (NPS <i>Management Policies 2006</i> and Director's Orders)</b></p> <ul style="list-style-type: none"> <li>• "Architectural Barriers Act Accessibility Guidelines; Outdoor Developed Areas"</li> <li>• Director's Order 6: <i>Interpretation and Education</i></li> <li>• Director's Order 17: <i>Tourism</i></li> <li>• Director's Order 28: <i>Cultural Resource Management</i></li> <li>• Director's Order 28A: <i>Archeology</i></li> <li>• Director's Order 42: <i>Accessibility for Visitors with Disabilities in National Park Service Programs and Services</i></li> <li>• Director's Order 45: <i>National Trails System</i></li> <li>• Director's Order 77: <i>Natural Resource Protection</i></li> <li>• NPS <i>Management Policies 2006</i> (4.7.2) "Weather and Climate"</li> <li>• NPS <i>Management Policies 2006</i> (8.2.2) "Recreational Activities"</li> <li>• NPS <i>Management Policies 2006</i> (8.2.2.1) "Management of Recreational Use"</li> <li>• NPS <i>Management Policies 2006</i> (8.2.2.6) "Hunting and Trapping"</li> <li>• NPS <i>Management Policies 2006</i> (8.2.4) "Accessibility for Persons with Disabilities"</li> <li>• NPS <i>Management Policies 2006</i> (4.9 and 4.10) provides general direction for soundscape and lightscape management.</li> <li>• NPS <i>Natural Resource Management Reference Manual 77</i></li> <li>• Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (2008)</li> <li>• <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i></li> <li>• <i>The Secretary of the Interior's Standards for Archeological Documentation</i></li> <li>• <i>The Secretary of the Interior's Standards for the Treatment of Historic Properties</i></li> <li>• "Department of the Interior Policy on Consultation with Indian Tribes"</li> </ul>

Other Important Resource or Value	Natural Systems
<p><b>Related Significance Statements</b></p>	<ul style="list-style-type: none"> <li>• Today’s scenic landscape, including the geological features, meadows, and forest, provide a rare opportunity for visualizing the ancient redwood forest and the footprint of the ancient lake environment critical to the deposition of the Florissant Formation.</li> <li>• The Florissant Fossil Beds National Monument has been an outdoor research laboratory for paleontology since the early 1870s, resulting in more than 600 scientific publications and providing opportunities for exploration, discovery, and education by scientists, students, visitors, and the public. Ongoing excavations and new scientific techniques provide for new discoveries and the reevaluation of scientific concepts.</li> </ul>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Riparian areas facing increasing impact from the spread of nonnative vegetation.</li> <li>• The monument’s hydrology has been shaped by both human and beaver action.</li> <li>• Currently there are narrow riparian areas along drainages, and emergent sedge or rush dominates wetlands in valley floodplains.</li> <li>• Wetlands have been drying due to incising streambeds and due to human development.</li> <li>• An increase in mean annual temperature, storm frequency/intensity, and drought events projected for the region due to climate change could result in changes in species composition, increases in invasive species, increases in wildfire frequency, and/or changes in hydrology.</li> <li>• The monument is within a montane system fire regime.</li> <li>• Lack of resource staffing impedes data collection and ability to manage resources.</li> <li>• Inventory and monitoring surveys have been completed for flora and fauna and provide a baseline.</li> <li>• Vegetation health risk from ground-level ozone warrants significant concern based on NPS Air Resources Division benchmarks. In addition to being a concern to the health of park staff and visitors, long-term exposures to ozone can cause injury to ozone-sensitive plants. The W126 metric relates plant response to ozone exposure and is a better predictor of vegetation response than the metric used for the human health standard. The W126 metric measures cumulative ozone exposure over the growing season in parts per million-hours (ppm-hrs). The NPS Air Resources Division recommends a W126 of &lt; 7 ppm-hrs to protect sensitive vegetation. At Florissant Fossil Beds National Monument, the W126 metric during 2009–2013 was 16.3 ppm-hrs, and falls within the “warrants significant concern” category. The degree of confidence in the condition of ozone risk to vegetation is medium because estimates are based on interpolated data from more distant because ozone monitors (NPS-ARD 2015). The park has approximately 10 ozone-sensitive plants.</li> <li>• The monument’s semi-arid ecosystem, wetland, and meadows may be vulnerable to nutrient-enrichment effects of excess atmospheric nitrogen deposition, which can help invasive plant species to grow faster and out-compete native vegetation adapted to lower nitrogen conditions.</li> <li>• Invasive plant species of the greatest concern include Canada thistle (<i>Cirsium arvense</i>), field bindweed (<i>Convolvulus arvensis</i>), musk thistle (<i>Carduus nutans</i>), and yellow toadflax (<i>Linaria vulgaris</i>). Changes in precipitation will probably drive the expansion and contraction of invasive species.</li> <li>• Effective control of nonnatives and invasive weeds at the monument requires a consistent strategy and the most efficient use of staff and funding to accomplish.</li> <li>• Dam survey completed early 2000 resulting in removal of dams and restoration of natural areas.</li> <li>• Migrating elk herd inhabit Florissant Fossil Beds National Monument.</li> <li>• Natural sounds predominate over human-caused sounds at the park.</li> </ul>

Other Important Resource or Value	Natural Systems
<b>Current Conditions and Trends</b>	<p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Nonnative plants are increasing.</li> <li>• Increasing prairie dog population.</li> <li>• Continued suppression of wildfires will increase fuel loadings and ladder fuels in the ponderosa pine woodlands and increase the likelihood of tree encroachment into the meadows.</li> <li>• According to Colorado Oil and Gas Conservation Commission 2015 data, currently there are no active wells within the vicinity of the park, and the nearest well is more than 25 miles away. However, oil and gas development in regional shale basins have increased significantly in the last decade.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Lack of resource staffing impedes data collection and ability to manage resources.</li> <li>• Resource damage along road corridors.</li> <li>• Ground-level ozone often reaches levels that can cause injury to ozone-sensitive plants. There are several ozone-sensitive plants in the park including quaking aspen (<i>Populus tremuloides</i>), desert willow (<i>Salix exigua</i>), white safebrush (<i>Artemisia ludoviciana</i>), and western wheatgrass (<i>Pascopyrum smithii</i>).</li> <li>• Potential increase in the number and severity of wildfires due to climate change.</li> <li>• Continued suppression of wildfires will increase fuel loadings and ladder fuels in the ponderosa pine woodlands and increase chances of high-intensity, stand-replacing wildfires.</li> <li>• Increased traffic in the monument impacts wildlife.</li> <li>• Increasing development around the monument has potential cumulative impacts on night skies and acoustic resources.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Continued hazard fuels treatments with manual thinning and prescribed fires will allow ponderosa stands to be more resilient during wildfires.</li> <li>• Restoration of wetland systems.</li> <li>• Continued collaboration with Rocky Mountain Inventory &amp; Monitoring Network. Consider investigating ozone-sensitive plant species to determine extent of ozone related impacts.</li> <li>• Pursue partnerships to minimize impacts on wildlife.</li> <li>• Enhance the role that partners and volunteers can play in helping control nonnative species / invasive plants.</li> <li>• Continue to improve park sustainability efforts by pursuing Climate Friendly Park certification.</li> <li>• Continue to increase understanding of observed and projected climate change through monitoring of (or access to) weather parameters (precipitation, temperature) and impacts on resources, and assessment of projected climate futures (models) for the region. When identified, integrate climate change adaptation strategies into applicable planning documents.</li> </ul>
<b>Data and/or GIS Needs</b>	<ul style="list-style-type: none"> <li>• Study of fire history in Florissant Fossil Beds National Monument.</li> <li>• GIS – update nonnative vegetation maps.</li> <li>• GIS – incorporate Inventory &amp; Monitoring plots.</li> </ul>
<b>Planning Needs</b>	<ul style="list-style-type: none"> <li>• Exotic species management plan.</li> <li>• Integrated pest management plan.</li> <li>• Fuels reduction / prescribed fire plan.</li> </ul>

