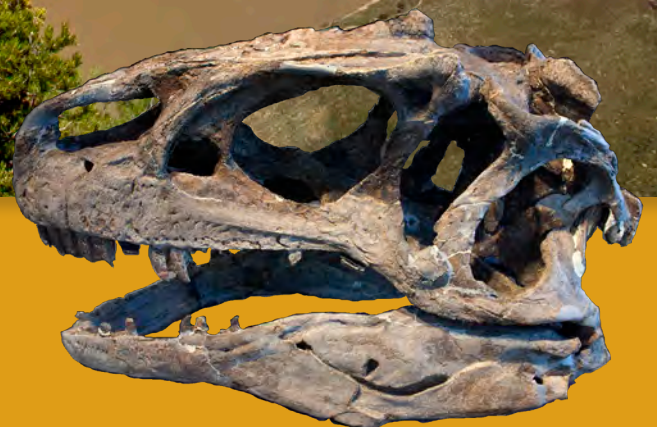


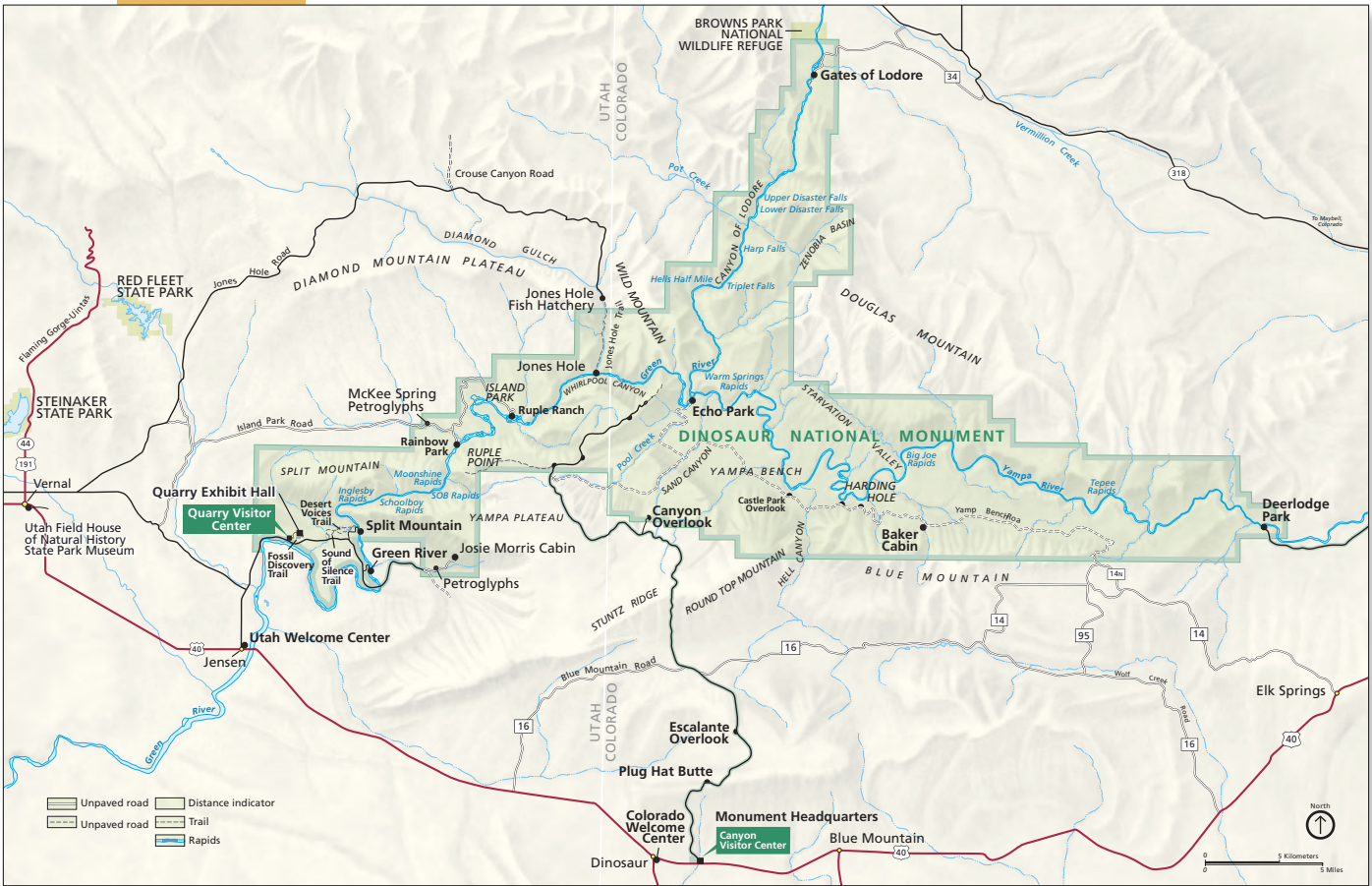


# Foundation Document Dinosaur National Monument

Utah / Colorado

July 2015





# Contents

<b>Mission of the National Park Service . . . . .</b>	<b>1</b>
<b>Introduction. . . . .</b>	<b>2</b>
<b>Part 1: Core Components . . . . .</b>	<b>3</b>
Brief Description of the Park. . . . .	3
Park Purpose . . . . .	5
Park Significance . . . . .	6
Fundamental Resources and Values . . . . .	8
Other Important Resources and Values . . . . .	10
Interpretive Themes . . . . .	11
<b>Part 2: Dynamic Components . . . . .</b>	<b>12</b>
Special Mandates and Administrative Commitments . . . . .	12
Assessment of Planning and Data Needs . . . . .	12
Analysis of Fundamental Resources and Values . . . . .	12
Analysis of Other Important Resources and Values . . . . .	31
Identification of Key Issues and Associated Planning and Data Needs . . . . .	35
Planning and Data Needs . . . . .	39
<b>Part 3: Contributors . . . . .</b>	<b>49</b>
Dinosaur National Monument. . . . .	49
NPS Intermountain Region . . . . .	49
Other NPS Staff . . . . .	49
Partners. . . . .	49
<b>Appendixes . . . . .</b>	<b>50</b>
Appendix A: Presidential Proclamations, Executive Order, and Legislative acts for Dinosaur National Monument. . . . .	50
Appendix B: Inventory of Special Mandates and Administrative Commitments . . . . .	59
Appendix C: Past and Ongoing Park Planning and Data Collection Efforts . . . . .	65
Appendix D: Notes From Public Stakeholder Meeting . . . . .	67
Appendix E: List of American Indian Tribes and Pueblos Traditionally Associated with Dinosaur National Monument . . . . .	69



## 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 Dinosaur National Monument can be accessed online at: <http://insideparkatlas.nps.gov/>.



## Part 1: Core Components

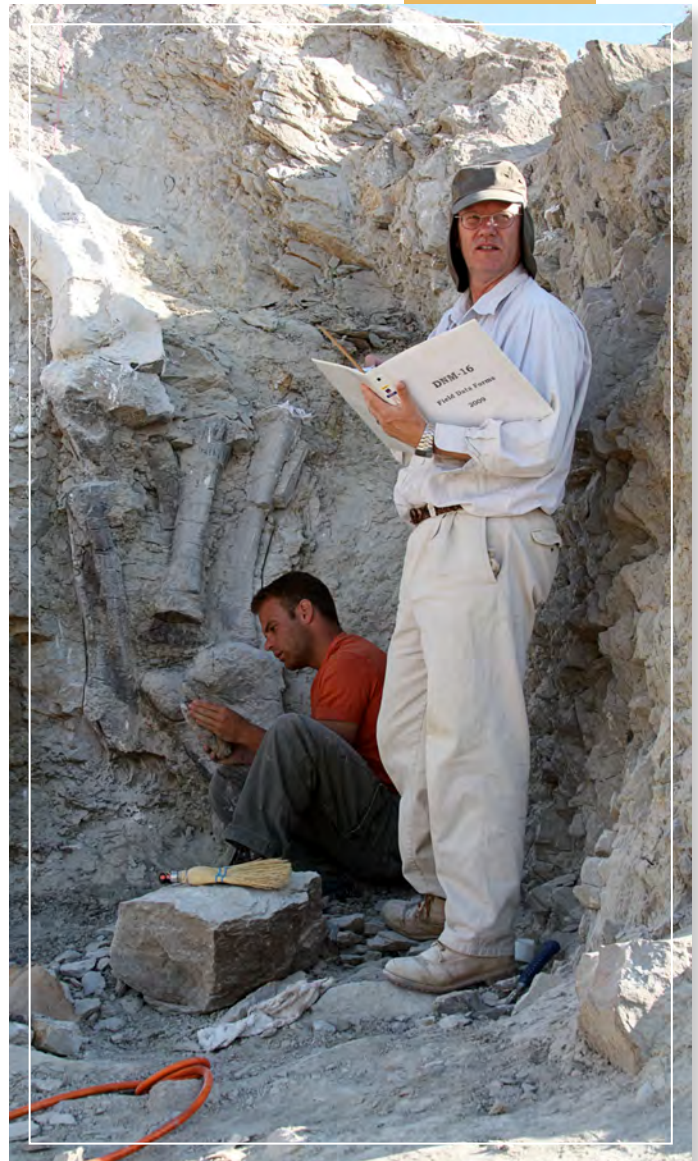
The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core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

### Brief Description of the Park

Dinosaur National Monument conserves an exemplary diversity of natural and cultural resources, as reflected by two distinct moments in the history of the establishment of the monument. In 1915, President Woodrow Wilson first established the 80-acre monument to protect the “extraordinary deposit of Dinosaurian and other gigantic reptilian remains.” Then, in 1938, President Franklin Roosevelt expanded Dinosaur National Monument an additional 200,000 acres to protect the surrounding scenic canyons of the Yampa River and Green River. Collectively, the aim of these two acts capture the essence of Dinosaur National Monument: a biologically diverse landscape of desert, mountains, and two river canyons, with an abundance of ancient fossils and past environments preserved in rock.

Dinosaur National Monument straddles the border of northeast Utah and northwest Colorado, with the original Quarry Exhibit Hall and associated fossil beds lying at the southwestern tip of the monument. The remainder of the monument is geographically centered on the confluence of the Yampa River and Green River and has a configuration that follows and protects both of these rivers upstream and downstream of their confluence for many miles.

Known to many as one of the “hidden jewels” of the national park system, the geologic and paleontological resources in the monument showcase millions of years of natural processes and associated plant and animal life. The world-renowned fossil record found in Dinosaur National Monument features thousands of high-quality specimens—particularly Jurassic period fossils. Catering to both scientific discovery and interactive visitor wonders and curiosities, the Carnegie Fossil Quarry is the marquee site at the monument. The quarry showcases over 1,500 of these paleontological resources and has shared fossil specimens with museums around the world. Similar to the robust paleontology at Dinosaur National Monument, the 1.1 billion year geologic record in the monument ranges from Precambrian times to the present. A great diversity of geologic landforms—23 exposed geologic strata—is on display, including deep canyons, faults, and folds. Impressive geologic uplifts and evidence of extreme depositional and erosional processes are visible throughout the monument in areas like Split Mountain, Mitten Park Fault, Jones Hole, Harper’s Point, and the Gates of Lodore.





The robust resources of the monument are not limited to geology and paleontology. Dinosaur National Monument also protects an exceptional biological diversity and species abundance. Much of this diversity stems from the climate and location of the monument within a regional context. The monument is located at the transition zone of multiple physiographic provinces, including the Wyoming Basin, Great Basin, central Rocky Mountains, and Colorado Plateau. This location, combined with topography and soils spanning high desert areas to riparian river valleys, gives the monument a natural palette upon which diverse life can thrive. Over 1,000 native species of plants and animals can be found within the six major vegetation communities of the monument: montane forest, montane and semi-desert woodlands, montane shrub-steppe, semi-desert shrub-steppe, desert shrublands, and riparian woodlands and wetlands. Aside from species abundance and biodiversity, the monument also protects a variety of rare, endemic, and imperiled plant and animal species, including four species of endangered fish.

Dinosaur National Monument includes four distinct river canyons that have been carved by eons of snowmelt-driven river flows from the Green and Yampa Rivers. Even more notable, the monument contains 46 miles of the lower Yampa River, the last remaining free-flowing, large river in the entire Colorado River system. In contrast, several miles upstream of the monument, the Green River is dammed and regulated at Flaming Gorge. Thus, below the confluence of the Green and Yampa Rivers, a “hybrid” river exists, consisting of input from the free-flowing Yampa and the flow-regulated Green. This living laboratory of a natural and modified river system in one park unit provides a rare opportunity for inquiry and study of river sciences.

In addition to the diversity of natural resources protected and showcased in the monument, at least 10,000 years of human heritage is represented here as well. The original human inhabitants of this area depended greatly on the water and the diversity of life found along the river canyons. Evidence of early human inhabitants is reflected in the many petroglyphs and pictographs found in the monument. This human history includes a wide variety of artifacts related to Fremont culture, including seasonal gathering sites, hunting sites, villages, and rock art. Shoshone and Ute cultures have also found these lands important to their tribes, from centuries ago to the present. In addition to preserving the heritage and artifacts of native peoples, Dinosaur National Monument also includes a diverse collection of histories and artifacts from early Spanish exploration, European and early American settlement, homesteading, and ranching, as well as other early American explorers, such as John Wesley Powell’s traversing of the monument’s rivers. Generations of private landowners and ranchers, both within and immediately adjacent to the monument, serve as important partners—reminding visitors of the rich settlement and ranching history that the monument continues to support to this day.

Dinosaur National Monument also provides a wealth of enjoyment opportunities for visitors from near and far. The diverse natural and cultural resources protected at the monument provide an abundance of experiential opportunities for visitors that range from active recreation in wild backcountry or on wild rivers to hands-on educational experiences at the many scientific exhibits or cultural sites. In addition, because the monument is relatively remote and located far from major urban areas, it also offers extensive visitor opportunities for solitude, discovery, and appreciation of unspoiled landscapes, skies, and waterways. Whether one’s preference is the wonder and curiosity of dinosaur fossil discovery, one of the most desirable river rafting destinations in the country, or a peaceful refuge for personal solitude and scenery, Dinosaur National Monument can provide it all.



## Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Dinosaur National Monument was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The monument was established by Presidential Proclamation No. 1313 on October 4, 1915, and its boundaries were greatly expanded by Presidential Proclamation No. 2290 on July 14, 1938. In addition, the Harpers Corner Road and Deerlodge Road were added as entrance roads through the Act of September 8, 1960 (PL 86-729 74 Stat 857 HR 6597) (see appendix A for enabling legislation). The purpose statement lays the foundation for understanding what is most important about the park.

The purpose statement for Dinosaur National Monument is as follows:

*DINOSAUR NATIONAL MONUMENT protects, studies, and provides access to extraordinary fossil deposits of dinosaurs and other life, a record of thousands of years of human occupation and use, and the wild and ecologically diverse landscape shaped by the Green and Yampa Rivers.*



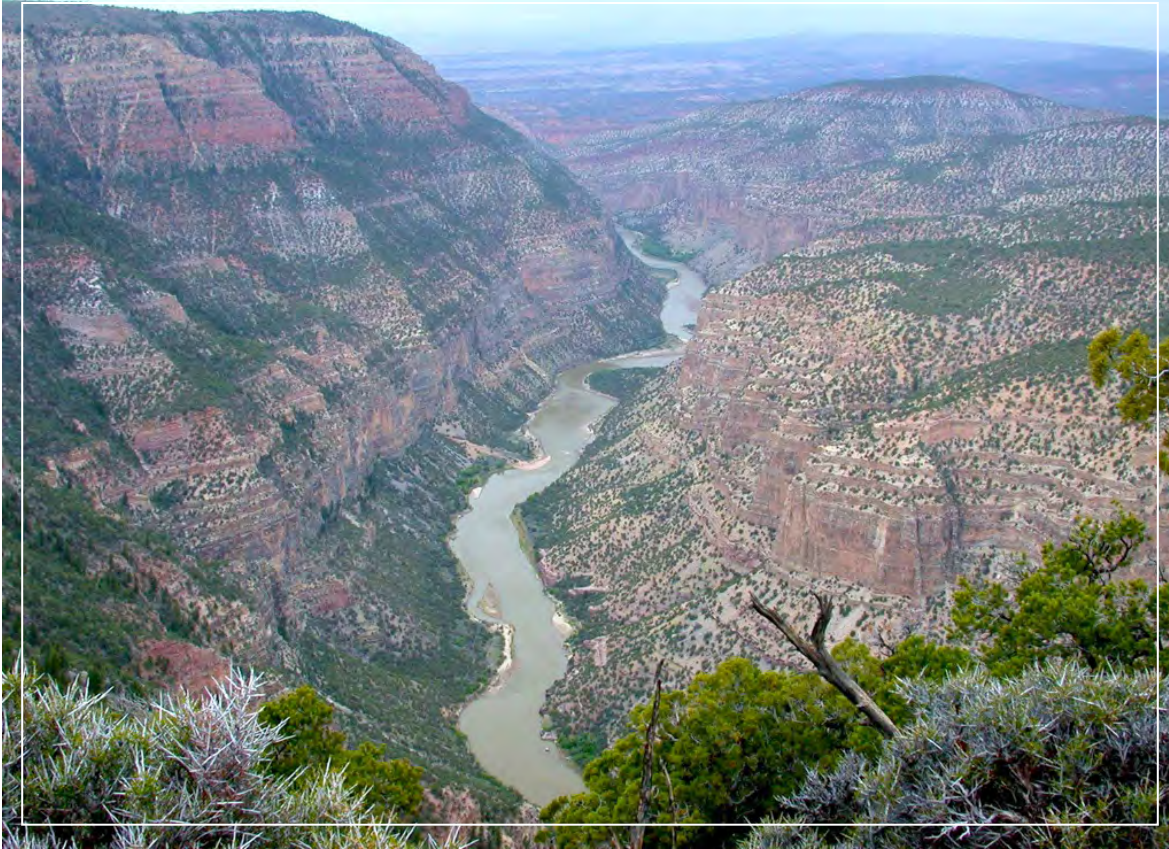
## Park Significance

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 Dinosaur 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 Dinosaur National Monument. (Please note that the sequence of the statements does not reflect the level of significance.)

1. The world famous Carnegie Quarry provides a remarkable window onto the Late Jurassic world of dinosaurs. There the National Park Service pioneered the *in situ* (in place) preservation of fossils, with 1,500 dinosaur bones available for viewing, touching, and study. This approach has served as a model for many other fossil sites around the world.
2. Dinosaur National Monument displays the most complete geological record of any national park unit. The 23 rock formations and their fossils reveal vast environmental and biological changes over 1.1 billion years of Earth history, spanning the Pre-Cambrian to Cenozoic eras. Powerful geologic forces have uplifted, eroded, and exposed these layers in spectacular faults, folds, and canyons that continue to inspire new questions for general visitors as well as for professional geologists and paleontologists.
3. The exceptionally diverse communities of plants and animals within Dinosaur National Monument result from its geographic location at the hub of five major biophysical regions, as well as the strikingly large number of geologic substrates and varied topography, ranging from river bottoms to montane peaks.
4. Over 90% of Dinosaur National Monument retains substantial wilderness character, which provides opportunities for visitors to experience solitude, natural sounds, dark night skies, wilderness whitewater recreation, wildlife viewing, and inspirational scenic vistas.





