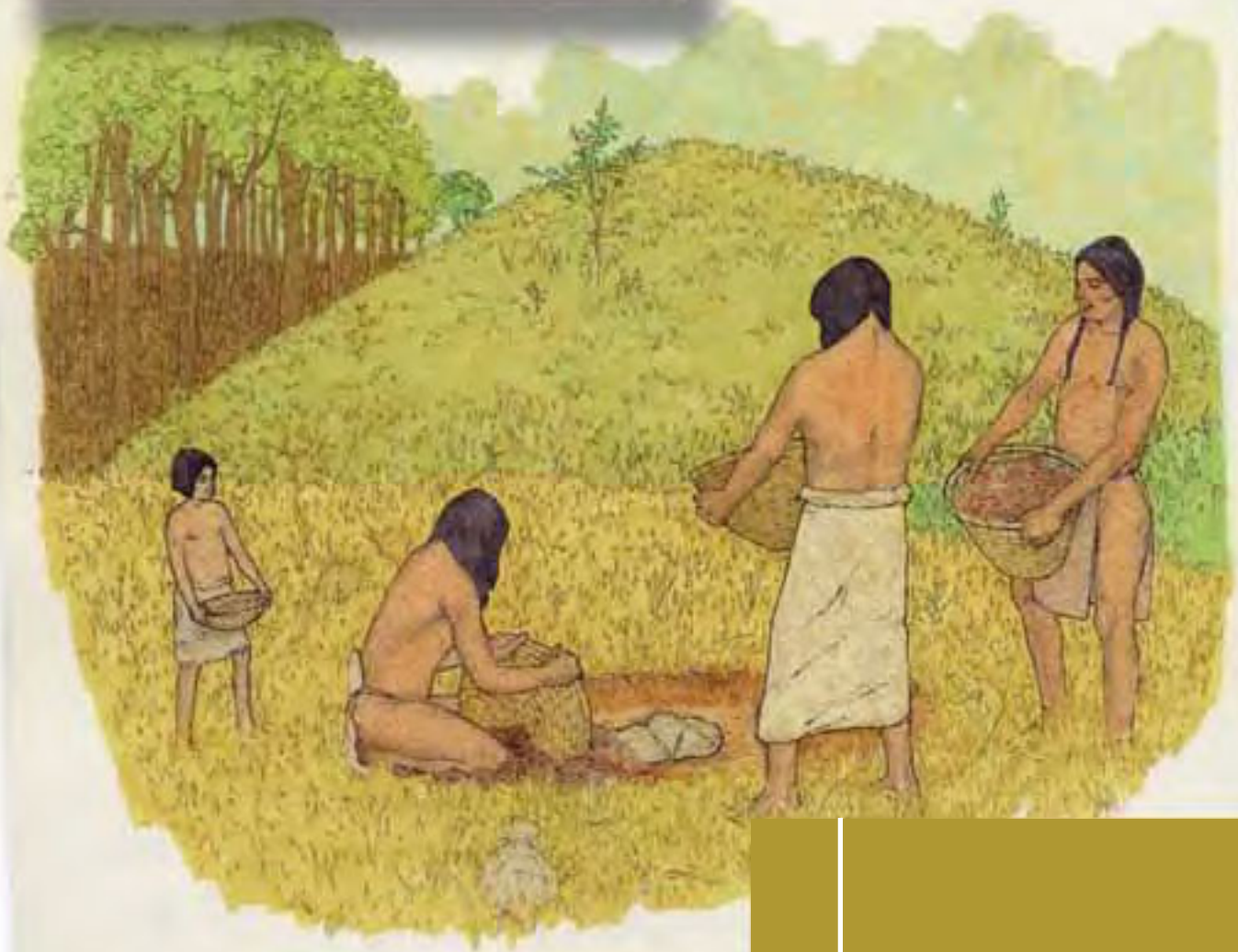


Effigy Mounds National Monument

National Park Service
United States Department of the Interior



Draft General Management Plan / Environmental Impact Statement



EFFIGY MOUNDS
NATIONAL MONUMENT

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Draft
General Management Plan / Environmental Impact Statement
Effigy Mounds National Monument
Clayton County and Allamakee County, Iowa

Effigy Mounds National Monument was established by Presidential Proclamation 2860 on October 25, 1949, to protect significant prehistoric earth mounds found in northeast Iowa. Subsequent legislation expanded the purpose and significance by specifying the wildlife, scenic, and other natural values of the area. Many of the mounds are known to be Indian burial mounds. They are in a variety of forms, including effigy (animal-shaped), linear, conical, and compound (a combination of conical and linear elements). The monument contains about 200 mound sites, of which 31 are in the form of bear and bird effigies. The monument's authorized boundary was expanded in 1961 and again in 2000; it now encompasses a total of 2,526 acres in the North, South, and Sny Magill units, and the Heritage Addition.

This *Draft General Management Plan / Environmental Impact Statement* presents and analyzes three alternative future directions for the management and use of Effigy Mounds National Monument. Alternative A is the no-action alternative, which describes current management of the monument. It serves as a basis for comparison in evaluating the other alternatives. Alternative B is the National Park Service's preferred alternative and also the environmentally preferable. It includes the construction of a multi-purpose center that would become a focal point for mound research. Alternative C would emphasize the relationship between the natural and cultural resources of the monument, and would include increased formal education and outreach programs.

The potential environmental impacts of all alternatives have been identified and assessed. The key impacts of implementing alternative A, the no-action alternative, would be short-term and long-term negligible adverse impacts on soils, vegetation, wildlife, and visual resources from construction of trails. There would be no impacts to cultural resources or special status species as a result of this alternative. This alternative would not result in impairment of a key monument resources or unacceptable adverse impacts

The impacts of implementing alternative B, the preferred alternative, would be beneficial for visitor experience and museum collections, and would result in short-term and long-term negligible to minor adverse impacts on soils, vegetation, wildlife, and visual resources from building and trail construction. This alternative would not result in an adverse effect on archeological resources or museum collections. There would be a possible adverse impact to cultural landscapes from trail construction. Special status species would not likely be adversely affected. This alternative would not result in impairment of a key monument resource or unacceptable adverse impacts.

The key impacts of implementing alternative C would be short-term and long-term negligible to minor adverse impacts on soils, vegetation, wildlife, and visual resources from trail construction. This alternative would not result in an adverse effect on archeological resources, cultural landscapes, or museum collections. Special status species would not likely be adversely affected. Alternative C would not result in impairment of a key monument resources or unacceptable adverse impacts.

This draft general management plan /environmental impact statement has been distributed to other agencies and interested organizations and individuals for their review and comment. The public comment period for this document will last for 60 days. Readers are encouraged to submit comments on this draft plan at <http://parkplanning.nps.gov>. You may also send written comments to Superintendent, Effigy Mounds National Monument, 151 HWY 76, Harpers Ferry IA 52146

Please note that National Park Service practice is to make comments, including names and addresses of respondents, available for public review; see "How to Comment on this Plan" for further information.

HOW TO COMMENT ON THIS PLAN

Comments on this *Draft General Management Plan / Environmental Impact Statement* (GMP/EIS) are welcome and will be accepted during the 60-day public review and comment period. During the comment period, comments may be submitted using several methods as noted below.

Online: at <<http://parkplanning.nps.gov/efmo>>

Mail: Effigy Mounds National Monument General Management Plan
National Park Service (DSC-P, Cellar)
P.O. Box 25287
Denver CO 80225

or

Superintendent
Effigy Mounds National Monument
151 HWY 76
Harpers Ferry IA 52146

Hand deliver: at public meetings to be announced in the media following the release of this plan.

Our practice is to make comments, including names, home addresses, home phone numbers, and email addresses of respondents, available for public review. Individual respondents may request that we withhold their names and/or home addresses, etc., but if you wish us to consider withholding this information, you must state this prominently at the beginning of your comments. In addition, you must present a rationale for withholding this information. This rationale must demonstrate that disclosure would constitute a clearly unwarranted invasion of privacy. Unsupported assertions will not meet this burden. In the absence of exceptional, documentable circumstances, this information will be released. We will always make submissions from organizations or businesses, and from individuals identifying themselves as representatives of or officials of organizations or businesses, available for public inspection in their entirety. You should be aware that we may still be required to disclose your name and address pursuant to the Freedom of Information Act.

SUMMARY

Effigy Mounds National Monument was established by presidential proclamation on October 25, 1949, to protect significant prehistoric earth mounds found in northeast Iowa. Subsequent legislation expanded the purpose and significance by specifying the wildlife, scenic, and other natural values of the area. The monument's authorized boundary was expanded in 1961 and again in 2000 until it now encompasses a total of 2,526 acres in the North Unit, South Unit, Sny Magill Unit, and the Heritage Addition.

Since the completion of the 1990 general management plan for the monument and the 1999 amendment, several conditions have changed or emerged that prompt the need for a new plan:

- The 1,045-acre Heritage Addition expanded the monument's land base by 70 percent and added several cultural resources, including mounds and extensive natural areas.
- Management of resources and visitor needs at the Sny Magill Unit are not adequately addressed in the previous general management plan.
- The monument's previous general management plan is relatively silent on matters of interest to members of the 16 affiliated American Indian tribes and on requirements of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).
- Visitation has increased since the late 1990s; this trend may continue during the life of the plan and needs to be addressed.

This general management plan / environmental impact statement presents three alternatives for future management of Effigy Mounds National Monument.

ALTERNATIVE A – NO ACTION

Current management strategies and trends would continue under the no-action alternative. Projects that have been approved and funded would be implemented. There would be no major changes to monument operations or visitor services other than those already in progress or approved. All cultural resources would continue to be maintained and preserved using current practices. Historic sites would be protected from degradation but not otherwise managed. The landscape would continue to be managed to represent the environment associated with the moundbuilding cultures. The Heritage Addition would not have a long-term plan in place. The North, South, and Sny Magill units would continue to be managed under different strategies.

The key impacts of implementing alternative A, the no-action alternative, would be short-term and long-term negligible adverse impacts on soils, vegetation, wildlife, and visual resources. There would be no impacts to cultural resources or special status species as a result of this alternative. This alternative would not result in impairment of a key monument resource or unacceptable adverse impacts.

ALTERNATIVE B – PREFERRED

Alternative B would provide an enhanced visitor experience with increased understanding of the monument while protecting and preserving natural and cultural resources. There would be a multi-purpose center with a regional research facility at the monument and an expanded role for maintenance and interpretive staff to work in cooperation with resource management to develop innovative management techniques. The desired visitor experience would be to make personal connections to the monument's tangible resources through

understanding of the significance of the (pre-European contact) American Indian mound-building story and its relationship to the heritage of the region. Public access to various units of the monument would be improved in this alternative. The natural setting created by preserving or restoring landscapes would provide a connection between the mound-building cultures and the environment that shaped their lives and beliefs.

The proposed multi-purpose center is intended to become a focal point for mound research. This facility would be built to house the monument's collections and archives, administrative offices, conference and education space, research space, and a library. This center would also promote education, maintenance, and protection activities that would support mound stewardship throughout the four-state region.

Education and interpretation of the natural resources of the park would be expanded. Physical access to and interpretation of the mounds in Sny Magill would improve according to a site development plan to be prepared.

Under the preferred alternative, the diversity of visitor trail experiences would be expanded from that currently offered at the monument. A trail development plan would explore potential options.

The key impacts of implementing alternative B would be long-term beneficial impacts to visitor experience and museum collections because of enhanced interpretation and the new facility. There would be short-term and long-term negligible to minor adverse impacts on soils, vegetation, wildlife, and visual resources from construction of the new centers and trails. Implementation of this alternative would not result in any adverse impacts on archeological resources. There would be a possible adverse impact to cultural landscapes from trail construction. Special status species would not likely be adversely affected. This alternative would not result in impairment of a key monument resource or unacceptable adverse impacts.

ALTERNATIVE C

Alternative C would emphasize the natural resource environment and its inter-connectedness with cultural resources. It would also increase formal education and outreach programs. Natural viewsheds and soundscapes would be protected as much as feasible under this alternative. The inextricably linked cultural and natural resources would be managed to resemble the landscape associated with the moundbuilding era, providing a connection to the mound-building cultures and the environment that shaped their lives and beliefs.

Education and interpretation of natural resources would be expanded in both the monument and the region. Programming would emphasize reaching a broader segment of the public, including improved accommodation of educational groups. The visitor experience in the Heritage Addition would be primarily self-directed resource observation by canoeing on the Yellow River, or by periodic special ranger-led hiking and canoe tours in a quiet, contemplative setting to preserve not only the mounds but also the sense of sacredness of their surroundings.

The key impacts of implementing alternative C would be short-term and long-term negligible to minor adverse impacts on soils, vegetation, wildlife, and visual resources from construction of trails. It would not result in an adverse effect on archeological resources or cultural landscapes. Special status species would not likely be adversely affected. There would be long-term beneficial impacts to visitor experience. This alternative would not result in impairment of a key monument resource or unacceptable adverse impacts.

The implementation of the approved plan, no matter which alternative, will depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the plan could be many years in the future.

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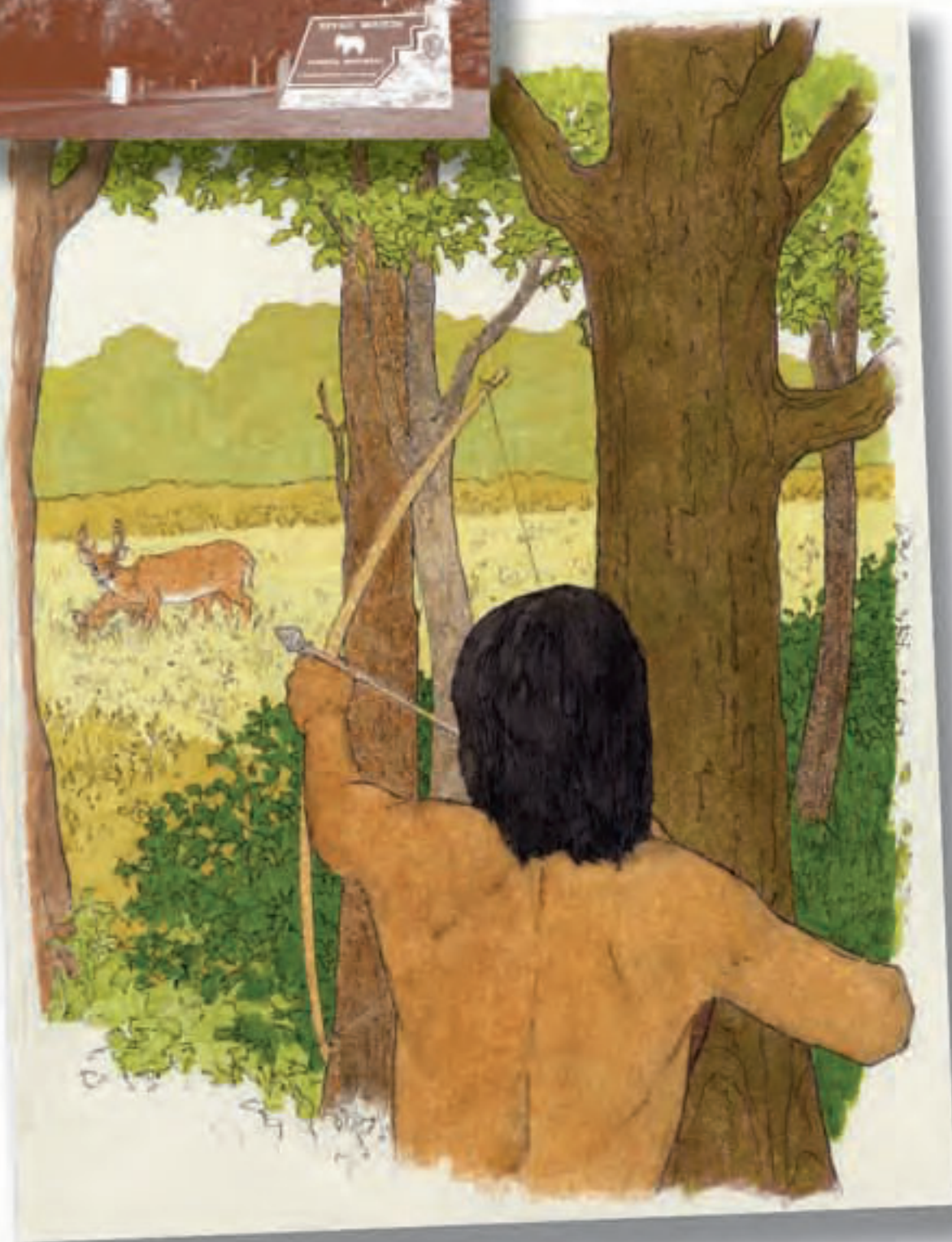
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CHAPTER 1
Introduction



A GUIDE TO THIS DOCUMENT

This *Draft General Management Plan / Environmental Impact Statement* is organized in accordance with the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (NEPA), the National Park Service's Program Standards for Park Planning, and "Conservation Planning, Environmental Impact Analysis, and Decision Making" (Directors Order 12).

Chapter 1: Introduction sets the framework for the entire document. It describes why the plan is being prepared and what needs it must address. It gives guidance for the alternatives that are being considered based on the national monument's legislated purpose, the significance of its resources, special mandates and policies, and fundamental and other important resources and values.

The chapter also details the planning opportunities and issues that were raised during public scoping meetings and initial planning team efforts; the alternatives in the next chapter address these issues and concerns to varying degrees. This chapter concludes with a statement of the scope of the environmental impact analysis — specifically what impact topics were or were not analyzed in detail.

Chapter 2: Alternatives, Including the Preferred Alternative, begins by describing the management zones that will be used to manage the national monument in the future. Zoning is used to articulate the desired resource and visitor experience conditions and the facilities that may be needed to support these desired conditions. This chapter then describes three alternative ways of addressing the issues and maintaining the monument's purpose and significance. One alternative consists of continuation of current management and trends in the monument (alternative A, the no-action alternative).

Alternatives B and C are the "action" alternatives. The preferred alternative, alternative B, is presented. Mitigating measures proposed to minimize or eliminate the impacts of some proposed actions are described just before the discussion of future studies and/or implementation plans that will be needed. Evaluation of the environmentally preferable alternative is followed by summary tables of the alternative actions and the environmental consequences of implementing those alternative actions. The chapter concludes with a discussion of alternatives or actions that were dismissed from detailed evaluation.

Chapter 3: The Affected Environment describes those areas and resources that would be affected by implementing actions in the various alternatives—cultural resources, natural resources, visitor use and experience, socioeconomic environment, and monument operations.

Chapter 4: Environmental Consequences analyzes the impacts of implementing the alternatives on topics described in the "Affected Environment" chapter. Methods used for assessing the impacts in terms of the intensity, type, and duration of impacts are outlined in the chapter.

Chapter 5: Consultation and Coordination describes the history of public and agency coordination during the planning effort and any future compliance requirements; it also lists agencies and organizations that will be receiving copies of the document. This chapter also includes a list of preparers.

The **Appendixes** present supporting information for the document and the wild and scenic river assessment, followed by **References**, and an **Index**.

PURPOSE AND NEED FOR THE PLAN

INTRODUCTION

This *Draft General Management Plan / Environmental Impact Statement* presents and analyzes three alternative future directions for the management and use of Effigy Mounds National Monument. Alternative B is the National Park Service's preferred alternative and also the environmentally preferable. The potential environmental impacts of all alternatives have been identified and assessed.

General management plans are intended to be long-term documents that establish and articulate a management philosophy and framework for decision making and problem solving in the parks. This general management plan is intended to provide guidance for the next 15 to 20 years.

Actions directed by general management plans or in subsequent implementation plans are accomplished over time. Budget restrictions, requirements for additional data or regulatory compliance, and competing national park system priorities prevent immediate implementation of many actions. Major or especially costly actions could be implemented 10 or more years into the future.

DESCRIPTION OF THE MONUMENT

Effigy Mounds National Monument was legislatively authorized by Presidential Proclamation 2860 on October 25, 1949. The monument currently comprises a total of 2,526 acres in northeastern Iowa. It is divided into four units for the purposes of this management plan: North Unit, South Unit, Heritage Addition, and the Sny Magill Unit (see monument map, figure 4). Land surrounding Effigy Mounds belongs to the USFWS, the State of Iowa, and private landowners. Land uses in the area include agriculture (farming and livestock grazing), rural development, resources management, recreation, and transportation.

The monument represents an important link in a complex of protected areas that preserve many of the values characteristic of this region. Much of the nearby Mississippi River bank and island area is managed by the U.S. Fish and Wildlife Service as the Upper Mississippi River National Wildlife and Fish refuge, a 261-mile-long preserve that extends from Wabasha, Minnesota, to Rock Island, Illinois. Yellow River State Forest lies adjacent to the Heritage Addition. Between the currently developed monument units and the Sny Magill unit is Pikes Peak State Park, which preserves several effigy mounds and bluff tops much like those of the monument. The Iowa Department of Natural Resources (DNR) manages small tracts of land and recreation sites near the monument. The Iowa DNR also manages the access road and boat ramp in the Sny Magill Unit.

Climate

The climate is typical of the upper Midwest United States with large annual and daily fluctuations. In the winter, snowfall averages about 32 inches with normal January low/high temperatures of 6/24 degrees Fahrenheit (°F), with 160 days below freezing. During the year 46 percent of the days have sunshine with summer low/high temperatures in July of 61/83°F. The average length of the growing season is 140 days with an average annual precipitation of 32 inches. The Mississippi River has a moderating effect on the climate in the valley that reduces the variance of temperature extremes. This allows plants that are adapted to warmer conditions to exist farther north than their normal range.

Geography

Effigy Mounds National Monument is located on the bluffs and floodplain of the Mississippi River. Elevation of the monument varies from about 615 feet above sea level at Sny Magill, to just over 1,000 feet in the western part of the Heritage Addition. Surface topography around Effigy Mounds is composed of

abruptly rising bluffs, deep valleys, and relatively flat ridge tops. In some places the bluffs rise 300 feet above the Mississippi River. The North and South units and Heritage Addition are predominately uplands with steep bluffs and old open fields on the highest upland flat areas. Uplands above the 900-foot elevation level comprise about 50 percent of the monument area. The area of steep slopes rising from the floodplain up to the 900-foot level make up about 25 percent, while the remaining 25 percent of monument lands consist of floodplains, water impoundments, and waterways (National Park Service 1999).

The monument lies in a geologically unique area of erosional topography drained by an intricate system of rivers and streams. Erosional forces have cut through a plain leaving high divides and precipitous bluffs above adjacent waterways. Although geologic deposits from earlier Ice Age events have been found, the last glacial period did not cover the area that is now the northeast corner of Iowa, so this eroded landform is commonly referred to as the Driftless Area. Generally speaking, the Driftless Area contains both the Paleozoic Plateau and the Silurian Escarpment, which is a land form transition between the Paleozoic Plateau and the glaciated land to the west in Iowa.

MONUMENT UNITS

North Unit

The monument's headquarters, maintenance facility, and visitor center are located in the North Unit. Trails allow visitors to view the mounds and scenic views on self-guided walks ranging from a few feet to 7 miles. Wayside exhibits along the trails provide interpretive messages. Ranger-guided interpretive tours are available on a seasonal basis. Little Bear Mound, one of the monument's finest examples of the effigy style, Great Bear Mound (the largest effigy mound in the monument), and many other mound groups are in the North Unit. In addition, spectacular

views of the Mississippi River Valley are available from Eagle Rock, Fire Point, Third Scenic View, and Hanging Rock.

South Unit

The South Unit contains the renowned Marching Bear Group of mounds. Access to the South Unit is by foot from the Iowa DNR day-use area. It is a 4-mile round trip hike to the Marching Bear Group from the Iowa DNR day-use area. A major concern is that visitors must cross railroad tracks and a busy highway to access the South Unit from the day-use area. Another concern is that the south property boundary fence is only 5 feet from the nearest mound and incompatible uses could occur on the adjacent private property.

Heritage Addition

This 1,045-acre unit was added in 2000, increasing the monument's land base by 70 percent. Most access to this unit currently requires crossing private land. Abandoned logging roads can be used as foot trails. There are five known mounds, three historic sites, the Yellow River, Dousman Creek, and an abundance of natural resources in this unit. This unit is not advertised and is not shown on the current monument brochure.

Sny Magill Unit

This small 141-acre unit is located in the floodplain on the west bank of the Mississippi River about 10 miles south of the headquarters/visitor center. The Iowa Department of Natural Resources maintains a boat ramp, parking area, and access road in the unit. With over 100 mounds identified in the unit, Sny Magill contains 50 percent of all the mounds in the monument. It is also the highest concentration of mounds known in the region. A foot trail leads from the access road to the mounds in the northern end of the unit. This unit is not advertised and not shown on the monument brochure. There are no visitor services or NPS presence here or even much indication that it is an NPS unit.

PURPOSE OF THE PLAN

The approved general management plan will be the basic document for managing Effigy Mounds National Monument for the next 15 to 20 years. The purposes of this general management plan are as follows:

- Confirm the purpose, significance, and fundamental resources and values of Effigy Mounds National Monument.
- Clearly define the resource conditions and visitor uses and experiences to be achieved in the national monument. Provide a framework for managers to use when making decisions about how to best protect resources, how to provide quality visitor uses and experiences, how to manage visitor use, and what kinds of facilities are needed and appropriate in or near the monument.
- Ensure that this framework for decision making has been developed in consultation with interested stakeholders and adopted by the National Park Service (NPS) leadership after adequate analysis of the benefits, impacts, and economic costs of alternative courses of action.