Other Important Resource or Value	Natural Systems
<p><b>Laws, Executive Orders, and Regulations That Apply to the OIRV, and NPS Policy-level Guidance</b></p>	<p><b>Laws, Executive Orders, and Regulations That Apply to the OIRV</b></p> <ul style="list-style-type: none"> <li>• Clean Water Act</li> <li>• Endangered Species Act of 1973, as amended</li> <li>• Executive Order 13112, "Invasive Species"</li> <li>• Executive Order 13423, "Strengthening Federal Environmental, Energy, and Transportation Management" instructs federal agencies to conduct their environmental, transportation, and energy-related activities in a sustainable manner</li> <li>• Executive Order 13514, "Federal Leadership in Environmental, Energy, and Economic Performance": The goal of this executive order is to establish an integrated strategy toward sustainability in the federal government and to make reduction of greenhouse gas emissions a priority</li> <li>• Federal Noxious Weed Act of 1974, as amended</li> <li>• Lacey Act, as amended</li> <li>• National Invasive Species Act</li> <li>• Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources"</li> <li>• The Clean Air Act (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</li> </ul> <p><b>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</b></p> <ul style="list-style-type: none"> <li>• NPS Management Policies 2006 (1.6) "Cooperative Conservation Beyond Park Boundaries"</li> <li>• NPS Management Policies 2006 (4.1) "General Management Concepts"</li> <li>• NPS Management Policies 2006 (4.1.4) "Partnerships"</li> <li>• NPS Management Policies 2006 (4.4.1) "General Principles for Managing Biological Resources"</li> <li>• NPS Management Policies 2006 (4.7.2) "Weather and Climate"</li> <li>• NPS Management Policies 2006 (4.9 and 4.10) provides general direction for soundscape and lightscape management</li> <li>• Director's Order 47: <i>Soundscape Preservation and Noise Management</i></li> <li>• NPS Natural Resource Management Reference Manual 77</li> </ul>

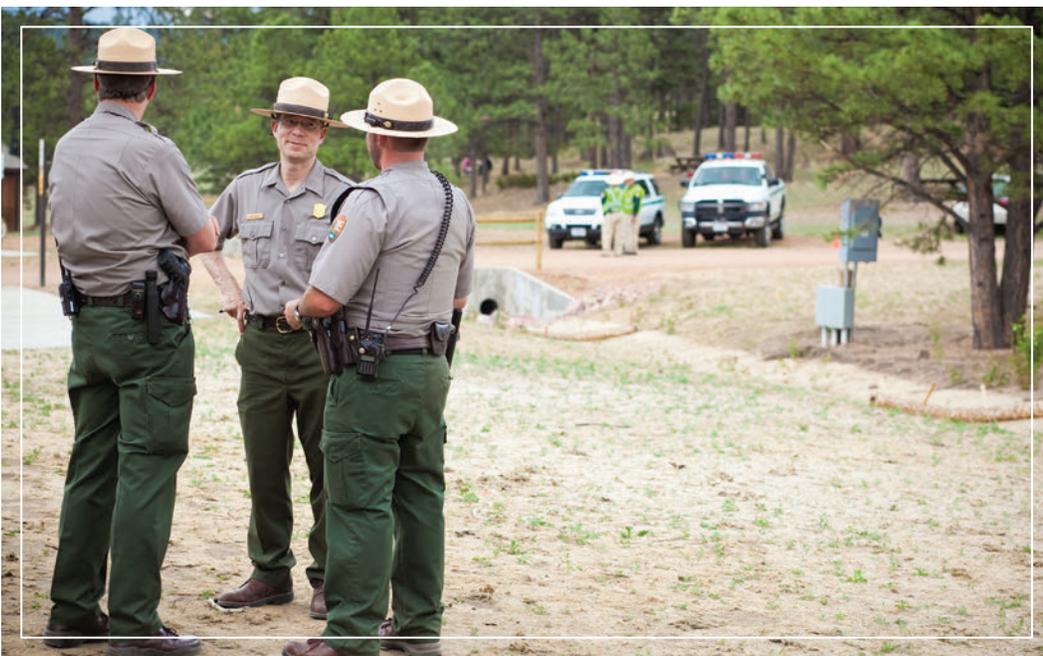


## Identification of Key Issues and Associated Planning and Data Needs

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 unit. Key issues often raise questions regarding park unit 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 unit 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 Florissant Fossil Beds National Monument and the associated planning and data needs to address them:

- **Scientific Study and Research Access.** The need to maintain digital data for online collections and expand opportunities to conduct on-site scientific research continues to grow. Responsibility and maintenance of electronic catalogues and data are shared between the monument and the NPS Rocky Mountain Inventory & Monitoring Network. There is a continued park management commitment to provide research opportunities for visiting and remote scientists to promote a better understanding about paleontological and geological resources. Development of an online museum for natural history continues to be identified as a need and is currently beyond existing staffing and funding capacity. The planning and data needs to address this parkwide issue include identification of fossil insects and plan collections, digitizing collections, archive literature searches, oral histories, and collections management plan.
- **Protection and Law Enforcement.** The visitor contact area, administrative facilities, and the maintenance properties require ongoing security updates to protect against vandalism, fire, and theft during hours when the monument is closed for visitation. The visitor center / administrative facilities access, Hornbek Homestead area, maintenance facilities, Barksdale picnic areas, and access along Teller County Road 1 require ongoing security measures and patrols to protect from vandalism, fire, firearms practice, poaching of wildlife, harassment of wildlife, illegal recreational off-road vehicle use, and theft during hours when the monument is closed to visitation. A law enforcement review has never been conducted at the monument. The planning and data needs to address this parkwide issue include a resource security assessment and business management plan.



- Cooperative Planning and Management.** Opportunities exist to work cooperatively with the US Forest Service, Colorado State Forest Service, Colorado Parks and Wildlife, other agencies, local governments, nongovernmental organizations, tribes, the educational community, and individuals to protect resources, provide a broad range of visitor opportunities, protect visitors, and share operational activities. Fire planning remains an area where cooperative planning and management could be advanced; there is a common interest with neighbors in protecting and ensuring defensive measures are in place for fire protection. The planning and data needs to address this parkwide issue include visitor use and demographic study, visitor use management plan, study of regional land use, equine use and impact study, trail management plan, and viewshed management plan.
- Use Existing Structures to Support Monument Maintenance and Operational Needs.** A demand for usable, safe space is critical to support maintenance operations, staff housing, and on-site science and research. Redevelopment of existing buildings within the monument boundary including the Maytag Barn, A-frame building, and the Cusack building are under consideration, pending thorough condition and safety analyses. Completion of these assessments will allow the monument to evaluate adaptive and repurposing opportunities for these building. A key objective of this issue is to improve the monument’s ability to maintain and protect currently unoccupied structures. The planning and data needs to address this parkwide issue include structural condition report for Cusak Barn, historic structures condition assessments, and structure reuse plan.
- Accessibility.** The visitor center and associated outdoor exhibit area is universally accessible. The Ponderosa Loop Trail adjacent to the visitor center, a self-guided one-half-mile trail, is accessible during the summer. The monument has a nonmotorized wheelchair that can be requested and borrowed for daily use. The monument’s 15-minute orientation video is equipped with subtitles and captions. Assisted listening and audio description devices are available upon request for the monument’s video and exhibit area. The monument is currently lacking accessibility to the picnic area located near the visitor center and access to any picnic sites for visitors with mobility issues. The planning and data needs to address this parkwide issue include an accessibility conceptual site plan, site design and landscape plan for the visitor center, site plan for visitor use areas, trail management plan, and sign management plan.
- Staffing.** As staffing continues to decrease, the monument is unable to continue to operate at the same level and must refocus its priorities. Additionally, use of facilities must be refocused. A business plan would address staffing issues and improve the ability to measure the allocation of monument fiscal resources against needs.





## Data and Planning 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.

### High priority is assigned to plans and studies that

1. address an issue that directly affects the monument's purpose, significance, or FRVs
2. address multiple complex and interrelated issues
3. fulfill legal requirements and formal commitments
4. address urgent or time sensitive / emergency issues
5. prevent resource degradation
6. address an issue where resources (funding/staffing) are currently available to use/implement

High priority is given if the plan is necessary to provide guidance for subsequent plans and studies in the medium and lower priority bands.