5. Dinosaur National Monument contains the lower 46 miles of the Yampa River, which is the last remaining large, free-flowing river in the entire Colorado River system. The Yampa's natural snowmelt-driven flow provides a unique whitewater rafting experience and important habitat for native and endangered Colorado River Basin fish.
6. The confluence of the Yampa and Green Rivers within Dinosaur National Monument provides outstanding opportunities to observe and study a wild river (Yampa), a flow-regulated river (Green above confluence), and a hybrid river (Green below the confluence) within the context of the Colorado River Basin. Comparing the three river reaches informs management for long-term river ecosystem health and function in the face of climate change and human population growth.
7. The proposal to dam the Green River below Echo Park in the 1950s galvanized the nation's fledgling conservation organizations into a potent political power that defended the national park idea. The resolution of this controversy empowered the conservation movement and set the stage for the Wilderness Act and establishment of the National Wilderness Preservation System.
8. Explorer John Wesley Powell set the stage for whitewater boating on the wild rivers within Dinosaur National Monument—a unique, high-quality, nonmotorized boating experience. Many historic innovations in whitewater craft design and technique were developed specifically to run the Yampa and Green Rivers in what is today Dinosaur National Monument.
9. Dinosaur National Monument is unique in preserving and protecting a complete chronology of the prehistoric Fremont Indian culture, providing excellent opportunities for research and education. This record includes over 400 documented sites, such as seasonal gathering sites, hunting sites, villages, rock art, and other associated artifacts.

## 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 Dinosaur National Monument:

- **Paleontological Resources/Fossils and the Fossil Record** – Dinosaur National Monument contains an internationally significant fossil record extending some 540 million years and includes extraordinary fossil deposits of dinosaurs and other life. Fossils range from pollen to dinosaurs and trace and body fossils of plants and animals. The Carnegie Quarry and numerous backcountry and frontcountry fossil sites provide not only remarkable experiences for fossil enthusiasts, but also contribute to new scientific discoveries in the many extinct ecosystems preserved in the geological record of the monument.
- **Carnegie Quarry** – The Carnegie Quarry is world-renowned not only for the quantity of Jurassic fossils but also for the quality of the dinosaur remains. The Carnegie Quarry features more than 1,500 dinosaur bones that are on display *in situ* and, in some areas, are available to touch. The Fossil Discovery Trail allows visitors to see fossils naturally exposed in the Carnegie Quarry sandstone layer outside the Quarry Exhibit Hall.



- **Geological Resources** – The monument is unsurpassed as an area of geologic interest, a place exhibiting geologic time, the evolution of life, and the stratigraphic history of the West. Differential erosion of geologic layers ranging from Precambrian to the present has resulted in a spectacular display of colors and landforms. Additionally, the Green and Yampa Rivers and their tributaries have carved numerous unique canyons, which include the Canyon of Lodore, Yampa Canyon, Split Mountain Canyon, Whirlpool Canyon, and Jones Hole.
- **Cultural Resources** – With more than 11,000 years of evidence of human use, the monument tells the stories of native cultures, explorers, and pioneer history.
  - *Native Cultures* – Scattered throughout the monument is evidence of prehistoric habitation at more than 400 known sites dating 6000 BC to AD 1150. Archeological and rock art remains of the Fremont culture, a native people who occupied the area from AD 450 to AD 1250, can be found nearly monumentwide. Significant sites include Cub Creek, Deluge Shelter, Marigold Cave, Mantle Cave, and Hells Midden.
  - *Early Explorers* – Many early trappers and explorers are associated with the history of the rivers and canyons within Dinosaur National Monument, including the Dominguez-Escalante expedition, William Henry Ashley, Denis Julien, William Louis Manly, the two John Wesley Powell expeditions, George Flavell, Nathaniel Galloway, and the Kolb brothers. Additional resources associated with the rich river-running history of the monument include detailed accounts by most of these early explorers, historic graffiti on canyon walls, and the Loper, a cataract-style boat.
  - *Early Homesteaders* – The monument provides insights into the region’s settlement history and legacy. Homesteads and other structures associated with settlement, ranching, and rustling exist monumentwide. These provide a standing history of the homestead era and associated topics, such as Mormon settlement and the local outlaw tradition, including such famous outlaws as Butch Cassidy and Tom Horn.
- **Scenic Vistas** – Magnificent vistas from high elevation points within the monument provide dramatic views of a remote and far-reaching landscape that includes montane peaks, high desert plateaus, entrenched canyons carved by the Yampa and Green Rivers, and expansive skies. The geology of the canyon walls themselves also exhibits invaluable scenic qualities.



- **Wilderness Character** – The monument is one of the few areas in the Intermountain West where natural biotic and abiotic processes function relatively free from human interference, and serves as an important key in maintaining the biological diversity of the region. Over 90% of the monument retains wilderness character, providing opportunities for remote solitude, dark night skies and natural sounds, unconfined and primitive nonmotorized recreation, and access to explore wild lands.
- **Biologically Diverse Landscapes** – The location of the monument and range of elevations and terrain support an incredible diversity of plants and animals. The remoteness of the monument also contributes to the preservation of natural processes that maintain ecosystem health and function. The diversity of Dinosaur National Monument includes approximately 30 rare endemic plant species associated with specific geologic substrates or microhabitats.
- **Yampa and Green River System** – Four dramatically carved river canyons on the Green and Yampa Rivers each feature major rapids and make Dinosaur National Monument one of the most desirable places to raft in the country. The Yampa and Green River System also supports recovery of endangered and declining Colorado River Basin fish species and a threatened plant species. The natural timing of sufficient river flows and an adequate sediment supply help sustain the wilderness character of the monument and the ecological integrity of the Yampa River, as well as the Green River below their confluence.
- **Scientific Study** – Dinosaur National Monument serves as a unique living outdoor laboratory that spans across paleontological, natural, and cultural resource disciplines. The diversity of habitats and the presence of three sections of rivers with different management regimes within the context of the Colorado River Basin make the monument a coveted place for scientific and academic research in the Southwest.
- **Museum Collections and Archives** – Museum collections provide valuable insight into monument history and management, scientific research, and past activities. Dinosaur National Monument continues to have responsibility for collections stored outside of the monument, some of which have been distributed throughout the world. The archival collection is extremely significant, documenting cultural and natural resource management activities from the early 1900s, preserving original land records upon which the monument was established, and retaining scientific data from studies conducted on monument resources.

## Other Important Resources and Values

Dinosaur National Monument contains other resources and values that are not fundamental to the purpose of the monument 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 monument and warrant special consideration in monument planning.

The following other important resources and values have been identified for Dinosaur National Monument:

- **Recreational Resources—Rivers** – World class white-water rafting, canoeing, and kayaking have been traditional sports in the monument since the early 1900s. Noncommercial demand for river running is ever-increasing—on average, 5,000 applicants apply for 300 high-use season river permits each year.
- **Recreational Resources—Nonboating Backcountry Recreation** – Excellent opportunities for wilderness recreation, such as hiking and horseback riding, exist in the backcountry of Dinosaur National Monument. The potential for hiking and horseback riding in the upland backcountry has yet to be fully explored.

## 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 developed for Dinosaur National Monument:

- Dinosaur National Monument’s scenic river canyons, world-class geologic resources, and biological diversity provide opportunities for people to encounter uncrowded wild landscapes and environments, understand and appreciate the complexity of ecosystems, contemplate their place in nature, and renew their sense of well-being.
- The diverse fossil resource in Dinosaur National Monument provides a touchstone to ancient ecosystems, inspiring personal discovery and reflection upon this history of life on Earth, including deep time, change, adaptation, survival, evolution, and extinction.
- The Green and Yampa Rivers serve as living laboratories in the Colorado River system to demonstrate the difference between controlled and natural-flowing rivers and their effects on ecosystems and their inhabitants. These rivers illustrate the past, present, and future struggles over how to manage life-sustaining water in the arid West.
- For thousands of years, humans found both homes and challenges in the rugged and remote landscape of Dinosaur National Monument. Abundant cultural resources and rich histories allow reflection upon the kinship between ancient and modern cultures; the exploration, continuous occupation and use of this area; and the intertwined relationships of people and their environments in their quest for survival, discovery, and adventure.
- In the 1950s, Echo Park’s wild beauty inspired and galvanized leaders in the conservation movement to defeat a proposal to build dams within Dinosaur National Monument. Their efforts not only protected the sanctity of the national park idea and marked a first step in the eventual passage of the Wilderness Act, but also continue to frame discussion over the use and stewardship of public lands.



## 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 Dinosaur National Monument.

For more information about the existing special mandates and administrative commitments for Dinosaur National Monument, please see appendix B.

### Assessment of Planning and Data Needs

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

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

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

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

### Analysis of Fundamental Resources and Values

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





Fundamental Resource or Value	Paleontological Resources / Fossils and the Fossil Record
<b>Related Significance Statements</b>	Significance statements 1 and 2.
<b>Current Conditions and Trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Fossils are found and are expected to be found throughout the entire 211,000 acres of the monument (based on known formations).</li> <li>• Approximately 10% of the monument has been inventoried for paleontological resources.</li> <li>• Half of the high priority formations have been inventoried.</li> <li>• Five hundred known localities to date.</li> <li>• Conditions range from good to poor, based on exposure; all paleontological resources are threatened.</li> <li>• Only a small portion of known sites are monitored.</li> <li>• Investigations of areas beyond the quarry didn't start until the mid-1990s, with sustained efforts only since 2008.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Research interest is increasing.</li> <li>• Each inventory increases research and educational and interpretive opportunities.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Weathering, erosion, theft, and vandalism.</li> <li>• Climate change and associated influences (e.g., increased storm frequency/intensity, increased drought and heat wave intensity/frequency) could accelerate weathering and erosion of paleontological resources.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Wealth of opportunities for partnering with Cooperative Ecosystem Studies Unit for further scientific investigations and internal stratigraphy.</li> <li>• Monumentwide paleontological inventory and monitoring of significant sites.</li> <li>• Continue to network with researchers and graduate students for pursuing research topics.</li> <li>• Multipark research potential due to shared formations and paleontological resources (i.e., Petrified Forest National Park).</li> <li>• Increase law enforcement involvement in protecting fossils.</li> </ul>

Fundamental Resource or Value	Paleontological Resources / Fossils and the Fossil Record
<p><b>Existing Data and Plans Related to the FRV</b></p>	<ul style="list-style-type: none"> <li>• Paleontological resource and research management plan (2005).</li> <li>• Two hundred fossil sites have been mentioned in the literature or field notebooks but have not been relocated and verified.</li> <li>• Inventory and monitoring (I&amp;M) plan (2005–2006).</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• Incorporate the paleontological locality database into GIS.</li> <li>• Digitize paleontological locality documentation and photos.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Update paleontological resource and research management plan.</li> <li>• Succession plan for Dan Chure (paleontologist) to mitigate the impact of his retirement on the paleontological and interpretive programs (monument wants to continue with existing monument programs and external research projects).</li> <li>• Trail management plan for the Fossil Discovery Trail (e.g., would include security, maintenance, safety, and interpretation elements).</li> <li>• Update I&amp;M paleontological plan to reflect current resources and needs.</li> <li>• Update asset management 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>• Paleontological Resources Preservation Act of 2009</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>Natural Resource Management Reference Manual 77</i></li> <li>• NPS <i>Management Policies 2006</i> (chapter 4, “Natural Resource Management”)</li> </ul>



Fundamental Resource or Value	Carnegie Quarry
Related Significance Statements	Significance statements 1 and 2.
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Quarry Exhibit Hall in good condition (rehabilitated and reopened in 2011).</li> <li>• The quarry face is fair to poor due to imbedded bentonite soils, with extensive cracking (up to 2 inches wide) that cuts across rock and bone.</li> <li>• Cracks have damaged fossils; in some cases parts of fossils have been lost.</li> <li>• Significant buildup of lint, dust, dirt, and mouse droppings since exhibit hall and quarry face was reopened.</li> <li>• Monument does not have systematic program for monitoring the quarry face.</li> <li>• Quarry face is extensively used by quarry staff and visiting scientists.</li> <li>• Two hundred thousand visitors per year; visitors have access to the cliff face.</li> <li>• Interpretive exhibits are fair, with much room for improving their relevancy with children.</li> <li>• Quarry does not completely meet Americans with Disabilities Act standards.</li> <li>• Vibrations during previous construction at quarry facilities were potentially damaging.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Limited evidence that cracking is continuing.</li> <li>• Build-up of debris has occurred since 2011 and annual spring cleaning (vacuuming) of face has been discontinued.</li> <li>• Monument is not allowed to clean quarry face using existing equipment; evidence of mouse droppings is present.</li> <li>• Rolling crane (used to clean quarry face at former facility) was not included in the rehabilitated quarry facility. The snorkel crane in new facility cannot reach the entire quarry face.</li> <li>• Increase in use of quarry face by staff and scientists.</li> <li>• Monument expects an increase in visitation and interest in quarry wall with the Dinosaur National Monument and NPS centennials, movie releases, and the rise of dinosaur interests.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Some parts of the cliff face could catastrophically fail, creating potential safety concerns for visitors and staff.</li> <li>• Health and safety concerns from mouse droppings (e.g., hanta virus).</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Monument was the first place in the world to manage <i>in situ</i> resources, but monument has never developed a plan for long-term preservation. Monument could provide a world-renowned model for other institutions with <i>in situ</i> fossils preservation.</li> <li>• Potential for monument to serve as the premier location for public education on paleontology, earth sciences, and preservation through long-distance learning, online resources, and on-site interpretation.</li> </ul>
Existing Data and Plans Related to the FRV	<ul style="list-style-type: none"> <li>• Light detection and ranging (LiDAR) scanning of quarry face (imaging problems require a rescan).</li> <li>• Physical security plan (need to implement).</li> </ul>
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>• Geo-engineering evaluation of conditions of cracks and preservation options.</li> <li>• Industrial hygienic evaluation of quarry face.</li> <li>• LiDAR rescan of quarry face.</li> <li>• Complete GIS mapping of quarry face.</li> <li>• Gather information on historically collected specimens.</li> </ul>

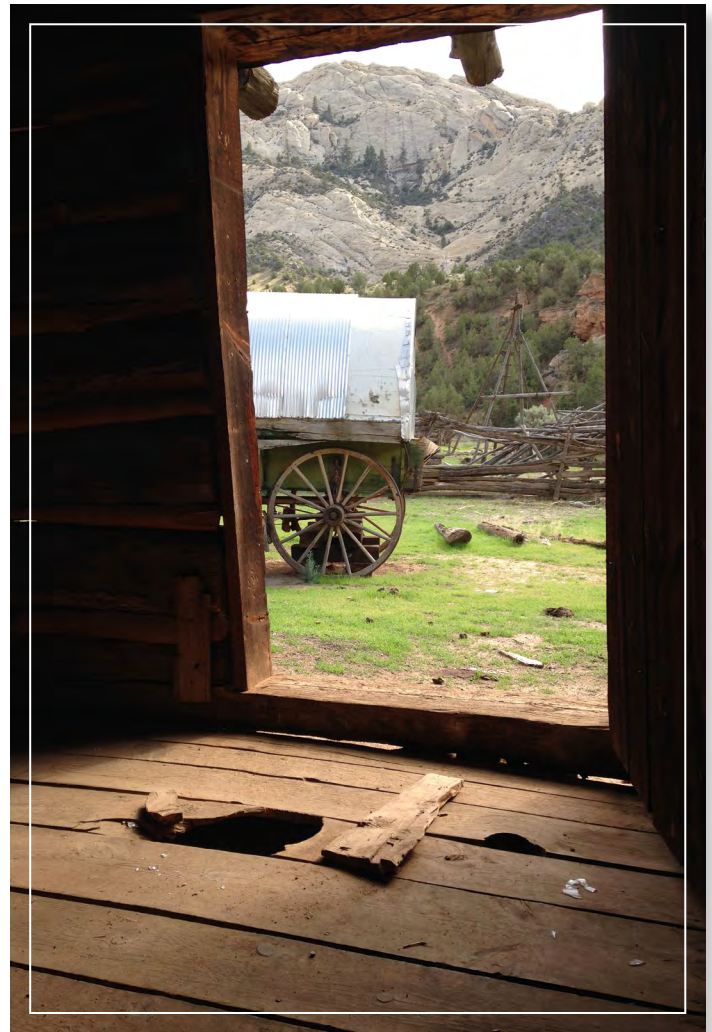
Fundamental Resource or Value	Carnegie Quarry
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Carnegie Quarry monitoring and preservation plan.</li> <li>• Self-evaluation and transition plan (accessibility plan) for the exhibits.</li> <li>• Create platform for sharing information from the quarry mapping project.</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>• Paleontological Resources Preservation Act of 2009</li> <li>• Americans with Disabilities Act of 1990</li> <li>• Architectural Barriers Act of 1968</li> <li>• “Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines” (36 CFR 1191)</li> <li>• Rehabilitation Act of 1973</li> <li>• National Park Service Concessions Management Improvement Act</li> <li>• “Concession Contracts” (36 CFR 51)</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 (chapter 5) “Cultural Resource Management”</li> <li>• NPS Management Policies 2006 (chapter 7) “Interpretation and Education”</li> <li>• NPS Management Policies 2006 (chapter 8) “Use of the Parks”</li> <li>• NPS Management Policies 2006 (chapter 9) “Park Facilities”</li> <li>• NPS Management Policies 2006 (chapter 10) “Commercial Visitor Services”</li> <li>• Director’s Order 6: Interpretation and Education</li> <li>• Director’s Order 24: NPS Museum Collections Management</li> <li>• NPS Museum Handbook</li> <li>• Director’s Order 42: Accessibility for Visitors with Disabilities in National Park Service Programs and Services</li> <li>• Director’s Order 48A: Concession Management</li> <li>• Director’s Order 48B: Commercial Use Authorizations</li> <li>• NPS Transportation Planning Guidebook</li> </ul>