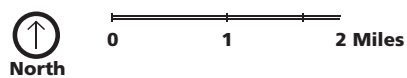
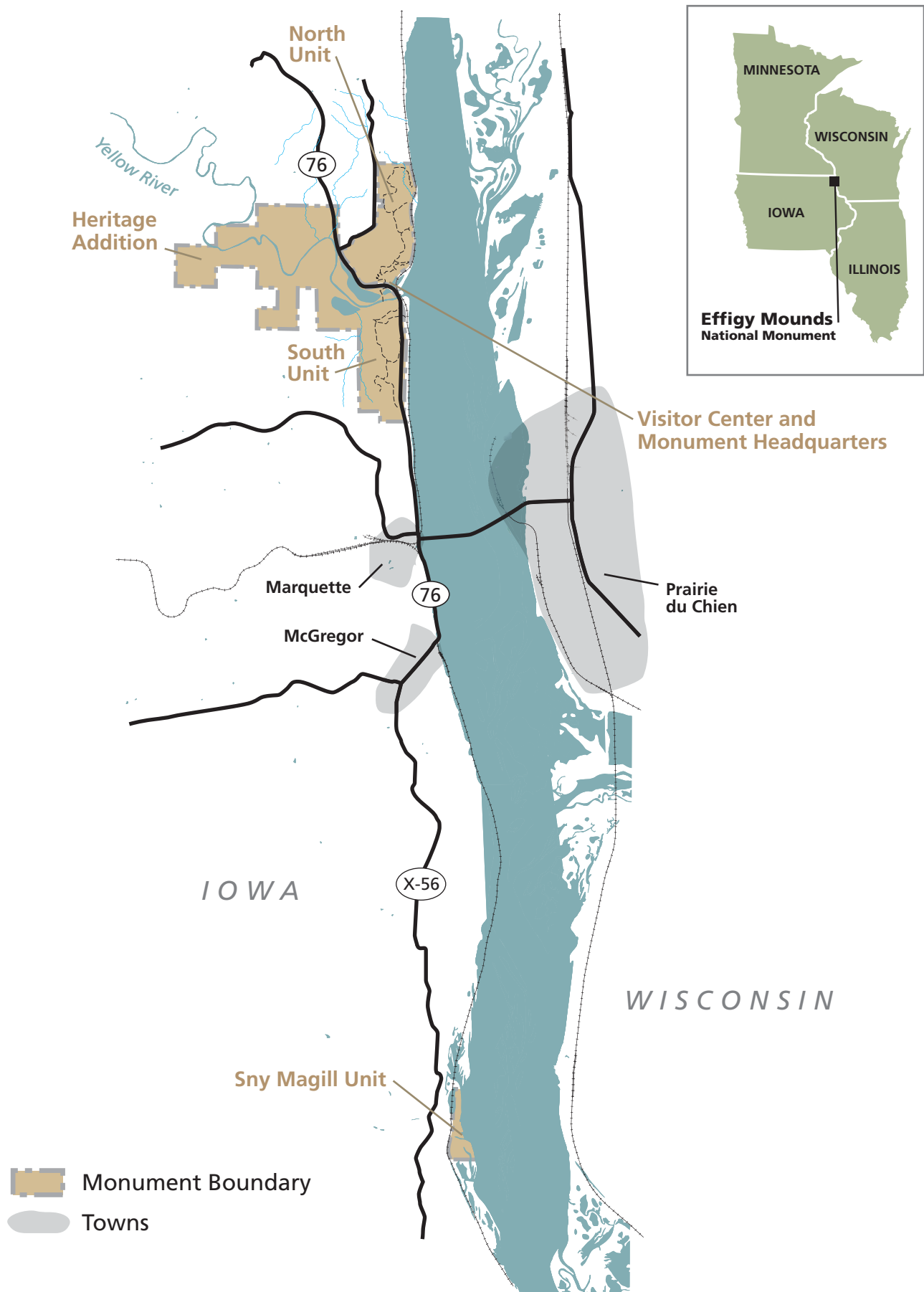
Legislation establishing the National Park Service and governing park management provides the fundamental direction for the administration of Effigy Mounds National Monument (and other units and programs of the national park system). This general management plan builds on these laws, National Park Service (NPS) policies, and the legislation that established the monument to provide a vision for the future. The “Service-wide Laws and Policies” section calls the reader’s attention to topics that are important to understanding the management direction at the national monument. Table 1 summarizes the topics and conditions to which management is striving, including more detail on the law or policy directing management actions. The alternatives in this general management plan address the desired future conditions that are not mandated by law and policy, and which must be determined through a planning process.

The general management plan does not describe how particular programs or projects should be prioritized or implemented. Those decisions will be addressed in future, more detailed planning efforts. All future plans will tier from the approved general management plan.

NEED FOR THE PLAN

The current general management plan (GMP) for Effigy Mounds does not provide adequate management guidance in several key areas. Since the completion of the 1990 general management plan for the monument and the 1999 amendment, several conditions changed or emerged that prompt the need for a new plan:

- The 1,045-acre Heritage Addition expanded the monument’s land base by 70 percent and added several cultural resources, including mounds and extensive natural areas.
- Management of resources and visitor needs at the Sny Magill Unit are not adequately addressed in the previous general management plan.
- The monument's previous general management plan is relatively silent on matters of interest to members of the 16 affiliated American Indian tribes and on requirements of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA).
- Visitation has been generally increasing since the late 1990s; this unanticipated trend may continue during the life of the plan and needs to be addressed.



REGION

EFFIGY MOUNDS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / Nov. 07 / 394 / 20,022B

THE NEXT STEPS

After distribution of the *Draft General Management Plan / Environmental Impact Statement*, there will be a 60-day public review and comment period after which the NPS planning team will evaluate comments from other federal agencies, tribes, organizations, businesses, and individuals regarding the draft plan and will incorporate appropriate changes into the *Final General Management Plan / Environmental Impact Statement*. The final plan will include letters from governmental agencies, any substantive comments on the draft document, and NPS responses to those comments. Following distribution of the *Final General Management Plan / Environmental Impact Statement* and a 30-day no-action period, a record of decision approving a final plan will be signed by the NPS regional director. The record of decision documents the National Park Service selection of an alternative for implementation. With the signing of the record of decision and its publication in the *Federal Register*, the plan can be implemented.

IMPLEMENTATION OF THE PLAN

The implementation of the approved plan, no matter which alternative, will depend on future NPS funding levels and Service-wide priorities, and on partnership funds, time, and effort. The approval of a GMP does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full

implementation of the plan could be many years in the future.

Implementation of the approved plan could also be affected by other factors. Once the general management plan is approved, additional feasibility studies and more detailed planning and environmental documentation would be completed, as appropriate, before any proposed actions would be carried out. Examples include the following:

- Appropriate permits would be obtained before implementing actions that would impact wetlands.
- Appropriate federal and state agencies would be consulted concerning actions that could affect threatened and endangered species.
- American Indian tribes and the state historic preservation officer would be consulted.
- As appropriate, NEPA documentation would be prepared prior to any action.

The general management plan does not describe how particular programs or projects should be prioritized or implemented. Those decisions would be addressed during the more detailed planning associated with strategic plans, implementation plans, etc. All future, more detailed plans will be based on the goals, future conditions, and appropriate types of activities established in the approved general management plan.

FOUNDATION FOR PLANNING AND MANAGEMENT

MONUMENT PURPOSE AND SIGNIFICANCE

Monument Purpose

Purpose statements are based on the national monument's legislation and legislative history and NPS policies. The statement reaffirms the reasons for which the national monument was set aside as a unit of the national park system and provide the foundation for management and use.

Effigy Mounds National Monument preserves outstanding representative examples of significant phases of prehistoric Indian moundbuilding cultures in the American Midwest; protects wildlife and natural values within the monument; and provides for scientific study and appreciation of its features for the benefit of this and future generations.

Significance Statements and Associated Fundamental and Other Important Resources and Values

Significance statements capture the importance of the national monument to the country's natural and cultural heritage. Significance statements do not inventory national monument resources; rather, they describe the national monument's distinctiveness and help to place the monument within its regional, national, and international contexts. Significance statements answer questions such as why are Effigy Mounds National Monument's resources distinctive? What do they contribute to the natural/cultural heritage? Defining the significance and associated fundamental resources helps managers make decisions that preserve the resources and values necessary to accomplish the national monument's purpose.

Fundamental resources and values are critical in fulfilling the monument's purpose and maintaining its significance. *Other important resources and values* are otherwise important to park planning and management. The reasons for identifying fundamental and other important resources and values include management focus, specific direction, and continuity on the features that are most important in the monument.

Significance 1. The national monument contains nationally significant archeological resources comprising one of the largest concentrations of Indian mounds in the United States, including some of the finest and best preserved examples of effigy mounds in their original forms. These cultural features provide an insight into the social, spiritual, and ceremonial life of pre-European contact peoples in this region.

Fundamental Resources and Values

- The primary archeological sites in all units of the monument, including all their features such as mounds, rock shelters, habitation sites, rock art, and associated artifacts, represent 1800 years of the moundbuilding culture. While the Heritage Addition has not yet been surveyed archeologically, some mounds have been discovered in that area.

Significance 2. The natural and cultural resources of the monument are intricately connected—the moundbuilding cultures were the result of the dynamic interface of people and their environment. The native vegetation communities associated with the moundbuilding era was the result of the topography and climate found in the geologically unique Driftless Area of the Upper Midwest. This environment produced microhabitats that support extensive flora and fauna diversity. This diversity attracted and sustained generations of American Indians.

Fundamental Resources and Values

- Habitat for an assemblage of plants found nowhere else in Iowa and rare in the region. This habitat includes both the transition zone of several vegetation communities found in the eastern hardwood and prairie ecosystems and microclimates produced by north-facing slopes and the influence of the river valley.
- Habitat, including wetlands, for almost 300 species of birds, including nesting habitat for the red-shouldered hawk, a state-listed species, and habitat for several other federal- and state-listed animal and plant species, including bald eagles, peregrine falcons, Higgins-eye pearly mussel, purple fringed orchid, and jeweled shooting star.

Important Resources and Values

- The Yellow River is listed in the Nationwide Rivers Inventory and possesses outstandingly remarkable values.
- The unglaciated topography associated with the Driftless Area reveals 500 million year old limestone bedrock. The exposed 400-foot bluffs overlooking the Mississippi River contain rock shelters, which were important as habitation sites, and chert outcroppings, which were locally important for making tools and weapons.

Significance 3. The monument contains historic resources that represent Euro-American settlement of the area and the displacement of historic American Indian culture. Conversely, early scientific research conducted in the monument began the period of understanding and preserving of the rich Indian culture.

Important Resources and Values

- A road built in 1840 by the military that connected Fort Crawford, Wisconsin with Fort Atkinson, Iowa, and a historic archeological site, the Jefferson Davis sawmill, that supported the building of

Fort Crawford. These are some of the reminders of how early 19th century American Indian treaties involved the military in resolving “the Indian question” and opened up the territories for United States expansion and settlement prior to the Mexican War.

- The historic sites of the monument that document early American use of the land for homesteading, agriculture, and economic, consumptive purposes, such as clamming, logging, and quarrying. These sites are tangible connections to the early western expansion of America.

Significance 4. The monument preserves and protects physical evidence of the cultural landscape, which documents the early and continuing scientific interest in the mounds and moundbuilding cultures. The monument’s cultural resources and collections document the full breadth of archeological investigations in the monument, from early mound documentation and exploration, to modern methods of archeological investigation that incorporate a variety of techniques and native perspectives.

Fundamental Resources and Values

- Original documents, photographic collections, and artifact collections that both document the important contributions of Ellison Orr and others to the early development of the science of field archeology relating to the moundbuilding cultures and support future scientific study and interpretation of paleontology, natural history, geology, history and ethnology.

Significance 5. The monument is identified by present-day members of the monument’s affiliated tribes as a sacred landscape.

Fundamental Resources and Values

- The features of this ethnographic landscape listed previously as fundamental and important resources such as mounds and associated artifacts, native vegetation, and rivers. Some natural resources present in the monument, such

as medicinal and ceremonial plants, are also culturally important, contributing to the importance of the area to modern American Indian tribes.

PRIMARY INTERPRETIVE THEMES

Primary interpretive themes are the key stories, concepts, and ideas of a park. They are the groundwork that NPS staff will use for educating visitors about the monument and for inspiring visitors to care for and about the resources. With these themes, visitors can form intellectual and emotional connections with monument resources and experiences. Subsequent interpretive planning may elaborate on these primary themes. Based on the park's purpose, significance, and primary resources, the following interpretive themes have been developed:

- Effigy Mounds National Monument preserves earthen mounds that are a manifestation of a sophisticated moundbuilding culture composed of several cultural systems that allowed the inhabitants to maintain a balance with the natural environment. These cultural systems of social organization (required to harness the labor to build the mounds), religious expression (the mounds), economics (widespread trade networks), and horticulture, allowed these peoples to invest the time and labor necessary to build the mounds.
- The notable erosional features of the Driftless (unglaciated) Area set the framework for a unique assemblage of prairie and forest, wetlands and upland, and warm and cool environments that are home to highly diverse communities of plants and animals. This provides an opportunity to study the intricate connection between the moundbuilding people and the dynamic continuum of the natural world that had a profound impact on the evolution of a complex American Indian Culture.
- The design and extent of ancient mound construction reveals not only the cultural sophistication and foresight of generations of moundbuilders, but also the special value they placed in their shared community beliefs and in these sacred places.
- With European and American expansion, forces swept over the Effigy Mounds area, removing American Indian residents and displacing their culture. Ironically, the monument, as a sacred site, includes remnants of these cultural conflicts and the forces of “nation building” revealed by the old military road that connected Ft. Crawford to Ft. Atkinson, the Jefferson Davis sawmill site, the nearby Winnebago mission school, and the neutral zone.
- The monument's cultural resources and collections document the full breadth of archeological investigations in the monument, from early mound documentation and exploration, to modern methods of archeological investigation that incorporates a variety of techniques and native perspectives. The monument continues to serve as a springboard for the progression of American archeology—from a simple fascination with “curiosities” to a scientific methodology that today incorporates the sacred nature of American Indian archeological sites.
- Combining a focus on less invasive archeological methods with continued consultation with affiliated tribes will allow a more complete understanding of American Indian traditions, history, and stories related to the moundbuilding cultures. Only by combining these earlier methods of archeology, other less invasive methods of today, and the oral histories of the native peoples can we develop a deeper understanding of and spiritual connection with the past.

SPECIAL MANDATES OR ADMINISTRATIVE COMMITMENTS

Public Law 106-323 allowed for additional lands (the 50-acre Riverfront Tract) to be purchased from willing sellers and adjusted the monument boundary to include these lands. While the Riverfront Tract is in the legislated monument boundary, it remains in ownership of the Iowa Department of Natural Resources and the Canadian Pacific Railroad. Should this land become available, it may be purchased by the U.S. Government and immediately included in the monument.

SERVICEWIDE LAWS AND POLICIES

Development of this plan has proceeded within a complex legal framework. This section identifies what must be done at Effigy Mounds National Monument to comply with federal laws and policies of the National Park Service. Many management directives are specified in laws and policies guiding the National Park Service and are, therefore, not subject to alternative approaches. For example, there are laws and policies about managing environmental quality (such as the Clean Air Act; the Endangered Species Act; and Executive Order 11990, “Protection of Wetlands”); laws governing the preservation of cultural resources (such as the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act); and laws about providing public services (such as the Americans with Disabilities Act) — to name only a few. In other words, a general management plan is not needed to decide, for instance, that it is appropriate to protect endangered species, control exotic species, protect archeological sites, conserve artifacts, or provide for handicap access. Laws and policies have already decided those and many other things. Although attaining some of the conditions set forth in these laws and policies may have been temporarily deferred in the park because of funding or staffing limitations, the National Park Service will continue to strive to implement these

requirements with or without a new general management plan.

The Wild and Scenic Rivers Act, section 5(d)(1) requires that consideration be given by all federal agencies to potential national wild, scenic, and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials.

Some of these laws and executive orders are applicable solely or primarily to units of the national park system. These include the 1916 Organic Act that created the National Park Service; the General Authorities Act of 1970; the act of March 27, 1978, relating to the management of the national park system; and the National Parks Omnibus Management Act (1998). Other laws and executive orders have much broader application, such as the Endangered Species Act, the National Historic Preservation Act, and Executive Order 11990 that address the protection of wetlands.

The NPS Organic Act (16 USC 1) provides the fundamental management direction for all units of the national park system:

[P]romote and regulate the use of the Federal areas known as national parks, monuments, and reservations...by such means and measure as conform to the fundamental purpose of said parks, monuments and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The National Park System General Authorities Act (16 USC 1a-1, et seq.) affirms that while all national park system units remain “distinct in character,” they are “united through their interrelated purposes and resources into one national park system as cumulative expressions of a single national heritage.” The act makes it clear that the NPS Organic Act and other protective mandates apply equally to all units of the system. Further, amend-

ments state that NPS management of park units should not “derogat[e]...the purposes and values for which these various areas have been established.”

The National Park Service also has established policies for all units under its stewardship. These are identified and explained in a guidance manual entitled *NPS Management Policies 2006*. The “action” alternatives (alternatives B and C) considered in this document incorporate and comply with the provisions of these mandates and policies.

To truly understand the implications of an alternative, it is important to combine the servicewide mandates and policies with the

management actions and zoning described in an alternative.

Table 1 shows some of the most pertinent service-wide mandates and policy topics related to planning and managing Effigy Mounds National Monument; across from each topic are the desired conditions the staff is striving to achieve for that topic and thus, the table is written in the present tense. The alternatives in this management plan address the desired future conditions that are not mandated by law and policy and must be determined through a planning process.

Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument

CULTURAL RESOURCES MANAGEMENT	
ARCHEOLOGICAL RESOURCES	
Desired Conditions	Sources
<p>Archeological sites are identified and inventoried and their significance is determined and documented. Archeological sites are protected in an undisturbed condition unless it is determined through formal processes that disturbance or natural deterioration is unavoidable. When disturbance or deterioration is unavoidable, the site is professionally documented and excavated in consultation with the Iowa state historic preservation office and the resulting artifacts, materials, and records are curated and conserved. Some archeological sites that can be adequately protected may be interpreted to the visitor.</p>	<p>National Historic Preservation Act; Executive Order 11593, "Protection and Enhancement of the Cultural Environment"; Archeological Resources Protection Act; <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i>; Programmatic Memorandum of Agreement among the National Park Service, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (1995); NPS <i>Management Policies 2006</i>; Director's Order 28: <i>Cultural Resource Management Guideline</i>; Director's Order 28A: <i>Archeology</i>; Executive Order 13007, "Indian Sacred Sites;" and the Native American Graves Protection and Repatriation Act</p>
<p>Examples of Compliance Actions</p> <p>The National Park Service will take the following actions to meet legal and policy requirements related to archeological sites:</p> <ul style="list-style-type: none"> • Complete archeological surveys of all units of the national monument. • If archeological resources are discovered, they would be treated as eligible for listing in the National Register of Historic Places (national register) pending a formal determination of their significance by the National Park Service and the Iowa State Historic Preservation Officer. • Protect all archeological resources eligible for listing in the National Register of Historic Places; if disturbance to such resources is unavoidable, conduct formal consultation with the Iowa state historic preservation office, and as necessary with the Advisory Council on Historic Preservation. • When archeological resources are discovered, consult with associated American Indian tribes. 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

CULTURAL RESOURCES MANAGEMENT (Continued)	
HISTORIC AND PREHISTORIC STRUCTURES	
Desired Conditions	Sources
Historic structures are inventoried and their significance and integrity are evaluated under National Register of Historic Places criteria. The qualities that contribute to the listing or eligibility for listing of historic structures in the national register are protected in accordance with the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation (unless it is determined through a formal process that disturbance or natural deterioration is unavoidable).	National Historic Preservation Act; Executive Order 11593; Archeological Resources Protection Act; <i>The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings</i> ; Programmatic Memorandum of Agreement among the National Park Service, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers; NPS <i>Management Policies 2006</i> ; Director's Order 28: <i>Cultural Resources Management Guidelines</i> ; and the NPS List of Classified Structures.
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Maintain and certify the List of Classified Structures, the NPS inventory of all historic and prehistoric structures that have historical, architectural, or engineering significance. • Determine the appropriate level of preservation for each historic structure formally determined to be eligible for listing or listed in the National Register of Historic Places. 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

CULTURAL RESOURCES MANAGEMENT (Continued)	
CULTURAL LANDSCAPES	
Desired Conditions	Sources
<p>Cultural landscape inventories are conducted to identify landscapes potentially eligible for listing in the National Register of Historic Places, and to assist in future management decisions for landscapes and associated resources, both cultural and natural.</p> <p>A Cultural Landscape Report (CLR) clearly identifies the landscape characteristics and associated features, values, and associations that make a landscape historically and culturally significant. The content of a CLR provides the basis for making sound decisions about management, treatment, and use.</p> <p>The management of cultural landscapes focuses on preserving the landscape's physical attributes, biotic systems, and use when that use contributes to its historical significance.</p>	<p>National Historic Preservation Act; Executive Order 11593, "Archeological Resources Protection Act"; <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i>; Programmatic Memorandum of Agreement among the National Park Service, Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers (1995); Executive Order 13007, "Indian Sacred Sites"; <i>NPS Management Policies 2006</i>; Director's Order 28: <i>Cultural Resources Management Guidelines</i>; List of Classified Structures; Cultural Landscape Inventory</p>
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Maintain and certify the Cultural Landscapes Inventory, an evaluated inventory of all landscapes having historical significance, in which the NPS has or plans to acquire legal interest. • Update the current Cultural Landscapes Inventory to determine whether or not an "ethnographic landscape" exists, determine its boundaries, and document any resources. • Complete the Cultural Landscape Report for the Monument • Maintain cultural landscapes according to the <i>Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes</i>. 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

CULTURAL RESOURCES MANAGEMENT (Continued)	
MUSEUM COLLECTIONS	
Desired Conditions	Sources
<p>All museum collections (prehistoric and historic objects, artifacts, works of art, archival documents, and natural history specimens) are identified and inventoried, catalogued, documented, preserved, and protected, and provision is made for their access to and use for exhibits, research, and interpretation according to NPS standards.</p> <p>The qualities that contribute to the significance of collections are protected in accordance with established standards.</p>	<p>National Historic Preservation Act, Archeological Resources Protection Act, <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i>, <i>NPS Management Policies 2006</i>; Director's Order 24: <i>Museum Collections Management</i></p>
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Inventory and catalog all museum collections in accordance with standards in Director's Order 24: <i>Museum Collections Management</i> and the <i>NPS Museum Handbook</i>. • Develop and implement a collection management program according to NPS standards to guide the protection, conservation, and use of museum objects. 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

NATURAL RESOURCES MANAGEMENT	
SOILS	
Desired Conditions	Sources
<p>The National Park Service actively seeks to understand and preserve the soil resources, and to prevent to the extent possible the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.</p> <p>Natural soil resources and processes function in as natural a condition as possible, except where special considerations are allowable under policy.</p>	NPS <i>Management Policies 2006</i>
<p>When soil excavation is an unavoidable part of an approved facility development project, the National Park Service will minimize soil excavation, erosion, and offsite soil migration during and after the development activity.</p>	NPS <i>Management Policies 2006</i>
WATER RESOURCES	
Desired Conditions	Sources
<p>Surface water and groundwater are protected, and water quality meets or exceeds all applicable water quality standards.</p>	Clean Water Act; Executive Order 11514, "Protection and Enhancement of Environmental Quality"; NPS <i>Management Policies 2006</i>
<p>NPS programs and facilities and NPS-permitted programs and facilities are maintained and operated to avoid pollution of surface water and groundwater.</p>	Clean Water Act; Executive Order 12088, "Federal Compliance with Pollution Control Standards"; Rivers and Harbors Act; NPS <i>Management Policies 2006</i>
<p>The Yellow River is managed to maintain the characteristics that make it eligible and suitable for inclusion in the National Wild and Scenic Rivers System.</p>	Wild and Scenic Rivers Act, NPS <i>Management Policies 2006</i> (4.3.4)
Examples of Compliance Actions	
<ul style="list-style-type: none"> Continue monitoring water quality of Yellow River and initiate monitoring of other waterways. When degraded water quality and/or flows occur, attempt to locate and mitigate at the source. Inform and educate visitors about the water resources. Take no management actions that could adversely affect the values that qualify the Yellow River for inclusion in the National Wild and Scenic Rivers System. 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

NATURAL RESOURCES MANAGEMENT (Continued)	
FLOODPLAINS	
Desired Conditions	Sources
Natural floodplain values are preserved or restored.	Executive Order 11988, "Floodplain Management"; NPS <i>Management Policies 2006</i>
<p>Long-term and short-term environmental effects associated with the occupancy and modifications of floodplains are avoided.</p> <p>When it is not practicable to locate or relocate development or inappropriate human activities to a site outside the floodplain or where the floodplain will be affected, the National Park Service</p> <ul style="list-style-type: none"> • prepares and approves a statement of findings in accordance with Director's Order 77-2 • uses nonstructural measures as much as practicable to reduce hazards to human life and property while minimizing impacts on the natural resources of floodplains • ensures that structures and facilities are designed to be consistent with the intent of the standards and criteria of the National Flood Insurance Program (44 CFR 60) 	Director's Order 77-2: <i>Floodplain Management</i> , NPS <i>Management Policies 2006</i>
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Prepare a quantitative analysis of the Yellow River and Mississippi River floodplains and the risk of damaging floods. • Develop procedures to redirect visitors during a flood event. • Inform visitors about the values of flooding and natural floodplains. 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

NATURAL RESOURCES MANAGEMENT (Continued)	
NATIVE VEGETATION AND ANIMALS	
Desired Conditions	Sources
The National Park Service will strive to maintain, as part of the natural ecosystem, native plants and animals in the national monument. Populations of native plant and animal species function in as natural condition as possible except where special considerations are warranted. Native species populations that have been severely reduced in or extirpated from the national monument are restored where feasible and sustainable.	NPS <i>Management Policies 2006</i>
The management of exotic plant and animal species, including eradication, will be conducted wherever such species threaten national monument resources or public health and when control is prudent and feasible.	NPS <i>Management Policies 2006</i> , Executive Order 13112, "Invasive Species"
THREATENED, ENDANGERED, AND SPECIAL STATUS SPECIES	
Desired Conditions	Sources
Federal- and state-listed threatened and endangered species and their habitats are protected and sustained.	Endangered Species Act, NPS <i>Management Policies 2006</i>
Native threatened and endangered species populations that have been severely reduced in or extirpated from the national monument are restored where feasible and sustainable.	NPS <i>Management Policies 2006</i>
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Conduct periodic inventories for special status species. • Prepare and implement a resources stewardship strategy. 	
NATURAL SOUNDSCAPES	
Desired Conditions	Sources
The natural soundscape of the monument will be preserved to the greatest extent possible.	NPS <i>Management Policies 2006 (4.9)</i>
Where soundscapes have been degraded by unnatural sounds (noise) they will be restored to a natural condition wherever possible	NPS <i>Management Policies 2006 (4.9)</i>
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Identify what types and maximum levels of unnatural sound constitute acceptable impacts and monitor to determine when those levels are exceeded 	

**Table 1: Laws, Mandates, and Policies Pertaining to Effigy Mounds National Monument
(Continued)**

VISITOR USE AND EXPERIENCE	
VISITOR USE AND EXPERIENCE	
Desired Conditions	Source
<p>Cultural and natural resources are conserved “unimpaired” for the enjoyment of future generations. Visitors have opportunities for forms of enjoyment that are uniquely suited and appropriate to the superlative natural and cultural resources found in the national monument. No activities occur that would cause derogation of the values and purposes for which the park has been established.</p> <p>Visitors will have opportunities to understand and appreciate the significance of the national monument and its resources, and to develop a personal stewardship ethic.</p> <p>For all zones, units, or other logical management divisions in the monument, the types and levels of visitor use are consistent with the desired resource and visitor experience conditions prescribed for those areas.</p>	<p>NPS Organic Act, <i>NPS Management Policies 2006</i>, National Parks and Recreation Act (PL 95-625)</p>
<p>To the extent feasible, programs, services, and facilities are accessible to and usable by all people, including those with disabilities.</p>	<p>Americans with Disabilities Act, Director’s Order 42: <i>Accessibility for Visitors with Disabilities in NPS Programs, Facilities, and Services</i></p>
<p>Examples of Compliance Actions</p> <ul style="list-style-type: none"> • Give all visitors the opportunity to understand, appreciate, and enjoy the resources and values of the national monument. • Continue to monitor visitor comments on issues such as crowding, access, and other experience-related topics. • Identify implementation commitments for user capacities for all areas of the national monument. 	