### Medium priority is assigned to plans and studies that

1. provide opportunities for interagency partnerships
2. need to be done to support high priority plan
3. have a big impact on visitor experience

### Low priority is assigned to plans and studies that

1. affect other important resources and values
2. address other resource, visitor, facility, and administration issues
3. other resources (funding/staffing) are needed to start plan or project

Data Needs – Where Information Is Needed Before A Decision Can Be Made			
Related to an FRV or OIRV?	Data or GIS Needs	Priority (H, M, L)	Notes
FRV (paleontological resources)	Study of stone conservation methods	H	Would inform management strategies for stumps; would prevent resource degradation; would address a fundamental resource.
FRV (paleontological resources; and geological resources)	Inventory and GIS documentation of historic and ongoing collection sites and of geological features of special interest	H	Would inform collection management plan and scientific research; would assist monument in addressing reporting requirements under Paleontological Resources Preservation Act.
FRV (paleontological resources)	Study of fossil vertebrate localities	H	Would provide an increase in the diversity and abundance of fossil vertebrates known from the Florissant Formation in order to better correlate to Eocene stratigraphy found elsewhere in Colorado, and to reconstruct a more complete picture of the ancient Florissant Valley ecosystem.
FRV (paleontological resources)	Methods to conserve and stabilize fossil specimens	H	Would provide the best methods, techniques, and materials for the conservation and stabilization of fossil specimens from the Florissant Formation.
FRV (paleontological resources)	Isotopic analyses of fossil mollusks	H	Would provide isotopic analyses of fossil mollusks to understand the paleo-environment of Eocene Lake Florissant.
FRV (paleontological resources)	Fossil leaf cuticle analysis	H	Would provide new information about CO2 variability as a causative mechanism for Eocene-Oligocene climate change, thus enabling accuracy of interpretive information.
FRV (paleontological resources)	Resource security assessment	H	Vandalism and theft of fossil resources is a key management concern. Increased protection is critical in protecting the exposed paleontological resources. Risk assessment of paleontological resources to comply with Paleontological Resources Preservation Act.
FRV (collaborative conservation, science, and scholarship; and museum collections)	Identification of fossil insects and plant collections	H	Inform museum collection plan and Interior Collections Management System database.
FRV (paleontological resources)	Assessment of variation in fossil composition between paleo sites	H	Inform museum collection plan and Interior Collections Management System database.
OIRV (continuum of human connection to land)	Historic structures condition assessments	H	Would inform the historic structure reuse plan. Condition assessments would document building construction, use, and maintenance, and identify the issues affecting structure. High priority to prevent resource degradation to national register listed structures.

Data Needs – Where Information Is Needed Before A Decision Can Be Made			
Related to an FRV or OIRV?	Data or GIS Needs	Priority (H, M, L)	Notes
OIRV (continuum of human connection to land)	Comprehensive archeological survey	H	Includes culturally modified trees and would address multiple complex and interrelated issues including preventing resource degradation.
FRV (museum collections)	Digitizing collections to add to Integrated Collection Management System database	H	Digitizing the collections would provide for increased access to the collections and enhance research capabilities.
FRV (geological resources)	Stump photogrammetry analysis	H	Data needed to inform stump stabilization plan and document condition of stumps to monitor impacts on resource.
OIRV (continuum of human connection to land)	Ethnographic overview	H	Tribes associated with the monument, would include culturally modified trees (connect with tribes to understand significance).
FRV (opportunities to connect to resources)	Accessibility conceptual site plan	H	Specifically in picnic areas / visitor center area and Ponderosa Loop Trail, would meet legal requirements and build access opportunities for all visitors.
FRV (paleontological resources)	Magnetic susceptibility analysis of Florissant shales	M	Would provide correlations of stratigraphic sections of the Florissant Formation using magnetic susceptibility, gamma ray spectroscopy, and elemental geochemistry to better understand the lithostratigraphy of the Florissant Formation.
FRV (paleontological resources)	Volcanic source analyses	M	Would provide clarification as to which volcanic source areas contributed to the composition of the Florissant Formation.
OIRV (continuum of human connection to land)	Cultural landscape inventory	M	Would inform cultural landscape report and trails management plan around Hornbek Homestead and Cusak Potato Barn; would address multiple complex and interrelated issues.
FRV (opportunities to connect to resources)	Visitor use and demographic survey	M	Data (statistics) on demographics, visitor use levels, and associated resource impacts/issues. Would build understanding of visitor interests and would inform a visitor use management plan/strategy, and comprehensive interpretation plan.
FRV (museum collections)	Archive literature searches	M	Need to catalog and archive scientific and other literature on the monument; would provide opportunity for interagency partnerships and would impact/enhance visitor experiences.
OIRV (natural systems)	GIS-update nonnative vegetation maps	M	Would inform exotic species management plan.
FRV (scenic resources/views) OIRV (continuum of human connection to land; and natural systems)	Study of fire history in Florissant Fossil Beds National Monument	M	Study would identify the occurrence, interval, intensity, extent, and distribution of fires in the monument. Impacts on the forest/meadow boundaries would be identified. Study could help determine how historic fires have affected resources and inform future management.

Data Needs – Where Information Is Needed Before A Decision Can Be Made			
Related to an FRV or OIRV?	Data or GIS Needs	Priority (H, M, L)	Notes
OIRV (natural systems)	GIS- incorporate I&M monitoring plots	M	Would inform future updates to existing fire management plan (2002).
OIRV (continuum of human connection to land)	Oral histories	M	Would help inform educational and interpretive materials. Staff would need to identify and prioritize persons to be interviewed. Consultation with tribes may also help identify important persons to be interviewed.
FRV (collaborative conservation, science, and scholarship)	Climate change study of montane ecosystem	M	Future effects of climate on ecosystem; review studies illustrating these changes in similar systems.
FRV (paleontological resources)	Taphonomic assessment of fossil preservation	M	Study of the environmental conditions affecting preservation of animal and plant remains.
FRV (collaborative conservation, science, and scholarship)	Soil and hydrology studies	L	Would inform climate change assessments and resource stewardship strategy.
FRV (opportunities to connect to resources)	GIS and data integration of data/reports from Colorado Parks and Wildlife on usage and carrying capacity	L	Sample to determine presence of plague at the monument (occurring in partnership with Colorado Parks and Wildlife) (contact Colorado to determine availability of GIS data); GIS layer showing outbreaks in surrounding area; check in with Colorado Parks and Wildlife to determine existence of data on elk in area and trend data.
FRV (scenic resources/views) OIRV (continuum of human connection to land)	Visual resource inventory	L	The inventory would identify the scenic quality and NPS/ visitor values associated with important views. This information would inform a viewshed management plan. The inventory would consider boundary and development outside of the monument and identify corresponding impacts/concerns.
FRV (opportunities to connect to resources; and scenic resources/ views) OIRV (continuum of human connection to land)	Study of regional land use	L	Would study land use adjacent to and around the monument. Would evaluate recreational use opportunities, trail systems, and compatible adjacent land uses. Considerations would include opportunities to link to surrounding communities by analyzing such factors as viewshed (dovetailing with visual resource inventory / viewshed management plan), pedestrian / equine / vehicle access, trail systems and improvements in connections to surrounding communities. Study outcomes would inform viewshed management plan and trail management plan.
FRV (geological resources; and continuum of human connection to land)	Equine use and impact study	L	Inform trail management plan. Opportunity to clarify monument policies and include in the visitor use management plan.

<b>Planning Needs – Where A Decision-Making Process Is Needed</b>			
<b>Related to an FRV or OIRV?</b>	<b>Planning Needs</b>	<b>Priority (H, M, L)</b>	<b>Notes</b>
Parkwide – Key Issues	Business management plan	H	Would compile staffing and workload data for development of business plan. Would include law enforcement and resource management review components and incorporate information from a position management plan (tentative effort in fiscal year 2015). Would inform staffing, marketing, partnerships, position management, inform special use permitting in a timely way with available funding/staffing.
FRV (museum collections) OIRV (continuum of human connection to land)	Collections management plan	H	Would develop strategy for growth of storage areas to accommodate collections. Plan would consider both on-site and off-site collection storage and would identify adaptive reuse strategies to encourage use of existing structures to accommodate collections. Time sensitive to ensure protection of collections. Existing Project Management Information System project for plan, \$0 funded.
FRV (paleontological resources; and collaborative conservation, science, and scholarship)	State of the park report	H	Would provide a snapshot of the status and trend in the condition of the monument's priority resources and values with complex and interrelated issues; would summarize and communicate complex scientific, scholarly, and monument operations factual information and expert opinion using nontechnical language.
FRV (opportunities to connect to resources)	Site design and landscape plan for visitor center	H	Planning needed to address landscaping, pedestrian and vehicle traffic and parking; accessibility; pedestrian safety issue. Specific areas to be included in the plan are group picnic area and dog park. Visitor center project did not consider/complete landscape planning. Need to address accessibility standards.
FRV (geological resources)	Stump stabilization plan	H	Informed by photogrammetry of stumps and stone conservation study. Plan would address testing and applying methods for petrified wood stabilization, and address modifying existing structures to enclose stumps (to stabilize environmental conditions and provide adequate conservation).
OIRV (natural systems)	Exotic species management plan	H	Emphasis on plants in the monument; would include consideration of animal impacts throughout the monument on plants.
OIRV (natural systems)	Fuels reduction / prescribed fire plan	H	Would support and inform updates to Florissant Fossil Beds National Monument fire management plan. Data from ongoing archeological surveys and from surveys of threatened and endangered species would also inform plan.
OIRV (continuum of human connection to land)	Historic structure preservation plan	M	For national register structure (Hornbek Homestead).
FRV (opportunities to connect to resources)	Update comprehensive interpretive plan	M	Would build on visitor use surveys and demographic studies. Long-range interpretive plan would be focus of effort.