Fundamental Resource or Value	Geological Resources
Related Significance Statements	Significance statement 3.
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Geologic record that is readily visible and accessible to visitors.</li> <li>• Features are well preserved in their natural state.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Generally stable but susceptible to natural erosion.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Regulated water flows can potentially alter natural scouring and erosion processes, as well as other aspects of river morphology.</li> <li>• Geologic hazards related to natural weathering and erosion.</li> <li>• Potential threat from seismic exploration and vibrations and fracking.</li> <li>• Climate change and associated influences (e.g., increased storm frequency/intensity, increased drought and heat wave frequency/intensity) could accelerate weathering and erosion of geologic resources.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Continue scientific research and education on extinct ecosystems and geologic structures.</li> <li>• Continue to encourage using the monument for field study for educational institutions.</li> </ul>
Existing Data and Plans Related to the FRV	<ul style="list-style-type: none"> <li>• Comprehensive soil survey of uplands ecosystem.</li> </ul>
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>• Scientific study to correlate the 23 rock formations within the monument with documented paleontological environments, internal geology, stratigraphy and mapping, and further correlation with these formations elsewhere in the region.</li> <li>• Assessment of actions the monument needs to take to protect these features.</li> <li>• Comprehensive study of the cave and karst resources within the monument (39% of the monument—13 of the 23 geological formations—contain karst producing rocks).</li> <li>• Mapping of geohazard areas in relation to areas of visitor use (e.g., rockfall along canyon corridors, near petroglyph panels, trails, etc.).</li> </ul>
Planning Needs	<ul style="list-style-type: none"> <li>• Cave and karst management plan.</li> <li>• Safety plan for known geologic hazards.</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>• National Environmental Policy Act of 1969; 42 USC 4321</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>Natural Resource Management Reference Manual 77</i></li> <li>• NPS <i>Management Policies 2006</i> (chapter 4, “Natural Resource Management”)</li> </ul>

Fundamental Resource or Value	Cultural Resources
<b>Related Significance Statements</b>	Significance statements 8 and 9.
<b>Current Conditions and Trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Six hundred twenty-nine cultural sites occur within the monument, ranging from good to poor condition.</li> <li>• Fremont sites range from good condition to poor condition.</li> <li>• Some rock art panels have been vandalized (particularly at more easily accessible sites in the frontcountry).</li> <li>• Most cabins, dugouts, and historic fences are degraded.</li> <li>• As of 2015, approximately 10% of the monument has been officially surveyed.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Homestead cabins throughout the monument are gradually deteriorating.</li> <li>• Only critical systems receive funding, including roofs and exterior envelopes of cabin sites.</li> <li>• Vandalism will continue at more easily accessible sites in the frontcountry.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Increasing population growth, including a more “transient” workforce, some of whom are showing less regard for monument resources (e.g., theft, vandalism).</li> <li>• Growing off-highway vehicle use on adjacent lands and trespassing in the monument.</li> <li>• Buildings around Josie’s Cabin are structurally unsound and pose a potential threat to visitor safety.</li> <li>• Dugout at Pool Creek is structurally unsound and poses a potential threat to visitor safety.</li> <li>• Climate change and associated influences (e.g., increased storm frequency/intensity, increased drought and heat wave frequency/intensity) could accelerate weathering and erosion of cultural resources.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Heightened interest in the cultural sites and need for wayside exhibits.</li> <li>• Some potential partners may be interested in assisting with interpretation, monitoring, and stabilization of cultural resources.</li> <li>• Cabin at Lodore could potentially be restored and used as a river history museum.</li> </ul>
<b>Existing Data and Plans Related to the FRV</b>	<ul style="list-style-type: none"> <li>• List of Classified Structures (2014).</li> <li>• Cultural landscape inventory for Rial Chew Ranch Complex.</li> <li>• List of known archeological sites.</li> </ul>
<b>Data and/or GIS Needs</b>	<ul style="list-style-type: none"> <li>• Spatial (GIS) information for tracking locations and establishing monitoring conditions and priorities.</li> <li>• Oral histories of ranchers and homesteaders.</li> <li>• Ethnographic overview and assessment.</li> <li>• Cultural landscape inventories for all potentially eligible cultural landscapes within the monument boundary.</li> </ul>
<b>Planning Needs</b>	<ul style="list-style-type: none"> <li>• Monitoring plan for known archeological sites.</li> <li>• Cultural resource management plan to prioritize protection and stabilization.</li> <li>• Cultural landscape reports for all eligible cultural landscapes to provide treatment guidance for landscapes (e.g., Quarry Visitor Center, Ruple Ranch, and Yampa and Green River Valleys).</li> </ul>

Fundamental Resource or Value	Cultural Resources
<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>• 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>• "Protection of Historic Properties" (36 CFR 800)</li> <li>• "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79)</li> <li>• Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources"</li> <li>• National Historic Preservation Act of 1966, as amended (16 USC 470)</li> <li>• Department of the Interior Policy on Consultation with Indian Tribes</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 28: <i>Cultural Resource Management</i></li> <li>• Director's Order 28A: <i>Archeology</i></li> <li>• NPS <i>Management Policies 2006</i> (chapter 5, "Cultural Resource Management," and chapter 4, "Natural Resource Management")</li> <li>• Historic preservation guidelines and standards</li> </ul>



Fundamental Resource or Value	Scenic Vistas
<b>Related Significance Statements</b>	Significance statement 5.
<b>Current Conditions and Trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Vistas are sometimes obscured by pollution-caused haze.</li> <li>• Some of darkest night skies in the United States.</li> <li>• Noticeable light sources in the monument vicinity are from the Uinta Basin and Rangely areas.</li> <li>• For visibility, the current condition warrants moderate concern at 2.7 deciviews above estimated natural conditions compared to the NPS Air Quality Division's &lt;2 deciview benchmark for good condition.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Elevated wintertime ozone levels have increased in recent years and have affected visibility at times. (As of 2015, visibility monitors are too far from the monument to provide "declining" or "improving" trend information.)</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Winter inversions exacerbate air quality problems from oil and gas activities in Uinta Basin (i.e., ozone and particulates).</li> <li>• Air quality is adversely affected during fire season due to air pooling in Uinta Basin and in general from oil and gas power plant emissions.</li> <li>• Light pollution from development associated with oil and gas industry on west side of the monument.</li> <li>• Visual development of lands exterior to the monument's boundaries but within scenic vista viewsheds.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Retrofit monument facilities with night-friendly lighting.</li> <li>• Provide education and outreach regarding monument's outstanding night skies as well as air and light pollution impacts.</li> <li>• Conduct additional air quality monitoring (e.g., in partnership with states for dust and particulates monitoring).</li> <li>• Work cooperatively with federal and state air quality agencies and local stakeholders to reduce air quality impacts from oil and gas development.</li> </ul>
<b>Existing Data and Plans Related to the FRV</b>	<ul style="list-style-type: none"> <li>• The NPS Air Resources Division tracks air quality measures in the monument including ozone, deposition, and visibility using data from local and regional monitoring stations.</li> <li>• State of Utah operates an ozone monitoring station in the Green River district. There are also stations at Lay, Colorado, and Colorado Northwestern Community College in Rangely, Colorado.</li> <li>• NPS Night Skies program data.</li> </ul>
<b>Data and/or GIS Needs</b>	<ul style="list-style-type: none"> <li>• Technical assistance to understand laws and policies regarding scenic easements and determining the monument's legal authority for using scenic easements.</li> <li>• Visual resource inventory.</li> <li>• Monumentwide inventory of facility lighting.</li> <li>• Additional air quality monitoring, in partnership with states.</li> <li>• Determination for whether or not the monument can qualify as an International Dark Sky monument.</li> </ul>
<b>Planning Needs</b>	<ul style="list-style-type: none"> <li>• Upland landscape management plan.</li> </ul>



Fundamental Resource or Value	Scenic Vistas
<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>• Clean Air Act of 1977 (42 USC 7401 et seq.)</li> <li>• National Historic Preservation Act of 1966, as amended (16 USC 470)</li> <li>• Americans with Disabilities Act of 1990</li> <li>• Executive Order 11514, "Protection and Enhancement of Environmental Quality"</li> <li>• Executive Order 13007, "Indian Sacred Sites"</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>• <i>NPS Management Policies 2006</i> <ul style="list-style-type: none"> <li>• Sections 1.4, 1.6, 3.1, 4.4, and 4.7 call for the National Park Service to conserve and protect scenery, scenic vistas, and air quality</li> </ul> </li> </ul>



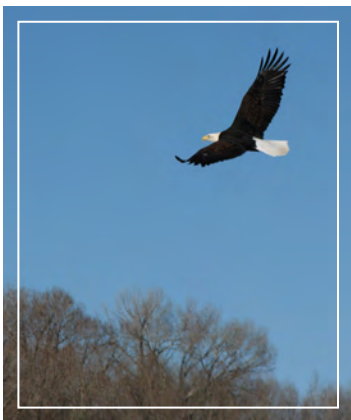
Fundamental Resource or Value	Wilderness Character
<p><b>Related Significance Statements</b></p>	<p>Significance statement 5.</p>
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• The monument manages 205,672 acres of recommended wilderness and an additional 5,055 acres of potential wilderness, established by the 1978 NPS wilderness recommendations to Congress.</li> <li>• Natural quality: good.</li> <li>• Untrammeled quality: fair.</li> <li>• Undeveloped quality: good.</li> <li>• Outstanding opportunities for solitude or a primitive and unconfined type of recreation quality: excellent.</li> <li>• Other quality: good to excellent.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• River recreation includes majority of backcountry users, but there are likely to be more nonriver backcountry visitors in future (e.g., hiking).</li> </ul>
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Natural quality: Primary threat is cheatgrass in upland areas, which alters fire regimes and native plant community dynamics. Primary threats in river corridors are water diversions and nonnative species (e.g., Russian knapweed, nonnative fish).</li> <li>• Untrammeled quality: livestock grazing, invasive weed management, wildland fire management activities, recreational uses—including river recreation, artificial light, noise.</li> <li>• Undeveloped quality: Yampa Bench Road bisects recommended wilderness areas; developments within inholdings (e.g., developments associated with ranching activities, such as fences and water developments).</li> <li>• Outstanding opportunities for solitude or a primitive and unconfined type of recreation quality: increased visitor use (e.g., trespass off-highway vehicle use, especially north of Yampa River canyon and adjacent to monument boundaries).</li> <li>• Other quality: vandalism, poaching (both artifacts and wildlife), air quality (e.g., scenic vistas), natural damage to rock art and fossils.</li> <li>• Air pollution periodically impacts visibility.</li> <li>• Climate change and associated influences (e.g., increased storm frequency/intensity, increased drought, increased wildfire frequency/intensity) could alter natural processes and ecological communities that comprise wilderness character.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Educate monument staff and visitors about wilderness values through social media.</li> <li>• Integrate wilderness management more thoroughly into all monument operations that affect wilderness character.</li> <li>• Partnership opportunities with surrounding Bureau of Land Management (BLM) field offices.</li> </ul>
<p><b>Existing Data and Plans Related to the FRV</b></p>	<ul style="list-style-type: none"> <li>• Wilderness recommendation (1978).</li> <li>• <i>Dinosaur Recommended Wilderness: Building Blocks for Wilderness Character (2012)</i>.</li> </ul>

Fundamental Resource or Value	Wilderness Character
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• Accurate digital recommended wilderness map. The current digital map is full of inaccuracies, rendering it useless for wilderness management purposes.</li> <li>• Updated comprehensive fence inventory and database (in progress).</li> <li>• Final night skies assessment.</li> <li>• Revise <i>Dinosaur Recommended Wilderness: Building Blocks for Wilderness Character (2012)</i>.</li> <li>• Complete wilderness administrative history (in progress).</li> <li>• Climate change vulnerability assessment of select resources that comprise wilderness character.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Comprehensive wilderness management plan.</li> <li>• Grazing strategy / allotment management plan / fencing plan.</li> <li>• Update river management 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>• Wilderness Act of 1964 (PL 88-577)</li> <li>• Ranching and grazing regulations in “Dinosaur National Monument” (36 CFR 7.63)</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>• Director’s Order 41: <i>Wilderness Stewardship</i></li> <li>• Director’s Order 28: <i>Cultural Resource Management</i></li> <li>• Director’s Order 47: <i>Soundscape Preservation and Noise Management</i></li> <li>• NPS Reference Manual 41: <i>Wilderness Stewardship</i></li> <li>• NPS Management Policies 2006 (chapter 6, “Wilderness Preservation and Management”)</li> <li>• <i>Keeping It Wild in the National Park Service: A User Guide to Integrating Wilderness Character into Park Planning, Management, and Monitoring</i></li> </ul>



Fundamental Resource or Value	Biologically Diverse Landscapes
Related Significance Statements	Significance statements 4, 5, 6, and 7.
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>Dinosaur National Monument began implementing the long-term I&amp;M monitoring program in 2011; monument staff currently have limited knowledge and baseline monitoring data for these resources.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>Climate trends vary spatially across the monument, although temperature has shown a statistically significant increase since 1950.</li> <li>Past climatic warming has widely reduced snowpack across the region.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>Climate change and associated influences (e.g., increased mean annual temperature, increased storm frequency/intensity, increased drought, increased wildfire frequency/intensity, increase in nonnative species, such as cheatgrass) could impact natural process and ecological communities that comprise the biologically diverse landscapes, including upslope shifts and changes in species composition.</li> <li>Expanding elk population and lack of top-level predators can adversely impact local and regional biological systems.</li> <li>Proliferation of various invasive plants and animals affects local biodiversity.</li> <li>Fire frequencies are expected to increase regionally.</li> <li>An increase in precipitation intensity and frequency is projected, along with more intense/frequent droughts and heat waves.</li> <li>Arid ecosystems and grasslands at the monument are particularly vulnerable to changes caused by nitrogen deposition. Invasive grasses can thrive in areas with high nitrogen deposition, displacing native vegetation adapted to low nitrogen conditions and impacting biodiversity.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>Partnerships with surrounding agencies and grazing permittees.</li> <li>Work cooperatively with federal and state air regulatory quality agencies and local stakeholders to reduce air quality impacts from sources of air pollution.</li> <li>Improve monument sustainability and environmental leadership by becoming a Climate Friendly Park and implement a park Environmental Management System (Director's Order 13A).</li> </ul>
Existing Data and Plans Related to the FRV	<ul style="list-style-type: none"> <li>Fire effects monitoring data (1980s to present).</li> <li>Grazing allotment monitoring (e.g., condition reports for specific allotments exist).</li> <li>Integrated invasive plant management plan and environmental assessment (2006).</li> <li>Inventories of invasive plants (21% of the monument was monitored in the early 2000s; since 2008 additional monitoring has focused on vector features such as rivers, roads, and trails).</li> <li>Comprehensive vegetation classification and map (2007).</li> <li>Comprehensive soil survey (early 2000s).</li> <li>Fire history database and GIS data (2013).</li> <li>Comprehensive surficial geology map.</li> <li>Analysis of fire history and vegetation change report (details last century and, generally, the last millennium) (2014).</li> </ul>

Fundamental Resource or Value	Biologically Diverse Landscapes
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>• Need to analyze and integrate fire effects data with long-term I&amp;M monitoring program; include grazing effects and allotment monitoring.</li> <li>• Greater sage grouse habitat use and research needs assessment (in progress).</li> <li>• Comprehensive fence inventory and condition assessment database (in progress).</li> <li>• Develop comprehensive rare plant GIS data layer and integrate with all monument planning efforts.</li> <li>• Research and develop vegetation monitoring protocol to support grazing management.</li> <li>• Monitor air quality and air quality resource values, including special studies to examine nitrogen pollution dose-response relationships in sensitive monument ecosystems (e.g., grasslands) and studies that assess air pollutants in remote tributary ecosystems.</li> <li>• Climate change vulnerability assessment of select resources that comprise the biologically diverse landscapes.</li> </ul>
Planning Needs	<ul style="list-style-type: none"> <li>• Upland landscape management plan.</li> <li>• Integration of desired future conditions with weed, fire, and grazing management.</li> <li>• Grazing allotment management plan.</li> <li>• Prairie dog 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>• Ranching and grazing regulations in “Dinosaur National Monument” (36 CFR 7.63)</li> <li>• Endangered Species Act of 1973, as amended</li> <li>• Clean Air Act of 1977 (42 USC 7401 et seq.)</li> <li>• Migratory Bird Treaty Act of 1918, as amended</li> <li>• Bald and Golden Eagle Protection Act of 1940, as amended</li> <li>• Executive Order 11514, “Protection and Enhancement of Environmental Quality”</li> <li>• Executive Order 13112, “Invasive Species”</li> <li>• Executive Order 13175, “Consultation and Coordination with Indian Tribal Governments”</li> <li>• Secretarial Order 3289, “Addressing the Impacts of Climate Change on America’s Water, Land, and Other Natural and Cultural Resources”</li> <li>• Secretarial Order 3206, “American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act”</li> <li>• Department of the Interior Policy on Consultation with Indian Tribes</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 Natural Resource Management Reference Manual 77</li> <li>• NPS Management Policies 2006 (chapter 4, “Natural Resource Management”)</li> </ul>



Fundamental Resource or Value	Yampa and Green River System
Related Significance Statements	Significance statement 6.
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Yampa River condition is relatively good but has water quality concerns, including emerging contaminants (e.g., endocrine disruptors).</li> <li>• Green River above the confluence is adversely impacted by Flaming Gorge Dam operations.</li> <li>• Green River below confluence is in fair to good condition.</li> <li>• Green River has altered sediment transport and flow regimes, depressed water temperature and turbidity values, and a deficit of coarse woody debris, resulting in disrupted food webs and compromised habitat quality.</li> <li>• Rivers are an international draw for whitewater rafting and boating.</li> <li>• Managers consistently issue the full quota of river running permits on the rivers annually.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Upper Colorado River Basin populations of four endangered fish species do not appear to be unambiguously trending toward recovery at the present time (2014).</li> <li>• Upper Colorado River Basin populations for three additional native fish species appear to be declining at the present time (2014).</li> <li>• Robust data sets describing long-term trends in river ecosystem health and function are largely unavailable, except for endangered fish and effects of a biological control agent (tamarisk leaf beetle) on reducing invasive tamarisk dominance.</li> <li>• Number of river running applicants increasing each year.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Human population growth, transmountain diversions, in-basin depletions and impoundments, increasing nonpoint pollution sources, and related competing water interests threaten both the Yampa and Green Rivers.</li> <li>• Water quantity, quality, and timing (e.g., threats from diversions, local land uses, and climate change impacts).</li> <li>• Increase in mean annual temperature and drought, dust on snow, and other climate change effects alter timing, magnitude, and duration of snowmelt, with significant implications for river ecosystem health and function.</li> <li>• Additional introductions and increasing populations of invasive, nonnative riparian and aquatic plant species and invasive nonnative fish and other aquatic nuisance species.</li> <li>• Potential increase in recreational use in the Yampa River corridor could change the existing visitor composition and available opportunities.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Awareness of river and watershed health through education and outreach (e.g., communications plan), including external education component.</li> <li>• Highlight the importance of the scientific value of the Yampa and Green Rivers in Dinosaur National Monument as a high-functioning analogue of the Colorado River system in the Grand Canyon.</li> <li>• New and expanded partnerships.</li> <li>• Participate in interagency dust monitoring network (partnerships).</li> <li>• Support long-term monitoring of I&amp;M program.</li> <li>• Potential increase in recreational use in the Yampa River corridor could expand visitor opportunities and visitor appreciation of the Yampa and Green River System.</li> </ul>
Existing Data and Plans Related to the FRV	<ul style="list-style-type: none"> <li>• Big Rivers long-term ecological monitoring protocol developed by the Northern Colorado Plateau Network I&amp;M Program has been developed and is in the testing / early implementation stage (2014).</li> </ul>