RELATIONSHIP OF OTHER PLANNING EFFORTS TO THIS GENERAL MANAGEMENT PLAN

Effigy Mounds National Monument is in Clayton and Allamakee counties, Iowa. Properties surrounding the park include state lands and privately owned residential and agricultural lands. There are no tribal lands nearby.

Several planning efforts have influenced or would be influenced by the approved *General Management Plan for Effigy Mounds National Monument*. Some of these plans are described briefly here, along with their relationship to this general management plan.

The monument is located within the Silos & Smokestacks National Heritage Area (SSNHA). As one of the federally designated heritage areas in the nation, it is an affiliated area of the National Park Service—the National Park Service does not own or manage it but may provide some funding and technical support. Through the development of a network of sites, programs and events, SSNHA's mission is to interpret farm life, agribusiness, and rural communities—past and present. The mission of Silos & Smokestacks National Heritage Area is to ensure that residents and visitors alike can learn about the significant contributions that northeast Iowa's people and land made to America's agricultural legacy. Silos & Smokestacks is a 37-county region in northeastern Iowa covering over 20,000 square miles. Silos & Smokestacks is the connecting element of this regional partnership network. The visitor attractions, sites, and communities are key partners in developing the national heritage area. Planning for the national heritage area in supporting tourism and economic activity is generally compatible with the monument's management alternatives.

The Mississippi River Trail is a long-distance bicycle and pedestrian trail in the process of being developed along the Mississippi River from Minnesota to Louisiana. Effigy Mounds National Monument supports this effort and proposes that the monument become a

destination point along the trail. However, bicycles are not allowed on monument trails, so the river trail must be routed outside the monument. The monument may provide bicycle racks at trailheads to accommodate this visitor segment.

The U.S. Fish and Wildlife Service manages the Upper Mississippi National Fish and Wildlife Refuge located on the Mississippi River next to the monument. Monument staff review refuge planning documents for potential management conflicts, and the refuge staff review NPS documents. The Service is proposing a visitor center to be built relatively near the Sny Magill Unit. There is a possibility that they would ask the National Park Service to become partners in this center.

At the same time, the U.S. Fish and Wildlife Service is seeking designation of the Upper Mississippi National Fish and Wildlife Refuge as a designated Ramsar Convention wildlife refuge. The Ramsar Convention on Wetlands is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. It was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975. It is the only global environmental treaty that deals with a particular ecosystem. Effigy Mounds National Monument is within the boundaries of the Upper Mississippi National Fish and Wildlife Refuge. As such, the national monument would be subject to the same considerations as the wildlife refuge. However, as the national monument already works in concert with the USFWS to preserve its wetlands, the designation would not affect the way the national monument is managed. Actions in this general management plan would not directly or indirectly affect designation under the convention.

An Indian mound-related center is being proposed near Muscoda, Wisconsin, 60 miles from the monument. Planning for this center is still in process and the eventual relationship with the National Park Service or this general management plan is unknown. The National Park Service would like to remain involved

CHAPTER 1: INTRODUCTION

with the desire to protect cultural resources in the region.

PLANNING ISSUES AND CONCERNS

INTRODUCTION

The general public; NPS staff; representatives from other county, state, and federal agencies; and representatives from various organizations identified various issues and concerns during scoping (early information gathering) for this general management plan. An issue is defined as an opportunity, conflict, or problem regarding the use or management of public lands. Comments were solicited at public meetings, through planning newsletters, and on the NPS planning website (see “Chapter 6: Consultation and Coordination”).

In general, visitors and others value the cultural and natural resources in the monument. The public values the well-preserved Indian mounds, scenic views, beauty, and natural resources. In addition, respondents appreciate the recreational opportunities (hiking, birding, etc.) and participation in various programs and events offered at the monument.

The issue receiving the most comments was the need to improve/strengthen interpretive and education programs at the monument and in nearby communities (outreach). Concerns over the limited funding and work force were expressed. The preservation of natural resources was identified as an important issue. Many people felt the National Park Service should partner with other local agencies and organizations to manage resources in a regional context.

The planning team also received many interesting ideas and suggestions for future management of the monument. Many respondents felt that the National Park Service is doing a good job and want the monument to stay the way it is now with no further development. Others would like to see more American Indian involvement. Commenters also said the National Park Service should continue or enhance its efforts

to preserve cultural and natural resources. Some think the National Park Service should expand the visitor opportunities available at the monument and provide more trails, activities, or other visitor amenities.

Comments received during scoping demonstrated there is much that the public likes about the national monument — its management, use, and facilities. The issues and concerns generally involve determining the appropriate visitor use, types, and levels of facilities and activities while protecting the primary resources. The GMP alternatives provide strategies for addressing the issues within the context of the monument’s purpose, significance, and special mandates.

ISSUES

During public scoping for the planning process, many possible issues were proposed by the public and agency personnel. Some of these were not addressed in the plan because they are covered by law and policy, outside the scope of the general management plan, or are better addressed in a lower-level park plan. Examples of items that were dismissed include management of invasive species (covered by ongoing programs), protection of Indian mounds (mandated by law and NPS policy), and the need to address inappropriate and illegal uses (covered by law and monument regulations).

The following issues were identified by the public and NPS staff to be addressed in this plan.

Information, Education, and Access Issues

- need to improve and strengthen interpretive and educational programs
- safety issue from railroad and road crossing for visitors to South Unit

- need to develop public access to Heritage Addition
- address additional hiking trails and visitor facility development
- accessibility needs to be improved
- need for visitor information facility at Sny Magill
- overcrowding in visitor center when school groups are present

Cultural and Natural Resource Management Issues

- resources in region need to be further researched, preserved, and interpreted
- boundary fence near Marching Bear group is only 5 feet from mounds; the general management plan should look at how to protect viewshed and resources at Marching Bear group.
- concerns about protecting key viewsheds seen from monument, mitigation of visual encroachments
- concerns about current collections facility
- need a Wild and Scenic River eligibility determination for the Yellow River

Administrative Issues

- staff and public safety—from Highway 76 and radon levels in lower level of headquarters
- no current plans for management of Heritage Addition and possible development
- need to more fully address management of and possible development in the Sny Magill Unit, no current NPS presence
- look at possible land protection and boundary additions

IMPACT TOPICS – RESOURCES AND VALUES AT STAKE IN THE PLANNING PROCESS

An important part of planning is seeking to understand the consequences of making one decision over another. To this end, NPS general management plans are typically accompanied by environmental impact statements. Environmental impact statements identify the anticipated impacts of possible actions on resources and on park visitors and neighbors. Impacts are organized by topic, such as “impacts on the visitor experience” or “impacts on vegetation and soils.” Impact topics serve to focus the environmental analysis and to ensure the relevance of impact evaluation. The impact topics identified for this general management plan are outlined in this section; they were identified based on federal laws and other legal requirements, Council on Environmental Quality (CEQ) guidelines, NPS management policies, staff subject-matter expertise, and issues and concerns expressed by the public and other agencies early in the planning process (see previous section). Also included is a discussion of some impact topics that are commonly addressed, but that are not addressed in this plan for the reasons given.

Impact topics, simply defined, are the resource categories that could be affected by the actions of the alternatives of the plan. The impact topics discussed below were derived from the issues identified during scoping and the potential for impacts.

CULTURAL RESOURCE TOPICS

Cultural resource topics to be considered are of five overlapping types. They include the following:

Archeological Resources consist of artifacts, objects, or sites that evidence past human habitation or occupation over time. One or

more of the alternatives could affect these resources; consequently, this topic is retained for detailed analysis.

Cultural Landscapes, either historic or ethnographic, that are distinctive features of the human-built environment or natural environment, or both, and that represent aspects of a way of life of a people, group, or family. One or more of the alternatives could affect this resource, so this topic is retained for detailed analysis.

Museum Collections consist of objects or records that relate to site history, setting, and occupation. One or more of the alternatives could affect this resource, so this topic is retained for detailed analysis.

Ethnographic Resources are those resources that are associated with a people’s cultural system or way of life. They include technology, sites, structures, material features, and natural resources. Because access to and use of ethnographic resources is a topic of interest to American Indians, this topic is retained for detailed analysis.

Note: The mounds can be classified as structures, archeological and ethnographic resources, and/or components of the cultural landscape at Effigy Mounds National Monument. Of the 210 structures listed on the National Park Service’s “List of Classified Structures,” 208 are mounds. In this document, impacts to the mounds will be considered under “Archeological Resources.” Two historic structures, the Old Military Road and a cistern, are not affected by proposals in the plan so “Structures” as an impact topic was not considered further.

NATURAL RESOURCE TOPICS

Soils

The soil in the area around Effigy Mounds originated from erosion of the limestone bedrock and was deposited by the wind or water in relatively recent times.

Soil can be affected by development, ecological restoration, and visitor use. Because alternatives presented in this plan include actions that would affect soil resources, this topic is retained for further analysis.

Wild and Scenic Rivers

Units of the national park system that contain one or more river segments listed in the Nationwide Rivers Inventory will comply with section 5(d)(1) of the Wild and Scenic Rivers Act, which instructs each federal agency to assess whether those rivers or segments are suitable for inclusion in the national wild and scenic rivers system.

A segment of the Yellow River within the monument is listed on the Nationwide Rivers Inventory, so this topic is retained for further analysis. Included in this general management plan is a study to determine if the Yellow River is eligible and suitable for inclusion in the national wild and scenic rivers system (Appendix D).

Vegetation

The transition zone of several vegetation communities found in the eastern hardwood and prairie ecosystems and microclimates produced by north-facing slopes and the influence of the river valley provide habitat for an assemblage of plants found nowhere else in Iowa and rare in the region.

There is a concern about the spread of nonnative plants in the monument and the adverse effects these species could cause to native plants.

Alternatives presented in this plan could affect native and invasive non-native vegetation, so this topic is retained for detailed analysis.

Fish and Wildlife

Effigy Mounds National Monument is home to an unusual diversity of fish, birds, and wildlife due to its location. As one of the largest preserved natural areas in Iowa, the monument may act as refugia for sensitive or representative flora and fauna.

Fish and wildlife concerns at the monument include preserving or restoring natural habitats and maintaining healthy populations. Alternatives presented in this general management plan could potentially affect fish or wildlife species or important habitat, so this topic is retained for analysis.

Special Status Species

Analysis of the potential impacts on special status species (federal or state endangered, threatened, candidate, or species of concern) is required by the Endangered Species Act, NPS management policies, NEPA, and other regulations. One or more of the alternatives could affect special status species or their habitat so this topic is retained.

A list of federally threatened, endangered and candidate species for the *Effigy Mounds National Monument General Management Plan* was prepared by the U.S. Fish and Wildlife Service (USFWS) and forwarded to the National Park Service in a memorandum dated January 13, 2005. The following species may occur in the vicinity of the monument:

Federally Listed Species

Higgins eye pearly mussel (E)
Lampsilis higginsii

Iowa Pleistocene snail (E)
Discus macclintocki

Prairie bush clover (T)
Lespedeza leptostachya

Western prairie fringed orchid (T)
Platanthera praeclara

Northern monkshood (T)
Aconitum novaboracense

Bald eagle *
Haliaeetus leucocephalus

E=Endangered, T=Threatened

*This species was in the memorandum but has been subsequently delisted by the USFWS)

Information on state-listed species was obtained from the Iowa Department of Natural Resources (IDNR 2005) and was cross-referenced with species known to occur in the monument to generate the list below.

F-Federal, IA- Iowa, E-Endangered, T- Threatened

1. Higgins eye mussel (*Lampsilis higginsii*)
F-E, IA-E
2. Bald eagle (*Haliaeetus leucocephalus*)
F-Delisted, IA-E
3. Peregrine falcon (*Falco peregrinus*) F-
Delisted, IA-E
4. Gray wolf (*Canis lupus*) F- Delisted
5. Red-shouldered hawk (*Buteo lineatus*) IA-E
6. Bluff Veritigo (*Veritigo merimecensis*) IA-E
7. Spectaclecase (*Cumberlandia monodonta*)
IA- E
8. Slough sandshell (*Lampsilis teres teres*)
IA-E
9. Yellow sandshell (*Lampsilis teres*
anodontoides) IA-E
10. Purple cliff break (*Pellaea atropurpurea*)
IA-E
11. Yellow-eyed grass (*Xyris torta*) IA-E
12. Leathery grapefern (*Botrychium*
multifidum) IA-T

13. Jeweled shooting star (*Dodecatheon*
amethystinum) IA-T
14. Creeping juniper (*Juniperus horizontalis*)
IA-T
15. Wild lupine (*Lupinus perennis*) IA-T
16. Purple fringed orchid (*Platanthera*
psycodes) IA-T
17. Slender ladies-tresses (*Spiranthes lacera*)
IA-T
18. Southern bog lemming (i) IA-T
19. Grass pickerel (*Esox americanus*) IA-T
20. Central newt (*Notophthalmus veridescens*)
IA-T
21. Strange floater (*Strophitus undulates*)
IA-T

Iowa Species of Special Concern.

22. Hawthorn (*Crataegus pruinosa*)
23. Purple coneflower (*Echinacea purpurea*)
24. Prairie dock (*Silphium terebinthinaceum*)
25. Rough bedstraw (*Galium asprellum*)
26. Small white lady's-slipper (*Cypripedium*
candidum)
27. Summer grape (*Vitis aestivalis*)
28. Southern flying squirrel (*Glaucomys*
volans)

Viewsheds

Unobstructed natural views are becoming scarcer throughout the United States. They are especially important at the monument because they contribute to a sense of timelessness—an important quality of the Effigy Mounds experience. As expressed through comments received during public scoping, natural views are valued by the public. Because of the importance of natural viewsheds, this topic is retained.

OTHER TOPICS

Visitor Use and Experience (including public health and safety)

The Organic Act of 1916 and NPS management policies require the National Park Service to provide opportunities for the enjoyment of a park unit's resources and values. This enjoyment comes from activities that are appropriate for each park unit. Scenic viewsheds and the ability to view the mounds up close are considered an important contributing factor to positive visitor experiences in this monument. Actions in one or more of the alternatives could affect visitor use and experience in the monument, so this topic is retained.

Socioeconomic Environment

National Environmental Policy Act requirements include an examination of social and economic impacts caused by federal actions.

The economy of several nearby communities is affected by the monument. Changes to the way Effigy Mounds is managed or operated resulting from implementing one or more of the alternatives in this plan could influence the socioeconomic environment of nearby communities; consequently, this topic is retained for analysis.

Monument Operations and Facilities

Topics could include staffing, maintenance, facilities, ability to enforce park regulations and protect park values, employee and visitor health and safety, or administrative access.

Changes in monument operation needs could occur as a result of implementing any of the action alternatives, so this topic is retained for analysis.

Natural or Depletable Resources Requirements and Conservation Potential

Consideration of these topics is required by 40 CFR 1502.16. The National Park Service adopted the concept of sustainable design as a guiding principle of facility planning and

development (NPS *Management Policies* 9.1.1.7). The objectives of sustainability are to design facilities to minimize adverse effects on natural and cultural values, reflect their environmental setting, and maintain and encourage biodiversity; to operate and maintain facilities to promote their sustainability; and to illustrate and promote conservation principles and practices through sustainable design and ecologically sensitive use. Essentially, sustainability is the concept of living within the environment with the least impact on the environment.

Through sustainable design concepts, best management practices, and other resource management principles, all the alternatives analyzed in this document would contribute to conserving natural resources. Analysis of this topic has been combined with the following topic and placed at the end of the Environmental Consequences chapter.

Energy Requirements and Conservation Potential

One or more of the action alternatives could result in new facilities with inherent energy needs. In all alternatives, new facilities would be designed with long-term sustainability in mind. The National Park Service adopted the concept of sustainable design as a guiding principle of facility planning and development (NPS *Management Policies* 9.1). The objectives of sustainability are to design facilities to minimize adverse effects on natural and cultural values, to reflect their environmental setting, and to require the least amount of non-renewable fuels/energy.

Action alternatives that call for additional structures could result in an increased energy need. Analysis of this topic has been combined with the previous topic at the end of the “Environmental Consequences” chapter.

IMPACT TOPICS DISMISSED FROM FURTHER CONSIDERATION

Historic Buildings and Structures

Historic buildings and structures are those that are important to local, regional, or national history and that are either listed in or eligible for listing in the National Register of Historic Places. At Effigy Mounds, no standing or intact historic buildings or structures remain. Therefore, they have been treated in this plan as archeological resources. The Military Road is also being described and treated as an archeological resource although several sections have been maintained for park trail and maintenance use. Therefore, there will be no impact on historic buildings or structures and this topic has been dismissed from further analysis.

Air Quality

The Clean Air Act states that managers have an affirmative responsibility to protect park air quality from adverse air pollution impacts. The monument is a Class II airshed according to guidelines in the 1977 amendments to the Clean Air Act. Under Class II, modest increases in air pollution are allowed beyond baseline levels for particulate matter, sulfur dioxide, nitrogen, and nitrogen dioxide, provided that the national ambient air quality standards, established by the U.S. Environmental Protection Agency, are not exceeded.

There are no major air pollution sources within or near the monument. Engine exhaust is the most common pollutant in the region and is heaviest around roads and highways, railroad tracks, and agricultural operations. Airborne particulates (e.g., dust and smoke) are generated from construction, agricultural operations, and burning of fields or weeds.

Should any of the action alternatives be selected, local air quality may be temporarily affected by construction-related activities. Hauling material and operating construction equipment would result in increased vehicle emissions in a localized area. Volatile organic

compounds, nitrogen compounds, carbon monoxide, and sulfur dioxide emissions would be produced but generally disperse fairly quickly from the construction area. This degradation would last only as long as construction activities occurred and would most likely have a negligible to minor effect on local pollutant levels. Fugitive dust from construction could intermittently increase airborne particulate concentrations in the area near the project site, but the use of mitigation such as a dust abatement program would reduce potential adverse effects to a negligible level.

In summary, if any action alternative is implemented, local air quality would receive short-term degradation from dust and emissions from construction equipment and vehicles. Regional air quality would not be more than negligibly affected and local air quality would not receive more than minor short-term adverse effects. There would be no long-term effects on air quality so it is dismissed as an impact topic in this document.

Water Quality and Quantity

Groundwater at the monument is found in the Jordan-Prairie du Chien bedrock interval and is typically called the Jordan Aquifer. Local streams have high proportions (70%-80% or more) of their base flow from ground water, providing important cold water characteristics of the streams.

The Yellow River originates in southwestern Winneshiek County, Iowa, and flows through the monument for about 3.5 miles before joining the Mississippi River. The Yellow River drainage has nine major tributary streams. Four of these tributaries, including Dousman Creek, which enters the Yellow River inside the monument boundary, are coldwater trout streams (Weeks 2006).

A portion of the Yellow River, including the segment that runs through the monument, is currently listed on Iowa's impaired waters list for high levels of fecal coliform bacteria (Weeks 2006).

For the Sny Magill Creek watershed, the majority of a water year's discharge occurs during intermittent high flow events. In most years, discharge is higher during the spring and summer and declines during the fall and winter. High flows during the spring snow-melt period and summer storms can cause sediment discharge from Sny Magill Creek.

Sny Magill Creek is one of the more widely used streams for recreational trout fishing in Iowa. The stream bottom of Sny Magill and its tributaries is primarily rock and gravel with frequent riffle areas. Along the lower reach of the creek where the gradient is less steep, the stream bottom is generally silty.

None of the alternatives described in this plan would affect water quality or quantity so this topic is dismissed from detailed analysis.

Wetlands and Floodplains

The backwaters of the Mississippi River consist of sloughs, lakes, ponds, and adjacent wetlands. These areas have been altered by sedimentation that is rapidly filling in lakes and ponds and blocking channels.

Within Effigy Mounds National Monument, the Yellow River wetlands are made up of the slow-moving river and the adjacent floodplain, several small shallow ponds, and a tributary stream called Dousman Creek. These wetlands total about 650 acres and contain habitat for many resident and migratory birds.

The north and south units of Effigy Mounds National Monument contain four ponds or ponded wetlands totaling approximately 65 acres associated with active floodplains of the Yellow River and the west bank of the Mississippi River. Three wetlands are located in the Yellow River floodplain, and one wetland is isolated from the Mississippi River by a railroad embankment. These ponds are located within the 100-year floodplain (National Park Service 1999). Founders Pond is the largest with a surface area of 40 acres and average depth of 3 feet. The smallest pond is about 3 acres and about 1 foot deep (Weeks 2006).

The National Wetlands Inventory identifies three different types of wetlands in the monument: palustrine-forested, palustrine-emergent, and lacustrine-unconsolidated bottom. These occur along the floodplain of the Yellow River and in most of the Sny Magill Unit.

The lower 3 miles of the Yellow River are really backwaters of the Mississippi River. Water movement is sluggish and the level can fluctuate with changes in the flow of either the Yellow or Mississippi Rivers.

The estimated 100-year and 500-year flood levels in and adjacent to the north and south units between river miles 639 and 636 minimally affect the north and south units. The entire Sny Magill unit is within the 100-year and 500-year floodplains (Weeks 2006). Periodic and seasonal flooding is common, causing complete or partial inundation of the Sny Magill unit for short periods, usually in the spring.

The Yellow River and Sny Magill drainages are influenced by the Mississippi River during high flows, when the Mississippi River backs into these drainages, reducing flow velocity of the Yellow River and Sny Magill Creek (National Park Service 1999). On the Yellow River, the backup occurs for about 3 miles upstream from its mouth.

The only actions proposed in the alternatives that could affect wetlands or floodplains are the construction of trails through the Heritage Addition and at Sny Magill in alternative B. Until public access/development plans for these areas are prepared it is difficult to assess the impacts (if any) that might occur. The Sny Magill trail would most likely be of a porous material or a raised boardwalk and may result in a reduction of adverse impacts caused by maintenance and use of the existing trail. Full site-specific environmental impact analysis on wetlands and floodplains would be conducted with these plans and so these topics are dismissed from further analysis in this general management plan and deferred to the implementation plans.

Geology

The monument lies in a geologically unique area of erosional topography drained by an intricate system of rivers and streams. Erosional forces have cut through a plain leaving high divides and precipitous bluffs above adjacent waterways. Although geologic deposits from earlier Ice Age events have been found, the last glacial period did not cover the area that is now the northeast corner of Iowa, so this eroded land form is commonly referred to as the Driftless Area. Generally speaking the Driftless Area contains both the Paleozoic Plateau and the Silurian Escarpment, which is a land form transition between the Paleozoic Plateau and the glaciated land to the west in Iowa.

None of the alternatives described in this document include actions that would disturb or destroy rock outcroppings or other geologic formations. Since there would be no potential to affect the geology of the monument or region, this topic is dismissed from further analysis.

Wilderness

Wilderness areas are congressional designations. There are no such designations in the monument and no areas that would be eligible for possible designation. Although NPS policy requires study of new additions to park land, the Heritage Addition is less than 5,000 acres and contains evidence of human work in the form of logging effects and many miles of roads that would most likely make it ineligible. Therefore, this topic is dismissed from further analysis.

Night Sky

NPS policy requires the Park Service to preserve, to the extent possible, the natural lightscapes of parks and seek to minimize the intrusion of artificial light (light pollution) into the night scene (*NPS Management Policies 2006*). The clarity of night skies is important to visitor experience as well as being ecologically important. Artificial light sources, both within and outside the

monument have the potential to diminish the clarity of night skies.

The rural setting of the monument currently provides for relatively dark nights. Following NPS policy, existing outdoor lighting that is found to be contributing to nighttime light pollution would be replaced with fixtures that do not. In addition, any new outdoor lighting installed as a result of implementing any of the alternatives in this document would be the minimum necessary for safety or security and of a design that prevents stray light from spreading upwards into the sky (best lighting practices). NPS personnel would work with neighbors on ways to decrease light pollution if a problem arises under any alternative. Any impacts on night skies from implementing the alternatives would be negligible at most. Given these considerations and the fact that the monument is open for day use only, the topic of night sky is dismissed from further consideration.

Soundscapes

NPS Management Policies 2006 (§4.9) requires park managers to strive to preserve the natural soundscape of a park, which is defined as the lack of human-related sound and prevalence of natural sounds. Due to the primarily undeveloped nature of Effigy Mounds National Monument, natural sounds predominate throughout most of the units. These sounds are associated with physical and biological resources such as the sounds of wind through the trees, flowing water, or birds.

Impacts on the monument's soundscapes occur from activities outside the monument. These activities include traffic on Highway 76 and trains on the tracks that run alongside the monument's eastern boundary and adjacent to the Sny Magill Unit. The planning team has learned there will be a substantial increase in the number of coal trains running alongside the monument—up to 27 additional trains per week.

Construction of the multi-purpose center in alternative B would have short-term adverse

impacts on the soundscape of the visitor center and maintenance area. However, this area is in a Development Zone, which allows the natural soundscape to be affected by human-caused noise. Some construction noise could travel outside the Development Zone and into adjacent zones where tolerance for human-caused sound is lower. This impact would diminish with distance and so would result in short-term negligible to minor adverse impacts. After construction, there could be more noise associated with use of the building, but the adverse impact of this use is expected to be negligible.

Implementing alternative B could increase the number of visitors in the Heritage Addition and Sny Magill Unit, which would have short-term and long-term negligible adverse impacts on soundscapes along the trails in those units.