Planning Needs – Where A Decision-Making Process Is Needed			
Related to an FRV or OIRV?	Planning Needs	Priority (H, M, L)	Notes
FRV (opportunities to connect to resources)	Visitor use management plan	M	Would incorporate information collected in demographic surveys and visitor surveys; plan should consider both public and commercial (if applicable) use. The monument has had special park use requests and is interested in defining criteria/standards to govern special park uses and/or potential commercial services.
OIRV (natural systems)	Integrated pest management plan	M	No existing plan for Florissant Fossil Beds National Monument. Plan would assist staff in making sound pest management decisions.
FRV (opportunities to connect to resources)	Sign management plan	M	Would develop comprehensive strategy for signage in the monument. Specific issues to be addressed include identification at road entrance points on county roads, NPS signage at highways and use areas, and backcountry signage.
FRV (paleontological resources; geological resources; and collaborative conservation, science and scholarship)	Resource stewardship strategy	L	The resource stewardship strategy is an analytical document focused on identifying and tracking indicators of desired conditions, recommending comprehensive strategies to achieve and maintain desired conditions over time, and assessing and updating these strategies periodically based on new information and the results of completed activities. This would provide the park with a strategy for investing both human and fiscal resources in the stewardship of resources.
FRV (opportunities to connect to resources)	Site plan for visitor use areas	L	Site plan would address picnic areas, fencing, horse-trailer, parking lot / turnarounds, pedestrian accessibility (not the visitor center). Need to address accessibility standards and coordinate with accessibility condition assessment.
FRV (geological resources; and opportunities to connect to resources)	Trail management plan	L	Need to look at trails to evaluate strategies for possible mixed use; consideration of accessibility requirements and opportunities.
FRV (opportunities to connect to resources) OIRV (continuum of human connection to land)	Cultural landscape plan	L	Informed by consultation with tribes and also by the cultural landscape inventory.
FRV (scenic resources/views) OIRV (continuum of human connection to land)	Viewshed management plan	L	Would identify critical views within and beyond the monument boundaries and include recommended steps/priorities to preserve scenery.
OIRV (continuum of human connection to land)	Structure reuse plan	L	Would apply to both historic and nonhistoric assets. Would evaluate alternative long-term uses of selected structures to determine potential for accommodating monument operational, maintenance, and storage needs.

## Part 3: Contributors

### Florissant Fossil Beds National Monument

Michelle Wheatley, Superintendent

Rick Wilson, Chief Ranger

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Justin Doyle, Protection Ranger

Mike McClain, Maintenance Worker

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# Appendixes

## Appendix A: Enabling Legislation and Legislative Acts for Florissant Fossil Beds National Monument

### Calendar No. 253

91st CONGRESS } <i>1st Session</i>	SENATE	{	REPORT No. 91-263
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#### ESTABLISHING THE FLORISSANT FOSSIL BEDS NATIONAL MONUMENT

JUNE 19, 1969.—Ordered to be printed

Mr. ALLOTT, from the Committee on Interior and Insular Affairs, submitted the following

#### REPORT

[To accompany S. 912]

The Committee on Interior and Insular Affairs, to which was referred the bill (S. 912) establishing the Florissant Fossil Beds National Monument, in the State of Colorado, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

Open public hearings were held on the measure in Colorado Springs, Colo., and no opposition to the measure was heard. The Subcommittee on Parks and Recreation also conducted a field inspection of the monument site.

The executive agency concerned, namely, the Department of Interior, recommends enactment of the bill with amendments.

Committee action in ordering the bill reported favorably was unanimous.

#### PURPOSE OF THE MEASURE

The purpose of the measure is to authorize the Secretary of the Interior to acquire the lands of the monument site and to provide for the protection, controlled collection, and scientific interpretation of the unique insect and leaf fossils and related objects of scientific value, preserved in the ancient Florissant lakebeds, and to provide protection for the scenic resources of the monument area.

#### DESCRIPTION

The Florissant fossil beds are located approximately 35 miles west of Colorado Springs on U.S. Highway 24, in Teller County, Colo.

The monument area, which contains 6,000 acres, covers part of the ancient lakebed of Florissant Lake. Florissant Lake, which existed some 36 to 38 million years ago, covered an area of about 12,000 acres. While most of the lakebed is outside the monument area, the areas excluded have already been subjected to incompatible commercial development.

It is, therefore, deemed essential that as a minimum, the full 6,000 acres, as provided by the bill, be acquired and preserved to maintain the integrity of the proposed monument.

#### LANDOWNERSHIP

All of the 6,000 acres of land is in private ownership, with 13 landowners. There are presently only 10 farm residences of which only two are used year round.

#### COST

The Park Service estimates the cost of acquisition to be \$1,165,000, and its planned development costs to be \$2,562,000, for a total of \$3,727,000.

#### CLIMATE AND TERRAIN

The monument area is in the bed of prehistoric Lake Florissant, whose elevation ranges from 8,200 feet to 8,800 feet. It is a high grassy valley broken with numerous groves of pine trees, with an Alpine climate.

#### GEOLOGIC HISTORY

Subsequent to the birth of the Rocky Mountains, 60 million years ago, a period of erosion ensued. By Oligocene time, 40 million years ago, the mountains in the Florissant region had been reduced generally to a broad gently rolling hill land. Volcanic eruptions covered the region with pyroclastics to a depth of 40 to 60 feet or more, and the drainage of the area was blocked, thus forming Florissant Lake. The lakeshore was mantled by many types of deciduous trees and groves of immense sequoias.

Explosive eruptions and mudflows filled the lake. The mudflows engulfed and buried the lakeshore trees, which were gradually petrified. Insects, leaves, fish, and other forms of life were carried to the lake bottom and preserved between alternating layers of volcanic ash. Guffey Volcano, 15 miles southwest, is the probable source of the volcanic material. The life cycle of the lake was perhaps only 5,000 years. Subsequent uplift and erosion have changed the surface to its present configuration.

#### GEOLOGIC RESOURCE

The ancient lakebeds of Florissant preserve more species of tenestial fossils than any other known site in the world. The insect fossils are of primary significance. Approximately 60,000 specimens of insects have been collected. They represent the evolution and modernization of insects better than any other known site in America. In addition, the fossil plants, emphasized dramatically by the petrified tree stumps and the great variety of leaf fossils, add greatly to the primary values.

## 3

Fossils of spiders, other invertebrates, fish, and birds have also been found at Florissant. In fact, more than 5,000 different life species have been found at Florissant. There is no known locality in the world where so many terrestrial species of one time have been preserved. A total of 144 plant entities or species have been found there. Thirty of these are of uncertain affinity, but the remaining 114 are identifiable with modern species. Almost all the fossil butterflies of the new world have come from this site. Even the presence of fresh water dictoms in the Florissant beds is their earliest known occurrence.

## FOSSIL COLLECTING HISTORY

The Florissant fossil beds were discovered by Dr. A. C. Peale of the Hayden surveys, and were investigated by Dr. S. H. Scudder, then the authority of fossil insects, who spent the summer of 1877 and subsequent years in the region, collecting and studying the fossils. The material he obtained was reported on by other experts of the Hayden survey organization: Scudder, the insects; Lesquereux, the fossil plants; Cope, the fossil fishes.

Princeton University collected here in 1880, and again in the early 1900's when W. B. Scott and H. F. Osborn led the expedition. They collected for the American Museum of Natural History and the British Museum.

In 1905 and 1906, the University of Colorado, aided by several other institutions, made collections. In 1909 George Sternberg, noted fossil hunter, made collections for the American Museum; and in 1912, H. F. Wickham, of the University of Iowa, collected over 90 species of butterflies. The Denver Museum of Natural History made collections in 1915 or 1916, and the University of California in 1936-37. Dr. Maurice T. James, professor of entomology at Washington State University, also collected in the 1930's.