Fundamental Resource or Value	Yampa and Green River System
Existing Data and Plans Related to the FRV (continued)	<ul style="list-style-type: none"> <li>Decades of interdisciplinary scientific work on the Yampa and Green Rivers in Dinosaur National Monument is being organized and synthesized by collaborating scientists and will be available in the near future. This effort is being coordinated by Dinosaur National Monument and Water Resources Division staff.</li> <li>Upper Colorado River Endangered Fish Recovery Program produces annual reports of work accomplished—available at <a href="http://www.coloradoriverrecovery.org">www.coloradoriverrecovery.org</a>.</li> <li>Cooperative agreement for the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (1988, 2001, and 2009).</li> <li>Final programmatic biological opinion on the “Management Plan for Endangered Fishes in the Yampa River Basin: Environmental Assessment” (2005).</li> <li><i>Operation of Flaming Gorge Dam Final Environmental Impact Statement</i> (2005) and Record of Decision (2006).</li> <li><i>A Comparison of Aquatic Invertebrate Assemblages Collected from the Green River in Dinosaur National Monument in 1962 and 2001</i>—available at <a href="http://www.usu.edu/buglab/Projects/ArchivedProjects/#item=42">http://www.usu.edu/buglab/Projects/ArchivedProjects/#item=42</a>.</li> <li>Review existing records for upland water resources and identify sources of valid existing rights and those that require new applications or amended applications.</li> <li>Weissinger et al. 2013: <i>Screening for contaminants of emerging concern in the Northern Colorado Plateau Network, 2010 and 2012</i>. Natural Resource Technical Report NPS/NCPN/NRTR—2013/802. National Park Service, Fort Collins, Colorado. Available at <a href="https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=483538&amp;file=N3617WEIS2013C_ECS_2203659.pdf">https://irma.nps.gov/App/Reference/DownloadDigitalFile?code=483538&amp;file=N3617WEIS2013C_ECS_2203659.pdf</a>.</li> </ul>
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>Yampa and Green River System – ecosystem function and flow study.</li> <li>Follow-up whitepaper summaries with research and needs assessment.</li> <li>Macroinvertebrate studies.</li> <li>Conduct a risk/threats assessment for upland water resources and prioritize water resources for which water right applications should be updated or new applications filed.</li> <li>Climate change vulnerability assessment of the Yampa and Green River System.</li> </ul>
Planning Needs	<ul style="list-style-type: none"> <li>Update river management plan.</li> <li>Partner and stakeholder outreach plan for the long-term protection of the Yampa River.</li> <li>Upland landscape management plan.</li> <li>Resource stewardship strategy.</li> <li>Climate change scenario 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>Executive Order 11988, “Floodplain Management”</li> <li>Executive Order 11990, “Protection of Wetlands”</li> <li>Executive Order 13112, “Invasive Species”</li> <li>Wilderness Act of 1964 (PL 88-577)</li> <li>Clean Water Act of 1972, as amended</li> <li>Endangered Species Act of 1973, as amended</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>Director’s Order 77-1: <i>Wetland Protection</i></li> <li>Director’s Order 77-2: <i>Floodplain Management</i></li> <li>NPS <i>Natural Resource Management Reference Manual 77</i></li> <li>NPS <i>Management Policies 2006</i> (chapter 4, “Natural Resource Management”)</li> </ul>

Fundamental Resource or Value	Scientific Study
Related Significance Statements	Significance statements 1, 2, 3, 4, 5, 6, 7, and 8.
Current Conditions and Trends	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Monument has a robust scientific study program.</li> <li>• Heavy reliance on outside partners for research assistance (e.g., Utah Division of Wildlife Resources, Northern Colorado Plateau Network, US Geological Survey, universities, and other government agencies such as the National Park Service, US Fish and Wildlife Service, and Colorado Parks and Wildlife).</li> <li>• Some monument employees conduct independent research and publish findings.</li> <li>• No central repository for research has been developed by partners.</li> <li>• Monument relies heavily on grant funding to conduct much of its research.</li> <li>• Monument has very little capacity to access GIS data from external research.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• More pressure for data related to water and air quality due to external development and regional population growth.</li> <li>• Monument will continue to rely heavily on grant-based funding.</li> </ul>
Threats and Opportunities	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Future loss of institutional knowledge.</li> <li>• Loss of grant funding and a greater reliance on “soft funding.”</li> <li>• Rapidly changing conditions of the resources attributed to factors like population growth, energy development, and climate change impacts.</li> <li>• Climate change impacts may affect or alter findings from earlier studies.</li> <li>• Additive impact of scientific studies that must be accommodated as museum collections.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Expand partnerships and volunteerism for research projects.</li> <li>• Heightened interest in paleontological research.</li> <li>• Monument provides an unmatched opportunity to study paleontology, hydrology, fire, cultural, and other natural resources.</li> <li>• Educate visitors and external public in citizen science efforts.</li> <li>• Expand and promote awareness of the “living laboratory” at Dinosaur National Monument.</li> <li>• Develop scientific studies around ecological responses, hydrological responses, and visitor responses to a changing climate.</li> <li>• Possibility of renewed interest in an appropriate collections repository to preserve the results of scientific research and make them available for further research.</li> </ul>
Existing Data and Plans Related to the FRV	<ul style="list-style-type: none"> <li>• None identified.</li> </ul>
Data and/or GIS Needs	<ul style="list-style-type: none"> <li>• None identified.</li> </ul>
Planning Needs	<ul style="list-style-type: none"> <li>• Assessment of critical research prioritization needs.</li> <li>• Data collection management and distribution 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>• 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 (chapter 2, “Park System Planning”)</li> </ul>



Fundamental Resource or Value	Museum Collections and Archives
<b>Related Significance Statements</b>	Significance statements 1, 2, and 8.
<b>Current Conditions and Trends</b>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Some museum collection specimens are “type specimens” and unique.</li> <li>• No central archival location or designated collection storage location.</li> <li>• Lack of curatorial staff.</li> <li>• Cataloging is not keeping pace with the number of active research projects.</li> <li>• Collections support monument history and management, scientific research, past monument activities, etc.</li> <li>• Dinosaur National Monument continues to have responsibility for collections stored both inside and outside of monument.</li> <li>• Archives cover broad spectrum of resources, from land ownership to quarry resources (including monument management and scientific documents, photos, etc.).</li> <li>• Monument lacks 7 of the 10 required museum management plans.</li> <li>• None of the monument’s facilities currently meet museum archival and collection storage standards.</li> <li>• Limited security at existing public facilities to ensure protection of museum collections and displays.</li> <li>• Current conditions limit the potential for research, study, and interpretation.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Conditions of existing archives and museum collections will continue to decline due to lack of adequate storage facilities.</li> <li>• Opportunities to access museum archives and collections will continue to be limited.</li> </ul>
<b>Threats and Opportunities</b>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Continued degradation and increased risk of loss of the archives and museum collections.</li> <li>• Growing black market (and legal market) in paleontological and cultural resources that heighten the need to properly protect and store these items.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Partnership opportunities with the Utah Field House of Natural History State Park, Brigham Young University, University of Colorado, and University of Utah.</li> <li>• Fulfill the multipark repository function envisioned by the Intermountain Region Museum Collection Facilities Strategy.</li> </ul>
<b>Existing Data and Plans Related to the FRV</b>	<ul style="list-style-type: none"> <li>• Dinosaur National Monument Scope of Collection Statement (2006).</li> <li>• Museum management plan (2002).</li> </ul>
<b>Data and/or GIS Needs</b>	<ul style="list-style-type: none"> <li>• Fire protection survey.</li> <li>• Collection condition survey.</li> <li>• Accession and catalog archives resulting from resource management activities and scientific studies.</li> </ul>

Fundamental Resource or Value	Museum Collections and Archives
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Integrated pest management plan.</li> <li>• Housekeeping plan.</li> <li>• Inclusion of museum collections in the emergency operation plan.</li> <li>• Structural fire plan.</li> <li>• Collections management plan.</li> <li>• Collections storage plan.</li> <li>• Plan for appropriately scaled storage facility.</li> <li>• Curatorial storage facility site plan.</li> <li>• Update asset management 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>• Historic Sites Act of 1935</li> <li>• Management of Museum Properties Act of 1955, as amended</li> <li>• “Curation of Federally-Owned and Administered Archaeological Collections” (36 CFR 79)</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 24: <i>NPS Museum Collections Management</i></li> <li>• Director’s Order 28: <i>Cultural Resource Management</i></li> <li>• <i>The Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation</i></li> <li>• Programmatic Agreement among the National Park Service (US Department of the Interior), the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers for Compliance with Section 106 of the National Historic Preservation Act</li> </ul>



## Analysis of Other Important Resources and Values

Other Important Resource or Value	Recreational Resources—Rivers
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• Monument regulates boating use on the Green and Yampa Rivers to provide an uncrowded and wilderness-like experience within a finite set of resources, such as river campgrounds.</li> <li>• While boating in the monument is a backcountry experience, it is regulated under its own management plan, separate from management of other recreational uses in the monument’s backcountry.</li> <li>• Permitted boating in the monument is shared equally between commercially supported visitation and private boaters—in 2013, there were 4,254 commercial and 5,417 private boating visitors to the monument.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Increasing interest in whitewater boating has led to more applications annually for a limited number of private boater launches.</li> <li>• The development of new, lightweight river craft may present challenges to the conventional model of river access for boating trips.</li> </ul>
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Increased demands for river launches could result in pressure to allow more launches in the future—degrading the possibility of achieving an uncrowded and unhurried river running experience.</li> <li>• River campsites are increasingly suffering from erosion and social trails after years of regular use.</li> <li>• Climate change and associated influences (e.g., increased mean annual temperature, increased storm frequency/intensity, increased drought and heat wave frequency/intensity) could impact visitor recreational seasons and interests as temperatures and stream flows change from historic trends.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• The boating community is a substantial user group with a vested interest in protecting both the Yampa and Green Rivers from future water development, which has the potential to threaten the ecological health of the monument’s river environments.</li> </ul>
<p><b>Existing Data and Plans Related to the OIRV</b></p>	<ul style="list-style-type: none"> <li>• River management plan (1979)</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• None identified.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Update river management plan.</li> <li>• Climate change scenario plan.</li> </ul>

Other Important Resource or Value	Recreational Resources—Rivers
<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>• National Park Service Concessions Management Improvement 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 (chapter 8, "Use of the Parks")</li> <li>• Director's Order 4: <i>Diving Management</i></li> <li>• Director's Order 6: <i>Interpretation and Education</i></li> <li>• Director's Order 9: <i>Law Enforcement Program</i></li> <li>• Director's Order 17: <i>National Park Service Tourism</i></li> <li>• Director's Order 28: <i>Cultural Resource Management</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 53: <i>Special Park Uses</i></li> <li>• NPS Natural Resource Management Reference Manual 77</li> <li>• Director's Order 83: <i>Public Health</i></li> <li>• NPS Transportation Planning Guidebook</li> </ul>



Other Important Resource or Value	Recreational Resources—Nonboating Backcountry Recreation
<p><b>Current Conditions and Trends</b></p>	<p><b>Conditions</b></p> <ul style="list-style-type: none"> <li>• There is relatively little current visitation to the monument’s upland backcountry, and few designated trails exist.</li> <li>• Only two designated primitive backcountry campsites exist; both are located at the confluence of Ely and Jones Hole Creeks.</li> <li>• Backcountry permits are required for all overnight stays in the monument’s backcountry as well as for technical rock climbing day use. All permits limit group size to 10.</li> <li>• Limited nonboater backcountry camping in the river corridors is permitted, based on the time of year and level of boater use.</li> <li>• Certain sensitive areas, especially cultural sites, are listed as closed to backcountry camping in the backcountry management plan.</li> </ul> <p><b>Trends</b></p> <ul style="list-style-type: none"> <li>• Backcountry use is likely to increase in popularity as the potential for backcountry recreation in the monument becomes better known through social media, such as recreation websites, guidebooks, and local user group newsletters.</li> </ul>
<p><b>Threats and Opportunities</b></p>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Increased backcountry day and multiday use will increase impacts on the land, especially in upland areas with delicate soils.</li> <li>• Backcountry use can provide a significant vector for the introduction of nonnative weeds.</li> <li>• Increased backcountry use has the potential for exposing cultural resources to greater impacts from visitation.</li> <li>• Backcountry human waste disposal may not be adequately addressed in the current backcountry management plan.</li> <li>• The potential impacts of backcountry campfires may not be adequately addressed in the current backcountry management plan.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• The monument provides a spectacular landscape for exploration, and as these resources gain more exposure, backcountry enthusiasts may become a significant advocacy group for the monument.</li> </ul>
<p><b>Existing Data and Plans Related to the OIRV</b></p>	<ul style="list-style-type: none"> <li>• Backcountry management plan (1984).</li> </ul>
<p><b>Data and/or GIS Needs</b></p>	<ul style="list-style-type: none"> <li>• None identified.</li> </ul>
<p><b>Planning Needs</b></p>	<ul style="list-style-type: none"> <li>• Update backcountry management plan. (The establishment of trail systems will bring conflicts between different user groups, as well as the desired maintenance of the monument’s wilderness conditions and must be addressed during any backcountry management plan revision.)</li> <li>• Clarification of policy regarding multiday bicycle travel on the Yampa Bench Road. (Multiday bicycle activities are not addressed by the backcountry management plan. An adequate response to future requests should be considered as there has been pressure to allow this type of use.)</li> </ul>

Other Important Resource or Value	Recreational Resources—Nonboating Backcountry Recreation
<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>• National Park Service Concessions Management Improvement 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 (chapter 8, “Use of the Parks”)</li> <li>• Director’s Order 4: <i>Diving Management</i></li> <li>• Director’s Order 6: <i>Interpretation and Education</i></li> <li>• Director’s Order 9: <i>Law Enforcement Program</i></li> <li>• Director’s Order 17: <i>National Park Service Tourism</i></li> <li>• Director’s Order 28: <i>Cultural Resource Management</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 17: <i>National Park Service Tourism</i></li> <li>• NPS Natural Resource Management Reference Manual 77</li> <li>• Director’s Order 83: <i>Public Health</i></li> <li>• NPS Transportation Planning Guidebook</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. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but which still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

Key issues for Dinosaur National Monument are noted below, as well as the associated planning and data needs to address them:

- **Long-Term Protection of Upland Ecosystem Health and Function** – The diverse upland ecosystem of Dinosaur National Monument is facing constant change from several human-induced threats as well as ongoing natural processes. Climate change, nearby oil and gas development, water development projects, and grazing are just a few examples of human-induced threats to the monument's ecosystem. Systemic changes attributable to these threats are increasing wildfire frequency and intensity, reductions in snowpack and rainfall (and thus stream/river flows), degradation of air and water quality, spread of invasive nonnative plants, incursion of artificial light sources and noise, and alterations in plant and animal communities and populations that are beyond the range of natural variability. The complexity and widespread nature of several of these ecological pressures further supports the importance of working with other land management partners, private landowners, and other monument stakeholders to increase the effectiveness and breadth of ecological management efforts.

### *Associated Planning Needs:*

- Upland landscape management plan
- Resource stewardship strategy
- Grazing management plan
- Update fire management plan
- Climate change scenario plan

### *Associated Data Needs:*

- Documentation of external development projects
- Analyze and integrate fire effects data with long-term I&M program
- Greater sage grouse habitat use and research needs assessment (in progress)
- Additional air quality monitoring
- Update invasive species inventory
- Climate change vulnerability assessment
- Upland water resources risk and threats assessment



- **Loss of Relevancy** – Over time, the relevancy, social stature, and importance of Dinosaur National Monument to the American public has waned due to a wide variety of societal shifts in demographics, generational priorities, technology, science, communication, and urbanization. The remote location of the monument has further complicated the NPS goal of maintaining the monument’s relevancy. Therefore, it is critical to the future of the monument, and its resources, for the National Park Service to revisit methods and strategies that engage the public’s interest and awareness. Enhanced visitation opportunities, improved and targeted marketing (e.g., better use of social media), stronger interpretation and education materials (including online education opportunities and curricula specifically related to monument resources), expanded promotion of the monument’s unique river-based and backcountry recreation opportunities, and expanded partnerships are all important considerations to address the waning relevancy issue. Building and fostering a larger sense of ownership of the monument by local individuals and groups, so that they in turn become advocates for the monument and its resources, is vitally important to the monument’s future.

*Associated Planning Needs:*

- Partner and stakeholder communication and outreach plan for long-term protection of the Yampa River
- Update comprehensive interpretive plan
- Update river management plan
- Update backcountry management plan
- Marketing plan
- Partnership action strategy
- Education plan
- Update social media plan
- Self-evaluation and transition plan

*Associated Data Needs:*

- Market assessment
- Oral histories of ranchers and homesteaders

- **Long-Term Protection of River Ecosystem and Health** – The Yampa and Green River System is also facing significant change from human-induced threats, including climate change, altered flow regulation, water withdrawals, and declining water quality. The impacts of these changes are many and complex. For example, in addition to altering precipitation patterns in the region (altering the snowmelt quantity and timing that regulate the Yampa’s natural hydrograph), climate change could also increase wildfire frequency, with subsequent alterations of local vegetation cover that could influence upland water runoff quantity and quality. Water diversion and dam-regulated water flows have equally complex impacts on sediment transport and river channel dynamics. Given these threats, further scientific understanding of the river system and the flows are required to ensure long-term protection of river ecosystem health.

*Associated Planning Needs:*

- Partner and stakeholder communication and outreach plan for long-term protection of the Yampa River
- Update comprehensive interpretive plan
- Update river management plan
- Resource stewardship strategy
- Partnership action strategy
- Climate change scenario plan



*Associated Data Needs:*

- Yampa and Green River System – ecosystem function and flow study
- Documentation of external development projects
- Complete whitepaper summaries to inform future management options and strategies
- Research needs assessment for the Yampa and Green Rivers
- Additional air quality monitoring
- Update invasive species inventory
- Climate change vulnerability assessment

- **Building and Maintaining Relationships with Key Partners, Stakeholders, and Traditionally Associated Tribes, and Improving Coordination with Inholding and External Development Interests** – Due to the complex and widespread nature of the monument’s many resource and value management issues, proactive collaboration and cooperation with partners, stakeholders, and traditionally associated tribes are essential to maximize the effectiveness and extent of management efforts. Education and outreach efforts in local communities are also important components tied to this issue. Likewise, because many of the internal and external development threats to monument resources and values result from the management actions and decisions of other entities, it is critical that the National Park Service improve its engagement and collaboration with these other entities. This could include engagement with inholding and adjacent property owners, oil and gas development companies, and local and state government agencies, to name a few.