Alternatives A and C would not appreciably change the distribution or number of visitors or operations activities in a given area and so would not affect natural soundscapes. Implementing any of the alternatives would not alter the monument's natural soundscape more than negligibly in the long-term, so this topic is dismissed from further analysis.

Prime or Unique Farmlands

In August 1980, the CEQ directed that federal agencies must assess the effects of their actions on farmland soil classified by the United States Department of Agriculture's Natural Resource Conservation Service as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts.

Three of the soil units found within the boundaries of Effigy Mounds (Caneek, Lawson, and Ion silt loams) are considered by the National Resource Conservation Service to be prime farmland only if drained and protected from flooding (NRCS 2005). These soil types are in the floodplain of the Yellow River and are subject to regular flooding and are not planned for development, so no prime

or unique farmlands would be affected by any actions proposed in this plan. This topic is dismissed from further consideration.

Urban Quality and Design of the Built Environment

Consideration of this topic is required by 40 CFR 1502.16. Urban areas and developed-area vernacular designs are not concerns in the rural area of the monument. Following NPS standard operating procedures, any new structures called for in an alternative would include rural design concepts, natural colors, and materials that do not detract from the environment. Given this mitigation, no further analysis of this topic is necessary.

Indian Trust Lands

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed action by Department of the Interior agencies be explicitly addressed in environmental documents. No lands within Effigy Mounds National Monument are held in trust by the secretary of the interior solely for the benefit of American Indians due to their status as American Indians. However, recognized tribes having any implied or explicit rights to use lands or resources on the monument would continue to have these rights honored in accordance with law and NPS policy. This topic is dismissed from further analysis.

Environmental Justice

Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high or adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. According to the Environmental Protection Agency, environmental justice is the...

...fair treatment and meaningful involvement of all people, regardless of

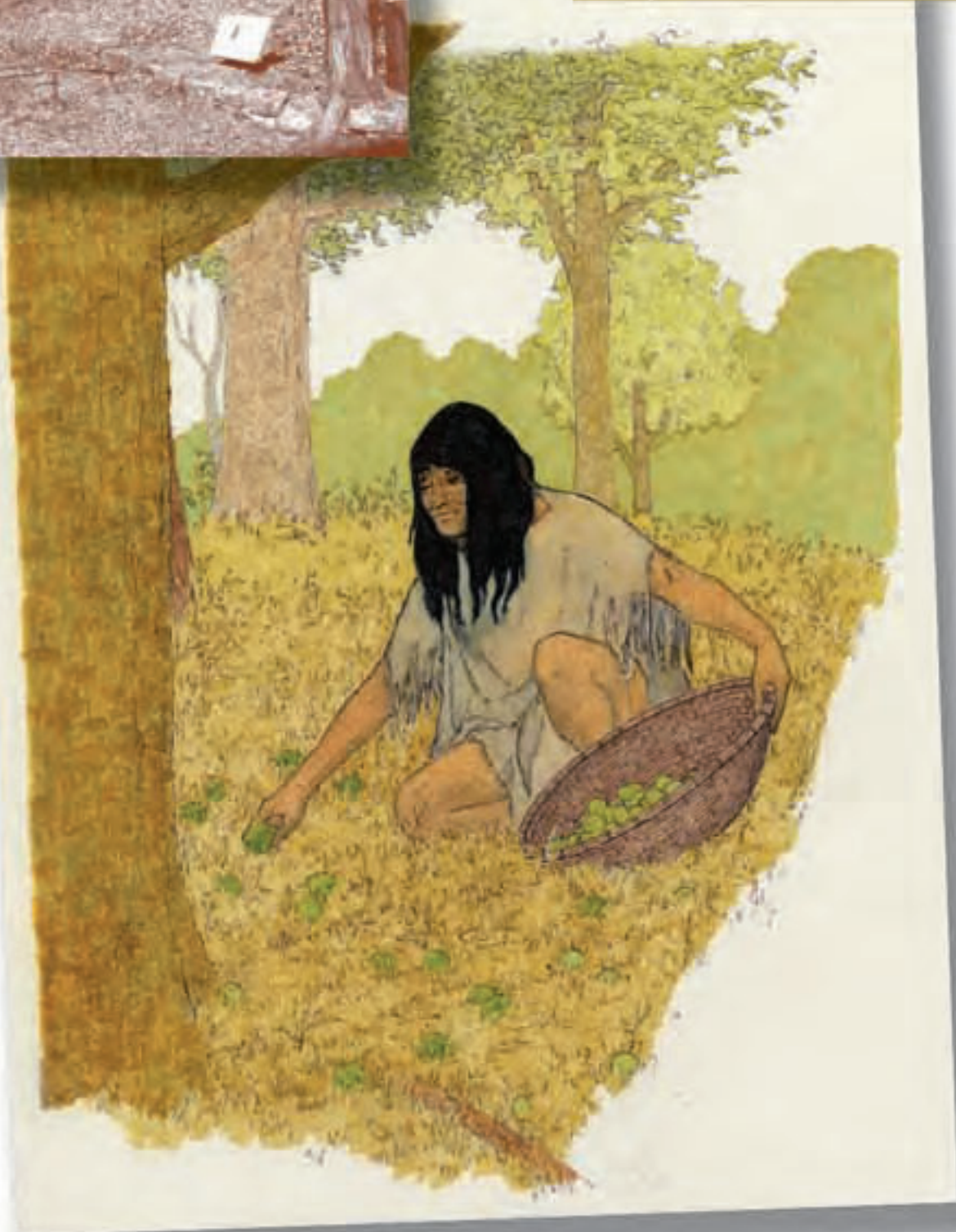
race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people, including a racial, ethnic, or socioeconomic group, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies.

The goal of “fair treatment” is not to shift risks among populations, but to identify potential disproportionately high and adverse effects and identify alternatives that may mitigate these impacts.

Clayton and Allamakee counties contain both minority and low-income populations; however, environmental justice is dismissed as an impact topic for the following reasons:

- The monument staff and planning team actively solicited public participation as part of the planning process and gave equal consideration to all input from persons regardless of age, race, income status, or other socioeconomic or demographic factors.
- Implementation of the preferred alternative would not result in any identifiable adverse human health effects. Therefore, there would be no direct or indirect adverse effects on any minority or low-income population or community.
- The impacts associated with implementation of the preferred alternative would not disproportionately affect any minority or low-income population or community.
- Implementation of the preferred alternative would not result in any identified effect that would be specific to any minority or low-income community.
- The impacts to the socioeconomic environment resulting from implementation of any of the action alternatives would be beneficial. In addition, the monument staff and planning team do not anticipate the impacts on the socioeconomic environment to appreciably alter the physical and social structure of the nearby communities.

CHAPTER 2
Alternatives,
Including the
Preferred Alternative



INTRODUCTION

Many aspects of the desired future condition of Effigy Mounds National Monument are defined in the establishing legislation, the national monument's purpose and significance statements, and the servicewide mandates and policies that were described earlier. Within these parameters, the National Park Service solicited input from the public, NPS staff, government agencies, tribal officials, and other organizations regarding issues and desired conditions for the national monument. Planning team members gathered information about existing visitor use and the condition of the monument's facilities and resources. They considered which areas attract visitors, and which areas have sensitive resources.

Using the above information the planning team developed a set of four management zones and three alternatives to reflect the range of ideas proposed by the monument staff and the public.

This chapter describes the management zones and the alternatives for managing the national monument for the next 15 to 20 years. It includes tables that summarize the key differences among the alternatives and the key differences in the impacts that are expected from implementing each alternative. (The summary of impacts table is based on the analysis in "Chapter 4: Environmental Consequences.")

A discussion of user capacity and recommended boundary adjustments is included in this chapter. Also described are mitigating measures that would be used to lessen or avoid impacts, future studies that would be needed, and the environmentally preferable alternative.

USER CAPACITY

The General Authorities Act for the National Park Service, section 604, amended section

12(b), requires that general management plans establish a user (carrying) capacity for a unit of the national park system, saying, among other things, that there must be "identification of an implementation commitment for visitor carrying capacity for all areas of the [national park system] unit...." In addition, there is also a requirement in NPS *Management Policies 2006* that general management plans address the issue of user capacity. The use of the concept of user capacity in planning infrastructure and visitor management programs is expected to result in effective and efficient management.

Visitor Experience and Resource Protection

The National Park Service has developed a framework called Visitor Experience and Resource Protection (VERP) to address user capacities. The VERP process is used to derive meaningful qualitative user capacities and quantitative capacities, i.e., use limits, where they are deemed necessary. The process can be diagrammed as shown in figure 2.

In the VERP framework, user capacity is defined as "The types and levels of visitor use that can be accommodated while sustaining the desired resource and social conditions that complement the purpose of the park units and their management objectives." The VERP framework is an iterative, ongoing process that begins with the following steps:

1. Prescribing the desired conditions of resources and visitor experiences for a given area (not by prescribing a maximum number of visitors). These conditions are based on the national monument's purpose, significance, and fundamental resource values;
2. Selecting measurable indicators, i.e., characteristics or conditions that reflect the status of national historic site resources and visitor conditions;

3. Setting quantifiable standards, against which the indicator is measured;
4. Assessing existing conditions, thereby establishing a baseline for future measurements;
5. Assessing whether or not a management action must be taken because existing conditions are determined to be close to violating standards, and then taking the action;

6. Monitoring conditions to determine effectiveness of ongoing or new management actions; and
7. Adapting by revising management strategies when indicated.

These components provide a defensible process for taking informed action to manage elements of visitor use that may influence desired conditions in a park system unit.

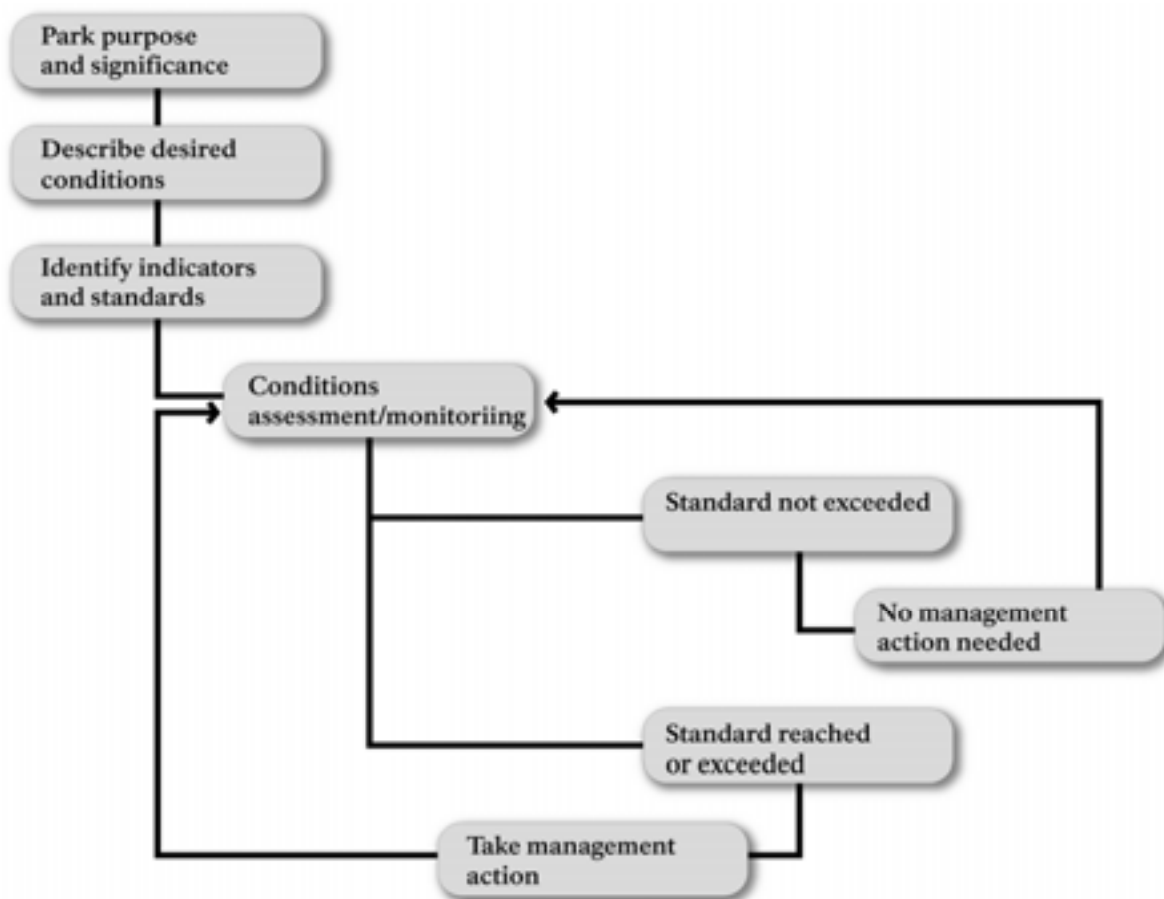


Figure 2: The VERP Process

User Capacity at Effigy Mounds National Monument

Currently, visitor use has had few adverse effects on the resources of Effigy Mounds National Monument. If visitor numbers increase, it is expected that the potential for adverse effects on natural and cultural resources would also increase. A large number of visitors at one time could also affect the visitor experience and result in resource damage. Therefore, it is important for the National Park Service to be proactive in preventing problems that could result from visitors' use of the site.

For the life of this plan, visitation would be controlled by the number and quality of facilities, by management actions, and by cooperative local efforts and initiatives. NPS staff will monitor resources and visitor use and judge whether or not the standards are being exceeded in any area. It is not likely that the expected levels of facility development and visitation and the expected types of use would cause unacceptable impacts on the desired visitor experience or the resources.

Desired Conditions

The Effigy Mounds National Monument staff identified desired resource conditions and visitor experience opportunities for the four zones. Each zone of the monument would be managed to achieve different desired conditions.

Indicators and Standards

During development of this general management plan, indicators of resource conditions and visitor experience were identified, as well as standards for the indicators (Table 2). Indicators are measurable variables that can be used to track changes in conditions related to human activity. Standards are the minimum acceptable condition of the indicator. The following indicators and standards were developed for use in implementing a user capacity program. Modification of these indicators may occur if new knowledge is gained or visitor use patterns change drastically from projected patterns. Some indicators may also be monitored to implement the resources stewardship strategy being developed for the monument.

Monitoring programs would be initiated to measure resource condition and the visitor experience. Such indicators would reflect the overall condition of the area and allow the measurement of effects on the monument's biological, physical, and cultural resources and on the visitor experience.

Most cultural resource monitoring programs measure changes in condition from some baseline. Unless otherwise stated, it is assumed that the baseline is the condition that the resource is in at the time this general management plan is approved.

Table 2: User Capacity Indicators and Standards

Resource or Area	Indicator	Standard
Visitor Center Capacity	Number of visitors at one time	Does not exceed facility capacity (currently about 75) for more than five minutes once per day
Archeological Resources	Human-caused degradation or human-caused increase in natural wear	No evidence of human-caused degradation above baseline
	Deliberate vandalism to sites or mounds (e.g., pot hunting)	No evidence of vandalism
Yellow River, Dousman Creek, wetlands, ponds, and Sny Magill Creek	Decline in water quality or quantity caused by human activity Impacts to riverside resources caused by recreational users on or along the Yellow River or Mississippi River Number of complaints received of conflicts or unsatisfactory experiences caused by use levels or different types of users	No degradation from current conditions No degradation from current conditions, no social trailing or other impacts Not to exceed one per week (NPS staff would consult with the Iowa Department of Natural Resources to establish remedial actions)
Trails	Tread width	Does not increase more than 10% above the baseline average for each trail
	Tread depth	Does not exceed an average depth of 2" or a maximum of 4" below surrounding terrain at any point
	Erosion	No erosion of soil adjacent to trail
	Unauthorized/social trails in discovery zone	No unauthorized trails (new trails closed and rehabbed immediately)
Cultural Landscapes	Deliberate and unintentional vandalism or theft	No evidence of human caused degradation
	Extraordinary visible wear and tear or erosion	
Ethnographic Resources	American Indian access is difficult or site is inaccessible	Retains appropriate access, individual ceremonial use remains unaffected
	Use of site by American Indians is no longer desirable	
Museum Collections	Visible deterioration due to temperature or humidity Damage due to pests Deteriorating containers Overcrowding of shelves Loss of identifying labels	Collections are housed in appropriate temperature and humidity conditions above the 500-year floodplain and stored in museum quality storage containers or shelving No degradation of the objects is occurring

Visitor Center Facility Capacity —

Currently, office space for monument employees is at maximum capacity. Safe maximum capacity of the visitor center theater is 58 persons. Monument staff members indicate that when there are 75 or more people in the visitor center, visitor experiences and the staff's ability to function are adversely affected. Different changes to the interior configuration of the visitor center are proposed in the action alternatives of this plan. Therefore, it is impossible to set a facility capacity in this document. Once the approved plan is implemented, NPS staff will determine the practical capacity of the visitor center. If this number is exceeded, the quality of visitor experience would be expected to diminish and desired conditions would cease to be met. Actions would be taken to minimize the adverse effects of crowding.

Archeological Resources — The condition of the mounds, rock shelters, and other archeological sites would be monitored regularly to determine if human presence is causing an adverse impact.

Unsurfaced Trails — A baseline will be set as the conditions existing at the time this general management plan is approved or when new trails are built. Monitoring will determine if undue visitor use impacts are occurring. Indicators will be average trail width, depth (rutting), and erosion caused by construction and use of the trail.

Recreational Use on Yellow River –

Although boating (motorized and non-motorized) use levels are currently quite low, this activity would be monitored for changes in levels and resource impacts. If unacceptable impacts were identified, NPS staff would establish remedial actions in cooperation with the Iowa Department of Natural Resources.

User Impact Monitoring and Management Actions

Monitoring would be carried out to evaluate resource conditions and visitor experiences to ensure that the national monument's desired conditions would remain as prescribed.

Through monitoring, NPS staff would determine if the indicators were viable and acceptable; if not, the indicators would be modified. The process of determining how much impact is too much is a dynamic one. Critical to the success of this process are identifying indicators and standards and adjusting the management strategies when monitoring indicates that conditions are nearing or exceeding the standard. If these user capacities were exceeded on a regular basis, NPS staff would take actions to restore conditions to acceptable levels. For example, the number of visitors to critical areas or buildings could be restricted or a ticketing system designed to spread out visitation could be instituted. This would be implemented through a strategy developed by monument staff subsequent to this general management plan.

LEGISLATED BOUNDARY (NON-NPS LAND)

Public Law 106-323 adjusted the monument's boundary to include both the Heritage Addition and the Riverfront Tract. The Riverfront Tract comprises approximately 50 acres of bottomland in a narrow strip between the Mississippi River and the monument's North Unit boundary. The State of Iowa owns about 30 acres and the Canadian Pacific Railroad owns about 20 acres. Two archeological sites are located on this tract. These sites represent moundbuilder village habitation, an important aspect of the moundbuilding cultures not already included in the monument. The remains of an historic settlement are included at Red House Landing.

While the Riverfront Tract is in the legislated monument boundary, it currently remains in ownership of the Iowa Department of Natural Resources and the Canadian Pacific Railroad. Authorization to acquire this tract is included in existing legislation and may occur as soon as there is a willing seller, so it will not be analyzed further in this document.

RECOMMENDED BOUNDARY ADJUSTMENTS

Figure 3 is a map showing the location of the property tracts described below.

As part of the planning process, the National Park Service must identify and evaluate boundary adjustments that may be necessary or desirable to carry out the purposes of the national monument. The Land and Water Conservation Fund Act of 1965 provides for boundary adjustments that fall into three categories: (1) technical revisions; (2) minor revisions based on statutorily defined criteria; and (3) revisions to include adjacent real property acquired by donation, purchased with donated funds, transferred from any other federal agency, or obtained by exchange.

Otherwise, the boundary of a national park may be modified only when authorized by law. Section 3.5 of the *NPS Management Policies 2006* states that the National Park Service may recommend potential boundary adjustments for one or more of the following reasons:

1. to include and protect significant resources and values or to enhance opportunities for public enjoyment related to monument purpose
2. to address operational and management issues
3. to protect resources critical to fulfilling the monument's purpose

NPS policies further instruct that any recommendations to expand a park unit's boundaries be preceded by a determination that the added lands would be (1) feasible to administer considering size, configuration, ownership, cost, and other factors, and (2) that other alternatives for management and resources protection are not adequate.

During the course of the planning process, several land parcels were identified as potential additions to Effigy Mounds National Monument under alternatives B and C. The following is a review of the policy criteria for boundary adjustments as applied to these properties. However, any acquisition would only be from willing sellers.

Before any of these boundary adjustments are made, an approved survey of the monument's boundaries needs to be completed. It is the goal of the National Park Service to acquire needed lands or interests in lands through cooperative negotiation processes with willing sellers. Some of the lands described here would best be protected through ownership by NPS, others could better be protected through purchasing of interests in the land, such as easements, or through other agreements. The best mechanism of protection would be determined in conversation with willing sellers and is not discussed here. Some adjustments of the monument's boundary would require legislative authorization from Congress.

Tract #1

This tract is adjacent to the part of the monument's south unit which preserves the Marching Bear Mound Group. It is an approximately 20-acre parcel of agricultural land currently in row crops and hay rotation.

Reason for recommending this boundary adjustment: Inclusion of this tract in the monument's boundary is necessary in order to protect significant resources and values and to enhance opportunities for public enjoyment related to monument purpose.

Tract #1 lies within 30 feet of the Marching Bear Mound Group. Development of this tract would threaten this fundamental park resource. Residential development of farming land is a recent trend in this area. In 2006, Allamakee County, where the park visitor center is located, issued 1.7 building permits per 10 square miles – a rate more than 50% higher than that of neighboring rural counties. Park employees have observed that much of this development is for second or vacation homes concentrated at the edges of public lands. Tract #1 is one mile south of the Allamakee County line on a piece of land which would be attractive for this type of development for three reasons: a ridge-top location, direct access to a highway, and a lack of zoning prohibitions. Development of this type would risk harm to the Marching Bear Mound Group.

Determination that this tract meets boundary change criteria: Tract #1 would be feasible to administer because it is small in size and it

borders the monument. Additionally, there are no structures on this property to maintain and no known presence of hazardous materials. Because of the risk of development if this tract remains unprotected and in private ownership, alternatives to including this tract in the monument's boundary would not be adequate for management and resource protection.

Tract #2

Tract #2 is an approximately 120-acre parcel mostly on the sides and top of a bluff over the Yellow River. The tract consists of a mixture of open pasture, fields, and steep wooded slopes and has been used for farming and logging. In a narrow area between wetlands and bluffs on the west side of Founders Pond, a county road weaves in and out of the current park boundary and tract #2.

Reason for recommending this boundary adjustment: Including this tract in the boundary is necessary in order to protect significant resources and values and to enhance opportunities for public enjoyment related to monument purpose.

The adjacent part of the monument is zoned to protect the natural setting of the mounds and the ability of visitors to experience them in this setting. This area is included in the "discovery zone" in the preferred alternative and the "backcountry zone" in alternative C. Desired resource conditions in the discovery zone include restoring "an approximate appearance of the landscape associated with the moundbuilding era" and, in the backcountry zone, management to "maintain a healthy and natural-appearing landscape." Under the preferred alternative, the monument would pursue abandonment of this county road, so that most of it would revert to monument ownership, and reuse the former road as a trail. Desired visitor conditions and experiences along this trail include a sense of solitude. If tract #2 is developed, which is a potential future use for the same reasons cited above, it would be very difficult for the park to achieve these desired conditions in the adjoining, narrow part of the monument.

Determination that this tract meets boundary adjustment criteria: This tract would be feasible to administer because it is adjacent to

and, in places, almost completely surrounded by the monument. Roughly eighty acres of this tract are surrounded on three sides by the monument, while the remainder of the tract adjoins the park on two sides. There are no structures on this property and no known hazardous substances. Other alternatives for management and resource protection are not adequate for two reasons: first, this tract is attractive for possible future development; and, second, without this tract in the boundary, the monument would not be able to reuse the entire county road as trail. Instead, it would be necessary to accommodate visitor access by constructing a new section of trail to bypass the county road through this tract. New trail construction in this area would entail not only substantial cost, but also likely impacts to the wetlands.

Tract #3

Tract #3 includes approximately 120 acres of land south and west of the monument. The tract consists mostly of steep wooded slopes punctuated by the valley formed by Dousman Creek and is mostly used for logging. A county road weaves in and out of the current park boundary and this tract.

Reason for recommending this boundary adjustment: Including this tract in the boundary is necessary in order to protect significant resources and values and to enhance opportunities for public enjoyment related to monument purpose. The part of the monument adjacent to this tract is zoned to protect the natural setting of the mounds and the ability of visitors to experience them in this setting. If Tract #3 continues to be logged and/or is developed, it would be difficult for the park to achieve desired conditions in the adjacent part of the monument. Without this tract in the monument's boundary, it would also be challenging to prevent degradation in the quality of Dousman Creek, which is a tributary to the Yellow River and a rare native trout stream. Logging upstream has the potential to increase surface run-off and sedimentation into the stream.

Determination that this tract meets boundary adjustment criteria: This tract would be feasible to administer because it is almost completely surrounded by the monument. It consists of an approximately 80 acre section

surrounded on three sides by the monument and an adjoining approximately 40 acre section that is also surrounded by the monument on three sides. Additionally, there are no structures on this property and no known hazardous substances. Other alternatives for management and resource protection are not adequate for three reasons: first, much of this tract is attractive for possible future development; second, continued use of this tract for logging would risk harm both to visitor experience and to Dousman Creek; and, third, without this tract in the boundary, the monument would not be able to reuse the entire county road as trail. Instead, it would be necessary to accommodate visitor access by constructing a new section of trail to bypass the county road through this tract. New trail construction in this area would entail not only substantial cost, but also likely impacts to the wetlands.

Tract #4

This tract is an approximately 30-acre tract just west of the railroad corridor between the western border of the Sny Magill Unit and Highway X56. This field is used for agricultural purposes, but most of it is seasonally flooded, which results in reduced crop yields.

Reason for recommending this boundary adjustment: Adjusting the boundary to include this property would address operational and management issues. The preferred alternative in the GMP envisions this property to house a small visitor contact station and possibly parking for visitors in high profile vehicles that cannot currently access the Sny Magill Unit given the low overhead railroad underpass. Because trail access from this visitor station to the mounds at Sny Magill would be provided, including this tract in the boundary will also enhance opportunities for public enjoyment related to park purpose.