Dr. H. D. MacGinitie, of Humboldt State College, Arcata, Calif., initiated his fieldwork here in 1936. The results of his studies appear in his monograph, "Fossil Plants of the Florissant Beds, Colorado," Carnegie Institution, of Washington D.C., (1953)—the best and most complete of all the Florissant history.

Harry N. Andrews collected in the area prior to publication of his semipopular "Ancient Plants and the World They Lived In" (1947). Dr. Paul R. Stewart, president of Waynesburg College, Waynesburg, Pa., made collections in 1951, and in subsequent years. Since then, scientists from various universities have made investigations, and innumerable other traveling scientists have undoubtedly also made brief collecting trips to the site.

## COMMERCIAL ENCOURAGEMENT

There is commercial development (mountain homes) on both the north boundary and on the south boundary of the monument site. Recent information indicates that a contract of sale has been entered into covering 1,800 acres of land included within the proposed monument and lying generally along the eastern boundary. This accounts for nearly one-third of the monument area. The proposed use is subdivision and development. In light of the imminence of this planned

## 4

incompatible development, your committee recommends early enactment.

## AMENDMENTS

The Committee on Interior and Insular Affairs considered and adopted two amendments:

The first amendment, proposed by Senator Allott, the chief sponsor of the bill, inserts the word "condemnation" between the words "donation" and "purchase" on line 8 of page 1 of the bill as introduced. The purpose of this amendment is to make it abundantly clear to all concerned, that the power of condemnation is granted to the Department of Interior and the Park Service and can be employed swiftly in the event it should become necessary to preserve the integrity of the monument. The committee expects the Park Service to maintain close surveillance on occurrences within the monument area and to take appropriate action to prevent untoward, detrimental development.

The second amendment, proposed by the Department of Interior increases the appropriation authorization in section 3 of the bill, from \$3,200,000 to \$3,727,000. The increased authorization reflects more current estimates of costs for land acquisition and development.

## COMMITTEE RECOMMENDATION

The Committee on Interior and Insular Affairs recommends enactment of S. 912, as amended.

## EXECUTIVE COMMUNICATIONS

The executive communication from the Department of the Interior dated May 26, 1969, is set forth below:

U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington, D.C. May 26, 1969.*

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

DEAR MR. CHAIRMAN: Your committee has requested this Department's views on S. 912, a bill to provide for the establishment of the Florissant Fossil Beds National Monument in the State of Colorado.

We recommend the enactment of the bill with amendments.

The bill authorizes the Secretary of the Interior to acquire by donation, purchase with donated or appropriated funds, or exchange not in excess of 6,000 acres of land within an area depicted on a map numbered NM-FFB-7100, and dated March 1967, for the purpose of establishing the monument. The property would be administered in accordance with the authority contained in the act of August 25, 1916 (16 U.S.C. 1, 2-4), as amended and supplemented.

The purpose of S. 912 is to preserve and interpret insect and leaf fossils and related geologic sites and objects at the Florissant lakebeds for the benefit of present and future generations.

We recommend the following amendments:

1. Delete lines 7 through 17 on page 2.

The last paragraph of section 1 of the bill would authorize the Secretary to acquire land within the proposed monument by exchange. Section 5(b) of the act of July 15, 1968 (82 Stat. 354, 356), gives the Secretary general exchange authority within units of the national park system. This authority would be available, if the bill is enacted; therefore, the exchange authority contained in the bill is not necessary.

2. On page 3, line 1, delete "\$3,200,000", and insert, in lieu thereof, "\$3,727,000".

In January of this year, we estimated the cost of acquiring the 6,000 acres to be \$1,165,000 all of which is expected to be expended in the first year. Total development costs are expected to be \$2,562,000, of which \$2,467,000 will be expended by the fifth year after operation. Operating costs are expected to reach \$114,393 by the fifth year.

The required man-year and cost-data statement is enclosed.

The Bureau of the Budget has advised that while there is no objection to the presentation of this report, the Bureau will express its views in a separate report which it is submitting to the committee.

Sincerely yours,

RUSSELL E. TRAIN,  
*Under Secretary of the Interior.*

ESTIMATED ADDITIONAL MAN-YEARS OF CIVILIAN EMPLOYMENT AND EXPENDITURES FOR THE 1ST 5 YEARS OF PROPOSED NEW OR EXPANDED PROGRAMS

	19CY	19CY+1	19CY+2	19CY+3	19CY+4
<b>Estimated additional man-years of civilian employment:</b>					
<b>Executive direction:</b>					
Superintendent.....	1.0	1.0	1.0	1.0	1.0
Administrative aid.....				1.0	1.0
Clerk stenographer.....	1.0	1.0	1.0	1.0	1.0
<b>Total, executive direction.....</b>	<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>3.0</b>	<b>3.0</b>
<b>Substantive:</b>					
Chief, interpretation and protection.....		1.0	1.0	1.0	1.0
Paleontologist.....	1.0	1.0	1.0	1.0	1.0
Park naturalist.....			1.0	1.0	1.0
Caretaker.....					1.0
Foreman.....			1.0	1.0	1.0
Naturalist (seasonal).....	.5	.5	.5	1.0	1.0
Ranger (seasonal).....				.5	.5
Truck driver (seasonal).....				.5	.5
Laborer (seasonal).....	.5	.5	1.0	1.0	1.5
<b>Total, substantive.....</b>	<b>2.0</b>	<b>3.0</b>	<b>5.5</b>	<b>7.0</b>	<b>8.5</b>
<b>Total, estimated additional man-years civilian employment.....</b>	<b>4.0</b>	<b>5.0</b>	<b>7.5</b>	<b>10.0</b>	<b>11.5</b>
<b>Estimated additional expenditures:</b>					
Personal services.....	\$33,500	\$42,800	\$60,600	\$75,500	\$83,600
All other.....	390,400	1,354,750	904,500	620,400	250,800
<b>Total.....</b>	<b>423,900</b>	<b>1,397,550</b>	<b>965,100</b>	<b>695,900</b>	<b>334,400</b>
<b>Estimated obligations:</b>					
Land and property acquisition.....	1,165,000				
Development.....	75,000	1,093,000	784,000	195,000	320,000
Operations (management, protection, and maintenance).....	42,900	54,550	81,100	100,900	114,400
<b>Total.....</b>	<b>1,282,900</b>	<b>1,147,550</b>	<b>865,100</b>	<b>295,900</b>	<b>434,400</b>



91ST CONGRESS } HOUSE OF REPRESENTATIVES { REPORT  
 1st Session } { No. 91-411

PROVIDING FOR THE ESTABLISHMENT OF THE FLO-  
 RISSANT FOSSIL BEDS NATIONAL MONUMENT IN THE  
 STATE OF COLORADO

JULY 31, 1969.—Committed to the Committee of the Whole House on the State  
 of the Union and ordered to be printed

Mr. TAYLOR, from the Committee on Interior and Insular Affairs,  
 submitted the following

REPORT

[To accompany S. 912]

The Committee on Interior and Insular Affairs, to whom was re-  
 ferred the bill (S. 912) to provide for the establishment of the Flo-  
 rissant Fossil Beds National Monument in the State of Colorado,  
 having considered the same, report favorably thereon with amendment  
 and recommend that the bill do pass.

The amendment is as follows:

Strike all after the enacting clause and insert in lieu thereof the  
 following language:

That, in order preserve and interpret for the benefit and enjoyment of present  
 and future generations the excellently preserved insect and leaf fossils and  
 related geologic sites and objects at the Florissant lakebeds, the Secretary of  
 the Interior may acquire by donation, purchase with donated or appropriated  
 funds, or exchange such land and interests in land in Teller County, Colorado,  
 as he may designate from the lands shown on the map entitled "Proposed Flo-  
 rissant Fossil Beds National Monument," numbered NM-FFB-7100, and dated  
 March 1967, and more particularly described by metes and bounds in an attach-  
 ment to that map, not exceeding, however, six thousand acres thereof, for the  
 purpose of establishing the Florissant Fossil Beds National Monument.

SEC. 2. The Secretary of the Interior shall administer the property acquired  
 pursuant to section 1 of this Act as the Florissant Fossil Beds National Monu-  
 ment in accordance with the Act entitled "An Act to establish a National Park  
 Service, and for other purposes," approved August 25, 1916 (39 Stat. 535; 16  
 U.S.C. 1 et seq.), as amended and supplemented.

SEC. 3. There are authorized to be appropriated such sums, but not more than  
 \$3,727,000, as may be necessary for the acquisition of lands and interests in land  
 for the Florissant Fossil Beds National Monument and for necessary develop-  
 ment expenses in connection therewith.