*Associated Planning Needs:*

- Partner and stakeholder communication and outreach plan for long-term protection of the Yampa River
- Partnership action strategy
- Education plan
- Update social media plan

*Associated Data Needs:*

- Yampa and Green River System – ecosystem function and flow study
- Documentation of external development projects
- Complete whitepaper summaries to inform future management options and strategies
- Oral histories of ranchers and homesteaders
- Visual resource inventory
- Climate change vulnerability assessment



- **Furthering Understanding and Protection of Paleontological and Cultural Resources** – In order to gain a better understanding of the paleontological resources at the monument, there is a need to continue the extensive inventory and monitoring of paleontological resources pursuant to the Paleontological Resources Preservation Act (2009). The ability to effectively manage the monument’s known paleontological resources, and to coordinate research on future resource discoveries, is constrained by limited staffing. This condition will be compounded by the anticipated retirement of staff with the broadest knowledge of these resources. Further, there is a need to inventory and monitor cultural resources scattered throughout the monument, including archeological and rock art remains of the Fremont culture, evidence from early explorers, and historical homesteads and other structures. Museum collections are also being improperly prepared and stored, including over 400,000 prehistoric and historic objects, artifacts, works of art, archival documents, and natural history specimens. Currently there are 12 facilities, including administrative facilities, 2 exhibition facilities, and storage facilities being used at Dinosaur National Monument for museum collection and research purposes. Under these conditions many of the applicable NPS standards (*NPS Museum Handbook* (2004) and Director’s Order 24: *NPS Museum Collections Management*) are not being met. Renewed efforts to secure an appropriate facility and staff are critical, particularly given the monument’s role as a multipark collections storage facility.

***Associated Planning Needs:***

- Carnegie Quarry monitoring and preservation plan
- Cultural resource management plan
- Update paleontological resource and research management plan (2005)
- Update comprehensive interpretive plan
- Integrated pest management plan
- Resource stewardship strategy
- Storage facility plan
- Wayside plan
- Monitoring plan for known fossil sites
- Housekeeping plan
- Trail management plan for the Fossil Discovery Trail
- Collections management plan
- Update asset management plan
- Cultural landscape reports
- Update I&M paleontological plan
- Collections storage plan
- Curatorial storage facility site plan
- Succession plan for Dan Chure (paleontologist)

***Associated Data Needs:***

- Industrial hygienic evaluation of quarry cliff face
- Reconstruct LiDAR scanning of cliff face
- Inventory data for non-Carnegie Quarry fossil resources
- Oral histories of ranchers and homesteaders
- Cultural landscape inventories
- Complete GIS mapping of quarry face
- Ethnographic overview and assessment
- Integration of fossil sites in GIS
- Collections condition survey
- Accession and catalog archives resulting from resource management activities and scientific studies
- Study to document paleontological environments, internal geology, stratigraphy, mapping, and correlation with these formations elsewhere in the region
- Spatial (GIS) information for tracking cultural resource locations and establishing monitoring conditions and priorities
- Digitize paleontological archives
- Obtain data on specimens collected during historic excavations
- Fire protection survey
- Incorporate the paleontological locality database into GIS
- Digitize paleontological locality documentation and photos
- Digitize paleontological and geological publications



- **Long-Term Protection of the Carnegie Quarry** – The Carnegie Quarry, which is a fundamental resource and key monument attraction, and served as the primary catalyst for the creation of Dinosaur National Monument as a national park unit, is threatened due to cracking and subsidence associated with portions of the horizontally preserved fossil formation and presence of highly erodible bentonite.

*Associated Planning Needs:*

- Carnegie Quarry monitoring and preservation plan
- Update paleontological resource and research management plan (2005)
- Integrated pest management plan
- Resource stewardship strategy
- Storage facility plan
- Trail management plan for the Fossil Discovery Trail
- Collections management plan
- Monitoring plan for known fossil sites
- Update I&M paleontological plan
- Succession plan for Dan Chure (paleontologist)

*Associated Data Needs:*

- Geoenvironmental evaluation of quarry face
- Industrial hygienic evaluation of quarry cliff face
- Reconstruct LiDAR scanning of cliff face
- Complete GIS mapping of quarry face
- Obtain data on specimens collected during historic excavations

## Planning and Data Needs

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

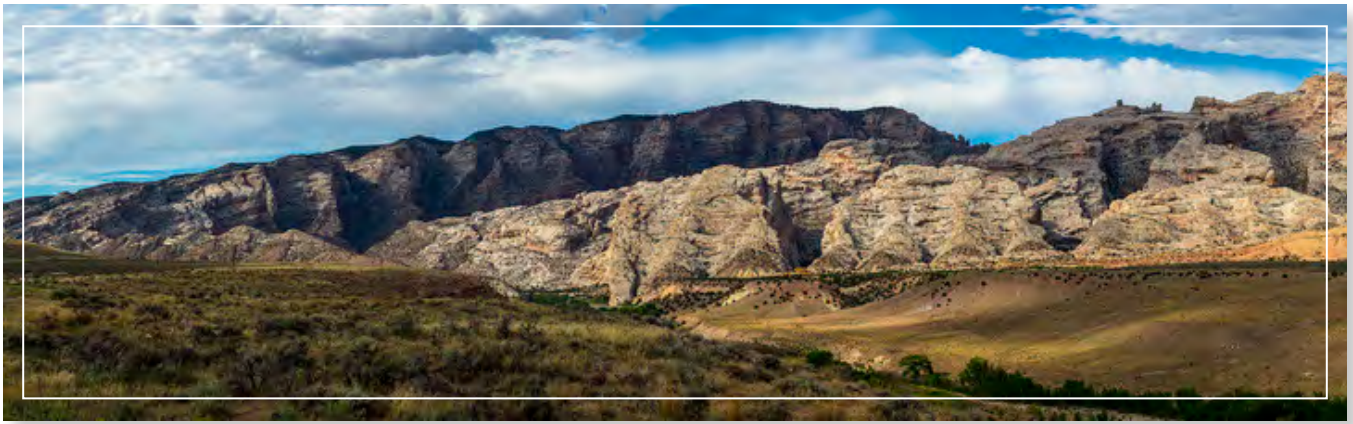
Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Planning Needs – Where a Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
FRV, Key Issue	Grazing management plan / grazing allotment plan	High	The plan would encourage sound grazing practices to minimize or avoid impacts on monument resources. In addition, the plan would help guide monitoring of animal unit months and help determine levels of grazing use on rangeland allotments.
FRV, OIRV, Key Issue	Partner and stakeholder communication and outreach plan for long-term protection of the Yampa River	High	The plan would provide comprehensive guidance on complex resource management issues involving a diverse range of stakeholders, including raising awareness of river and watershed health.
FRV, Key Issue	Carnegie Quarry monitoring and preservation plan	High	The plan would provide a systematic program for monitoring quarry resources, including: <ul style="list-style-type: none"> <li>• Protecting the quarry face from various threats (e.g., provide guidance to resource management staff and scientists that access the face).</li> <li>• Conserving (e.g., cleaning) and curating resources on the quarry face.</li> <li>• Inventory and monitoring of nonquarry fossil sites and assessing their significance.</li> <li>• Address health and safety issues to protect visitors, researchers, and staff.</li> </ul>
FRV, Key Issue	Cultural resource management plan	High	The plan would guide the overall management of the monument’s cultural resources for the next 15–20 years. It would provide comprehensive strategies to prioritize protection and stabilization of these resources and ensure consistent identification, preservation, treatment, and interpretation of the monument’s cultural resources. A monitoring plan for known cultural sites would also be included.
FRV, Key Issue	Update paleontological resource and research management plan (2005)	High	Updates to the plan would include: <ul style="list-style-type: none"> <li>• Revisions to the history of paleontological work completed in the monument.</li> <li>• Updated references to scientific papers published on work completed in the monument.</li> <li>• Summary of Dan Chure’s experiences and recommendations from his tenure at the monument.</li> </ul>
FRV, OIRV, Key Issue	Update comprehensive interpretive plan (2009)	High	Addresses visitor experience and related visitor use management. There have been significant changes in monument operations since 2009. Staff needs to incorporate new significance statements and interpretive themes (from foundation document) as well as updated data from the visitor use survey. Future surveys could include in-depth studies for each season to gain a better understanding of visitation dynamics, such as what visitors like about the monument and what changes would enhance their experience.

**Planning Needs – Where a Decision-Making Process Is Needed**

Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
OIRV, Key Issue	Update backcountry management plan	High	This plan would guide the National Park Service in providing opportunities for a variety of backcountry recreational activities and experiences while recognizing and protecting the wilderness resource values of Dinosaur National Monument’s backcountry.
FRV, Key Issue	Upland landscape management plan	High	Addresses multiple complex and interrelated issues and represents the foundation for managing the entire upland resource at the monument (97% of monument’s land base). Need to integrate desired future conditions associated with invasive weed, fire, and grazing management prior to producing a resource stewardship strategy. Intention to complete resource stewardship strategy after identifying desired conditions. Vegetation management—especially related to invasive nonnative species for the fire-adapted ecosystems—is a critical management need.
OIRV, Key Issue	Update river management plan	High	Updates are needed to the 1979 river management plan. Technology, boating equipment, and boating trends have changed since 1979.
FRV, OIRV, Key Issue	Update asset management plan	Medium	Plan would help prioritize deferred maintenance needs and capital improvements.
FRV, OIRV, Key Issue	Wayside plan	Medium	Would follow the updated comprehensive interpretive plan. Plan would determine where to locate waysides, waysides that need to be updated, stories to be communicated to visitors, and appropriate interpretive methods and techniques.
FRV, Key Issue	Storage facility plan	Medium	Plan would address preserving specimens and documents needed to make management decisions at an appropriately scaled and controlled facility. This would incorporate both physical security and environmental control. Plan would facilitate access for scientific study and interpretive and educational efforts. Monument also needs a curator to manage the facility. Renewed efforts to secure an appropriate facility and staff are necessary given the role the monument is expected to perform as a multipark facility.
FRV, Key Issue	Housekeeping plan	Medium	Plan would help protect museum collections and meet NPS curatorial standards.
FRV	Wilderness management plan	Medium	Plan would identify actions to preserve wilderness character and communicate wilderness management expectations to staff and visitors. Plan would include a long-term monitoring strategy to prevent impairment of wilderness character.
FRV, Key Issue	Trail management plan for the Fossil Discovery Trail	Medium	Plan would provide an interdivisional approach to address safety, fossil preservation, security, trail maintenance, and interpretation. Damage to fossil resources is known to occur on the trail.

Planning Needs – Where a Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
FRV, Key Issue	Resource stewardship strategy	Medium	Long-range document to help monument achieve desired natural and cultural resource conditions for fundamental resources and values. Strategies are derived from relevant laws and NPS policies identified in a park’s foundation document, general management plan, or other park plans.
FRV, OIRV	Night-friendly lighting plan	Medium	Would follow completion of the facility lighting inventory. Would identify strategies for implementing sustainable lighting options throughout monument. Monument needs to address its own lighting issues prior to reaching out to adjacent communities.
FRV, Key Issue	Monitoring plan for known fossil sites	Medium	Plan would include such elements as conducting regular monitoring of fossil sites for theft or damage. Plan would regularly assess condition of fossil localities.
FRV, OIRV, Key Issue	Marketing plan	Medium	Plan would address visitation and visitor demand dynamics to help monument maintain relevancy locally, regionally, and nationally as an NPS unit.
FRV, Key Issue	Collections management plan	Medium	Collections support monument history and management, scientific research, and a record of past management activities (e.g., archives cover items from land ownership to quarry resources to other monument resources). Monument continues to have responsibility for collections stored outside of monument. Plan would help meet NPS curatorial standards and include a security planning component as well.
FRV, Key Issue	Cultural landscape reports	Medium	Include reports for all eligible cultural landscapes to provide landscapes treatment guidance (e.g., Quarry Visitor Center, Ruple Ranch, and Yampa and Green River Valleys).
FRV, Key Issue	Update I&M paleontological plan	Medium	Update needed to reflect current needs for paleontological resource management.
FRV, Key Issue	Update fire management plan	Low	Revisions and updates are needed to the 1980 fire management plan.
FRV, OIRV	Exhibit plan for Canyon Visitor Center	Low	Current exhibit plan does not meet NPS standards and has not been updated since the 1960s.
FRV, OIRV	Update and implement physical security plan	Low	Adequate security measures need to be taken to protect monument resources (e.g., there is limited security at public facilities to ensure protection of museum collections and displays).
FRV, OIRV, Key Issue	Partnership action strategy	Low	A strategy is needed to engage partners and develop new partnerships in monument activities ranging from resource-specific research projects to conservation and preservation initiatives.
FRV, OIRV, Key Issue	Education plan	Low	Outreach to local schools is an important opportunity but is not feasible given current staffing levels.



Planning Needs – Where a Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
FRV, OIRV, Key Issue	Update social media plan	Low	Opportunities for communication with the public will increasingly take place via social media.
FRV, Key Issue	Collections storage plan	Low	Plan would address the physical arrangement of the building envelope, storage equipment, and physical packaging of museum objects and archives. Environmental and security requirements would typically be addressed as well.
FRV, OIRV, Key Issue	Self-evaluation and transition plan	Low	Use sensitive design to increase accessibility to popular monument sites (e.g., improve access to exhibits).
FRV	Prairie dog management plan	Low	Prairie dogs have negatively impacted some monument facilities and disrupted management objectives at these sites. Plan would provide mitigation and management strategies.
FRV, Key Issue	Integrated pest management plan	Low	Prevent unacceptable levels of pest damage, while protecting visitors and monument resources.
FRV	Update emergency operation plan – include museum collections and archives	Low	Museum collections and archives need to be accounted for in the monument’s emergency operation plan.
FRV	Structural fire plan	Low	Would provide analysis of museum storage areas at risk and propose management options.
FRV, Key Issue	Curatorial storage facility site plan	Low	Site plan (including environmental permitting and compliance) would examine adequacy and make recommendations for curatorial storage and facility options. Monument also needs a curator to manage the facility. Renewed efforts to secure an appropriate facility and staff are necessary given the eventual role the monument is expected to perform as a multipark facility.
FRV	Assessment of critical research prioritization needs	Low	Assessment would provide appropriate scoping for monumentwide research prioritization.

Planning Needs – Where a Decision-Making Process Is Needed			
Related to an FRV, OIRV, or Key Issue?	Planning Needs	Priority (H, M, L)	Notes
FRV	Data collection management and distribution plan	Low	Plan would provide comprehensive protocol for managing and distributing monument’s data resources.
FRV	Cooperative fisheries management plan	Low	Plan would be developed cooperatively with the US Fish and Wildlife Service and the States of Colorado and Utah. Fishing is subject to NPS general regulations and 36 CFR 2.3.
FRV	Cave and karst management plan	Low	Plan would provide management strategies for research, use, and preservation of monument’s cave and karst resources.
FRV	Safety plan for known geologic hazards	Low	Monument’s known geologic hazards pose safety concerns for staff, visitors, and facilities. Plan would provide monitoring and management guidance.
FRV, Key Issue	Succession plan for Dan Chure’s retirement	Low	Dan Chure (paleontologist) has built a high level of institutional research and interpretive capacity for the monument’s paleontological resources. Monument needs to plan for impacts on paleontological and interpretive programs in wake of his retirement.
FRV, OIRV, Key Issue	Climate change scenario plan	Low	Outcomes from a climate change scenario planning effort can be integrated into monument planning and management to bring appropriate climate change adaptation into those documents (e.g., resource stewardship strategy, river management plan update, and other types of plans). This planning process would allow park managers to explore the range of climate futures that are plausible based on the latest modeled projections and identify the associated impacts and management implications.





<b>Data Needs – Where Information Is Needed Before Decisions Can Be Made</b>			
<b>Related to an FRV, OIRV, or Key Issue?</b>	<b>Data and GIS Needs</b>	<b>Priority (H, M, L)</b>	<b>Notes</b>
FRV, Key Issue	Yampa and Green River System – ecosystem function and flow study	High	Data and complete scientific summaries are critical to help monument managers study and communicate active and ongoing impacts on the Yampa and Green River System. Quantification of instream flows is necessary to maintain NPS resources in current condition.
FRV, Key Issue	Geoengineering evaluation of quarry face	High	Evaluation would assess stability of the quarry face, including a detailed study of cracks along the quarry face. Evaluation would provide preservation options. Evaluation would also fulfill certain legal requirements related to museum requirements and those guided by the Paleontological Resources Preservation Act of 2009.
FRV, Key Issue	Analyze and integrate fire effects data with long-term I&M program	High	Monument lacks key information and analyses to identify desired conditions, particularly regarding grazing effects and allotment monitoring. Analysis would fulfill legal requirements and formal commitments.
FRV, OIRV, Key Issue	Documentation of external development projects	High	Data needed for various oil and gas projects, water resource development, artificial light sources, manmade sound, and air quality.
FRV, OIRV, Key Issue	Market assessment	High	Assessment would include a survey of potential visitors (not existing visitors) to understand key factors for why this potential visitation group is not visiting the monument.
FRV, Key Issue	Industrial hygienic evaluation of quarry cliff face	High	Cliff face is impacted by dust and other anthropogenic effects, as well as impacts of mice droppings. Evaluation would provide hygienic management strategies.
FRV, Key Issue	Reconstruct LiDAR scanning of cliff face	High	Need a more accurate, detailed scan of cliff face.
FRV, Key Issue	Complete whitepaper summaries to inform future management options and strategies	High	Summaries provide analysis on topics of fisheries management, sediment and flow control, macroinvertebrate research, and other monument resources.
FRV, Key Issue	Inventory data for non-Carnegie Quarry fossil resources	High	Baseline data needed to make management decisions for key nonquarry fossil resources, including threats and significance for each. Inventory would also fulfill certain legal requirements guided by the Paleontological Resources Preservation Act of 2009.
FRV	Inventory of facility lighting	Medium	This would include a monumentwide inventory of external lighting and would identify potential retrofit needs to protect night skies and energy savings.
FRV	Digital wilderness map	Medium	Map would include accurate boundary data with updated GIS for current recommended wilderness boundaries. Map would also indicate threats to wilderness resources, such as off-highway vehicle incursions. Map could be used to prepare for potential updated wilderness proposal.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	Data and GIS Needs	Priority (H, M, L)	Notes
FRV	Updated comprehensive fence inventory and database (in process)	Medium	Information would aid general monument mapping needs, including the digital wilderness map.
FRV	Rewrite wilderness character narrative	Medium	Relates to <i>Dinosaur Recommended Wilderness: Building Blocks for Wilderness Character</i> (2012).
FRV, Key Issue	Integration of fossil sites in GIS	Medium	Would provide important locality data for mapping known fossil sites within the monument; would add important layer to monument's GIS resources.
FRV, Key Issue	Complete GIS mapping of quarry face	Medium	Comprehensive mapping is needed to more fully study and interpret the quarry's paleontological resources.
FRV, Key Issue	Cultural landscape inventories	Medium	Would include inventories for all potentially eligible cultural landscapes within monument boundaries. For example, three landscapes at the monument have been identified as potential component cultural landscapes in the cultural landscape inventory database. Documentation and evaluation of these landscapes has not been completed. These include: 1) Quarry Visitor Center; 2) Ruple Ranch; and 3) Yampa and Green River Valleys.
FRV, Key Issue	Greater sage grouse habitat use and research needs assessment	Medium	Managers need general sage grouse habitat and use data to develop appropriate scoping for research topics. In progress but will take several years to complete.
FRV	Develop comprehensive rare plant GIS data layer	Medium	Would provide important data for mapping rare plants within the monument. Would integrate data with all monument planning efforts.
FRV, Key Issue	Ethnographic overview and assessment	Medium	This document would provide an inventory of ethnographical information at the monument and would be derived from archives, publications, and interviews with community members and other constituents. This study would also identify the need for further research.
FRV, Key Issue	Oral histories of ranchers and homesteaders	Medium	Oral histories from aging individuals instrumental in understanding the monument's ranching and homesteading history is a time-sensitive matter.
FRV, Key Issue	Collections condition survey	Medium	Survey full range of monument's collections to determine future actions to protect these resources.
FRV, Key Issue	Additional air quality monitoring	Medium	Conduct monitoring in partnership with states to assess potential threats from local development and more comprehensively track regional air quality. Dust and particulates monitoring are most needed.
FRV	Wilderness administrative history (in progress)	Medium	Complete the administrative history to better understand context of monument's recommended wilderness. Document previous and ongoing management actions.