Determination that this tract meets boundary change criteria: This property is absent of structures. There are no known hazardous substances on the property nor are there any known cultural resources; this makes it appropriate for consideration for new development. This property would be in the development zone if included in the boundary and it would be feasible to manage as such. There are no other adequate alternatives for

management and resource protection. A visitor contact station cannot be built within the existing boundary because the low railroad trestle would not allow for passage of construction equipment. Additionally, the Sny Magill Unit is at a lower elevation than tract #4 and is entirely within the floodplain, another factor which would make construction of a visitor contact station within the existing boundary problematic. Tract #4 is at risk for development for industrial use. A quarrying operation directly across Highway X56 from this tract has begun to spill over onto it (for example, it has been used as a storage and staging area for the quarry). In order to provide an appropriate, safe setting for the visitor contact station and trail to the Sny Magill mounds, it is necessary to include a tract of large enough size to separate the experience of visitors from this type of industrial activity.

BOUNDARY ADJUSTMENTS CONSIDERED BUT NOT INCLUDED IN RECOMMENDATIONS

Railroad Corridor

Adjusting the boundary to include the railroad corridor which forms the western edge of the Sny Magill unit would enhance opportunities for public enjoyment related to park purposes. To access the only parking at this unit, visitors must pass under a low railroad trestle, which means that visitors with high profiles vehicles or RVs often cannot access the Sny Magill unit at all. This situation cannot be improved without raising or removing the railroad overpass. While this GMP proposes to address this problem by acquiring land west of the tracks (tract #4) where parking could be developed for high profile vehicles, the railroad tracks also compromise visitor experience at Sny Magill -- a situation that cannot be remedied without a boundary expansion to include these tracks. The sound of the trains passing close to the resources compromises the desired condition for most of Sny Magill, which is a contemplative experience for visitors with primarily natural soundscapes. This property also needs to be in the boundary to afford continued access to the Sny Magill mounds.

It would not be feasible for the monument to manage this corridor in its boundaries while it is still actively used by the railroad. However, should the Canadian Pacific Railroad decide to move this portion of their tracks away from the Monument, this corridor would be recommended for inclusion in the boundary. In the event that this railroad corridor becomes available for other purposes and is sold privately, a particularly problematic situation could result in which it would be impossible to access the Sny Magill mounds by road without crossing private property. Therefore, under a change in ownership scenario, excluding this corridor from the monument's boundary would not be an adequate alternative for management and resource protection.

Other Tracts

Five other privately-held tracts that meet the criteria for boundary adjustments were also considered for addition to the Monument as part of this planning effort, but are not included here. While including these five tracts in the boundary would have allowed the Monument to protect significant resources and values, enhance opportunities for public enjoyment, and better address operational and management issues, these tracts are not recommended for inclusion out of respect for concerns expressed by the landowners.

MANAGEMENT ZONES AND ALTERNATIVES

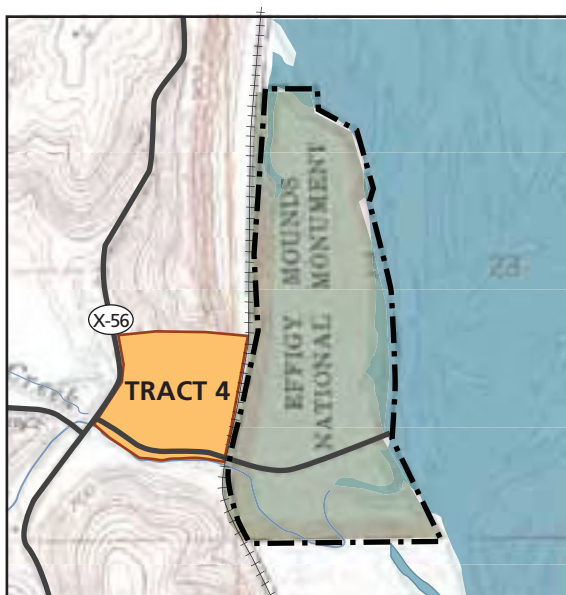
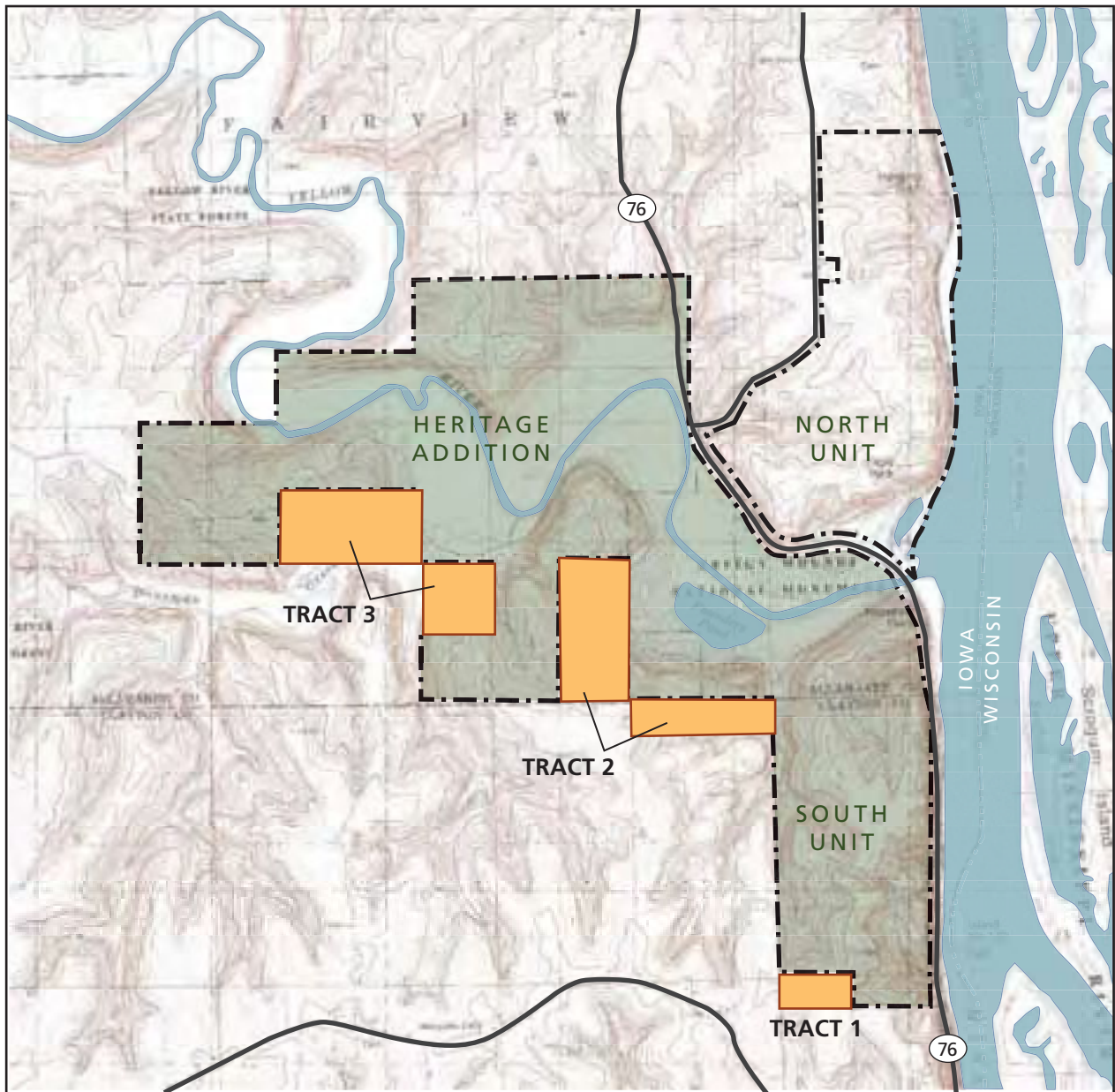
The building blocks for creating a framework for consistent and defensible management for a national park system unit are the management zones and the alternatives. All are developed within the scope of the monument's purpose, significance, mandates, and legislation.

Management zones are sets of desired conditions for resources and visitor experiences in different areas of the park. The management zones identify the range of appropriate resource conditions, visitor experiences, and facilities for the monument that fall within the scope of the purpose, significance, and special mandates. Four

management zones have been identified for Effigy Mounds National Monument (see Table 3).



The alternatives in this general management plan are different approaches to overall park management and use. They respond to issues raised by the public, law and policy considerations, and analysis performed by the planning team. Each of the alternatives has an overall management concept and a description of how different areas of the monument would be managed (management zones). The concept for each alternative gives planners the idea for what the alternative is going to look like. For example, perhaps one management prescription is called "backcountry and wilderness" and another prescription is called "frontcountry recreation." An alternative whose concept is to keep most of the park in an undeveloped and natural/wild condition would have more of the "backcountry and wilderness" prescription than the "frontcountry recreation" prescription. Both prescriptions might also be larger or smaller and in different locations in different alternatives, depending on the overall concept for each alternative.

This *Draft General Management Plan/Environmental Impact Statement* presents three alternatives, including the National Park Service's preferred alternative, for future management of Effigy Mounds National Monument. Alternative A, the no-action alternative, presents a continuation of existing management direction and is included as a baseline for comparing the consequences of implementing each action alternative. The action alternatives are alternative B (the preferred alternative) and alternative C. These action alternatives present different ways to manage resources and visitor use and improve facilities and infrastructure at the national monument. These alternatives embody the range of what the public and the National Park Service want to see accomplished with regard to cultural resource conditions, natural resource conditions, visitor use, and experience at Effigy Mounds. The actual configurations for each action alternative



Sny Magill

NOTE: Scale of Sny Magill area is larger than top map.

-  Effigy Mounds National Monument Boundary
-  Tract Proposal



RECOMMENDED BOUNDARY ADJUSTMENTS

EFFIGY MOUNDS NATIONAL MONUMENT

United States Department of the Interior / National Park Service
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were developed by overlaying the management zones (described later) on a map of the monument to achieve the intent of the alternative concepts.

As noted previously in the "Guidance for Planning" section, the National Park Service would continue to follow existing agreements and servicewide mandates, laws, and policies regardless of the alternatives considered in this plan. To truly understand the implications of an alternative, it is important to interpret the actions proposed in an alternative in the context of the servicewide mandates and policies and the monument's purpose and significance (Chapter 1), even though they are not repeated here.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

The development and identification of a preferred alternative involves evaluating the alternatives with the use of an objective analysis process called "choosing by advantages" or "CBA." Through this process, the planning team identified and compared the relative advantages of each alternative according to a set of factors. The advantages

of each alternative were compared for each of the following CBA factors:

FACTOR 1 – Improve Cultural Resource Management

FACTOR 2 – Improve Natural Resource Conditions

FACTOR 3 – Improve Information, Education, and Access (Visitor Experience)

FACTOR 4 - Improve operational efficiency and effectiveness

The relationships between the advantages and costs of each alternative were compared to determine which would provide the greatest overall benefits for the most reasonable cost.

Using the CBA process, alternative B scored the highest for each of the four factors. Alternative B gives the National Park Service the greatest overall advantage for the factors listed above, thus providing the greatest value. It would provide the highest level of cultural resource management, natural resource conditions, visitor experience, and operational efficiency. Therefore, alternative B is the NPS preferred alternative.

MANAGEMENT ZONES

Management zones define specific resource conditions and visitor experiences to be achieved and maintained in each particular area of the national monument under each of the action alternatives (i.e., for all of the alternatives except the no-action alternative). Each zone description includes the types of activities and facilities appropriate to support the desired conditions.

In formulating the alternatives, the management zones were placed in different locations or configurations on a map of the park according to the overall intent (concept)

of each of the alternatives. The management zones were presented to the public in *Effigy Mounds GMP Newsletter #3* and were modified in response to public comments. The zoning schemes were developed as a result of this planning effort and, therefore, are not applied to the no-action alternative and map.

The zones for Effigy Mounds National Monument are presented in the following table. Visitor experiences, resource conditions, appropriate activities, and facilities are described for each zone.

Table 3: Management Zones

	BACKCOUNTRY ZONE (green)	DISCOVERY ZONE (red)	PRESERVATION AND INTERPRETATION ZONE (purple)	DEVELOPMENT ZONE (brown)
Purpose/ Emphasis	Emphasis in this zone would be to protect the resources in their natural setting.	The purpose of this zone is to place management emphasis on preservation of the resources while allowing visitor and administrative access on designated trails that would be carefully sited according to strict criteria.	The purpose of this zone would be to provide visitor access and information on existing trails while preserving cultural and natural resources.	Emphasis in this zone would be on facilities and programming for visitor services and monument operations.
Desired resource conditions	<p>Indian mounds and other archeological sites are preserved in place in good condition.</p> <p>This zone would be managed to maintain a healthy and natural-appearing landscape.</p>	<p>Indian mounds and other archeological sites are preserved in place in good condition.</p> <p>The natural and cultural resources are managed to restore an approximate appearance of the landscape associated with the moundbuilding era.</p>	<p>Indian mounds and other archeological sites are preserved in place in good condition. Vegetation on the primary mounds receives occasional mowing to make them more visible.</p> <p>The natural and cultural resources are managed to restore an approximate appearance of the landscape associated with the moundbuilding era.</p>	<p>Cultural resources, if present, are protected and monitored.</p> <p>This zone includes maintained landscapes that are intensively managed for visitor use and monument operations.</p>

	BACKCOUNTRY ZONE (green)	DISCOVERY ZONE (red)	PRESERVATION AND INTERPRETATION ZONE (purple)	DEVELOPMENT ZONE (brown)
Desired resource conditions (continued)	<p>The environmental processes that sustained the landscape of the moundbuilders are maintained or restored using the best available scientific information.</p> <p>Restoration and maintenance of natural processes are supported by:</p> <ol style="list-style-type: none"> 1. Simulating natural fire regimes and other management tools. 2. Monitoring of ecological communities and control of invasive plants and animals. 3. Maintaining or creating viewsheds that are primarily natural with water, wetlands, and hardwood forests dominating. 	<p>The environmental processes that sustained the landscape of the moundbuilders are maintained or restored using the best available scientific information.</p> <p>Restoration and maintenance of natural processes are supported by:</p> <ol style="list-style-type: none"> 1. Simulating natural fire regimes and other management tools. 2. Monitoring of ecological communities and aggressive control of invasive plants and animals. 3. Maintaining or creating viewsheds that follow the recommendations of the Cultural Landscape Report, or until that report is produced, that are primarily natural with water and hardwood forests dominating. 	<p>Natural resources are modified only when necessary to provide safe visitor access.</p> <p>Restoration and maintenance of natural processes are supported by:</p> <ol style="list-style-type: none"> 1. Simulating natural fire regimes and other management tools. 2. Monitoring of ecological communities and aggressive control of invasive plants and animals. 3. Maintaining or creating viewsheds that follow the recommendations of the Cultural Landscape Report, or until that report is produced, are primarily natural with water and hardwood forests dominating. 	<p>Natural resources are modified when necessary for visitor use or monument operations.</p> <p>Landscapes in this zone are typically heavily modified and maintained through grounds-keeping (mowing, brush trimming, etc.) to create a more formal park-like appearance.</p>

	BACKCOUNTRY ZONE (green)	DISCOVERY ZONE (red)	PRESERVATION AND INTERPRETATION ZONE (purple)	DEVELOPMENT ZONE (brown)
Desired visitor conditions and experience	<p>Direct public interaction with resources on the ground is rare, mostly when accompanied by park staff (e.g. occasional tours) or for permitted research access.</p> <p>A limited amount of information on this zone would be provided in other places of the monument only on request.</p> <p>Visitors experience this zone by viewing it from watercraft on the Yellow River and viewpoints in other zones. Paddlers on the Yellow River would traverse this zone, but put-in and take-out areas would be outside of the monument.</p> <p>Opportunities to explore this zone by foot would not be encouraged but would not be prohibited. There would be some resource management use.</p>	<p>Visitors have opportunities to understand the inter-connectedness of the natural and human worlds. This would be accomplished via self-guided hikes through natural areas and to Indian mounds, and occasional ranger-guided walks.</p> <p>Most information on this zone is provided in other places of the monument.</p> <p>Appropriate resource-based recreational activities, such as hiking and wildlife viewing on marked trails, are available. There are opportunities for solitude, discovery, and adventure.</p> <p>There would be very little visitor use off of the trails; use would be resource management activities.</p>	<p>Visitors experience an informed, contemplative glimpse into the past and have opportunities to connect with the meanings inherent in the resources.</p> <p>Visitors receive interpretation and information through self-guided or ranger-led walks and trailside exhibits along the primary trails.</p> <p>Opportunities for appropriate resource-based activities such as self-guided or ranger-led walking tours and wildlife viewing on well-marked and maintained trails.</p> <p>There would be very little visitor use off the primary trails; use would be resource management activities.</p>	<p>Visitors experience interpretive connections via multiple types of media and services.</p> <p>Visitors receive a high level of orientation and information in a facility presenting the latest information and outside exhibits.</p> <p>Visitor opportunities include viewing an orientation program, exhibit viewing, shopping in the bookstore, and attending ranger-led programs.</p> <p>Portions of some buildings would be for monument staff and not intended for the general visitor.</p>

	BACKCOUNTRY ZONE (green)	DISCOVERY ZONE (red)	PRESERVATION AND INTERPRETATION ZONE (purple)	DEVELOPMENT ZONE (brown)
Desired visitor conditions and experience (continued)	Encounters with monument staff or other visitors would be very rare.	Monument staff may be available on the trails during heavy use periods. Visitors could expect a low to moderate level of encounters with other visitors along trails.	Monument staff are available during heavy use periods. Visitors could expect a moderate level of encounters with other visitors along trails; this would increase to high during some weekends and the fall color season.	Monument staff are readily available to provide orientation, information, and interpretation. Visitors could expect a high level of contact with other visitors. Special public events take place in this zone where these activities would not jeopardize the resources.
Appropriate facilities	There would be no permanent facilities or development in this zone. Some existing roads/trails would be used for administrative purposes or during emergencies.	Carefully sited trails according to strict criteria (see description in Future Studies and Implementation Plans Needed section). Once trails are developed, they could only be rerouted slightly when necessary to protect resources.	Appropriate facilities are the existing developed trails and supportive structures, such as bridges, boardwalks, benches, wayside exhibits, and recycling/waste receptacles. Minor re-routing of the existing trails might take place as necessary to protect resources or for visitor safety.	Visitor center, research and educational facilities, administrative offices, maintenance facility, trailheads, primary indoor and outdoor interpretive exhibits, museum collections storage and management space, parking lot, surfaced trails, developed outdoor program area, fully accessible facilities.

	BACKCOUNTRY ZONE (green)	DISCOVERY ZONE (red)	PRESERVATION AND INTERPRETATION ZONE (purple)	DEVELOPMENT ZONE (brown)
Appropriate facilities (continued)		Trails would be maintained for safe visitor access and resource protection. They would be marked and designed to encourage visitors to stay on the trail.	Trails would be maintained for safe visitor access. Trails would be maintained, soft or hard-surfaced, and designed to encourage visitors to stay on the trail.	Hard-surfaced (i.e., sidewalks and boardwalks) and well-maintained walks for safe and convenient visitor access.

Note 1: the Riverfront property is within the monument's legislated boundary but is not currently owned by the National Park Service. This property is zoned in both action alternatives with the understanding that zoning would not be in effect until the land was acquired by the National Park Service. The railroad right-of-way would be in the Developed Zone unless it is abandoned or acquired from the railroad.

Note 2: the exact location of some monument boundaries is uncertain. The boundary, and therefore the shape of the corresponding zone(s), could change slightly when an approved boundary survey is completed.

DESCRIPTION OF THE ALTERNATIVES

FORMULATION OF THE ALTERNATIVES

The National Park Service prepares management alternatives to explore different approaches of managing the national monument. Each alternative must be in the bounds of laws, policies, and the monument's purpose and significance. They also present different way to achieve the desired future conditions of the monument.

The alternatives focus on *what* resource conditions and visitor uses, experiences, and opportunities should be at Effigy Mounds rather than on details of *how* these conditions and uses or experiences should be achieved. Thus, the alternatives do not include many details on resource or visitor use management.

More detailed plans or studies would be required before most conditions proposed in the alternatives could be achieved. The implementation of any alternative also depends on future funding and environmental compliance. An approved plan does not guarantee that funding to implement it will be forthcoming. The general management plan establishes a strategy that will guide day-to-day and year-to-year management of the national monument, but full implementation could take many years.

ELEMENTS COMMON TO ALL ALTERNATIVES

Resource Management

- Archeological survey and evaluations and a cultural landscape report would be completed for the entire monument.
 - Boating on the Yellow River and at Sny Magill would be monitored for use levels and resource impacts.
 - National Register of Historic Places nomination forms would be updated to include descriptions of all eligible (contributing) resources not presently described and to incorporate new scientific information.
 - Depending on findings, recommendations would be made for potential national historic landmark status.
 - The resources of the monument would be managed for a landscape that emulates that which existed during the time of the moundbuilding era. The sensitive cultural and natural resources would be preserved or restored using the natural processes that sustained the moundbuilders and protected their heritage through time, combined with the appropriate management practices to conserve them for the future.
 - Cooperative management strategies with stakeholders for resource protection and preservation would be developed.
 - Limited archeological testing and evaluation excavations of cultural sites could be allowed to address unexpected threats to resources or for establishing baseline information such as dates of occupation, etc.
 - While natural resources and processes would be preserved or restored to the extent possible, they could be managed when necessary to restore landscapes or preserve fundamental cultural resources.
- The mounds would be preserved in place with only non-intrusive methods of archeological investigations.
 - Natural viewsheds and soundscapes would be maintained to the extent feasible.

- Ongoing ecosystem restoration efforts and nonnative species management would continue.
- The monument staff would develop a resource stewardship strategy that includes an ecosystem restoration strategy, nonnative species management, and a fire management plan.
- The monument staff would continue to provide technical assistance, when possible, to other agencies and organizations in preservations and management of mounds.

Visitor Use

- Safety messages would be prominent in communications to the public.
- Interpretation would emphasize the sacred nature of the mounds and resources, and would consider the cultural resources (mounds) as symbols of the values, beliefs, and accomplishments of the moundbuilders.
- The National Park Service would explore partnership possibilities with appropriate groups to offer interpretive canoe trips exploring traditional ways.

Monument Management

- An approved boundary survey would be completed to resolve land issues.
- New water system and wastewater treatment facilities would be installed as needed for adequate public and employee health and fire protection.
- Unused logging roads would be restored to pre-disturbed conditions.

ALTERNATIVE A – NO ACTION

Concept

Current management strategies and trends would continue under the no-action alternative. Projects that have been approved and funded would be implemented. There

would be no major changes to monument operations or visitor services other than those already in progress or approved. All cultural sites would continue to be maintained and preserved using current practices. The mounds would continue to be protected and preserved. Management treatments would vary according to the cover and condition of individual mounds. Historic sites would be protected from degradation but not otherwise managed. The landscape would continue to be managed to represent the environment associated with the moundbuilding cultures. The Heritage Addition would not have a long-term plan in place. The North, South, and Sny Magill units would continue to be managed under different strategies.

Zoning

There would be no zoning in this alternative. Management direction from the previous general management plan and other planning would remain in effect.

Monument-wide

- Ongoing ecosystem restoration efforts and nonnative species management would continue.
- All mounds would continue to be preserved.
- Trails and other facilities (benches, signs, etc.) would continue to be maintained.
- New trail signs would be installed where needed.
- Visitor center and maintenance facilities would remain where they are.
- Archeological inventory/evaluation of the monument would be completed and national register nominations updated.

Heritage Addition

- A long-term use and access plan for the Heritage Addition would not be developed.
- The natural viewshed from Eagle Rock would be preserved through continued

restoration efforts aimed at restoring the landscape the moundbuilders might have seen.

- Visitors would be able to experience the landscape of the Heritage Addition from overlooks located in the North and South units and through infrequent ranger-conducted hikes or tours.
- Visitors would receive information and interpretation through nonpersonal media at the visitor center (exhibits, printed materials, etc.) and would have opportunities to appreciate the related cultural environment in a quiet contemplative setting.
- Public access would include canoeing and infrequent ranger-led hikes.
- Motorized and nonmotorized boating would be allowed on Yellow River. No facilities would be provided and take-out would be discouraged in the monument.

Visitor Center and Maintenance Area

- The visitor center complex would be maintained and media upgraded as needed.
- Preparations would continue to convert former housing to administrative use.
- Maintenance activities and functions would stay where they are while actively adapting to the changing needs of resource and facility requirements.
- Accessible boardwalk to mounds located between the Yellow River and State Highway 76 would be completed.
- Frequent special events would take place in developed areas.
- Visitors would continue to receive formal and informal services at the visitor center; these would include educational programs, information and orientation, demonstrations, and hikes.
- Wetland habitat interpretive programs would be offered as accessible opportunities for all visitors.

- Crowding of the visitor center would continue when school groups are present, especially during inclement weather.

North Unit

- This unit would continue to be managed to accommodate the most visitor use of any unit with continued emphasis on resource protection and preservation.
- Trails signs, facilities, and benches would be maintained or upgraded as needs change and funding allows.
- Trails would continue to be maintained or improved for visitor access and safety while preserving mounds by relocating trails away from mound sites.
- Visitors would receive information and interpretation through personal services such as hikes and nonpersonal media (trailside exhibits, printed materials, etc.) and would have opportunities to appreciate the related cultural environment in a quiet contemplative setting.
- Interpretation would emphasize the sacred nature of the mounds and resources and would consider cultural resources (mounds) as symbols of the values, beliefs, and accomplishments of the moundbuilders. Frequent ranger-led hikes or tours connecting the tangible resources of the moundbuilders and natural features of the monument would take place only in areas that do not jeopardize those resources.
- The small maintenance storage site in this unit would be maintained.