## 2

## PURPOSE

The purpose of S. 912, as amended, is to provide for the protection, controlled collection, and interpretation of insect and leaf fossils and related objects of scientific value which have been preserved in the ancient Florissant lakebeds in Teller County, Colo. Companion legislation (H.R. 6223 and H.R. 5953) was introduced by Representative Frank Evans, in whose district the area is located, and by his Colorado colleague, Representative Donald Brotzman.

## HISTORY OF THE LEGISLATION

During the 90th Congress, the Committee on Interior and Insular Affairs considered H.R. 5605 at length and favorably reported a measure—which involved less acreage than the present proposal—to the House for its consideration. On January 24, 1968, that legislation was approved by the House, but the Congress adjourned before further attention was given to the matter. This year the committee has again conducted public hearings and reviewed the proposal in depth and it has concluded that the values of the area are worthy of inclusion in the national park system.

## LOCATION AND DESCRIPTION OF THE AREA

The area involved in S. 912 is located in one of the high ridge counties of Colorado just about 35 miles west of Colorado Springs. Here, about 40 million years ago, volcanic eruptions resulted in the formation of the Florissant Lake. Captured and preserved in the thin shales of the lakebed are thousands of fragile, fossilized insects, leaves, and other forms of life which are completely absent or rare at most fossil sites. Experts advised the committee that this area represents the richest fossil deposit of its kind in this hemisphere and the area is recognized as the second most important one in the world.

Not only is this area rich in its abundance and variety of fossilized insects and leaves, but it is of immeasurable scientific significance because of the state of their preservation in terms of color, form, and other details.

Many studies have been made in the area by prominent scientists, institutions and organizations. One witness before the committee, Dr. Frank M. Carpenter, professor of entomology and curator of the fossil insect collection at Harvard University, told the committee that he has been doing scientific studies on the Florissant insects for 42 years. Institutions such as the American Museum of Natural History, the British Museum, the Carnegie Institution of Washington, the Denver Museum of Natural History, Princeton University, and the University of Colorado have examined some parts of the area.

Needless to say, nothing could be more destructive of the values of this area than the uncontrolled, indiscriminate disruption of the surface. The fragile fossils are trapped in alternating layers of volcanic ash and paper-thin layers of shale. Once exposed to the elements, without proper care and attention, they deteriorate rapidly and, naturally, lose all scientific value.

**3****NEED**

For thousands of centuries, these tiny remnants of antiquity have survived without any special governmental protection. Even since the discovery of this ancient lakebed about 100 years ago, collectors have visited the area without causing wanton destruction of the values. On the contrary, although some 60,000 specimens representing approximately 1,000 different species of life are known to have been collected, most of the ancient lakebeds remain relatively undisturbed and unexposed; hence, its actual values remain largely intact, but unknown.

No other area in the national park system contains the values proposed to be protected by the terms of S. 912. The Dinosaur National Monument, the Petrified Forest National Park, and the Agate Fossil Beds National Monument have other distinctive scientific and geologic values which are not duplicated at the Florissant site. The delicate specimens of plants, insects, and small animals which are so bountiful in the Florissant lakebeds are not commonly found at any of these locations.

To assure that a significant portion of this resource remains available for future scientific exploration, S. 912, as recommended by the committee, would establish a national monument comprising 6,000 acres of the lakebeds and adjacent shoreline areas. Although the Florissant lakebeds involve approximately 12,000 acres, an area of 6,000 acres should be adequate to assure ample opportunities for continued scientific exploration of these unique resources. Under proper administrative control, the committee expects scientific exploration by experts and students to continue, but the haphazard collection and removal of specimens by interested, but untrained, amateurs will necessarily be halted within the monument boundaries. Benefits for the layman will be derived from exposure to the scientific collection of the fossils, from the interpretive facilities to be constructed and from the in-place displays, self-guiding trails, and wayside exhibits that will be developed to present the geologic history of the area.

All of the lands involved are presently privately owned. In the past, they have been used primarily for grazing. The continued use of the area for this purpose is not necessarily incompatible with the proposed monument and the Secretary of the Interior should, to the extent practicable and consistent with the objectives of S. 912, utilize the authority available to him to permit grazing to continue.

While passive, nondisruptive activities will probably cause no harm to the buried specimens, more aggressive activities could cause immeasurable damage. One bulldozer can easily destroy in a matter of a few days that which nature has preserved and protected for millions of years. There is some evidence that the destruction of a significant portion of this proposed national monument is imminent notwithstanding the obvious public interest and demonstrated congressional interest in protecting this area. The flagrant disregard of the public interest should not be tolerated when no appreciable, permanent harm will be sustained by a temporary delay until a final decision can be made. The public should not be compelled to suffer at the hands of a merciless exploiter.

In light of the unique and superlative quality of the natural values found in the Florissant lakebeds, the Advisory Board on National Parks, Historic Sites, Buildings and Monuments endorsed the establishment of a monument in this area in 1962 and again in 1965. It has the support of the local community and it has the endorsement of the Board of County Commissioners of Teller County. Numerous organizations such as the American Institute of Professional Geologists, the American Museum of Natural History, and experts from Smithsonian Institution, as well as spokesmen for many conservation organizations have indicated their support for this authorizing legislation.

#### COMMITTEE AMENDMENT

The committee amendment to S. 912 strikes everything after the enacting clause and inserts the provisions of H.R. 6223, as amended by the committee. In substance, the bills are essentially the same. A comparison, however, indicates the following differences between S. 912, as approved by the other body, and S. 912, as reported by the committee:

First, the two bills are different in form at the outset, but the objectives are the same, viz to protect and preserve the fossil resources by adequately controlling their collection in the interest of science and to present them to the public in a manner that will enable the laymen to understand their significance.

Second, the Senate-approved bill explicitly provides for "condemnation" of lands. Since the power of eminent domain is included by general law in the authority to acquire lands with donated or appropriated funds, its reiteration adds no new authority and is not necessary for the purposes of this legislation. The express reference to condemnation has therefore been eliminated by the committee.

Third, a typographical error is corrected in the reference to the title of the map.

Fourth, paragraph 2 of section 1 is deleted in the bill as recommended by the committee, because it is unnecessary in light of the legislation enacted during the 90th Congress (82 Stat. 354), which grants the Secretary general authority to make exchanges.

#### COST

The estimated cost of acquiring the 6,000 acres of land included in the national monument are not expected to exceed \$1,165,000, and development costs are expected to be \$2,562,000. The appropriation authorized by the committee has, accordingly, been limited to \$3,727,000. This represents an increase over the recommendation approved by the House during the 90th Congress because the cost estimates are more current and because the amount of acreage to be acquired is more extensive. The committee recognizes that activities are currently taking place in the area which might affect the values and costs of acquiring the lands involved. In the event that it appears evident that any tract of land will grossly exceed the current estimated costs of acquisition, the committee expects to be consulted before any funds are obligated for its acquisition.

## COMMITTEE RECOMMENDATION

The Committee on Interior and Insular Affairs recommends the enactment of S. 912 as amended.

## DEPARTMENTAL REPORT

The favorable report of the Department of the Interior follows:

U.S. DEPARTMENT OF THE INTERIOR,  
OFFICE OF THE SECRETARY,  
*Washington, D.C., June 4, 1969.*

HON. WAYNE N. ASPINALL,  
*Chairman, Committee on Interior and Insular Affairs,  
House of Representatives,  
Washington, D.C.*

DEAR MR. CHAIRMAN: Your committee has requested this Department's views on H.R. 5953, a bill to provide for the establishment of the Florissant Fossil Beds National Monument in the State of Colorado. This report covers a similar bill, H.R. 6223.

We recommend the enactment of the bill with amendments.

The bill authorizes the Secretary of the Interior to acquire by donation, purchase with donated or appropriated funds, or exchange not in excess of 6,000 acres of land within an area depicted on a map No. NM-FFB-7100, and dated March 1967, for the purpose of establishing the monument. The property would be administered in accordance with the authority contained in the act of August 25, 1916 (16 U.S.C. 1, 2-4), as amended and supplemented.

The purpose of H.R. 5953 is to preserve and interpret insect and leaf fossils and related geologic sites and objects at the Florissant lakebeds for the benefit of present and future generations.