<b>Data Needs – Where Information Is Needed Before Decisions Can Be Made</b>			
<b>Related to an FRV, OIRV, or Key Issue?</b>	<b>Data and GIS Needs</b>	<b>Priority (H, M, L)</b>	<b>Notes</b>
FRV, Key Issue	Research needs assessment for the Yampa and Green Rivers	Medium	As a follow-up to the whitepaper summaries of river ecosystem functions in the Yampa and Green Rivers, complete research needs assessment to develop appropriate scoping for research topics.
FRV, Key Issue	Study to document paleontological environments, internal geology, stratigraphy, mapping, and correlation with these formations elsewhere in the region	Medium	Needed to better understand the context of monument's paleontological and geological resources in a regional context.
FRV, OIRV	Map geohazard areas in relation to visitor use areas	Medium	Important for monument managers to understand where geohazard areas occur to develop appropriate strategies and plans for visitor safety and facility design.
FRV, Key Issue	Digitize paleontological archives	Low	Transfer physical records to an accessible database the monument can use for long-term purposes.
FRV, Key Issue	Update invasive species inventory	Low	The proliferation of invasive species affects local biodiversity; monument needs to update locations, spread, and other data for known invasive species.
FRV	Visual resource inventory	Low	Inventory process would identify the scenic quality of important viewsheds and also identify NPS and visitor values, and serve to complement cultural landscape inventories.
FRV	Finalize night skies assessment	Low	As of 2015, a night skies assessment was in progress.
FRV	Climate change vulnerability assessment	Low	The vulnerability assessment would identify which resources are most vulnerable to climate change in order to take proactive steps to minimize impacts. Vulnerability to climate change is the degree to which a system is susceptible to and unable to cope with adverse effects. Vulnerability analyses examine the exposure, sensitivity, and adaptive capacity of a resource and combine observations and projections to identify vulnerable areas, resources, and potential refugia. The assessment would target biologically diverse landscapes, the Yampa and Green River System, and resources that comprise wilderness character.
FRV, Key Issue	Obtain data on specimens collected during historic excavations	Low	Collections during historic excavations and unexcavated portions of the quarry provide an internationally significant translation of the world of Jurassic dinosaurs with outstanding opportunities for public viewing and research.
FRV, Key Issue	Spatial (GIS) information for tracking cultural resource locations and establishing monitoring conditions and priorities	Low	Incorporate GIS data into planning and management activities for cultural resources.

Data Needs – Where Information Is Needed Before Decisions Can Be Made			
Related to an FRV, OIRV, or Key Issue?	Data and GIS Needs	Priority (H, M, L)	Notes
FRV, Key Issue	Fire protection survey	Low	Would provide fire vulnerability analysis of museum collections and archives and identify strategies for protecting these resources.
FRV	Status of contiguous BLM protected lands	Low	Review planning and management designations for all contiguous BLM lands, including any modifications related to current or ongoing BLM planning efforts.
FRV, Key Issue	Upland water resources risk and threats assessment	Low	Assessment would prioritize upland water sources, such as seeps and springs, for which state-adjudicated water right applications should be updated or if new applications should be filed.
FRV	Comprehensive study of monument’s cave and karst resources	Low	Obtain baseline data for these resources.
FRV, Key Issue	Accession and catalog archives resulting from resource management activities and scientific studies	Low	Accession and cataloging would help ensure proper archival storage.
FRV, Key Issue	Incorporate the paleontological locality database into GIS	Low	Monument needs most up-to-date paleontological locality data in a GIS format.
FRV, Key Issue	Digitize paleontological locality documentation and photos	Low	Transfer physical paleontological locality data to an accessible database the monument can use for long-term purposes.
FRV, Key Issue	Digitize paleontological and geological publications	Low	Transfer physical records to an accessible database the monument can use for long-term purposes.



## Part 3: Contributors

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### Photo Credits

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## Appendixes

### Appendix A: Presidential Proclamations, Executive Order, and Legislative Acts for Dinosaur National Monument

#### Summary

##### Authorization:

Presidential Proclamation No. 1313, October 4, 1915 (39 Stat.1752).

##### Aquisition Authority:

Act of September 8, 1960 (P.L. 86-729, 74 Stat.857), authorizes acquisition by donation, purchase, or exchange of lands and interests in lands described.

Act of October 1, 1993 (P.L. 103-93, 107 Stat. 995), authorizes acquisition by exchange of all school and institutional trust lands owned by the State of Utah within the national park system. The act directs the Secretary to provide to the State of Utah a list of lands or interests in lands within the State of Utah for transfer to the state in exchange for the trust lands. All such exchanges shall be for equal value.

Act of October 31, 1998 (P.L. 105-335, 112 Stat. 3139), ratifies the “Agreement to Exchange Utah School Trust Lands between the State of Utah and the United States of America.” The Act also repeals the provisions of P.L. 103-93, except for sections 7(b)(1), 7(b)(3), and 10(b).

##### Boundary Revisions:

Proclamation No. 2290, July 14, 1938 (53 Stat.2454), revised boundaries to include additional lands.

Act of September 8, 1960, revised boundary to include additional lands.

Secretarial Notice of February 21, 1963 (F.R. Doc. 63-2113, filed February 27, 1963), revised boundary to include location of administrative headquarters site.

Secretarial Notice of March 27, 1964 (F.R. Doc. 64-3258, filed April 2, 1964), revised boundary to include entrance road, entrance spur and related facilities.

Secretarial Notice of October 9, 1964 (F.R. Doc. 64-10581, filed October 15, 1964), revised the boundary to include connecting road.

Federal Register Notice of September 10, 1985 (F.R. Doc. 85-21595, filed September 9, 1985) announced the selected location of an entrance road, pursuant to P.L. 86-729.

##### Easements:

Act of November 19, 1988 (P.L. 100-701, 102 Stat. 4640), directed Secretary to issue a patent after approval of an application for desert land entry, 105 acres of which constitute part of a scenic easement area of Dinosaur National Monument. Such patent shall reserve to the United States a right-of-way 200 feet in width for the monument entrance road. The patent must not be issued until the applicant has conveyed to the United States, at no cost, title to scenic easements on monument lands identified as Tract 07-115 and the south half of Tract 07-114. The scenic easements acquired by the Secretary and the patents issued shall be subject to restrictions set forth in NPS Dinosaur NM Deed No. 22 (recorded 03/17/67, Moffat County, Colorado, Book 341, Page 2).

The Act of August 19, 2009 stated the conveyance of federal land in a certain section of the monument (P.L. 111-53 123 Stat. 1982) shall be subject to a 1,000 foot wide scenic easement and a 200 foot wide road right-of-way previously granted to the NPS for the monument. These conveyances were described in Land Withdrawal No. U-0141143, pursuant to the Act of September 8, 1960 (74 Stat. 857,861).

## Presidential Proclamation No. 1313, October 4, 1915 (39 Stat.1752)

1752

## PROCLAMATIONS, 1915.

October 4, 1915.

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

## A PROCLAMATION

Dinosaur National  
Monument, Utah.  
Preamble.

Whereas, in section twenty-six, township four south, range twenty-three east of the Salt Lake meridian, Utah, there is located an extraordinary deposit of Dinosaurian and other gigantic reptilian remains of the Juratrias period, which are of great scientific interest and value, and it appears that the public interest would be promoted by reserving these deposits as a National Monument, together with as much land as may be needed for the protection thereof.

National Monument,  
Utah.  
Vol. 34, p. 225.

Now, therefore, I, Woodrow Wilson, President of the United States of America, by virtue of the power in me vested by Section two of the act of Congress entitled, "An Act for the Preservation of American Antiquities", approved June 8, 1906, do hereby set aside as the Dinosaur National Monument, the unsurveyed northwest quarter of the southeast quarter and the northeast quarter of the southwest quarter of section twenty-six, township four south, range twenty-three east, Salt Lake meridian, Utah, as shown upon the diagram hereto attached and made a part of this proclamation.

Description.

Reserved from settle-  
ment, etc.

While it appears that the lands embraced within this proposed reserve have heretofore been withdrawn as coal and phosphate lands, the creation of this monument will prevent the use of the lands for the purposes for which said withdrawals were made. Warning is hereby expressly given to all unauthorized persons not to appropriate, excavate, injure or destroy any of the fossil remains contained within the deposits hereby reserved and declared to be a National Monument or to locate or settle upon any of the lands reserved and made a part of this monument by this proclamation.

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

Done at the city of Washington, this fourth day of October, in the year of our Lord one thousand nine hundred and  
[SEAL.] fifteen and the Independence of the United States the one hundred and fortieth.

WOODROW WILSON.

By the President:  
ROBERT LANSING  
*Secretary of State.*

Presidential Proclamation No. 2290, July 14, 1938 (53 Stat.2454)

2454

PROCLAMATIONS—JULY 14, 1938

[53 STAT.]

ENLARGING THE DINOSAUR NATIONAL MONUMENT—COLORADO AND UTAH

July 14, 1938  
[No. 2290]

BY THE PRESIDENT OF THE UNITED STATES OF AMERICA

A PROCLAMATION

Dinosaur National Monument, Colo. and Utah. Preamble. 20 Stat. 1752.

WHEREAS certain public lands contiguous to the Dinosaur National Monument, established by Proclamation of October 4, 1915, have situated thereon various objects of historic and scientific interest; and

WHEREAS it appears that it would be in the public interest to reserve such lands as an addition to the said Dinosaur National Monument:

Lands reserved as addition to.

34 Stat. 225. 16 U. S. C. § 431.

NOW, THEREFORE, I, FRANKLIN D. ROOSEVELT, President of the United States of America, under and by virtue of the authority vested in me by sec. 2 of the act of June 8, 1906, ch. 3060, 34 Stat. 225 (U. S. C., title 16, sec. 431), do proclaim that, subject to all valid existing rights, the following-described lands in Colorado and Utah are hereby reserved from all forms of appropriation under the public-land laws and added to and made a part of the Dinosaur National Monument:

Description.

COLORADO

*Sixth Principal Meridian*

- T. 6 N., R. 99 W., sec. 5, W $\frac{1}{2}$ , secs. 6 and 7, sec. 8, W $\frac{1}{2}$ , sec. 17, W $\frac{1}{2}$ , secs. 18 and 19, sec. 20, W $\frac{1}{2}$ , sec. 29, W $\frac{1}{2}$ , secs. 30 and 31, sec. 32, W $\frac{1}{2}$ ; (partly unsurveyed)
- T. 6 N., R. 100 W., secs. 1 to 30 and 33 to 36, inclusive;
- T. 6 N., R. 101 W., secs. 1 to 30, inclusive; (partly unsurveyed)
- T. 7 N., R. 101 W., secs. 25 to 36, inclusive; " "
- T. 6 N., R. 102 W., secs. 1 to 30, inclusive; " "
- T. 7 N., R. 102 W., secs. 5 to 8, 17 to 20, and 25 to 36, inclusive; (partly unsurveyed)
- T. 8 N., R. 102 W., secs. 5 to 8, 17 to 20, and 27 to 34, inclusive; (partly unsurveyed)
- T. 9 N., R. 102 W., secs. 16 to 21, and 28 to 33, inclusive; (partly unsurveyed)
- T. 6 N., R. 103 W., secs. 1 to 14, inclusive; secs. 23 and 24;
- T. 7 N., R. 103 W., all; (partly unsurveyed)
- T. 8 N., R. 103 W., sec. 1, sec. 2, E $\frac{1}{2}$ , sec. 11, E $\frac{1}{2}$ , secs. 12 to 15, 22 to 28, and 32 to 36, inclusive; (partly unsurveyed)
- T. 9 N., R. 103 W., secs. 13, 24, 25 and 36;
- T. 6 N., R. 104 W., secs. 1, 2, 11 and 12; (partly unsurveyed)
- T. 7 N., R. 104 W., all;



UTAH

*Salt Lake Meridian*

- T. 4 S., R. 23 E., secs. 9 to 16 and 21 to 25, inclusive;  
sec. 26, N½, E½SE¼, SW¼SE¼  
W¼SW¼, SE¼SW¼  
secs. 27, 28, and those parts of secs. 34 and 35  
north of Green River; (partly unsurveyed)
- T. 3 S., R. 24 E., secs. 25, 26, 35 and 36;
- T. 4 S., R. 24 E., secs. 1 to 3, and 7 to 30; inclusive, (partly unsurveyed)
- T. 3 S., R. 25 E., sec. 11, E½,  
secs. 12 and 13,  
sec. 14, E½,  
secs. 20 to 36; inclusive, (partly unsurveyed)
- T. 4 S., R. 25 E., secs. 1 to 12, inclusive, (partly unsurveyed)  
aggregating 203,885 acres.

Warning is hereby expressly given to any unauthorized persons not to appropriate, injure, destroy or remove any feature of this monument and not to locate or settle upon any of the lands thereof.

Warning against unauthorized acts.

The reservation made by this proclamation supersedes as to any of the above-described lands affected thereby, the temporary withdrawal for classification and for other purposes made by Executive Order No. 5684 of August 12, 1931, and the Executive order of April 17, 1926, and the Executive order of September 8, 1933, creating Water Reserves No. 107 and No. 152.

Former reservations superseded.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, management, and control of this monument as provided in the act of Congress entitled "An act to establish a National Park Service, and for other purposes," approved August 25, 1916, 39 Stat. 535 (U. S. C., title 16, secs. 1 and 2) and acts supplementary thereto or amendatory thereof, except that this reservation shall not affect the operation of the Federal Water Power Act of June 10, 1920 (41 Stat. 1063), as amended, and the administration of the monument shall be subject to the Reclamation Withdrawal of October 17, 1904, for the Brown's Park Reservoir Site in connection with the Green River project.

Supervision.

39 Stat. 535,  
16 U. S. C. §§ 1, 2.

Operation of Federal Water Power Act not affected.  
41 Stat. 1063.  
16 U. S. C. §§ 791-823; Supp. IV, ch. 12.

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

DONE at the City of Washington this 14<sup>th</sup> day of July, in the year of our Lord nineteen hundred and thirty-eight, and of the Independence of the United States of America the one hundred and sixty-third.

FRANKLIN D ROOSEVELT

By the President:  
CORDELL HULL  
*The Secretary of State.*

## Act of September 8, 1960 (P.L. 86-729, 74 STAT. 857)

74 STAT.]

PUBLIC LAW 86-729—SEPT. 8, 1960

857

## Public Law 86-729

## AN ACT

To revise the boundaries of Dinosaur National Monument and provide an entrance road or roads thereto, and for other purposes.

September 8, 1960  
[H. R. 6597]

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the boundaries of Dinosaur National Monument, established in pursuance of the Act of June 8, 1906 (34 Stat. 225; 16 U.S.C., 1952 edition, sec. 431), and administered in accordance with the Act of August 25, 1916 (39 Stat. 535; 16 U.S.C., 1952 edition, sec. 1, et seq.), and Acts supplementary thereto and amendatory thereof, are hereby revised so that the monument shall include, subject to valid existing rights, those lands in the States of Colorado and Utah, encompassed within the following described boundaries:

Dinosaur National Monument.  
Boundaries revised.