South Unit

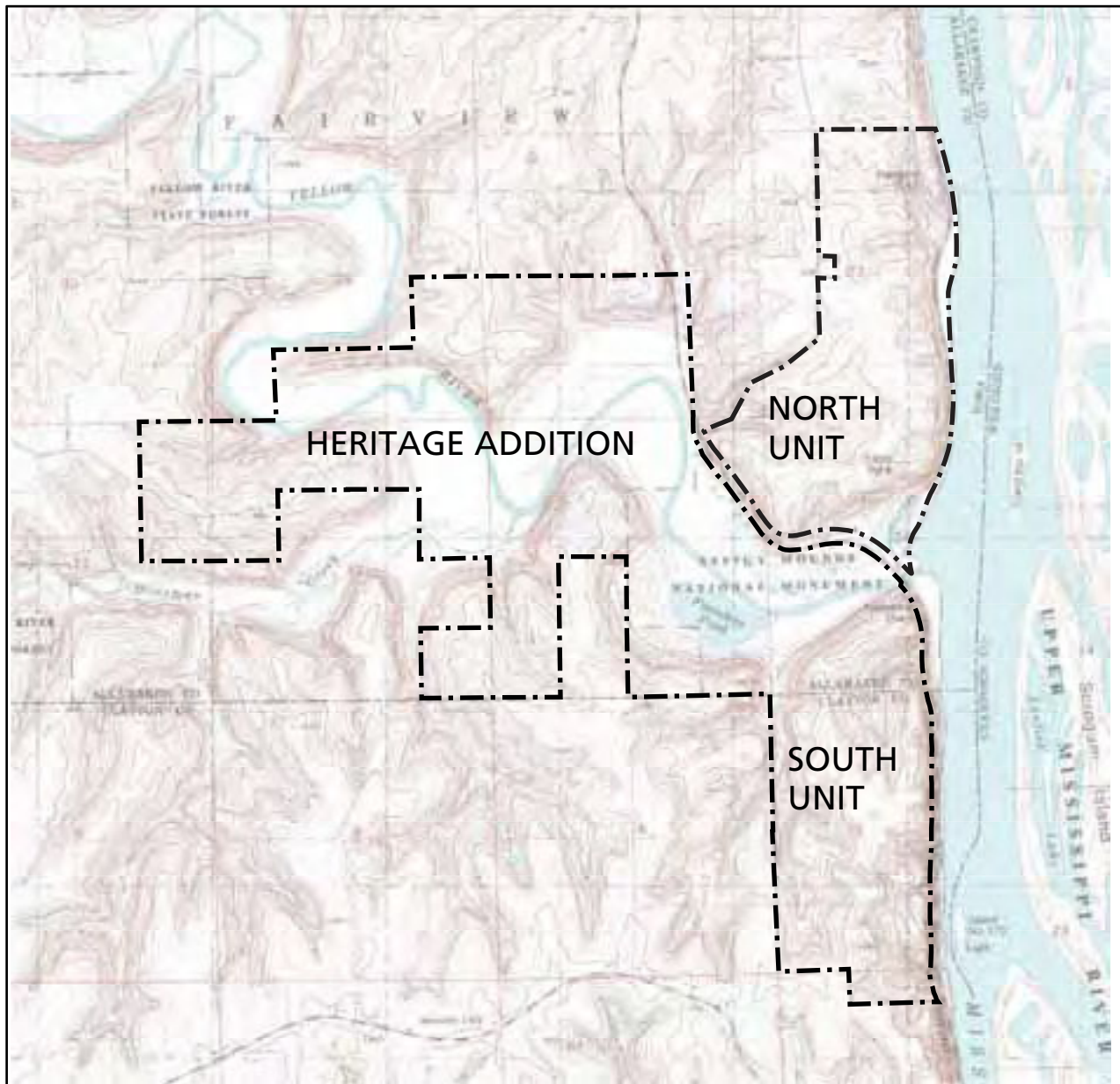
- The unit would be managed to support a low level of visitor use while maintaining the primitive setting.
- Trails would be improved for visitor access and safety while preserving mounds by relocating trails away from mound sites and changing substrate from gravel to wood chip. There would be no

new trails (other than the approved Yellow River Bridge Trail); existing trails could be realigned for resource protection or improved visitor experience.

- Yellow River Bridge Trail would be connected to existing Marching Bear Trail as funding allows.
- Trail signs would be upgraded; this would include a wayside at the Marching Bear Group.
- Visitors would receive information and interpretation primarily through nonpersonal media (trailsides exhibits, printed materials, etc.) and have opportunities to appreciate the related cultural environment in a quiet contemplative setting.
- Visitors would be primarily on their own on existing trails with minimal contact with monument staff or other visitors. Occasional special hikes connecting the tangible resources of the moundbuilders and natural features of the monument would take place. Interpretation would continue to emphasize the sacred nature of the mounds and resources.

Sny Magill Unit

- Sny Magill would be primarily managed for preservation of the mounds with limited amenities for visitor use.
- The existing chipped trail would continue to be maintained.
- Visitors would receive information and interpretation on this unit at the main unit visitor center, and would have opportunities to appreciate the related cultural environment in a quiet contemplative setting.
- Vegetation and tree removal for the preservation of the mounds and riverbank stabilization would continue.
- There would continue to be very limited NPS presence in this unit due to lack of available staff.
- Visitors would be provided opportunities to experience the influence of the natural world on the moundbuilders through interpretation and personal contemplation.
- The public would continue to have recreational use of the boat ramp and the adjacent Mississippi River.



Sny Magill

NOTE: Scale of Sny Magill area is larger than top map.

Legend

Monument Boundary

North



NOTE:

Monument boundaries shown on all maps may not be exact due to the lack of an approved survey.

ALTERNATIVE A

EFFIGY MOUNDS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / Aug 08 / 394 / 20,024C

ALTERNATIVE B – PREFERRED

Concept

Alternative B would provide an enhanced visitor experience with increased understanding of the monument while protecting and preserving natural and cultural resources.

The monument would serve as a catalyst for mound research and management in the region. To accomplish this, there would be a multi-purpose center with a regional research facility built at the monument. An expanded role for maintenance and interpretive staff to work in cooperation with resource management to develop innovative management techniques would be encouraged. The desired visitor experience would be to make personal connections to the monument's tangible resources through understanding of the significance of the (pre-European contact) American Indian moundbuilding story and its relationship to the heritage of the region. As a means of enhancing the visitor experience, public access to various units of the monument would be improved in this alternative. The landscape and visitor facilities would support a contemplative atmosphere with opportunities for the public to spend time reflecting on the lives and legacy of the moundbuilders and the sacred nature of the site today. The natural setting created by preserving or restoring landscapes would provide a connection between the moundbuilding cultures and the environment that shaped their lives and beliefs.

The proposed multi-purpose center is intended to become a focal point for mound research. It would be a place where scholars and researchers could meet and hold symposia. It would become a central location for students and scholars of moundbuilding. This facility would be built to house the monument's collections and archives, research space, and a library for park service and visiting researchers. A primary goal of the center would be to promote education, maintenance, and protection activities that

would support mound stewardship throughout the four-state region.

The center would also include administrative offices to eliminate cramped conditions in the current offices, education space to reduce crowding in the visitor center, and conference space for various uses.

Education and interpretation of the natural resources of the park would be expanded. Physical access to and interpretation of the mounds in Sny Magill and the South Unit would improve. Due to the sacred and fragile nature of the Sny Magill mounds, a universally accessible trail and appropriate signs would be constructed to discourage visitors from walking on the mounds according to a site development plan prepared for this unit. This would also increase accessibility for all visitors to the mound group during flood season and other times when the ground is soft.

Under the preferred alternative, the diversity of visitor trail experiences would be expanded from that currently offered at the monument. Presently, visitors walk on trails to view mounds that have had the covering vegetation manicured so that the mounds are clearly visible. Consistent with the resource conditions and visitor experiences defined in the Preservation and Discovery Zones, visitors to the Heritage Area would be able to experience a walk on marked trails through natural, undeveloped landscapes and view some mounds in a more un-manipulated state (with only some woody materials removed for preservation purposes). Providing access to mounds that are in different conditions would allow an expansion of existing interpretive opportunities and an increased understanding of the monument's fundamental resources.

Using the direction provided in this general management plan, specific location of the trails would be identified in a subsequent trail development or public access plan. There are various alternatives that would provide visitor access to the northern part of the Heritage Addition beginning at the visitor center area and other points. The trail development plan would explore and analyze potential options

that require a minimum of new trail construction.

Visitor experiences throughout the monument would be primarily self-guiding on developed trails in a quiet, contemplative setting to maintain an atmosphere of respect toward the sacred nature of the monument.

Zoning

This alternative concept is reflected in the proposed zoning by placing the primary visitor trails and mound groups into the Preservation and Interpretation Zone. The use of Discovery zoning allows for some new trails to provide access to the Heritage Addition and other areas of the monument while protecting cultural and natural resources.

While the Riverfront Tract is in the monument's authorized boundary, it is not owned by the National Park Service. If this tract is acquired, it would be managed in the Preservation and Interpretation Zone.

Heritage Addition

To preserve cultural and natural resources, the following actions would be taken:

- A “no wake” restriction on the segment of the Yellow River that flows through the monument would be pursued; pass-through canoeing on the river would be allowed, but take-out would be prohibited in the monument to protect riverside resources.
- Wild and Scenic River designation for the Yellow River would be pursued since it has been found to be suitable.
- The National Park Service would seek county relinquishment or abandonment of the county road to facilitate use as a trail and for monument management needs.

The following actions would be taken to enhance visitor experience opportunities:

- Public trails would be provided in the Heritage Addition using the existing

county road and appropriate logging roads. As mentioned above, some new trails could be constructed when necessary according to a trail development plan (see the “Future Studies and Implementation Plans Needed” section). Trails would be for pedestrian or occasional NPS vehicle use—no horses or public vehicles.

- Wayside and bulletin board placement would be minimized; locations would be selected to carefully reflect the contemplative setting desired. Primary themes would deal with natural history, the moundbuilding cultures, and local history. Safety messages will be prominent.
- Leave No Trace principles would be emphasized, including trash removal.
- Appropriate activities allowed in the unit would include quiet, low impact, resource-based activities such as hiking, canoeing, and wildlife viewing.
- Visitors would receive information and orientation at the visitor center before accessing the Heritage Addition.
- Ranger-conducted hikes would occur occasionally in this unit.
- A “no wake” restriction on the segment of the Yellow River that flows through the monument would be pursued to enhance experience opportunities.
- River and aquatic biology educational programming could be offered utilizing the Yellow River and wetlands.

Visitor Center and Maintenance Area

To preserve cultural and natural resources, the following actions would be taken:

- The monument's museum collections and archives would be moved to a storage facility in the multi-purpose center that meets NPS curatorial standards.

The following actions would be taken to enhance visitor experience opportunities:

- Exhibit, museum, and bookstore space in the visitor center would be reconfigured.
- An accessible boardwalk to the mounds located between the Yellow River and Highway 76 would be completed from the existing boardwalk to the Yellow River.
- The visitor center landscaped area would be more established; planter beds would be planted with native vegetation and would be used as a natural resource interpretive tool.
- Wetland habitat interpretive programs would be offered as accessible opportunities for all visitors.
- Depth of information and interpretation content in the visitor center would increase and new technology would be used as it becomes available.

The following actions would be for monument operations:

- The former park housing units would be removed and the multi-purpose center would be built at that location.
- Most administrative offices would be moved from the visitor center into the multi-purpose center building.

North Unit

To preserve cultural and natural resources, the following actions would be taken:

- The National Park Service would pursue acquisition of the Riverfront Tract in the legislated boundary from a willing seller to protect cultural resources on the tract and would evaluate the sites for national register or national landmark status.
- The mound at Fire Point would be restored to its original dimensions after the trail has been moved. All work would be done according to *Advisory Council Regulations, NPS Management Policies, NPS 28 (Cultural Resources Management Guideline)*, and the *Secretary of the Interior Standards and Guidelines for Archeology and Historic Preservation*. All

work would be done in consultation with the Iowa state historic preservation office.

- Existing trails could undergo minor realignment for resource protection purposes.

The following actions would be taken to enhance visitor experience opportunities:

- The existing trail at Fire Point would be removed and a new accessible trail and overlook would be provided for visitor safety and accessibility.
- A trail into the prairie that connects with the Hanging Rock Trail would be built. Natural resource-based interpretation concerning the moundbuilders and early historic period environment would be expanded using prairie vegetation areas.
- Visitors would be provided opportunities to experience the influence of the natural world on the moundbuilders through personal services such as guided hikes and talks, and nonpersonal media (trailside exhibits, printed materials, etc.).

South Unit

The following actions would be taken to enhance visitor experience opportunities:

- The Yellow River Bridge Trail would connect to the existing Marching Bear Trail to provide safe access to this unit.
- Visitors would be provided opportunities to experience the influence of the natural world on the moundbuilders through interpretation and contemplation.
- Interpretation of mound preservation and the related 19th century American Indian cultural experience would be enhanced by interpreting the military trail and cistern.
- Directional and educational signs would be added or improved to foster an appreciation of the moundbuilders.
- Visitors would receive information and interpretation from the visitor center and trailside exhibits and have opportunities

to appreciate the related natural and cultural environment.

- Visitors would be primarily on their own on well-developed trails and have minimal contact with monument staff or other visitors.

The following actions would be for monument operations:

- The South Unit entrance road would be rebuilt to address safe access for NPS personnel and equipment.
- No new trail or road development (other than Yellow River bridge trail and South Unit access road) would occur; existing trails could be realigned for resource protection.

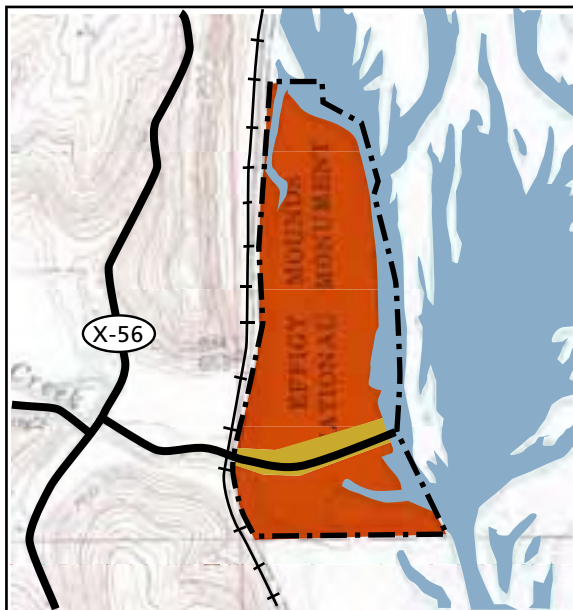
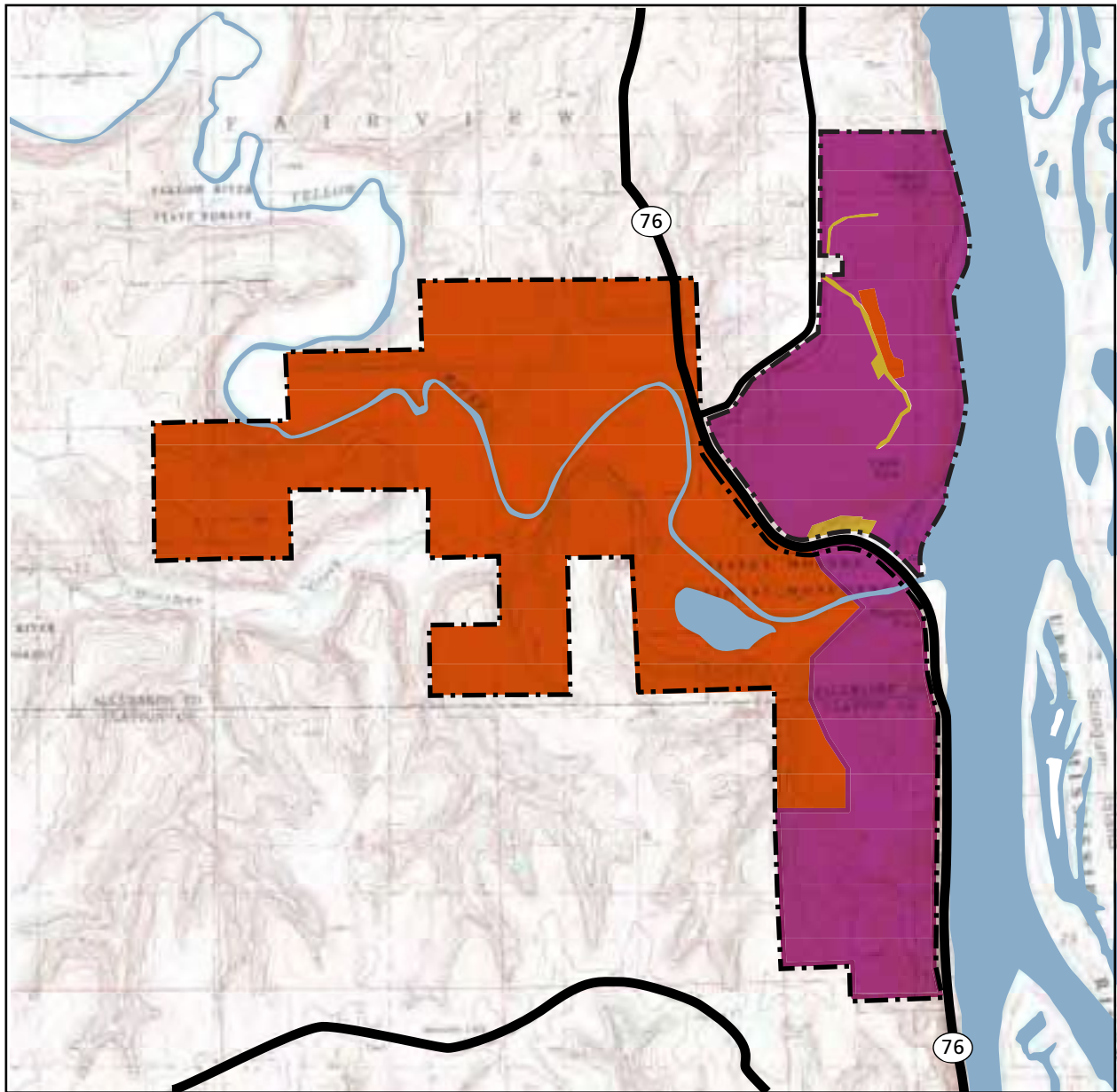
Sny Magill Unit

To preserve cultural and natural resources, the following actions would be taken:

- River banks would be stabilized from erosion and selected trees may be removed from the mound group and adjacent area.
- Boating on the Mississippi River adjacent to this unit would be monitored for use levels and resource impacts.

The following actions would be taken to enhance visitor experience opportunities:


- A visitor contact station would be opened to provide an NPS presence for resource protection and visitor services according to a development plan for this unit. The National Park Service would explore possible cooperative partnerships with other agencies such as the U.S. Fish and Wildlife Service to provide personal and nonpersonal visitor services.
- An accessible trail would be built for improved visitor access according to a site development plan (see “Future Studies and Implementation Plans Needed” section).
- The public would continue to have access to the boat ramp and the Mississippi River for recreational activities.
- Depending on the time of year, visitors would receive formal and informal personal services at the visitor station such as NPS-conducted educational programs, conducted interpretive demonstrations, talks, walks, and contacts with rangers.
- Acquisition of land west of the railroad tracks from a willing seller would be pursued for viewshed protection and location of the visitor contact station.



Sny Magill

NOTE: Scale of Sny Magill area is larger than top map.

Legend


 Monument Boundary



North

Zone

 Development

 Preservation and Interpretation

 Discovery

ALTERNATIVE B

EFFIGY MOUNDS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / Feb 09 / 394 / 20,025E

ALTERNATIVE C

Concept

Alternative C would emphasize the natural resource environment and its interconnectedness with cultural resources. It would also increase formal education and outreach programs.

Natural viewsheds and soundscapes would be protected as much as feasible under this alternative. The inextricably linked cultural and natural resources would be managed to resemble the landscape associated with the moundbuilding era. This natural setting would provide a connection to the moundbuilding cultures and the environment that shaped their lives and beliefs.

Education and interpretation of natural resources would be expanded in the monument and the region under this alternative. Programming would emphasize reaching a broader segment of the public than in the other alternatives, including improved accommodation of educational groups. The preservation emphasis would continue as it is today in the North, South, and Sny Magill units. Additional trail development would only be allowed in certain areas of the monument when necessary for visitor safety or resource protection. The natural viewshed of the Heritage Addition, as seen from Eagle Rock, would be preserved.

The visitor experience in the Heritage Addition would be primarily self-directed resource observation by canoeing on the Yellow River, or by participating in periodic special ranger-led hiking and canoe tours; this would preserve not only the resources but also the sense of sacredness of the area.

Visitor experiences throughout the remainder of the monument would be primarily self-guiding on developed trails in a quiet, contemplative setting to maintain an atmosphere of respect toward the sacred nature of the monument.

Zoning

This alternative concept is reflected in the proposed zoning by placing almost one-half of the monument in the Back Country Zone. This would maintain the natural character of the Heritage Addition and part of the Sny Magill unit. Primary mound groups and major visitor trails in the North, South, and Sny Magill units would be in the Preservation and Interpretation Zone to protect resources while allowing visitor access.

While the Riverfront Tract is in the monument's authorized boundary, it is not owned by the National Park Service. If this tract is acquired, it would be managed in the Preservation and Interpretation Zone.

Heritage Area

To protect cultural and natural resources, the following actions would be taken:

- A "no wake" restriction on the segment of the Yellow River that flows through the monument would be pursued to protect riparian resources. Pass-through canoeing on the river would be allowed, but take-outs would be prohibited to protect the riverbanks.
- Wild and Scenic River designation for the Yellow River would be pursued since it has been found to be suitable.

The following actions would enhance visitor experience opportunities:

- Maintenance of old roads as trails would be limited to those that may be required to protect and preserve the resources and facilitate maintenance or for occasional tours. The remaining old roads would be rehabilitated (re-contoured and seeded). Trails would be for pedestrian or occasional NPS vehicle use—no horses or public motorized vehicles.
- Visitors would receive information and interpretation about this unit in the monument's visitor center and North and South units (trailside exhibits, overlooks, printed materials, etc.).

- Public access would include pass-through canoeing and occasional tours. While self-guided exploration into the unit would be allowed on the administrative trails, it would not be promoted due to lack of access and NPS presence.

Visitor Center and Maintenance Area

The following actions would enhance visitor experience opportunities:

- Visitors would receive information and interpretation through personal services, exhibits, and multi-media presentations in the reconfigured visitor center.
- Frequent special events would take place that do not jeopardize the contemplative nature of the nearby resource zone.
- The depth of information/interpretation content would increase and new technology would be utilized.
- An accessible boardwalk to the mounds located between the Yellow River and Highway 76 would be completed from the existing Yellow River boardwalk.

The following actions would be for monument operations:

- Several administrative offices would be moved out of the visitor center into the former park houses and the space in the visitor center would be used for an expanded museum/exhibits area and/or bookstore.

North Unit

To preserve cultural and natural resources, the following actions would be taken:

- The National Park Service would pursue acquisition of the Riverfront Tract in the legislated boundary to protect cultural resources on the tract and would evaluate the sites for national register or national landmark status.
- Existing trails could be realigned for resource protection.

The following actions would enhance visitor experience opportunities:

- Expanded trails into the prairie that connect with the Hanging Rock Trail would be provided.
- The monument staff would offer interpretive programs using the prairies and emphasizing the relationship of the landscape to the moundbuilders environment.
- Visitors would receive information and interpretation through personal services such as guided hikes and nonpersonal media (trailside exhibits, printed materials, etc.).
- Visitors would be primarily on their own on well-developed trails, but would have frequent contact with monument staff or other visitors.

South Unit

The following actions would enhance visitor experience opportunities:

- Visitors would receive information and interpretation at the visitor center and trailside exhibits and have opportunities to appreciate the related natural and cultural environment.
- Yellow River Bridge Trail would be connected to the existing Marching Bear trail.
- Interpretation of mound preservation and the related 19th century American Indian cultural experience would be enhanced by interpreting the military trail and cistern.
- Visitors would be primarily on their own with minimal contact with monument staff or other visitors.

The following actions would be for monument operations:

- There would be no new trails (other than the bridge trail and South Unit access road), but existing trails could be realigned for resource protection.

Sny Magill Unit

To preserve cultural and natural resources, the following actions would be taken:

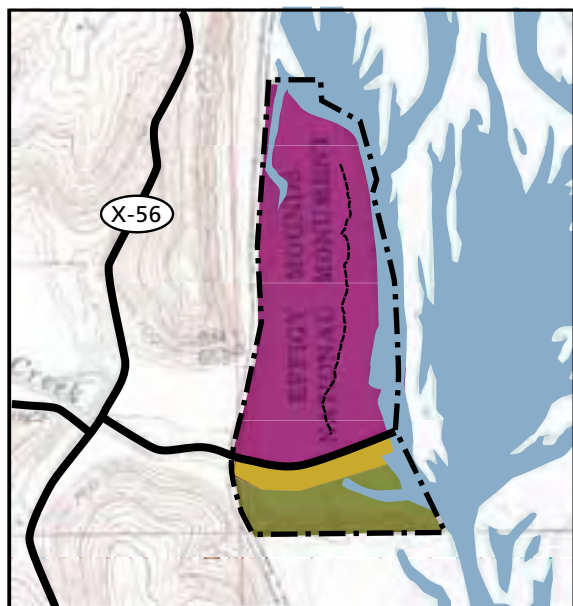
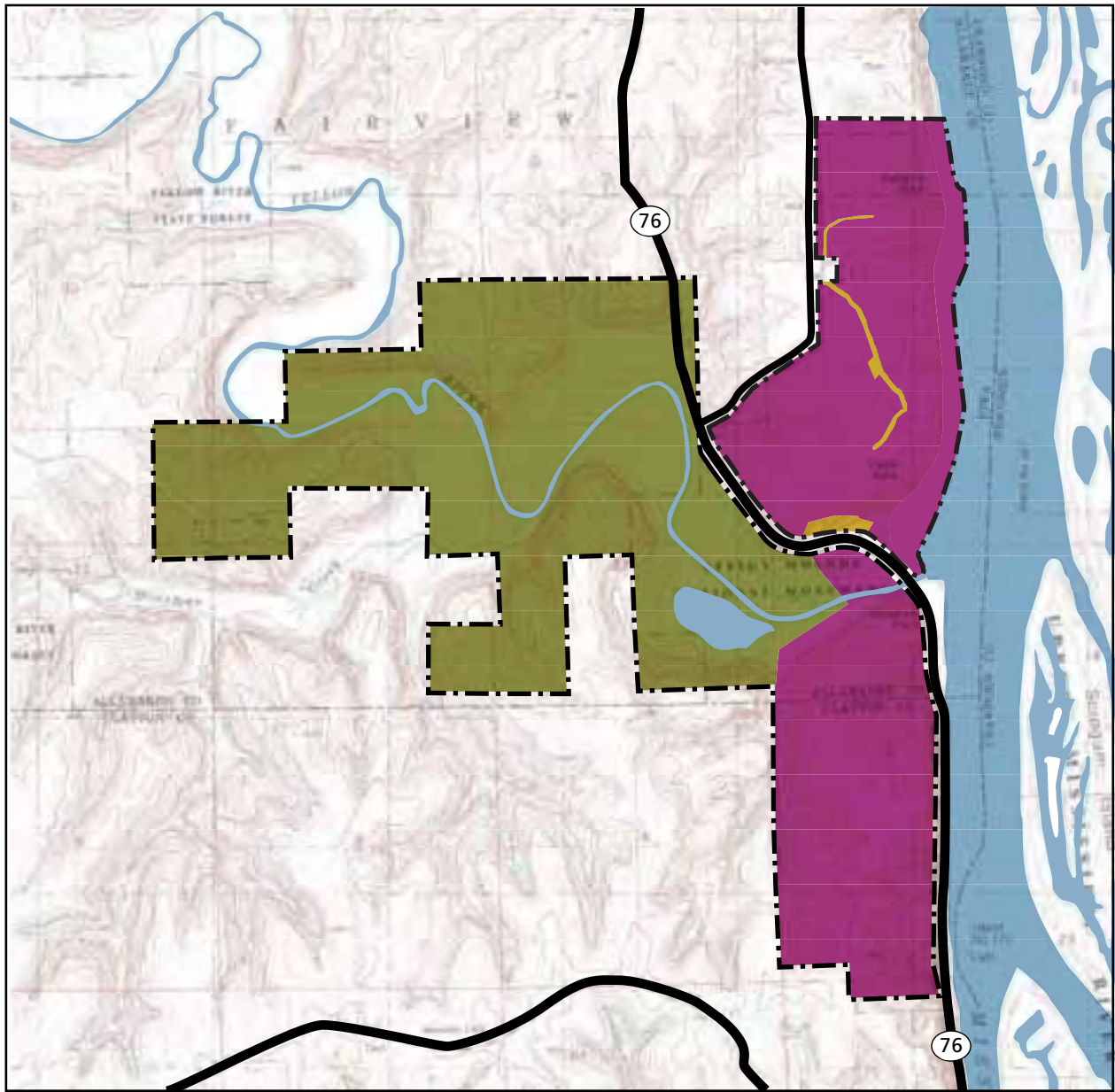
- The riverbank would continue to be restored and stabilized to protect mounds from eroding.