We recommend the following amendments:

1. Delete lines 6 through 15 on page 2.

The last paragraph of section 1 of the bill would authorize the Secretary to acquire land within the proposed monument by exchange. Section 5(b) of the act of July 15, 1968 (82 Stat. 354, 356), gives the Secretary general exchange authority within units of the national park system. This authority would be available, if the bill is enacted; therefore, the exchange authority contained in the bill is not necessary.

2. On page 3, line 1, delete "\$3,200,000", and insert, in lieu thereof, "\$3,727,000".

In January of this year, we estimated the cost of acquiring the 6,000 acres to be \$1,165,000 all of which is expected to be expended in the first year. Total development costs are expected to be \$2,562,000, of which \$2,467,000 will be expended by the fifth year after operation. Operating costs are expected to reach \$114,393 by the fifth year.

The required man-year and cost-data statement is enclosed.

The Bureau of the Budget has advised that while there is no objection to the presentation of this report, the Bureau will express its views in a separate report which it is submitting to the committee.

Sincerely yours,

RUSSELL E. TRAIN,  
*Undersecretary of the Interior.*

Enclosure.

H. Rept. 91-411

6

ESTIMATED ADDITIONAL MAN-YEARS OF CIVILIAN EMPLOYMENT AND EXPENDITURES FOR THE 1ST 5 YEARS OF PROPOSED NEW OR EXPANDED PROGRAMS

	19CY	19CY+1	19CY+2	19CY+3	19CY+4
Estimated additional man-years of civilian employment:					
Executive direction:					
Superintendent.....	1.0	1.0	1.0	1.0	1.0
Administrative aid.....				1.0	1.0
Clerk-stenographer.....	1.0	1.0	1.0	1.0	1.0
Total, executive direction.....	2.0	2.0	2.0	3.0	3.0
Substantive:					
Chief, interpretation and protection.....		1.0	1.0	1.0	1.0
Paleontologist.....	1.0	1.0	1.0	1.0	1.0
Park naturalist.....			1.0	1.0	1.0
Caretaker.....					1.0
Foreman.....			1.0	1.0	1.0
Naturalist (seasonal).....	.5	.5	.5	1.0	1.0
Ranger (seasonal).....				.5	.5
Truckdriver (seasonal).....				.5	.5
Laborer (seasonal).....	.5	.5	1.0	1.0	1.5
Total, substantive.....	2.0	3.0	5.5	7.0	8.5
Total, estimated additional man-years civilian employment.....	4.0	5.0	7.5	10.0	11.5
Estimated additional expenditures:					
Personal services.....	\$33,500	\$42,800	\$60,600	\$75,500	\$83,600
All other.....	390,400	1,354,750	904,500	620,400	250,800
Total.....	423,900	1,397,550	965,100	695,900	334,400
Estimated obligations:					
Land and property acquisition.....	1,165,000				
Development.....	75,000	1,093,000	784,000	195,000	320,000
Operations (management, protection, and maintenance).....	42,900	54,550	81,100	100,900	114,400
Total.....	1,282,900	1,147,550	865,100	295,900	434,400

EXECUTIVE OFFICE OF THE PRESIDENT,  
BUREAU OF THE BUDGET,  
Washington, D.C., July 3, 1969.

HON. WAYNE N. ASPINALL,  
Chairman, Committee on Interior and Insular Affairs,  
House of Representatives,  
Washington, D.C.

DEAR MR. CHAIRMAN: AS MR. Lewis Sigler of the committee's staff was advised informally, the Bureau of the Budget does not plan to submit separate views to the committee on H.R. 5953, and H.R. 6223, to provide for the establishment of the Florissant Fossil Beds National Monument in the State of Colorado.

Sincerely yours,

WILFRED H. ROMMEL,  
Assistant Director for Legislative Reference.



Public Law 91-60

AN ACT

To provide for the establishment of the Florissant Fossil Beds National Monument in the State of Colorado.

August 20, 1969  
[S. 912]

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That, in order to preserve and interpret for the benefit and enjoyment of present and future generations the excellently preserved insect and leaf fossils and related geologic sites and objects at the Florissant lakebeds, the Secretary of

Florissant  
Fossil Beds National Monument,  
Colo.  
Establishment.

the Interior may acquire by donation, purchase with donated or appropriated funds, or exchange such land and interests in land in Teller County, Colorado, as he may designate from the lands shown on the map entitled "Proposed Florissant Fossil Beds National Monument", numbered NM-FFB-7100, and dated March 1967, and more particularly described by metes and bounds in an attachment to that map, not exceeding, however, six thousand acres thereof, for the purpose of establishing the Florissant Fossil Beds National Monument.

SEC. 2. The Secretary of the Interior shall administer the property acquired pursuant to section 1 of this Act as the Florissant Fossil Beds National Monument in accordance with the Act entitled "An Act to establish a National Park Service, and for other purposes," approved August 25, 1916 (39 Stat. 535; 16 U.S.C. 1 et seq.), as amended and supplemented.

SEC. 3. There are authorized to be appropriated such sums, but not more than \$3,727,000, as may be necessary for the acquisition of lands and interests in land for the Florissant Fossil Beds National Monument and for necessary development expenses in connection therewith.

Approved August 20, 1969.

## Appendix B: Traditionally Associated Tribes

Arapaho Tribe of the Wind River Reservation, Wyoming  
Assiniboine and Sioux Tribes of the Fort Peck Reservation, Montana  
Cheyenne and Arapaho Tribes of Oklahoma Kiowa Tribe, Oklahoma  
Comanche Tribe, Oklahoma Northern Cheyenne Tribe, Montana  
Jicarilla Apache Nation, New Mexico  
Navajo Nation, Arizona, New Mexico & Utah  
Ohkay Owingeh, New Mexico (previously listed as the Pueblo of San Juan)  
Oklahoma Comanche Tribe, Oklahoma  
Oklahoma Northern Cheyenne Tribe, Oklahoma  
Montana Assiniboine and Sioux Tribes of the Fort Peck Reservation, Montana  
Pueblo of Acoma, New Mexico  
Pueblo of Cochiti, New Mexico  
Pueblo of Picuris, New Mexico  
Pueblo of San Ildefonso, New Mexico  
Pueblo of Santa Clara, New Mexico  
Pueblo of Taos, New Mexico  
Southern Ute Indian Tribe of the Southern Ute Reservation, Colorado  
Ute Indian Tribe of the Uintah & Ouray Reservation, Utah  
Ute Mountain Tribe of the Ute Mountain Reservation, Colorado, Mexico & Utah  
White Mesa Ute, Utah  
Zuni Tribe of the Zuni Reservation, New Mexico

## Appendix C: Administrative Commitments

Agreement Name	Type of Agreement	Start Date – Expiration Date	Stakeholders	Purpose	Notes
Friends of FLFO agreement	Friends group agreement between the NPS and Friends of the Florissant Fossil Beds National Monument	July 2010 – July 2015	Florissant Fossil Beds National Monument, Friends of the Florissant Fossil Beds National Monument	Provide additional financial resources and support for FLFO.	
Rocky Mountain Conservancy cooperating association agreement	Cooperative association agreement between the NPS and Rocky Mountain Conservancy	2011 – 2016 (may be renewed for an additional five years upon written agreement of the parties prior to expiration)	Rocky Mountain National Park, Florissant Fossil Beds National Monument, Rocky Mountain Conservancy	Agreement between the National Park Service and the Rocky Mountain Conservancy to work together to provide the monument visitors with these valuable interpretive and educational materials to facilitate an expanded appreciation of the national park system.	
CESU agreement (over-arching regional agreement and snapshot from 2013)	CESU – scientific research	Various – Ongoing	South Dakota School of Mines and Technology, University of Washington, University of Northern Colorado, University of Colorado, Northern Arizona University	Geological and paleontological research; archive digitization.	CESU agreements through three different regions.
Rocky Mountain Inventory & Monitoring Network charter agreement	Interpark/NPS agreement	November 2002 – Ongoing	NPS Rocky Mountain I&M Network, Florissant Fossil Beds National Monument, Glacier National Park, Grant-Kohrs Ranch Nat'l Historic Site, Little Bighorn Battlefield National Monument, Great Sand Dunes National Monument and Preserve, Rocky Mountain National Park	Natural resources inventory and monitoring to improve monument management through the greater reliance on scientific knowledge. The Inventory and Monitoring Program collects, organizes, analyzes, and synthesizes natural resource data and information, and provides the results in a variety of useful formats.	
Rocky Mountain Inventory & Monitoring vital signs monitoring plan (signed by FLFO Superintendent)	Long-term natural resources monitoring	2007 – Ongoing	See above	To monitor high-priority natural resources at FLFO.	