39 Stat. 1752.

Beginning at a point on the Utah-Colorado State boundary line at the northeast corner of section 12, township 3 south, range 25 east, Salt Lake meridian, Utah—

thence westerly along the north lines of said section 12, and section 11, said township and range, to the north quarter-section corner of said section 11;

thence southerly along the north-south quarter-section lines of said section 11, and section 14, township 3 south, range 25 east, to the north quarter-section corner of section 23, said township and range;

thence westerly along the north lines of said section 23 and sections 22, 21, and 20, said township and range, to the northwest corner of said section 20;

thence southerly along the west line of said section 20 to the northeast corner of section 30, said township and range;

thence westerly along the north lines of said section 30, said township 3 south, range 25 east, and section 25, township 3 south, range 24 east, to the north quarter-section corner of said section 25;

thence southerly along the north-south quarter-section lines of said section 25 and section 36 of said township and range to the northeast corner of the southwest quarter of said section 36;

thence westerly along the east-west quarter-section lines of said section 36 and section 35 of said township and range to the west quarter-section corner of said section 35;

thence southerly along the west line of said section 35, said township 3 south, range 24 east, to the southwest corner of said section 35, at a point on the north line of section 3, township 4 south, range 24 east;

thence westerly along the north line of said section 3 to the northwest corner of said section 3;

thence southerly along the west line of said section 3 to the southwest corner of said section 3;

thence westerly along the south lines of sections 4, 5, and 6, said township 4 south, range 24 east, and unsurveyed sections 1, 2, 3, and 4, township 4 south, range 23 east, to the north quarter-section corner of unsurveyed section 9, said township and range;

thence southerly along the north-south quarter-section lines of said unsurveyed section 9 and unsurveyed sections 16 and 21 and sections 28 and 33, said township and range, to the southwest corner of the northeast quarter of said section 33;

thence easterly along the east-west quarter-section line of said section 33, said township 4 south, range 23 east, to the mean high water mark on the north or right bank of the Green River;

thence upstream along the mean high water mark on the north or right bank of the Green River within said township and range and township 5 south, range 23 east, township 5 south, range 24 east, and township 4 south, range 24 east, to a point at its intersection with the south line of section 30, said township 4 south, range 24 east;

thence easterly along the south lines of said section 30 and sections 29, 28, and 27, said township and range, to the north quarter-section corner of section 34 of said township and range;

thence southerly along the north-south quarter-section lines of said section 34, said township 4 south, range 24 east, and section 3, township 5 south, range 24 east, to the southwest corner of the northeast quarter of said section 3;

thence easterly along the east-west quarter-section lines of said section 3 and sections 2 and 1 of said township and range to the east quarter-section corner of said section 1;

thence northerly along the east lines of said section 1, said township 5 south, range 24 east, and sections 36, 25, 24 and unsurveyed section 13, township 4 south, range 24 east, to the northeast corner of said unsurveyed section 13, said township and range;

thence easterly along the south lines of sections 7, 8, 9, 10, 11 and fractional section 12, township 4 south, range 25 east, Salt Lake meridian, Utah, to a point of the Utah-Colorado State boundary line;

thence southerly along the Utah-Colorado State boundary line, being the west line of fractional sections 11, 14, and 23, fractional township 6 north, range 104 west, sixth principal meridian, Colorado, to the southwest corner of lot 12, said fractional section 23, said fractional township and range;

thence easterly along the south one-sixteenth latitudinal section lines of said fractional section 23 and section 24, said fractional township and range, to the northwest corner of the southwest quarter of the southeast quarter of said section 24;

thence southerly along the north-south quarter-section line of said section 24 to the south quarter-section corner of said section 24;

thence easterly along the south lines of said section 24, said fractional township 6 north, range 104 west, and section 19, township 6 north, range 103 west, to the northwest corner of section 29, said township and range;

thence southerly along the west line of said section 29 to the southwest corner of the northwest quarter of the northwest quarter of said section 29;

thence easterly along the north one-sixteenth latitudinal section lines of said section 29 and section 28 of said township and range to the southwest corner of the northwest quarter of the northeast quarter of said section 28;

thence southerly along the north-south quarter-section line of said section 28 to the southwest corner of the northwest quarter of the southeast quarter of the said section 28;

thence easterly along the south one-sixteenth latitudinal section lines of said section 28 and section 27, said township and range, to the northwest corner of the southwest quarter of the southwest quarter of section 26, said township and range;

thence southerly along the west lines of said section 26 and section 35, said township and range, to the west quarter-section corner of said section 35;

thence easterly along the east-west quarter-section lines of said section 35 and section 36, said township and range, and sections 31, 32, 33, 34, 35, and 36, township 6 north, range 102 west, sections 31, 32, 33, 34, 35, and 36, township 6 north, range 101 west, and sections 31, 32, 33, 34, 35, and 36, township 6 north, range 100 west, sections 31, and 32, township 6 north, range 99 west, to the southeast corner of the northwest quarter of said section 32;

thence northerly along the north-south quarter-section lines of said section 32 and section 29, said township and range, to the southwest corner of the northeast quarter of said section 29;

thence easterly along the east-west quarter-section lines of said section 29 and sections 28 and 27, said township and range, to the southeast corner of the northwest quarter of said section 27;

thence northerly along the north-south quarter-section lines of said section 27 and section 22, said township and range, to the northeast corner of the southwest quarter of said section 22;

thence westerly along the east-west quarter-section line of said section 22 to the east quarter-section corner of section 21, said township and range;

thence northerly along the east line of said section 21 to the northeast corner of said section 21;

thence westerly along the north line of said section 21 to the southeast corner of unsurveyed section 17, said township and range;

thence northerly along the east line of said unsurveyed section 17 to the east quarter-section corner of said unsurveyed section 17;

thence westerly along the east-west quarter-section line of said unsurveyed section 17 to the southeast corner of the northwest quarter of said unsurveyed section 17;

thence northerly along the north-south quarter-section lines of said unsurveyed section 17 and unsurveyed section 8, said township and range, to the north quarter-section corner of said unsurveyed section 8;

thence westerly along the north lines of said unsurveyed section 8 and unsurveyed section 7, said township 6 north, range 99 west, sections 12, 11, 10, 9, and 8, township 6 north, range 100 west, to the southeast corner of section 6, said township and range;

thence northerly along the east line of said section 6 to the east quarter-section corner of said section 6;

thence westerly along the east-west quarter-section lines of said section 6, said township 6 north, range 100 west, and unsurveyed sections 1 and 2, township 6 north, range 101 west, to the east quarter-section corner of unsurveyed section 3, said township and range;

thence northerly along the east section lines of said unsurveyed section 3, said township 6 north, range 101 west, and section 34, township 7 north, range 101 west, to the east quarter-section corner of said section 34;

thence westerly along the east-west quarter-section line of said section 34 to the east quarter-section corner of unsurveyed section 33, said township and range;

thence northerly along the east section lines of said unsurveyed section 33 and unsurveyed section 28, said township and range, to the east quarter-section corner of said unsurveyed section 28;

thence westerly along the east-west quarter-section lines of said unsurveyed section 28 and unsurveyed sections 29 and 30, said township 7 north, range 101 west, and unsurveyed sections 25, 26, 27, and 28, township 7 north, range 102 west, to the east quarter-section corner of unsurveyed section 29, said township and range;

thence northerly along the east section line of said unsurveyed section 29 to the northeast corner of said unsurveyed section 29;

thence westerly along the north lines of said unsurveyed section 29 and unsurveyed section 30, said township and range, to the north quarter-section corner of said unsurveyed section 30;

thence northerly along the north-south quarter-section lines of unsurveyed sections 19 and 18 and sections 7 and 6 of said township 7 north, range 102 west, to the south quarter-section corner of section 31, township 8 north, range 102 west;

thence easterly along the south lines of said section 31 and section 32, said township and range, to the south quarter-section corner of said section 32;

thence northerly on the north-south quarter-section line of said section 32 to the southwest corner of the northeast quarter of said section 32;

thence easterly on the east-west quarter-section lines of said section 32 and section 33, said township and range, to the east quarter-section corner of said section 33;

thence northerly on the east lines of said section 33 and sections 28, 21, and 16, said township and range, to the east quarter-section corner of said section 16;

thence westerly on the east-west quarter-section line of said section 16 to the east quarter-section corner of section 17, said township and range;

thence northerly on the east section lines of said section 17 and section 8 and unsurveyed elongated section 5, said township 8 north, range 102 west, to a point in the south line of section 33, township 9 north, range 102 west;

thence easterly along the south line of said section 33 to the south quarter-section corner of said section 33;

thence northerly along the north-south quarter-section lines of said section 33 and sections 28, 21, and 16, said township and range, to the north quarter-section corner of said section 16;

thence westerly along the north lines of said section 16 and sections 17 and 18, said township and range, to the north quarter-section corner of said section 18;

thence southerly along the north-south quarter-section lines of said section 18 and section 19, said township and range, to the north quarter-section corner of section 30, said township and range;

thence westerly along the north line of said section 30 to the northwest corner of said section 30;

thence southerly along the westerly line of said section 30, said township 9 north, range 102 west, to the northeast corner of section 36, township 9 north, range 103 west;

thence westerly along the north line of said section 36 to the northwest corner of said section 36, said township and range;

thence southerly along the west line of said section 36, said township 9 north, range 103 west, to a point in the north line of elongated section 2, township 8 north, range 103 west;

thence westerly along the north line of said elongated section 2 to the northwest corner of lot 6, being a midpoint of the north line of said elongated section 2;

thence southerly along the north-south line dividing said elongated section 2 to the north quarter-section corner of section 11, said township and range;

thence southerly along the north-south quarter-section line of said section 11 to the south quarter-section corner of said section 11;

thence westerly along the south line of said section 11 and the north line of section 15, said township and range, to the northwest corner of said section 15;

thence southerly along the west lines of said section 15 and sections 22 and 27, said township and range, to the northeast corner of section 33, said township and range;

thence westerly along the north lines of said section 33 and section 32, said township and range, to the northwest corner of said section 32;

thence southerly along the west lines of said section 32, said township 8 north, range 103 west, and section 5, township 7 north, range 103 west, to the northeast corner of section 7, said township and range;

thence westerly along the north lines of said section 7, said township 7 north, range 103 west, and section 12 and fractional section 11, fractional township 7 north, range 104 west, sixth principal meridian, Colorado, to a point on the Utah-Colorado State boundary line, being the northeast corner of section 12, township 3 south, range 25 east, Salt Lake meridian, Utah, the point of beginning.

The tract as described contains approximately 208,760 acres, subject to adjustment to lines of public land surveys.

SEC. 2. (a) In order to provide suitable access to Dinosaur National Monument and facilities and services required in the operation and administration of the monument, the Secretary of the Interior is authorized to select the location of an entrance road or roads to the monument and to points of interest therein, from U.S. Route 40, including an entrance and related administrative headquarters site of not more than four hundred acres, and he may provide, upon lands donated outside of the monument, connections between Dinosaur National Monument park roads. To carry out the purposes of this Act the Secretary of the Interior may acquire non-Federal lands or interests in lands by donation, purchase, or exchange: *Provided*, That lands and interests acquired for said entrance roads and connections shall consist of the fee title to a right-of-way of not more than an average of twenty-five acres per mile and of scenic easements on lands adjoining the right-of-way, said easements not to exceed an average of one hundred acres per mile. Said roads and administrative site shall constitute a part of Dinosaur National Monument and be administered pursuant to such special regulations as the Secretary of the Interior shall promulgate in furtherance of the purposes of this section.

(b) The Secretary of the Interior is hereby authorized to construct, reconstruct, improve, and maintain upon the land so acquired or otherwise in Government ownership an entrance road or roads and connections of parkway standards, including necessary bridges and other structures and utilities as necessary, and funds appropriated for the National Park Service shall be available for these purposes.

SEC. 3. Where any Federal lands included within the boundaries of Dinosaur National Monument as revised pursuant to this Act were legally occupied or utilized on the date of approval of this Act for grazing purposes pursuant to a lease, permit, or license issued or authorized by any department, establishment, or agency of the United States the person so occupying or utilizing such lands, and the heirs, successors, or assigns of such person, shall upon the termination of such lease, permit, or license be entitled to have the privilege so possessed or enjoyed by him renewed from time to time, subject to such terms and conditions as the Secretary of the Interior shall prescribe, for a period of twenty-five years from the date of approval of this Act, and thereafter during the lifetime of such person and the lifetime of his heirs, successors, or assigns, but only if they were members of his immediate family on such date, as determined by the Secretary of the Interior: *Provided*, That grazing privileges appurtenant to privately owned lands located within Dinosaur National Monument shall not be withdrawn until title to the lands to which such privileges are appurtenant shall have vested in the United States, except for failure to comply with the regulations applicable thereto after reasonable notice of default.

Approved September 8, 1960.

## Appendix B: Inventory of Special Mandates and Administrative Commitments

### Special Mandates

#### *Limitation on Acquisition of Land for Administrative Headquarters (September 8, 1960)*

Constraints based on planning and management by Public Law 86-729 include the restriction on acquisition of land for the administrative headquarters to not more than 400 acres.

#### *Provisions for Access Road Right-of-Way from US 40 and Adjoining Scenic Easements (September 8, 1960)*

Constraints based on planning and management by Public Law 86-729 include the provision that interest in land for access roads from US 40 consists of fee title to a right-of-way of not more than an average of 25 acres per mile and of scenic easements on lands adjoining the right-of-way not to exceed an average of 100 acres per mile.

At the time of this document's publication, 47 tracts totaling to 2,654.16 acres in scenic easements have been acquired by the United States and are managed as part of the monument. These tracts are as follows:

1. Tract #01-128, 101.52 acres (Bureau of Land Management [BLM] scenic easement)
2. Tract #01-130, 8.95 acres (BLM scenic easement)
3. Tract #01-132, 122.43 acres (BLM scenic easement)
4. Tract #07-106, 11.07 acres (State of Utah scenic easement)
5. Tract #07-109, 0.43 acres (BLM scenic easement)
6. Tract #07-111, 45.38 acres (BLM scenic easement)
7. Tract #07-113, 33.11 acres (BLM scenic easement)
8. Tract #07-116, 81.95 acres (Public domain scenic easement)
9. Tract #07-128, 11.47 acres (BLM scenic easement)
10. Tract #07-130, 1.80 acres (BLM scenic easement)
11. Tract #07-131, 86.23 acres (BLM scenic easement)
12. Tract #07-133, 87.49 acres (BLM scenic easement)
13. Tract #07-134, 344.77 acres (Chew scenic easement)
14. Tract #07-136, 16.06 acres (BLM scenic easement)
15. Tract #07-139, 12.00 acres (BLM scenic easement)
16. Tract #07-140, 33.67 acres (BLM scenic easement)
17. Tract #07-142, 21.12 acres (BLM scenic easement)
18. Tract #07-143, 13.77 acres (BLM scenic easement)
19. Tract #07-145, 13.54 acres (BLM scenic easement)
20. Tract #07-146, 19.11 acres (BLM scenic easement)
21. Tract #07-148, 14.41 acres (BLM scenic easement)
22. Tract #07-149, 121.83 acres (BLM scenic easement)
23. Tract #07-150, 107.45 acres (BLM scenic easement)
24. Tract #07-162, 94.19 acres (BLM scenic easement)
25. Tract #07-163, 16.85 acres (BLM scenic easement)
26. Tract #08-104, 55.09 acres (BLM scenic easement)
27. Tract #08-106, 57.15 acres (BLM scenic easement)
28. Tract #08-109, 31.22 acres (BLM scenic easement)
29. Tract #08-114, 427.22 acres (BLM scenic easement)
30. Tract #08-115, 324.48 acres (BLM scenic easement)
31. Tract #09-113, 19.57 acres (BLM scenic easement)
32. Tract #09-116, 18.97 acres (BLM scenic easement)
33. Tract #09-119, 10.61 acres (BLM scenic easement)
34. Tract #09-120, 55.45 acres (BLM scenic easement)
35. Tract #09-122, 42.19 acres (BLM scenic easement)
36. Tract #09-140, 1.40 acres (BLM scenic easement)

37. Tract #09-142, 1.62 acres (BLM scenic easement)
38. Tract #09-145, 2.41 acres (BLM scenic easement)
39. Tract #09-151, 29.20 acres (BLM scenic easement)
40. Tract #09-152, 83.75 acres (BLM scenic easement)
41. Tract #09-155, 22.21 acres (BLM scenic easement)
42. Tract #09-158, 2.31 acres (BLM scenic easement)
43. Tract #09-159, 15.30 acres (BLM scenic easement)
44. Tract #09-160, 16.18 acres (BLM scenic easement)
45. Tract #09-163, 13.61 acres (BLM scenic easement)
46. Tract #09-166, 3.10 acres (BLM scenic easement)
47. Tract #09-168, 0.52 acres (BLM scenic easement)

Two additional right-of-way tracts and 41 scenic easement tracts, totaling 1055.51 acres, have not yet been acquired by the United States. These tracts are as follows:

1. Tract #01-129, 10.33 acres (Cub Creek Road scenic easement)
2. Tract #07-108, 16.29 acres (Harper's Corner Road [HCR] scenic easement)
3. Tract #07-114, 25.58 acres (HCR scenic easement)
4. Tract #07-115, 55.78 acres (HCR scenic easement)
5. Tract #07-118, 27.75 acres (HCR scenic easement)
6. Tract #08-101, 28.92 acres (HCR scenic easement)
7. Tract #08-103, 26.62 acres (HCR scenic easement)
8. Tract #08-107, 51.88 acres (HCR scenic easement)
9. Tract #08-108, 48.20 acres (HCR scenic easement)
10. Tract #08-111, 24.33 acres (HCR scenic easement)
11. Tract #08-112, 0.17 acres (HCR fee title to right-of-way)
12. Tract #08-113, 2.46 acres (HCR scenic easement)
13. Tract #09-176, 12.85 acres (Deerlodge [DL] scenic easement)
14. Tract #09-175, 0.03 acres (DL scenic easement)
15. Tract #09-171, 9.52 acres (DL scenic easement)
16. Tract #09-170, 9.16 acres (DL road fee title to right-of-way)
17. Tract #09-169, 71.90 acres (DL scenic easement)
18. Tract #09-165, 19.84 acres (DL scenic easement)
19. Tract #09-164, 2.47 acres (DL scenic easement)
20. Tract #09-162, 0.24 acres (DL scenic easement)
21. Tract #09-161, 12.64 acres (DL scenic easement)
22. Tract #09-157, 61.22 acres (DL scenic easement)
23. Tract #09-156, 78.60 acres (DL scenic easement)
24. Tract #09-154, 10.44 acres (DL scenic easement)
25. Tract #09-150, 3.25 acres (DL scenic easement)
26. Tract #09-148, 7.60 acres (DL scenic easement)
27. Tract #09-147, 11.71 acres (DL scenic easement)
28. Tract #09-144, 27.58 acres (DL scenic easement)
29. Tract #09-143, 13.24 acres (DL scenic easement)
30. Tract #09-141, 39.38 acres (DL scenic easement)
31. Tract #09-139, 28.22 acres (DL scenic easement)
32. Tract #09-138, 26.05 acres (DL scenic easement)
33. Tract #09-137, 49.70 acres (DL scenic easement)
34. Tract #09-136, 15.37 acres (DL scenic easement)
35. Tract #09-135, 18.22 acres (DL scenic easement)
36. Tract #09-133, 2.96 acres (DL scenic easement)
37. Tract #09-124, 29.75 acres (DL scenic easement)
38. Tract #09-123, 31.72 acres (DL scenic easement)
39. Tract #09-118, 9.91 acres (DL scenic easement)
40. Tract #09-115, 13.29 acres (DL scenic easement)
41. Tract #09-112, 79.95 acres (DL scenic easement)
42. Tract #09-111, 39.37 acres (DL scenic easement)
43. Tract #09-108, 1.01 acres (DL scenic easement)



### ***Allowance for and Phase-out of Grazing (September 8, 1960)***

Public Law 86-729 called for the phase-out of grazing within the monument. Grazing of domestic livestock shall continue for a period of 25 years after September 8, 1960, and thereafter shall continue "...during the lifetime of the original permittee and his heirs..." These grazing privileges, licensed by special use permits, are based on the authorized use of certain areas in 1960 and are dependent upon compliance with appropriate federal regulations. Special regulations for the administration and termination of grazing are found in 36 CFR 7.63. Grazing associated with private inholdings shall continue until inholdings are purchased.