The following actions would enhance visitor experience opportunities:

- The public would continue to have recreational use of the boat ramp and the Mississippi River.
- Existing wood-chip surfaced trail would be maintained.
- Native prairie vegetation areas would be used to expand natural resource-based interpretation concerning the

moundbuilders and early historic period environment.


- Visitors would receive information and interpretation through nonpersonal media obtained in the main unit visitor center or by an on-site bulletin board and would have opportunities to appreciate the natural and cultural heritage of the moundbuilders. Informal interpretation would be available via roving rangers during heavy visitation periods.
- Visitors would be primarily on their own in this unit during most of the year.



Sny Magill

NOTE: Scale of Sny Magill area is larger than top map.

Legend

 Monument Boundary




North

Zone

 Backcountry

 Development

 Preservation and Interpretation

ALTERNATIVE C

EFFIGY MOUNDS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / Feb 09 / 394 / 20,025D

ESTIMATED COSTS

Cost estimates in general management plans are required by the 1978 Parks and Recreation Act and are requested by Congress for budget control purposes. The purpose of cost estimates is to assist managers with setting priorities and to inform the public. For comparison purposes, the planning team estimated the cost to implement each of the alternatives (Table 4).

The implementation of the approved plan, no matter which alternative, will depend on future NPS funding levels and servicewide priorities, and on partnership funds, time, and effort. The approval of a general management plan does not guarantee that funding and staffing needed to implement the plan will be forthcoming. Full implementation of the plan could be many years in the future.

The following assumptions apply to costs presented in this plan:

- These cost figures are broad estimates based on the costs of construction, supplies, and employee salaries, and should not be used for budgeting and project planning.
- The costs presented have been developed using industry standards to the extent available.
- Actual costs will be determined at a later date, considering the design of facilities, identification of detailed resource protection needs and changing visitor expectations.
- Potential costs for land protection tools (easements, acquisitions, etc.) to implement the boundary adjustment proposals in this general management plan are not included in these estimates.
- The cost estimates presented represent the total costs of projects. Potential cost sharing opportunities with partners could reduce the overall costs (only if partners and potential costs savings are identified in the plan.)

The NPS Facility Planning Model was run to determine the space needs for a multi-purpose center and a Sny Magill visitor contact station in Alternative B.

Associated Costs: Alternative A – No Action

Costs associated with implementing this alternative are on-going operations (base funding) and those items that are already funded or approved. Funded projects include replacement of the visitor center LCD projector, a flammable storage cabinet, upgrading security of buildings and parking areas, construction of trails to mounds both just above the Yellow River and in the South Unit, and recovering the cost of collection operations. The total funding requested for these projects is \$1,310,000 (as of March 2008).

In addition to the above costs, periodic increases in base funding would be required to cover inflation and remain at the current level of monument operations.

The current staffing level cannot be reduced if the monument is to continue to be open 362 days a year.

Associated Costs: Alternative B – Preferred Alternative

Cost estimates for this alternative include reconfiguration of the visitor center and construction of a research/administrative center at the current park headquarters, a visitor contact station and trail in the Sny Magill Unit, a bridge over Dousman Creek, and new trails in the Heritage Addition. Funding needs for additional building maintenance and operations costs are also included in this alternative.

Non-facility costs in this alternative would include restoration of the mound at Fire Point, implementation of landscape restoration, other cultural and natural resource management actions, and funding for enhanced interpretation programs and materials at the main visitor center and Sny Magill.

Nine additional permanent staff positions would be recommended to fully implement the preferred alternative. One or more of the following positions would be needed: administrative/budget specialist, cultural resource specialist (center director), interpreter, maintenance worker, and law enforcement ranger. This increase in staffing would be necessary to have staff available at the visitor center and Sny Magill every day the park is open, and to conduct needed administrative and resource management duties. Although the cost estimates were made using full-time NPS employees, some of the work could be done by volunteers or cooperating association employees. If it were not possible to fill the nine positions, then the Sny Magill Unit would not be staffed 7 days a week or would be unstaffed during one or two winter months (when visitation is lowest).

Associated Costs: Alternative C

Cost estimates for this alternative include construction of a vehicle bridge over Dousman Creek, reconfiguration of the visitor center, some new trails, and conversion of housing units to office space. Funding needs for additional building maintenance and operations costs are also included in this alternative.

Non-facility costs in this alternative would include implementation of landscape restoration, other cultural and natural resource management actions, and funding for enhanced education and outreach programs.

Five full-time equivalent staff positions would be recommended to fully implement this alternative. One or more of the following positions would be needed: cultural resource specialist, interpreter, maintenance worker, and law enforcement ranger. This staffing increase would be necessary to have staff available at the visitor center desk every day the park is open and to conduct needed administrative, maintenance, and resource management duties. Although the cost estimates were made using full-time NPS employees, some of the work could be done by volunteers or cooperating association employees.

Table 4: Estimated Costs of the Alternatives (in 2007 dollars)

	Alternative A (No Action)	Alternative B (NPS Preferred)	Alternative C
Annual Operating Costs¹	\$1,000,000	\$1,600,000	\$1,300,000
Staffing (FTE²)	17	26	22
One Time Costs			
Facility Costs ³	\$ 1,100,000	\$ 8,300,000	\$ 2,500,000
Non-Facility Costs ⁴	\$ 210,000	\$ 320,000	\$ 265,000
Total One Time Costs	\$ 1,310,000	\$ 8,620,000	\$ 2,765,000

(1) Annual operating costs (ONPS) are the total annual costs for maintenance and operations associated with each alternative, including maintenance, utilities, supplies, staff salaries and benefits, leasing, and other materials.

(2) Total full-time equivalents (FTE) are the number of employees required to maintain the assets of the park at a good level, provide acceptable visitor services, protect resources, and other support staff. The full-time equivalent staff would not necessarily be National Park Service employees. Park managers would explore opportunities to work with partners, volunteers, and other federal agencies to manage the park efficiently. Employee salaries and benefits are included in the annual operating costs.

(3) Initial construction costs include those for construction or renovation of facilities. In the no action alternative, initial construction costs includes only those costs already planned within existing programs and with an approved funding source.

(4) Non-facility costs include the costs of actions for cultural and natural resource management, visitor service materials, and other park management activities that are not related to a facility but would require substantial funding above the annual park operating costs.

ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The National Park Service is required to identify the environmentally preferable alternative in its environmental impact analysis documents for public review and comment. The Park Service, in accordance with the Department of the Interior policies contained in the *Department Manual* (516 DM 4.10) and the *Council on Environmental Quality's Forty Questions*, defines the environmentally preferable alternative (or alternatives) as the alternative that best

promotes the national environmental policy expressed in NEPA (Section 101(b)).

Section 101 states that it is the continuing responsibility of the federal government to

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
3. attain the widest range of beneficial uses of the environment without degradation,

risk to health or safety, or other undesirable and unintended consequences;

4. preserve important historic, cultural, and natural aspects of national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choices;
5. achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Alternative A (no action) would reuse the former park housing for offices. Since reusing something is an environmentally superior form of recycling, alternatives A and C would attain more recycling than under alternative B and fully meet criterion 6. However, alternative A lacks the range of diversity and individual choices found in the other alternatives. It also does not provide as much resource protection and beneficial management as the other alternatives — more resource impacts would be expected with increasing visitor use levels in this alternative. Thus, the no-action alternative would not meet the following national environmental policy criteria as well the other alternatives:

- attain the widest range of beneficial uses of the environment without degradation
- preserve important natural aspects and maintain an environment that supports diversity and variety of individual choice
- achieve a balance between population and resource use

Alternative B would greatly expand visitor use opportunities and scientific inquiry at Effigy Mounds through the new research center,

new trails, and the Sny Magill visitor contact station, thus providing for a wide range of neutral and beneficial uses of the environment (meeting criteria 3 and 5). This alternative would also meet criteria 2 and 4 through its continued protection of the undeveloped areas of the national monument and the emphasis on preserving entire landscapes. Only alternative B provides safe access to unique aesthetic and cultural experiences in the Heritage Area (relatively more secluded and offering quiet hiking experiences that support visitors' abilities to experience a sense of sacredness that A and C do not support to the same extent).

Alternative C would provide a high level of resource protection (meeting criteria 3 and 4). This alternative would continue protection of the undeveloped areas of the national monument, and enhancement of the resource education program, which would lead to long-term protection of the resources by instilling a stewardship ethic in young people (criteria 2, 3, and 4). The range of visitor experience opportunities would not be as great in this alternative. Alternative C would reuse the former park housing for offices. Since reusing something is an environmentally superior form of recycling, alternatives A and C would attain more recycling than alternative B and would fully meet criterion 6.

After consideration of the alternatives in this general management plan, the environmentally preferable alternative is the same as the NPS preferred alternative (alternative B). This alternative would more fully satisfy all the national environmental criteria than either alternative A or C. Alternative B would provide a high level of protection of natural and cultural resources. The alternative would also maintain an environment that supports a diversity and variety of individual choices and would integrate resource protection with an appropriate range of visitor use.

Table 5: Environmentally Preferable Alternative

Criterion	Alt. A	Alt. B	Alt. C
1	Fully meets criterion	Fully meets criterion	Fully meets criterion
2	Partially meets criterion	Fully meets criterion	Partially meets criterion
3	Partially meets criterion	Fully meets criterion	Fully meets criterion
4	Partially meets criterion	Fully meets criterion	Fully meets criterion
5	Partially meets criterion	Fully meets criterion	Partially meets criterion
6	Fully meets criterion	Partially meets criterion	Fully meets criterion
Conclusion		Environmentally Preferable Alternative	

ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED FROM DETAILED EVALUATION

Early on in the alternative development process, the planning team created three alternatives schemes that each had a different area of emphasis: research, education, and visitor experience. It was then realized that the National Park Service should not emphasize only one area of operations or programming at the possible expense of other important programs. The National Park Service should be doing all these in every alternative. Therefore, these alternatives were dropped from further consideration.

The planning team also considered a third action alternative that resembled alternative B, but the proposed research center would be operated with partners in a facility away from the monument or at Sny Magill. After analysis of this alternative in the Choosing by Advantages (CBA) workshop, the planning team decided that the disadvantages of having the research center away from the main operational area of the monument were too great, so this alternative was dismissed from further consideration.

MITIGATING MEASURES COMMON TO ALL ACTION ALTERNATIVES

Congress charged the National Park Service with managing the lands under its stewardship “in such manner and by such means as will leave them unimpaired for the enjoyment of future generations” (NPS Organic Act, 16 USC 1). As a result, the National Park Service routinely evaluates and implements mitigation whenever conditions occur that could adversely affect the sustainability of national park system resources.

To ensure that implementation of the action alternatives protects unimpaired natural and cultural resources and the quality of the visitor experience, a consistent set of mitigating measures would be applied to actions proposed in this plan. The National Park Service would prepare appropriate environmental review (i.e., those required by the National Environmental Policy Act (NEPA), the National Historic Preservation Act, and other relevant legislation) for these future actions. As part of the environmental review, the National Park Service would avoid, minimize, and mitigate adverse impacts when practicable. The implementation of a compliance-monitoring program could be considered to stay within the parameters of NEPA and National Historic Preservation Act compliance documents, U.S. Army Corps of Engineers Section 404 permits, etc. The compliance-monitoring program would oversee these mitigating measures and would include reporting protocols.

The following mitigating measures and best management practices could be applied to avoid or minimize potential impacts from implementation of the alternatives. These measures would apply to all alternatives and were considered as part of the alternatives in the analyses of environmental impacts.

CULTURAL RESOURCES

The National Park Service would preserve and protect, to the greatest extent possible, resources that provide evidence of the human occupation of Effigy Mounds National Monument. Mitigating measures intended to reduce or eliminate adverse effects to cultural resources could include the following:

- Continue to develop inventories for and oversee research about archeological, historical, and ethnographic resources to better understand and manage the resources. Continue to manage cultural resources and collections following federal regulations and NPS guidelines.
- Subject projects to site-specific planning and compliance. Make efforts to avoid adverse impacts through adherence to the *Secretary of the Interior’s Standards for Archeology and Historic Preservation*, the *Secretary of the Interior’s Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*, and the *Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. Make use of screening and/or sensitive design that would be compatible with historic resources. If adverse impacts could not be avoided, mitigate these impacts through a consultation process with all interested parties.
- Inventory all unsurveyed areas in the park for archeological, historical, and ethnographic resources as well as cultural and ethnographic landscapes.
- Document cultural and ethnographic landscapes in the park and identify treatments.
- Conduct archeological site monitoring and routine protection. Conduct data recovery excavations at archeological sites threatened with destruction, where

protection or site avoidance during design and construction is infeasible.

- Avoid or mitigate impacts on ethnographic resources. Mitigation would include continuing to provide access to traditional use and spiritual areas and screening new development from traditional use areas.
- Continue ongoing consultations with culturally associated American Indian people. Protect sensitive traditional use areas to the extent feasible.
- Wherever possible, locate projects and facilities in previously disturbed or existing developed areas. Design facilities to avoid known or suspected archeological resources.
- If previously unknown cultural resources are discovered during project work, all work in the area will cease until the site can be evaluated by a qualified person and appropriate treatment can be implemented.
- Encourage visitors through the park's interpretive programs to respect and leave undisturbed any inadvertently encountered archeological resources as well as to respect and leave undisturbed any offerings placed by American Indians.
- Strictly adhere to NPS standards and guidelines on the display and care of artifacts. This would include artifacts used in exhibits in the visitor center.

NATURAL RESOURCES

The National Park Service would preserve and protect, to the greatest extent possible, the natural resources of Effigy Mounds National Monument. Mitigating measures intended to reduce or eliminate adverse effects to natural resources could include the following:

Air Quality

- Implement a dust abatement program. Standard dust abatement measures could

include the following elements: water or otherwise stabilize soil, cover haul trucks, employ speed limits on unpaved roads, minimize vegetation clearing, and revegetate after construction.

Soil

- Build new facilities on soil suitable for development. Minimize soil erosion by limiting the time that soil is left exposed and by applying other erosion control measures such as erosion matting, silt fencing, and sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies. Once work is completed, revegetate construction areas with native plants in a timely period.

Threatened and Endangered Species and Species of Concern

Mitigation actions would occur during normal park operations as well as before, during, and after construction to minimize immediate and long-term impacts on rare, threatened, and endangered species. These actions would vary by specific project and area of the national monument affected, and additional mitigation would be added depending on the specific action and location. Many of the measures listed above for vegetation and wildlife would also benefit rare, threatened, and endangered species by helping to preserve habitat. Mitigation actions specific to rare, threatened, and endangered species would include the following:

- Conduct surveys for rare, threatened, and endangered species as warranted.
- Locate and design facilities and actions to avoid adverse effects on rare, threatened, and endangered species. If avoidance is infeasible, minimize and compensate for adverse effects on rare, threatened, and endangered species as appropriate and in consultation with the appropriate resource agencies. Conduct work outside of critical periods for the specific species.

- Develop and implement restoration and/or monitoring plans as warranted. Plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.
- Implement measures to reduce adverse effects of nonnative plants and wildlife on rare, threatened, and endangered species.

Vegetation

- Monitor areas used by visitors (e.g., trails) for signs of native vegetation disturbance. Use public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers to control potential impacts on plants from trail erosion or social trailing.
- Develop revegetation plans for the disturbed area and require the use of native species. Revegetation plans should specify seed/plant source, seed/plant mixes, soil preparation, etc. Salvaged vegetation should be used to the extent possible.

Water Resources

- To prevent water pollution during construction, use best management practices such as erosion control measures, minimized discharge to water bodies, and regular inspection of construction equipment for leaks of petroleum and other chemicals. Minimize the use of heavy equipment in a waterway.
- Build a runoff filtration system to minimize water pollution from larger parking areas.

Wildlife

- Employ techniques where necessary to reduce impacts on wildlife, including visitor education programs, restrictions on visitor activities, and park ranger patrols.
- Implement a natural resource protection program. Standard measures would

include construction scheduling, biological monitoring, erosion and sediment control, the use of fencing or other means to protect sensitive resources adjacent to construction, the removal of all food-related items or rubbish, topsoil salvage, and revegetation. This could include specific construction monitoring by resource specialists as well as treatment and reporting procedures.

Wetlands

- Wetlands are delineated by qualified NPS staff or certified wetlands specialists and clearly marked before construction work. Perform construction activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.

Natural Soundscapes

- Noise impacts from construction would be minimized by making use of quieter technology, scheduling interpretive programs around construction, locating stationary noise sources as far from sensitive uses as possible, and requiring that construction equipment not be left idling any longer than necessary.

Scenic Resources

Mitigating measures designed to minimize visual intrusions include the following:

- Where appropriate, use facilities such as boardwalks and fences to route visitors away from sensitive natural and cultural resources, while still permitting access to important viewpoints.
- Design, site, and construct facilities to avoid or minimize adverse effects on natural and cultural resources and visual intrusion into the natural and cultural landscape.
- Provide vegetative screening where appropriate to hide intrusions into the natural scene.

FUTURE STUDIES AND IMPLEMENTATION PLANS NEEDED

After completion and approval of a general management plan for the national monument, other more detailed studies and plans would be needed before specific actions could be implemented. As required, additional environmental compliance (NEPA, National Historic Preservation Act, and other relevant laws and policies), and public involvement would be conducted. Additional studies would include, but would not be limited to, the following:

1. A cultural landscape report is needed that covers the entire monument. This is a monument priority. Update the cultural landscape inventory to determine whether an ethnographic landscape exists at the national monument, determine the boundary of such a landscape, and identify resources. An ethnographic landscape study and other studies that may be appropriate also need to be completed. Tribal representatives should be among the study team members for any ethnographic studies.
2. An ethnographic overview and assessment is needed to identify traditionally associated peoples, review and summarize existing data on people and resources associated with the park, and identify data gaps. The overview and assessment also would determine the presence or absence of “traditional cultural properties,” which are ethnographic properties in or determined eligible for inclusion in the National Register of Historic Places.
3. A resource stewardship strategy (RSS) is now required for all park units. The RSS expands the desired natural and cultural resource conditions from this general management plan, describes the current condition of the resources, and identifies the difference between current and desired conditions. Comprehensive strategies to achieve and maintain the desired resource conditions are developed that identify specific monitoring indicators and targets. The RSS

guides preparation of implementation plans such as a vegetation management plan, cultural resource management plan, exotic species control plan, and a fire management plan.

4. A public access/trail development plan with environmental assessment would be prepared for the Discovery Zone under the preferred alternative using the direction provided in this general management plan.

The following limitations would constrain all trail development in this zone: (1) Where logging roads exist, no new trail would be built. Instead, trail development would be focused on minimally improving the surface of existing roads to facilitate their use both as trails and as administrative roads for necessary park operations such as resource management and law enforcement. (2) New trails would be minimally impacting and limited to those necessary to provide safe access to view resources or tie into an existing trail or logging road network.

During the course of developing this general management plan, two options for providing safe access to the northern part of the Heritage Addition using trails beginning from the visitor center area were discussed:

Building a trail on the northern side of the Yellow River, between the river and Highway 76, which would enter the northern part of the Heritage Addition from the east side on an existing logging road. Visitors would reach the start of this trail at the visitor center area by crossing through the tunnel under the highway and continuing into the Heritage Addition.

Building a bridge across the Yellow River that would connect to the logging road system in the northern part of the Heritage Addition from the south. Visitors would reach the bridge from the visitor center area by using the existing

trail (the tunnel under the highway and the existing bridge across the Yellow River) and the county road.

There may also be other options for visitor access to the northern part of the Heritage Addition that would begin at points other than the visitor center area. The access plan and environmental assessment would analyze other potential options as well as the two options listed above.

5. Future management of the Sny Magill Unit under the preferred alternative would require a site development plan with environmental assessment to analyze and decide among the following:

- appropriate designs and locations for a visitor contact facility on the adjacent property should it be acquired,
- alternative surfaces and locations of a trail to facilitate access to and interpretation of the mounds without causing adverse impacts, and
- appropriate staffing levels to provide adequate visitor services and protect resources.

6. A business plan for the monument would be developed following completion of the general management plan.

SUMMARY TABLES

Table 6: Summary of Alternatives

Alternative A – No Action	Alternative B – Preferred	Alternative C
Concept		
Current management strategies and trends would continue under the no-action alternative. Projects that have been fully approved would be implemented. There would be no major changes to monument operations or visitor services other than those already in progress or approved.	Alternative B would provide an enhanced visitor experience with increased understanding of the monument while protecting and preserving natural and cultural resources. The monument would serve as a catalyst for mound research and management in the region. There would be a regional research center in the multi-purpose facility at the monument and an expanded role for monument staff to develop innovative mound management techniques.	Alternative C would emphasize the natural resource environment and its interconnectedness with the cultural resources. Formal education, outreach, and interpretation programs would be expanded in the monument and the region.
Heritage Addition		
A long-term use and access plan for the Heritage Addition would not be prepared. No trails maintained for public use.	Public trails would be provided by utilizing the existing county road and old logging roads according to an access development plan. Pursue acquisition or abandonment of the county road to facilitate use as a public trail and for monument management needs.	Pursue acquisition or abandonment of the county road to use for monument management needs. Maintenance of old roads as trails would be limited to those that may be required to protect and preserve the resources and to facilitate maintenance or for occasional tours. The remaining old roads would be rehabilitated (re-contoured and seeded).
	A “no wake” restriction on the segment of the Yellow River that flows through the monument would be pursued. Wild and Scenic River designation for the Yellow River would be pursued since it has been found to be suitable.	Same as alternative B
Public activities would include boating and infrequent special hikes. While self-guided exploration in this unit would not be prohibited, it would not be promoted. Visitors would be able to experience the landscape of the Addition from overlooks located in	Appropriate activities in the unit would include quiet, low impact, resource-based activities such as hiking, canoeing, and wildlife viewing. These would be self-guiding except for special tours.	Public activities and access would include pass-through canoeing and occasional special tours. While self-guided exploration into the unit would be allowed on the administrative trails, it would not be promoted due to lack of

Alternative A – No Action	Alternative B – Preferred	Alternative C
the North and South units, and through infrequent ranger conducted hikes or tours.		access and NPS presence.
Visitors can receive information and interpretation on this unit at the visitor center on request.	Visitors would receive information and orientation at the visitor center before accessing the Heritage Addition.	Same as alternative A
Visitor Center and Maintenance Area		
Visitor center complex maintained and media upgraded as needed.	The visitor center would be reconfigured as follows: former administrative space in the visitor center would be used for expanded exhibit space; security measures would be employed to provide better protection for sensitive objects on display; and the bookstore space would be reconfigured. The audiovisual program would be updated.	The former administrative office space in the visitor center would be used for an expanded exhibits area and the bookstore space would be reconfigured. The audiovisual program would be updated.
Curatorial items would continue to be stored in the lower level of the visitor center.	The monument's museum collections and archives would be moved to a storage facility in the multi-purpose center that meets curatorial standards.	Same as alternative A
Maintenance activities and functions would stay where they are while actively adapting to the changing needs of resource and facility requirements.	Maintenance activities and functions would stay where they are while actively adapting to the changing needs of resource and facility requirements. The former park housing units would be removed and the multi-purpose center would be built at that location.	Same as alternative A
Preparations would continue to convert former housing to administrative use.	Most administrative offices would be moved from the visitor center into the multi-purpose building.	Preparations would continue to convert former housing to administrative use.
An accessible boardwalk to mounds located between the Yellow River and State Highway 76 would be completed.	Same as alternative A.	Same as alternative A.