Agreement Name	Type of Agreement	Start Date – Expiration Date	Stakeholders	Purpose	Notes
Research permits (snapshot from 2013)	Scientific research	2013 – 2013/2014	Dr. Brooks Ellwood (Louisiana State University); Dr. Jaelyn Eberle (University of Colorado); Dr. Libby Prueher (Ecotech Institute); Sally Shelton (South Dakota School of Mines and Technology); Dr. Margret Steinhorsdottir (Stockholm University); Dr. Michael Battaglia (US Forest Service)	Geological, paleontological, and ecological research.	Typically three to four per year; managed through NPS research permitting system. WASO program contact: Bill Commins.
Interpark agreement between Rocky Mountain National Park, Florissant Fossil Beds National Monument, and Great Sand Dunes National Park (fire management agreement)	Interpark agreement	2013 – 2018	FLFO, ROMO, GRSA	The purpose of this agreement is to define the fire management responsibilities of Rocky Mountain National Park fire staff and staff from the Great Sand Dunes National Park and Preserve and Florissant Fossil Beds National Monument.	Five-year agreement signed in 2013.
Fire management agreement with the US Forest Service	Delegation of authority interagency agreement	February 2014 – Until superseded or rescinded	US Forest Service, Pike and San Isabel National Forests, FLFO, ROMO	The purpose of this agreement is to document the cooperation between the parties (US Forest Service and FLFO) to maintain fire duty officer and wildland fire suppression abilities at FLFO.	Interagency Agreement number 10-IA-11021200-041.
Delegation for fire duty officer	Delegation of authority interagency agreement	Annual	US Forest Service, Pike and San Isabel National Forests, FLFO, ROMO	Delegation of authority for qualified US Forest Service fire personnel to act as fire duty officer for any wildfire responses within FLFO.	
Annual operating plan for Park County, Colorado and Teller County, Colorado 2013	Interagency	May 2013 – Updated annually	Colorado Division of Fire Prevention and Control, South Central Region Park Co. Sheriff Board of County Commissioners, Park County, Colorado Teller Co. Sheriff Board of County Commissioners, Teller County, CO Colorado Division of Fire Prevention and Control US Forest Service US Bureau of Land Management	Standard operating procedure for cooperative interagency wildfire protection and response on all lands within the county.	Updated annually during a meeting of all involved agencies.

Agreement Name	Type of Agreement	Start Date – Expiration Date	Stakeholders	Purpose	Notes
Guard terminal agreement	Interagency	January 2011 – Ongoing until superseded	FLFO / Teller County Sheriff	Agreement for County SO to provide dispatch, CCIC/ NCIC/NLETS services to FLFO.	Teller County Sheriff's Office provides CCIC/NCIC/ NLETS services to FLFO.
Right-of-way for the 5.5 miles of county roads			Teller County Road Department		
Right-of-way for waterpipelines			Colorado Springs		
Right-of-way for Blue River pipeline			Colorado Springs		
Two right-of-way permits; one special use permit for telephone cables		January 1989 / November 1989 / 1974 – 10-years	CenturyLink		
Right-of-way for overhead power line			Intermountain Rural Electric Association / Teller County		

### Rights-of-Way

- The rights-of-way for the 5.5 miles of county roads traversing the monument were retained by Teller County and are maintained by the Teller County Road Department.
- There are two buried water pipelines serving Colorado Springs in the monument. One is the Homestake municipal waterline, traversing the monument from west to east within a 66-foot right-of-way. The second line is the Blue River Pipeline that crosses the northeast corner of the monument. A corridor within the rights-of-way is maintained by the city of Colorado Springs for patrol and maintenance.
- There are two right-of-way permits and one special use permit for buried telephone cables within the monument. The two right-of-way permits are for fiber optic transmission cables. They were issued January 2, 1989, and November 29, 1989, for 10 years, with a renewal option. The special use permit was issued in 1974, to provide buried telephone service to the administrative facilities. US West (now CenturyLink) upgraded this service in 1990.
- There is an overhead power line maintained by Intermountain Rural Electric Association along Teller County Road 1.

### Reserved Easements and Estates

- Within tract 01-108, there is a reservation for use and occupancy (Nelson) for noncommercial and residential purposes, for a term of 25 years from September 26, 1970, to September 17, 1995, or for the life of the last survivor. There is one residence and a number of outbuildings associated with the reservation.
- A right-of-way for an access road, 33 feet in width, is reserved for providing ingress and egress to land owned by Nelson outside of, but contiguous to, the monument's boundary.
- There is an easement consisting of a 60-foot right-of-way through tract 01-105 (section 25), as decided during the judgment of stipulation in the purchase of this tract in the south central portion of the monument. This right-of-way, along an existing route west of Teller County 1, must be guaranteed for residential and ranching purposes. During the purchase of Tract 01-103, a 50-foot right-of-way across the southerly part of the tract in sections 25 and 30, east of Teller County Road 1, was reserved by the seller.

## Appendix D: Management Action List

Management actions are high-priority tasks identified to be managed by the monument staff using existing funding and resources:

- Stabilize petrified tree stumps for now, and then—long-term—identify structural modifications for protection and preservation of the stumps.
- Complete geochemical analysis of volcanic ash being done by Florissant Fossil Beds National Monument staff.
- Continue hazard fuels reduction and prescribed fire treatments. Pursue compliance, planning, and implementation of a western boundary fuels treatment project.
- Explore connectivity of existing trails and dog trail.
- Expand security system for outlying resources to enhance protection.
- Work closely with Florissant Fossil Quarry to define roles and responsibilities for promoting conservation and visitor education.
- Pursue abandoned water rights; consult with NPS Water Resources Division on water rights and changes.
- Pursue NPS guidance for implementation of Paleontological Resources Preservation Act.
- Update and renew existing monument easements and rights-of-way agreements; investigate Arrowhead Road for right-of-way maintenance obligations.
- Recruit employees with applicable background and expertise (e.g., interpretive staff with geological background) and provide training when hired to maximize efficiency/effectiveness of employees.
- Education program review: Study effectiveness of messaging regarding safety, sustainability, and stewardship in the monument; better understand visitor wayfinding and improve visitor access to information.
- Update atlas pertaining to trail information to support trails management plan.
- Establish ongoing consultation with associated tribes.
- Develop Project Management Information System request for boundary fence upgrades for wildlife and general repairs (signage).
- Continue work with national planning related to Geoheritage initiative. Efforts in this area would provide opportunities for interagency partnerships and have a big impact on visitor experience.
- Follow up and address corrective actions identified in 2010 environmental audit. Ongoing audits are required every three–five years by the NPS Intermountain Region Environmental Program.
- Update Florissant Fossil Beds National Monument environmental management system plan. The initial plan was completed in 2008 and requires continual improvement/updates. The environmental management system is informed by data from environmental audits (see above bullet).
- Identify methods and strategies to stabilize environmental conditions and expand collection storage area to meet conservation guidelines; address heating, ventilation, and air-condition system failures of new LEED visitor center.
- Implement system to track visitor safety incidents to enhance overall visitor safety.

Agreement Name	Type of Agreement	Start Date – Expiration Date	Stakeholders	Purpose	Notes
Environmental assessment for fire management plan	National Environmental Policy Act compliance	February 2002 – Ongoing until superseded	FLFO	Compliance for the purpose of implementing FLFO's fire management plan and conducting fire management activities within the monument.	The 2013 interpark agreement with ROMO and GRSA provides additional operational support for the fire management plan. The monument updates the fire management plan annually.
Parkwide pile burn plan (prescribed fire plan)	Interpark agreement	January 2014 –	FLFO/ROMO, USFS, Front Range Fuel Treatment Partnership, Teller County	Planning and guidelines for elimination of fuel mitigation slash piles.	Updated by district fire management officer assigned to FLFO.
FLFO fire management plan		August 2002 – Until superseded (annual review and update)	FLFO/ROMO	Protect human life and property within and adjacent to NPS property. The fire management plan is also intended to protect and preserve natural and cultural resources within Florissant Fossil Beds National Monument.	Plan undergoes routine review and update by district fire management officer assigned to FLFO. Typically, annual updates occur to reflect changes in conditions, priorities, and policies.





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## Intermountain Region Foundation Document Recommendation Florissant Fossil Beds National Monument

December 2015

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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.

*Michelle Wheatley*

12-31-2015

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RECOMMENDED

Michelle Wheatley, Superintendent, Florissant Fossil Beds National Monument

Date

*Sue E. Masica*

1/22/16

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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.

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