### ***Private Land Inholdings***

There are 3,431.21 acres (17 parcels) in private ownership within the monument (property titles based on original ownership):

1. Tract #01-102, Orchid Draw, UT, 80 acres
2. Tract #02-101, Staley Ranch, UT, 160 acres
3. Tract #02-105, Chew Ranch, UT, 80 acres
4. Tract #02-106, Chew Ranch, UT, 640 acres
5. Tract #02-109, Hacking Ranch, CO, 120 acres
6. Tract #03-103, Massey Ranch, CO, 40 acres
7. Tract #03-112, Walker Ranch, CO, 115.94 acres
8. Tract #03-113, Walker Ranch, CO, 120 acres
9. Tract #03-115, Walker Ranch, CO, 392.38 acres
10. Tract #04-106, Walker Ranch, CO, 72.80 acres
11. Tract #04-108, Walker Ranch, CO, 760 acres
12. Tract #04-110, Red Rock Ranch, CO, 360.90 acres
13. Tract #04-111, Mantle Ranch, CO, 164.86 acres
14. Tract #07-103, Ross Ranch, CO, 114.79 acres
15. Tract #07-104, Ross Ranch, CO, 200 acres
16. Tract #08-112, K Ranch, CO, .17 acres
17. Tract #09-170, Cross Mt. Ranch, 9.37 acres

### ***External Land Holdings for Inholding Exchange***

The National Park Service holds fee title to three parcels of land (641.9 acres) outside the established monument boundaries. These lands are to be used for exchange of private inholdings. The parcels include:

1. Tract #07-156 (South of Donald Wahl cabin), 271.69 acres
2. Tract #09-172 (North side of Yampa River across from Deerlodge), 47.62 acres
3. Tract #09-173 (same as tract #172), 322.59 acres

### ***External Scenic Easements for Transfer to Bureau of Land Management and/or State of Utah***

The National Park Service holds title or scenic easements to 5 tracts of land along the Point of Pines Road:

1. Tract #07-125, 43.30 acres (Right-of-way)
2. Tract #07-127, 20.69 acres (Right-of-way)
3. Tract #07-119, 172.26 acres (Scenic easement)
4. Tract #07-120, 2.26 acres (Scenic easement)
5. Tract #07-122, 76.20 acres (Scenic easement)

### ***Provisions for Law Enforcement***

The National Park Service has proprietary jurisdiction in Utah and concurrent jurisdiction in Colorado within the monument. The US Magistrate for Colorado is located in Grand Junction (113 miles from Headquarters). The US Magistrate for Utah is located in Salt Lake City (206 miles from Headquarters).

### ***Operation of Federal Water Power Act of June 10, 1920, and Reclamation Withdrawal of October 17, 1904. [Note: All withdrawals have been relinquished.]***

The National Monument was enlarged to 203,885 acres by Presidential Proclamation (President Franklin D. Roosevelt) on July 14, 1938, which also stipulated "...that this reservation shall not affect the operation of the Federal Water Power Act of June 10, 1920, (41 Stat. 1063), as amended, and the administration of the monument shall be subject to the Reclamation Withdrawal of October 17, 1904, for the Brown's Park Reservoir Site in connection with the Green River Project."

### ***Wilderness Lands***

On December 4, 1974, President Gerald Ford recommended to Congress that 165,341 acres of Dinosaur National Monument be designated as wilderness, with an additional 10,274 acres of potential wilderness addition (to be added to designated wilderness by decision of the Secretary of Interior once these potential wilderness additions met the definition of wilderness under the Wilderness Act of 1964). On May 11, 1978, a revision of the 1974 proposal was recommended to Congress, which increased the wilderness acreage to 205,672 acres, with 5,055 acres of potential wilderness addition. The increase in total wilderness acreage was the result of the purchase of inholdings, the retirement of grazing privileges (on previous potential wilderness addition lands that were now considered eligible for wilderness), the closure of a few grazing-related roads, and the decision to no longer withhold certain areas from wilderness status for future development purposes. The 1978 recommendation has not been superseded by any of the many subsequent Dinosaur National Monument draft wilderness proposal revisions, and it remains the recommended wilderness that the monument is obligated to administer as wilderness under NPS policies.

### ***Wild and Scenic Rivers***

Reaches of the Green and Yampa Rivers flowing through Dinosaur National Monument were studied between 1976 and 1979 as potential additions to the National Wild and Scenic Rivers System. The final wild and scenic river study and environmental statement was published in 1980. Findings included a determination that both reaches met criteria for eligibility and classification as "Wild," however, the Secretary of Interior declined to forward a recommendation for designation to the President, pending resolution of a number of related issues and activities. As a result, the President of the United States made no recommendation to Congress regarding designation. The Secretary specifically requested that "Congress extend the Wild and Scenic Rivers Act, Section 7(b) prohibitions against development of water resource projects on these segments until Congress can be advised more precisely as to the values which would be foreclosed or foregone should the rivers be designated as components of the National Wild and Scenic Rivers System."

### ***Yampa River Water Rights***

A civil suit involving the monument's claim of water rights for instream flows in the Yampa River was remanded by the Colorado Supreme Court to the Colorado Water Court. That court dismissed the case pursuant to a motion for summary judgment made by those opposed to reserved water rights for Dinosaur National Monument. The ruling also held that wildlife and scientific values were not primary purposes of the monument. Contrary to the recommendation of the Department of the Interior and the Department of Justice water law attorneys, the United States chose not to appeal the decision. As a result of that failure to appeal, the monument no longer has any legal standing to pursue an instream flow claim with a 1938 priority date.

## Administrative Commitments

Agreement Name	Start Date	Expiration Date	Stakeholders	Purpose
Law enforcement agreement with Moffat County, Colorado	4/30/12	12/31/14	Moffat County Sheriff's Office	This agreement facilitates more efficient and cooperative law enforcement activities in the Colorado portion of the monument (concurrent jurisdiction).
Law enforcement agreement with Uintah County, Utah	5/17/13	5/17/15	Uintah County Sheriff's Office	This agreement facilitates more efficient and cooperative law enforcement activities in the Utah portion of the monument (proprietary jurisdiction).
Emergency medical program oversight agreement with Dr. Bill Hall	1/30/2014	1/30/2019	Dinosaur National Monument, Dr. Bill Hall	To serve as the monument's medical advisor providing oversight and direction for its emergency medical services program at no cost.
Fire management agreement			Bureau of Land Management – Vernal and Craig Districts, Browns Park National Wildlife Refuge, Ashley National Forest, Uintah Basin Interagency Fire Center, various private property owners	Specific management agreements with key stakeholders are incorporated into the fire management plan.
Endangered fish research agreement			US Fish and Wildlife Service, Colorado Division of Parks and Wildlife, Utah Division of Wildlife Resources	This agreement provides guidance and stipulations for the purpose of conducting research on endangered fish species.
Law enforcement agreement between Department of the Interior (DOI) agencies	7/12/07	7/12/17	National Park Service, US Fish and Wildlife Service, Bureau of Land Management, Bureau of Indian Affairs, Bureau of Reclamation, Department of the Interior	Allows for the cross-designation of DOI law enforcement officers between designated DOI land management agencies.
Intermountain Natural History Association	1/1/13	12/31/15	Intermountain Natural History Association	Sale of convenience items.

Agreement Name	Start Date	Expiration Date	Stakeholders	Purpose
Concession permits and commercial use authorizations			Variable	Concession permits are issued for river running operations, visitor convenience items, and transportation services. The monument has six commercial use authorizations. Five commercial use authorizations are issued for two-year terms: one provides equipment rentals; another provides visitor convenience items through the Intermountain Natural History Association; and three provide auto transportation (river shuttle) services. One commercial use authorization issued for a one-year term provides bicycle tours.
Special use permits			Moon Lake Electric Association; Mountain States Telephone Company; Dean Chew; G. E. Douglass; US Geological Survey; Utah Division of Water Quality	Special use permits govern various uses of monument resources and lands. Most of the special use permits are issued annually to permit grazing pursuant to P.L. 86-729. Long-term special use permits have been issued to agencies, private companies, and a few individuals to provide for a radio tower, utility transmission lines (Moon Lake Electric Association, Mountain States Telephone Company), a domestic waterline (Dean Chew), road maintenance (G. E. Douglass), and river/water monitoring (US Geological Survey, Utah Division of Water Quality).
Law enforcement agreement between Colorado Bureau of Land Management and Colorado NPS units	1/20/2014	1/20/2019	NPS units in Colorado, Colorado Bureau of Land Management	Allows for the cross-designation of level I-commissioned officers to address law enforcement issues and requests for assistance on adjacent agency property.
Law enforcement agreement between Department of the Interior and Department of Agriculture	4/5/1994	No sunset date	US Forest Service, US Fish and Wildlife Service, National Park Service, Bureau of Land Management, Bureau of Indian Affairs, Bureau of Reclamation	Authorizes the cross-designation of law enforcement officers between the various federal land management agencies.
Mutual agreement with Colorado Northwest Community College	3/27/2012	3/27/2017	Dinosaur National Monument, Colorado Northwest Community College	To assist with the training and evaluation of NPS seasonal law enforcement academy students while using campus facilities, such as the firing range, at no cost.

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

Name	Type	Published
Dinosaur National Monument Visitor Study: Summer 2013	Visitor study	2014
Impacts of Visitor Spending on the Local Economy	Visitor spending study	2014
Rocky Mountains Cooperative Ecosystem Studies Unit Cooperative and Joint Venture Agreement	Cooperative ecosystem studies unit agreement	2014
Authorized Concessioners: Dinosaur National Monument. Content downloaded from InsideNPS	Authorized concessioners	2014
List of Classified Structures: Dinosaur National Monument	List of Classified Structures database	2014
Dinosaur National Monument Species Full List with Details	Species list with details	2014
Superintendent's Compendium	Compendium	2013
Deerlodge Road Rehabilitation Environmental Assessment and Finding of No Significant Impact	Environmental compliance	2013
Climate Monitoring in the Northern Colorado Plateau Network Annual Report 2011	Climate monitoring	2013
Dinosaur Recommended Wilderness: Building Blocks for Wilderness Character	Baseline assessment and monitoring	2012
National Parks of the Colorado River Basin: Water Management, Resource Threats, and Economics	National parks of Colorado River Basin	2011
Uplands Water Resources Inventory	Inventory and water rights assessment	2011
Comprehensive Interpretive Plan for Dinosaur National Monument	Comprehensive interpretive plan	2009
Intermountain Region New Deal Resources: Research Findings for Dinosaur National Monument	Historical resources assessment	2008
Final Environmental Impact Statement / Assessment of Effect for the Quarry Visitor Center Treatment Project	Environmental compliance	2008
Uintah Research and Curatorial Facility Environmental Assessment / FONSI	Environmental compliance	2006
Dinosaur National Monument: Scope of Collections Statement	Scope of collections statement	2006
Dinosaur National Monument Invasive Plant Management Plan and Environmental Assessment	Environmental assessment	2005

Name	Type	Published
Rial Chew Ranch Complex – Cultural Landscape Inventory	Cultural resources assessment	2003, 2004, 2005
Quarry Visitor Center – Historic Structure Report	Historical resources assessment	2003
Museum Management Plan	Plan	2002
Quarry Visitor Center – National Historic Landmark Final Nomination Form	Historical resources documentation	2001
The Road Inventory of Dinosaur National Monument	Road inventory	1999
Dinosaur National Monument: Strategic Plan FY 1997–2002	Strategic plan	1997
Statement for Management: Dinosaur National Monument	Statement for management	1990
General Management Plan, Development Concept Plans, Land Protection Plan, Environmental Assessment w/ Land Protection Plan Updates: Dinosaur National Monument	General management plan	1991
Environmental Review: River Management Plan. Dinosaur National Monument: Colorado – Utah	River management plan	1979
Master Plan: Dinosaur National Monument	Master plan	1973



## Appendix D: Notes from Public Stakeholder Meeting

The foundation project for Dinosaur National Monument began with a public stakeholder meeting on Monday, September 15, 2014, at the Quarry Visitor Center. A total of 31 stakeholders representing a variety of local, state, and federal government agencies, nonprofit groups, river outfitters, and private landowners signed in, with approximately 10 additional attendees that did not sign in. The meeting provided a chance to meet Superintendent Mark Foust and the management team, to share information about the foundation process, and to hear from stakeholders about challenges and opportunities at the monument. Superintendent Foust mentioned excitement at seeing such a large and diverse turnout at the public meeting. The following sections include a list of the questions that were presented to the public stakeholders, along with some of the associated discussion that was generated.

### **What is most unique about Dinosaur National Monument?**

- The monument's inclusion of the Yampa River within its boundaries and the Canyon of Lodore section of the Green River, in particular, provide unique recreational experiences and support natural systems.
- Large tracts of land and river that are relatively inaccessible and require multi-day trips are especially unique.
- Amazing paleontological and archeological resources, noting "the quarry is just the beginning."
- Family homesteading history and agricultural significance.
- Monument's "exposed" geology that reveals extensive geologic history.
- Diversity of wildlife is among the best in the country.
- Native American and cultural history.
- River history.
- Immense scenic viewsheds.
- Opportunities for solitude.
- Opportunities for backcountry equestrian use.
- The NPS mission at Dinosaur National Monument is complementary to the multiple-use management of the other federal agencies in the area.

### **Are there specific areas, features, or opportunities in the monument that you feel need special care or attention?**

- Interpretive signs off Yampa Bench Road.
- Old homesteads are in need of repair or stabilization and could possibly use interpretive signs.
- Care of fossil resources are not up to standards:
  - e.g., fossils in storage.
  - e.g., recent case of vandalism near the quarry.
- Equestrian users need better parking on some of the monument's roads.
- There are opportunity losses when flows in the Green and Yampa Rivers fall below a certain level, making them runnable vs. unrunnable.
- Water quantity is key to preserving river recreation, especially concerning diversions in upper basins.
- Wildlife water enhancements and development of water structures for wildlife and livestock need special attention.
- Historic uses should be maintained.

### **What stories should Dinosaur National Monument be telling?**

- Stories of homesteaders that made this inaccessible, inhospitable place their home.
- Consider modern day ranching and agricultural uses and capture the stories of people currently making a living from resources within and adjacent to the monument.
- Stories of modern river running and continuing efforts to preserve flows on one of the last undammed, wild rivers of its size (Yampa River).
- Stories of Fremont Indian resources (e.g., petroglyphs and pictographs).
- Interconnectedness, diversity, and history of culture at the monument.
- Continue to research and interpret these various stories.
- Continue to tell stories of dinosaurs.
- The monument is the only place in the world people can see dinosaur resources of this quality.
- Continue to interpret the monument’s contributions to paleontology, both the paleontology and legacy of paleontological research at the monument.

### **Key issues or opportunities**

- Expand interpretive elements beyond visitor centers (e.g., include ranching history).
- Opportunities to increase tourism—more information (e.g., brochures, maps, facilities)—is needed.
- Improve signs related to recreational opportunities across the south side of monument (including exhibits and interpretive materials).
- Need more parking and camping opportunities, especially across the south part of the monument, including Yampa Bench Road.
- Threat of invasive species.
- Fences are in poor shape.
- Air quality and protecting the viewshed.
- Protecting water quantity (e.g., preserving in-stream flows in Green and Yampa Rivers) and protecting water quality.
- Facilities need to be improved to accommodate quantity of visitors at certain areas of the monument (e.g., parking isn’t sufficient for river runners at Gates of Lodore and there are dust problems at parking lots that serve larger numbers of visitors).
- Resource protection in general (e.g., vandalism, fire management).
- Hunting could be an opportunity (especially big game hunting).
- Opportunities to expand paleontological education and research at the Craig campus of Colorado Northwestern Community College.
- Continue ranger program at Colorado Northwestern Community College.
- General opportunities to expand education with local schools.
- Park staffing needs.
- Dinosaur National Monument is the gold standard for river management—we need to “keep it that way.”



## Appendix E: List of American Indian Tribes and Pueblos Traditionally Associated with Dinosaur National Monument

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

Pueblo of Cochiti, New Mexico  
Hopi Tribe of Arizona  
Comanche Nation, Oklahoma  
Crow Tribe of Montana  
Pueblo of Laguna, New Mexico  
Pueblo of Nambe, New Mexico  
Navajo Nation, Arizona, New Mexico & Utah  
Arapaho Tribe of the Wind River Reservation, Wyoming  
Paiute Indian Tribe of Utah  
Pueblo of Picuris, New Mexico  
Pueblo of Acoma, New Mexico  
Pueblo of Isleta, New Mexico  
Pueblo of Jemez, New Mexico  
Pueblo of Pojoaque, New Mexico  
Pueblo of San Felipe, New Mexico  
Pueblo of Zia, New Mexico  
Pueblo of San Ildefonso, New Mexico  
Ohkay Owingeh, New Mexico  
San Juan Southern Paiute Tribe of Arizona  
Pueblo of Sandia, New Mexico  
Pueblo of Santa Ana, New Mexico  
Pueblo of Santa Clara, New Mexico  
Kewa Pueblo, New Mexico  
Shoshone Tribe of the Wind River Reservation, Wyoming  
Shoshone-Bannock Tribes of the Fort Hall Reservation  
Southern Ute Indian Tribe of the Southern Ute Reservation, Colorado  
Pueblo of Taos, New Mexico  
Pueblo of Tesuque, New Mexico  
Ute Indian Tribe of the Uintah & Ouray Reservation, Utah  
Ute Mountain Tribe of the Ute Mountain Reservation, Colorado, New Mexico & Utah  
Zuni Tribe of the Zuni Reservation, New Mexico  
Paiute Indian Tribe of Utah, Cedar Band  
Paiute Indian Tribe of Utah, Indian Peaks Band  
Paiute Indian Tribe of Utah, Kanosh Band  
Paiute Indian Tribe of Utah, Koosharem Band  
Paiute Indian Tribe of Utah, Shivwits Band

“ I hope that the Government,  
**for the benefit of science  
and the people,**  
will uncover a large area, leave the  
**bones and skeletons in relief  
and house them in.**  
It would make one of the  
**most astounding and  
instructive sights imaginable.”**

—Earl Douglass, 1923 letter to  
Secretary of the Smithsonian Institution

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## Intermountain Region Foundation Document Recommendation Dinosaur National Monument

June 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.



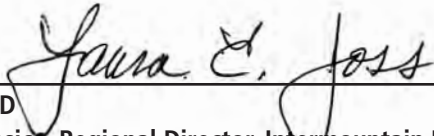
6-18-15

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RECOMMENDED

Mark Foust, Superintendent, Dinosaur National Monument

Date



7/21/15

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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.

DINO 122/127544  
July 2015

# Foundation Document • Dinosaur National Monument