Alternative A – No Action	Alternative B – Preferred	Alternative C
Visitors would receive significant formal and informal personal services at the visitor center, including educational programs, information and orientation, demonstrations, and ranger-guided hikes. Nonpersonal services at the visitor center would include informational and interpretive brochures, museum, educational bookstore and wayside exhibits, bulletin boards and audiovisual media to facilitate self- and ranger-guided tours.	Same as alternative A plus formal group programming will be enhanced by greater availability of group meeting spaces in the multi-purpose center.	Same as alternative A plus additional museum exhibits, visitor services, and educational programs in the reconfigured visitor center.
North Unit		
This unit would continue to be managed to accommodate the most visitor use of any unit with continued emphasis on resource protection and preservation.	Pursue acquisition of village sites along Riverfront Tract and evaluate National Register/National Landmark status for these sites. The mound at Fire Point would be restored to its original dimensions after the trail has been moved.	Enhanced preservation of village sites (FTD and Red House Landing).
Trails, signs, facilities, and benches would be maintained or upgraded as needs change and funding allows.	The existing trail at Fire Point would be removed and a new accessible trail and overlook would be provided after restoration of the mound. A trail into the prairie would be built that connect with the Hanging Rock Trail.	Same as alternative A.
Existing trails could be realigned for resource protection.	Same as alternative A.	Same as alternative A.
No new development would occur in this unit.	Same as alternative A	Same as alternative A

Alternative A – No Action	Alternative B – Preferred	Alternative C
Visitors would receive information and interpretation through personal services such as guided hikes and nonpersonal media (trailside exhibits, printed materials etc.) and would have opportunities to appreciate the related cultural environment in a quiet contemplative setting.	Same as alternative A plus interpretive programs would be offered on the prairies and emphasizing the relationship of the landscape to the moundbuilders environment.	Same as alternative B.
South Unit		
Trails improved for visitor access and safety while preserving mounds by relocating trails away from mound sites and changing substrate from gravel to wood chip. No new trails (other than the approved Yellow River Bridge Trail), but existing trails could be realigned for resource protection or improved visitor experience.	Same as alternative A plus the entrance road to this unit would be rehabilitated to address safe access for NPS personnel and equipment.	Same as alternative A.
Visitors would receive information and interpretation primarily through nonpersonal media (trailside exhibits, printed materials etc.) and would have opportunities to appreciate the related cultural environment in a quiet contemplative setting.	Same as alternative A plus interpretation of mound preservation and the related 19th century American Indian cultural experience would be enhanced by utilizing the military trail and cistern.	Same as alternative B.
Visitors would be primarily on their own on existing trails with minimal contact with monument staff or other visitors. Intermittent special hikes connecting the tangible resources of the moundbuilders and natural features of the monument would take place only in areas that do not jeopardize those resources. Interpretation would emphasize the sacred nature of the mounds and resource.	Same as alternative A.	Same as alternative A.

Alternative A – No Action	Alternative B – Preferred	Alternative C
Sny Magill Unit		
Sny Magill would be primarily managed for preservation of the mounds, not for visitor convenience.	The following actions would occur according to a site plan to be prepared: An accessible trail would be built for visitor access and natural resource protection. A visitor contact station would be constructed on adjacent property if it is acquired from a willing seller.	Same as alternative A.
Restoration and stabilization efforts would continue to protect mounds from erosion along riverbank and by removing select trees from the mound group and adjacent area.	Same as alternative A.	Same as alternative A.
The existing low impact wood-chipped trail would continue to be maintained.	An accessible trail would be built for visitor access and natural resource protection according to a site plan to be prepared.	Same as alternative A
Visitors would receive information and interpretation on this unit primarily through the main unit visitor center and would have opportunities to appreciate the related cultural environment in a quiet contemplate setting.	Visitors would receive significant formal and informal personal services at the visitor station during high visitation periods – such as educational programs, conducted interpretive events, and contacts with roving rangers. Non-personal services at the unit would include outdoor interpretive exhibits.	Same as alternative A plus informal interpretation would be available via roving rangers during heavy visitation periods.
There would continue to be very limited NPS presence in this unit. Visitors would be primarily on their own on developed trails and would expect little to no contact with monument staff or other visitors during their visit.	Visitors would be primarily on their own on a developed walk but have moderate contact with monument staff or other visitors.	Visitors would be primarily on their own on well-developed trails but could expect some contact with monument staff or other visitors most of the year.
	Native prairie vegetation areas would be used to expand natural resource based interpretation concerning the moundbuilder and early historic period environments.	Same as alternative B.
The public would continue to have recreational use of the boat ramp and the Mississippi River.	Same as alternative A plus boating on the Mississippi River adjacent to this unit would be monitored for use levels and resource impacts.	Same as alternative B.

Table 7: Summary of Key Impacts of Implementing the Alternatives

	Alternative A – No Action	Alternative B – Preferred	Alternative C
Impacts on Cultural Resources			
Impacts on Archeological Resources	Alternative A would not result in loss or significant damage to archeological resources. Appropriate measures would be taken to identify any such resources and determine the best course of action to protect them. The overall impact of alternative A would not be adverse. There would be no impairment of this resource.	Alternative B would not result in loss or significant damage to archeological resources. The overall impact of alternative B is not expected to be adverse. This alternative would not result in impairment of this resource.	Same as alternative B.
Impacts on Ethnographic Resources	All identified ethnographic resources would be preserved and protected. American Indians would continue to be able to access and utilize these resources. The overall impact of alternative A would not be adverse. There would be no impairment of this resource.	Same as alternative A.	Same as alternative A.
Impacts on Cultural Landscapes	Alternative A would not result in loss or significant damage to a cultural (ethnographic) landscape. Although trails construction and actions taken to preserve the integrity of the mounds could result in some inadvertent impact, the overall effect of this alternative would not be adverse. There would be no impairment of this resource.	Same as alternative A.	Same as alternative A.

	Alternative A – No Action	Alternative B – Preferred	Alternative C
Impacts on Museum Collections	Alternative A would continue a generally beneficial program of collections preservation. However, accessibility of the collection would remain limited. The impact on the collections would be long term and negligible. There would be no impairment of this resource.	Alternative B would continue a generally beneficial program of collections preservation. Accessibility of the collection would be greatly expanded. The long-term impact on the collections would be negligible but the ability to utilize the collections by scholars would be long term, major, and beneficial. This alternative would not result in impairment of this resource.	Alternative C would continue a generally beneficial program of collections preservation. Accessibility of the collection would continue to be limited. The impact on the collections would be long term and negligible. There would be no impairment of this resource.
Impacts on Natural Resources			
Impacts on Soil	Alternative A would have short-term minor adverse impacts and long-term negligible adverse impacts to soil resources in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.	Alternative B would have short-term minor adverse impacts and long-term negligible adverse impacts to soil resources in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.	Alternative C would have short-term minor adverse impacts and long-term minor adverse impacts to soil resources in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.
Impacts on Wild and Scenic Rivers	Alternative A would have no effect on the Yellow River's Wild and Scenic River values or suitability. Because this alternative would have no effect, there would be no project-related cumulative effects and no impairment of this resource.	Same as alternative A.	Same as alternative A.

	Alternative A – No Action	Alternative B – Preferred	Alternative C
Impacts on Vegetation	Implementing alternative A would have short-term minor adverse impacts and long-term negligible adverse impacts to vegetation in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.	Implementing the preferred alternative would have short-term minor adverse impacts and long-term negligible adverse impacts to vegetation in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.	Implementing alternative C would have short-term and long-term minor adverse impacts to vegetation in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.
Impacts on Fish and Wildlife	Implementing alternative A would have short-term minor adverse impacts and long-term negligible adverse impacts to fish and wildlife in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource as a result of implementing this alternative.	Same as alternative A.	Same as alternative A.

	Alternative A – No Action	Alternative B – Preferred	Alternative C
Impacts on Special Status Species	If implemented, alternative A would have no effect on the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species. There would be no project-related cumulative effects on federally listed or other special status species. No impairment of these species would result from implementing this alternative.	If implemented, the preferred alternative may effect, but is not likely to adversely affect, the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species. There would be minor adverse cumulative effects on federally listed or other special status species. No impairment of these species would result from implementing this alternative.	Same as alternative B
Impacts on Visual Resources/ Viewsheds	The no-action alternative, if implemented, would have a short-term minor adverse impact and a long-term negligible adverse impact on visual resources in the monument. Cumulative effects would be minor and adverse. Implementing this alternative would not result in impairment of this resource.	Implementing the preferred alternative would have short-term and long-term minor adverse impacts on visual resources in the monument. Cumulative effects would be minor and adverse. Implementing this alternative would not result in impairment of this resource.	Alternative C would have a short-term and long-term minor to moderate adverse impacts on visual resources in the monument. Cumulative effects would be minor and adverse. Implementing this alternative would not result in impairment of this resource.

Alternative A – No Action		Alternative B – Preferred	Alternative C
Other Impacts			
Impacts on Visitor Use and Experience	The no-action alternative would result in the continuation of long-term minor to moderate adverse impacts and minor beneficial impacts to aspects of visitor use and experience but would not result in any new impacts. Because actions proposed in this alternative would have no new effects on visitor use and experience, there would be no project-related cumulative impacts.	Implementing alternative B would result in moderate long-term beneficial impacts on the visitor experience. The overall cumulative impacts would be long-term, minor, and beneficial.	Implementing alternative C would result in minor to moderate long-term beneficial impacts on the visitor experience. The overall cumulative impacts would be long-term, minor, and beneficial.
Impacts on the Socioeconomic Environment	Implementing the no-action alternative would have a short-term negligible to minor beneficial economic impact in the region. The overall cumulative effects would be minor and beneficial.	Implementing the preferred alternative would have short-term moderate and long-term moderate beneficial economic impacts in the region. The overall cumulative effects would be minor and beneficial.	Implementing the alternative C would have a short-term and long-term minor beneficial economic impact in the region. The overall cumulative effects would be minor and beneficial.
Impacts on Monument Operations and Facilities	The no-action alternative, if implemented, would cause no new impacts on monument operations and facilities but result in the continuation of long-term minor adverse impacts. The overall cumulative effect would be minor and adverse.	Implementing the preferred alternative would result in short-term moderate adverse impacts, long-term minor adverse impacts, and long-term minor beneficial impacts on monument operations and facilities. Cumulative effects would be neutral.	Implementing alternative C would result in short-term minor to moderate adverse impacts, long-term minor adverse impacts, and long-term minor beneficial impacts on monument operations and facilities. Cumulative effects would be minor and adverse.

CHAPTER 3
Affected Environment



GENERAL DESCRIPTION

This chapter describes the existing environment at Effigy Mounds National Monument. Its purpose is to provide background information for analyzing the potential environmental effects that would be anticipated to occur from implementation of the alternatives. It is focused only on the park resources, uses, facilities, and socioeconomic characteristics that have the potential to be affected by one or more of the alternatives.

Effigy Mounds National Monument was legislatively authorized by Presidential Proclamation 2860 on October 25, 1949. The monument currently comprises a total of 2,526 acres in northeastern Iowa. It is divided into four units for the purposes of this management plan: North Unit, South Unit, Heritage Addition, and the Sny Magill Unit (see figure 1).

North Unit

The monument's headquarters, maintenance facility, and visitor center are located in the North Unit. Trails allow visitors to view the mounds and scenic views on self-guided walks ranging from a few feet to 7 miles. Wayside exhibits along the trails provide interpretive messages. Ranger-guided interpretive tours are available on a seasonal basis. Little Bear Mound, one of the monument's finest examples of the effigy style, Great Bear Mound (the largest effigy mound in the monument), and many other mound groups are in the North Unit. In addition, spectacular views of the Mississippi River Valley are available from Eagle Rock, Fire Point, Third Scenic View, and Hanging Rock.

South Unit

The South Unit contains the renowned Marching Bear Group of mounds. Access to the South Unit is by foot from the Iowa DNR day-use area. It is a 4-mile round trip hike to the Marching Bear Group from the Iowa DNR day-use area. A major concern is that visitors must cross railroad tracks and a busy highway to access the South Unit from the day-use area. Another concern is that the south property boundary fence is only 5 feet from the nearest mound and incompatible uses could occur on the adjacent private property.

Heritage Addition

This 1,045-acre unit was added in 2000, increasing the monument's land base by 70 percent. Most access to this unit currently requires crossing private land. Abandoned logging roads can be used as foot trails. There are five known mounds, three historic sites, the Yellow River, Dousman Creek, and an abundance of natural resources in this unit. This unit is not advertised and is not shown on the current monument brochure.

Sny Magill Unit

This small 141-acre unit is located in the floodplain on the west bank of the Mississippi River about 10 miles south of the headquarters/visitor center. The Iowa DNR maintains a boat ramp, parking area, and access road in the unit. With over 100 mounds identified in the unit, Sny Magill contains 50 percent of the total mounds in the monument. It is also the highest concentration of mounds known in the region. A foot trail leads from the access road to the mounds in the northern end of the unit. This unit is not advertised and not shown on the monument brochure.

CULTURAL RESOURCE TOPICS

The National Park Service is charged with the stewardship of many of the nation's most important natural and cultural resources and is responsible for preserving these resources for the enjoyment of present and future generations. The cultural resources of Effigy Mounds National Monument are defined as the material evidence of past human activities. Among these are archeological resources, cultural landscapes, ethnographic resources, historic buildings and structures, and museum collections and archives.

By their nature, cultural resources are finite and *nonrenewable*; as a result, national monument management activities and policies must reflect awareness of their *irreplaceable* character. Therefore, NPS cultural resource management involves research, evaluation, documentation, and registration of national monument resources, along with the establishment of priorities to ensure that these resources are appropriately preserved, protected, and interpreted to the public.

FORMAL DESIGNATION OF RESOURCES

The National Register of Historic Places is the nation's official list of cultural properties worthy of preservation. Effigy Mounds National Monument was declared a national monument in 1949 and listed in the national register in 1966. The documentation for the national register was submitted in 1976 and an update—following inclusion of the Heritage Addition in the park and following further scientific research—has been submitted.

A historic resources study describing the resources of the national monument was completed in 2003. It provided syntheses of site history, site archeology, made recommendations for future research, updated the National Register of Historic Places nomination form, and provided an

exhaustive bibliography of site history and archeology.

Currently, 208 mounds or mound groups are listed on the NPS List of Classified Structures. Two historic resources (the Old Military Road, in the South Unit, and a cistern near the Old Military Road) are also listed. All are listed as being either of national significance in their own right or as contributing to the national significance of Effigy Mounds National Monument.

The Jefferson Davis Sawmill site partially within the monument boundary is listed in the National Register of Historic Places. Because of the nature of the remains, it is being treated in this plan as an archeological resource rather than as a historic structure.

All mounds are also listed on the State of Iowa archeological sites inventory.

Other resources, such as the remains of farmsteads, a schoolhouse, rock shelters, and Indian village sites are also known to be within the boundaries of the national monument but have not been inventoried or studied.

PERIOD OF SIGNIFICANCE

Although Effigy Mounds National Monument evidences occupation going back 2,500 years or more, two periods of significance based on extant resources of designated national significance are evident: the period of mound building from approximately 500 BC to 1250 AD, and the period of settlement/Indian removal (roughly 1800-1849). As additional research is completed on other types of archeological resources within the national monument, the period of significance could be expanded to encompass a greater period of time.

ARCHEOLOGY

Effigy Mounds National Monument contains important archeological resources representative of human use over time, as well as ongoing American Indian use. The area was used primarily by ancient, historic, and contemporary American Indian peoples, although some remains of historic Euro-Americans are also present.

The first Iowans were probably Paleo-Indians, (10,000 - 7,000 BC). Paleo-Indians are credited with crossing the Bering Land Bridge toward the end of the last Ice Age and peopling the Americas. They were migratory hunters and are associated often with large extinct megafauna such as mammoth and mastodon.

Associated with the Paleo-Indians are several diagnostic flaked stone spear points, known as "Clovis" and "Folsom," that distinguish the Paleo-Indian period. Most of what we know about the Paleo-Indians is based on items that came from soil known to be more than 9,000 years old or associated with either Clovis or Folsom points. Other items of everyday use created by Paleo-Indians are virtually indistinguishable from similar items created later, so the relationship with the two point types or ancient soil is particularly important to the identification of their presence. These people made use of whatever plant and animal food they could harvest seasonally. They lived in small, probably family, groups and their total number would have been small. Despite their hunting skills, life would have been very difficult and the search for food, preparation of hides, and making of weapons would have been nearly all consuming. Some evidence of their existence has been identified in Allamakee and Clayton County, but none has been found within the national monument.

Approximately, 9,000 years ago, the way of life of the Paleo-Indians changed. The climate continued to become warmer and drier. The period from 7,000 to 500 BC is referred to as the Archaic Period. The inhabitants had a much less harsh climate in which to hunt, fish,

and gather nuts and berries. The tools made and used by these people became more varied and distinct. The two types of points indicative of the Paleo-Indian period gave way to a variety of point types during the Archaic. With greater success in procuring food, the Archaic peoples were able to spend more time in a semi-sedentary, communal culture. By the end of the Archaic Period, the first mounds associated with burials were built, reflecting the growth of the population and, with it, the free time to develop more complex belief systems and items for trade.

Following, and perhaps growing out of, the Archaic, were the Woodland Period cultures (500 BC - 1250 AD). The Woodland peoples were much more sedentary than the cultures that preceded them, reflecting an agricultural lifestyle that made larger permanent or seasonal village units possible and allowed them to stay in one place longer.

Sophisticated pottery made preservation and cooking of foods more practical. Indeed, pottery typology joins point types as tools archeologists use to identify differences through time, and through regions. Trade of goods and increased communication with other village units allowed a flourishing of the culture, traditions, and belief systems. Early on, the mounds constructed were simple conical burial mounds, evolving into the compound and linear mounds, and culminating in the great effigy mounds of the late Woodland.

Archeological research indicates a time span of approximately 1,800 years of mound building. Generally speaking, this would have occurred 500 BC - 1250 AD spanning the period from the late Archaic to the late Woodland periods. The increasing complexity of the mounds, the manner of burials, and the inclusion of exotic burial items attest to the growing sophistication of the Woodland peoples. Effigy Mounds National Monument contains examples of both Archaic and Woodland period mounds.

Somewhere around 1250 AD the mound building stopped; whether as a result of

pressures caused by expanding populations, warfare among groups of villages, or migration from outside is not fully understood. But the Woodland peoples seem to have been replaced by people referred to as “Oneota” and representative of the influence of the Mississippian cultures farther south. Large-scale agriculture and large villages necessitated a movement out of the forests and into large open areas. It was likely a time of cultural ferment with continued trade interaction, population growth, and warfare. Over time, the Oneota culture fractured into the tribes known as Sauk, Fox, Ioway, Oto, Winnebago, and other linguistically similar groups.

Although numerous surveys have been undertaken within Effigy Mounds National Monument since the monument was first discovered, the national monument still lacks a complete archeological inventory of mounds, villages sites, rock shelters, quarries, town sites, mills, farmsteads, schools, and other manmade features as required Section 110 of the National Historic Preservation Act of 1966, as amended.

Effigy Mounds National Monument today encompasses 2,526 acres with more than 200 mounds, 31 of which are the namesake effigy mounds. In the North and South units of the national monument alone, 18 rock shelters and several possible village sites have been identified, but not extensively studied. These have great potential for understanding the lifeways of the people who built the mounds.

For a more in-depth discussion of the archeology of Effigy Mounds National Monument, the reader is referred to “A Guide to Effigy Mounds National Monument” (see Lenzendorf in the Selected References” section of this document.)

HISTORY

The first recognized European explorers of the area around Effigy Mounds were the French. Louis Joliet and Father Jacques

Marquette reached the mouth of the Wisconsin River in 1673. Soon French fur trappers and traders were traveling up and down the Mississippi River trading with the Indians and establishing trading posts. The fur trade eventually grew into an important part of the international economy involving European fashion, conflict among European powers, delicate relationships between American Indian tribes and European and American traders, and a complex transportation network.

The first documented settlement within the national monument was established in 1738 when a French fur trader built a short-lived “fort” at the mouth of Sny Magill Creek. No research has been undertaken to determine what remains of the settlement.

Following the Treaty of Paris in 1763 the French presence in North America ended. Fur trading along this stretch of the Mississippi centered at present day Prairie du Chien which functioned as a collection point for furs brought out of the region and then traded for goods brought in from Canada. Its strategic location just above the mouth of the Wisconsin River on a wide floodplain made it both ideal for commerce with the Indians and militarily significant.

By some accounts, a large Indian village existed across the Mississippi River from Prairie du Chien where Indians from up and down the river came to trade their furs. Its likely location would have been the site of present day Marquette outside the national monument. Farther north, at the mouth of the Yellow River within Effigy Mounds National Monument, may have been the winter quarters of a number of fur traders. Archeological survey and testing would be necessary to verify whether anything remains of these quarters. A likely location would be the site of the Nezekaw Terrace, east of the visitor center.

The ceding of Louisiana from the Spanish to the French and the subsequent Louisiana Purchase in 1803 opened Iowa to exploration and settlement. Shortly thereafter, changing

fashion in Europe resulted in the collapse of the fur trade. As the era of the fur trade ended, the period of westward expansion and settlement began.

Protection of American interests within the Louisiana Purchase, arrival of settlers, and the perceived need to enforce treaties with the Indians, resulted in construction of a protective military base of operations in the region. Fort Crawford, built in Prairie du Chien about 1816, abandoned 1826, rebuilt 1829, and finally decommissioned in 1849, played a central role in the settlement of the region and, later, removal of the Indians.

To provide wood for construction of the second Fort Crawford, a sawmill was built on the Yellow River in Iowa, now within the national monument. Popularly known as the “Jefferson Davis Sawmill” for the man who superintended the construction and later became President of the Confederacy, the mill also provided construction materials for the Yellow River Mission School (1834-40), before the mill was decommissioned. The remains of the mill are partially within the Heritage Addition of the monument but have not been thoroughly evaluated.

Tensions between the Winnebago and Sioux increased during the 1830s. Fort Crawford proved too distant to provide a deterrent to the constant skirmishes, so a new fort farther west, Fort Atkinson, was constructed. A new military road from the river facilitated the fort’s construction and made communications between the forts possible. Then, as settlers moved into Iowa in ever larger numbers, conflict with the Indians increased. The Winnebago were forced onto a reservation farther west, and both forts became obsolete and were decommissioned in 1850. The military road, still visible, crosses through the south unit of the national monument.

The last half of the 19th century saw the rise of interest in the Indian mounds that dotted the countryside of portions of Wisconsin, Iowa, Illinois, and Minnesota. Speculation about the mounds and their origins led to excavation of countless mounds and eventually to the first

scientific research into their origins. This work coincided with the development of the discipline of archeology in America.

Beginning with the work of Richard C. Taylor around 1838, scientific journals and popular articles reported on the systematic mapping and description of various mound groups. E.G. Squier and E.H. Davis published *Ancient Monuments of the Mississippi Valley*, describing their extensive study of mounds in the Upper Mississippi valley. Alfred J. Hill and Theodore H. Lewis formed the Northwestern Archeological Survey to identify and map as many of the mounds as they could. It was the same Theodore Lewis who first mapped many of the mounds within Effigy Mounds National Monument.

Between 1900 and his death in 1951, Ellison Orr surveyed and excavated many mounds and archeological sites throughout northeastern Iowa. Although untrained, Mr. Orr was a keen observer and kept copious notes on what he found. Upon retirement and well into his 70s, Mr. Orr started a second career as a professional archeologist working for the Archeological Survey of the State of Iowa with funds from the Federal Emergency Relief Act and Works Progress Administration. His pioneering work resulted in a compilation of data still valuable today for understanding the mounds. Moreover, his collection of artifacts and manuscripts became the basis for the collections at Effigy Mounds National Monument. It was largely as a result of his work that Effigy Mounds National Monument was created on October 25, 1949.

As early as 1915 a movement to create a Mississippi River National Park along the Mississippi River, including what is today the Effigy Mounds National Monument, was begun. The park was seen as part of the larger movement to create parks for recreation and enjoyment by the people. Preservation of the mounds was only one facet, along with that of preservation of historic properties, scenery, and wildlife. The national park idea was significantly affected by the 1924 passage of the Upper Mississippi River National Wildlife and Fish Refuge Act that established a refuge

of more than 200,000 acres along the river and a 1932 National Park Service evaluation that determined a national park along the river was not necessary. However, the National Park Service study did note the desirability of a national monument to protect a large sample of effigy mounds. The local interests quickly began to assemble properties, and over the next two decades put together what became the Effigy Mounds National Monument by Presidential Proclamation in 1949.

ETHNOGRAPHIC RESOURCES

Ethnographic resources are variations of natural resources and standard cultural resource types. They are subsistence and ceremonial locales and sites, structures, objects, and rural and urban landscapes assigned cultural significance by traditional users. The decision to call resources "ethnographic" depends on whether associated peoples perceive them as traditionally meaningful to their identity as a group and the survival of their lifeways. Some such resources may be designated by other terms and cross-listed in other NPS inventories. Sites defined as archeological for preservation purposes, for example, are ethnographic if traditional religious practitioners consider them significant sources of spiritual power. Members of associated groups may also ascribe meaning to properties in park collections perceived as sacred or as items of cultural identity and heritage. Groups also assign their own cultural meanings to natural landscapes and localities.

The traditional management distinction between natural and cultural resources may be inapplicable where ethnographic resources are concerned. When natural resources acquire meaning according to the different cultural constructs of a particular group, they become ethnographic and thus cultural resources as well.

One particular type of ethnographic resource is a Traditional Cultural Property which is an ethnographic resource in or eligible for

inclusion in the National Register of Historic Places. This designation has not been officially made, although it is likely that Effigy Mounds National Monument or specific resources within the national monument meet the definition.

Effigy Mounds National Monument has a longstanding connection with a number of American Indian groups (see the list of affiliated tribes under "Agencies and Organizations Receiving a Copy of this Document" in Chapter 5). In particular, the Ho-Chunk Nation of Wisconsin claims a close affinity to the site.

The national monument represents a point of connection with the spiritual world of the ancestors and a place of great spiritual power. It has been visited continuously by American Indians for hundreds of years. American Indians come to the site singly and in groups. They come to learn about their ancestors as described in interpretive talks and exhibits in the visitor center by NPS staff. They come in groups to tell and reflect upon their history and to relate their stories. They come to honor their ancestors and commune with them. Some may come for spiritual guidance as in a vision quest.

Among the resources that are considered ethnographic are the mounds, the American Indian archeological and historic artifacts within the national monument collections, and the landscape of the national monument including the animals and birds that inhabit it. It is likely that the landscape qualifies as an ethnographic landscape; however, additional evaluation of the landscape and its associations with contemporary American Indians is necessary before that determination can be made.

In accordance with the Native American Graves Protection and Repatriation Act (NAGPRA) and the "Recommendations to NAGPRA Summary and NAGPRA Inventory, Effigy Mounds National Monument" (Henning 1998) the national monument has consulted with traditionally associated users to identify those objects considered to be

sacred or of cultural patrimony and to identify proper disposition of those objects. Human remains and funerary objects have also been identified and removed from the collections so that a determination regarding their repatriation can be undertaken.

CULTURAL LANDSCAPES

A cultural landscape is often expressed in the ways that land is organized and divided, and through such factors as settlement patterning, land use, circulation, and the built environment. The character of a cultural landscape is defined by physical attributes such as roads, structures, and vegetation patterns, and by cultural attributes such as values and traditions.

Cultural landscapes are shaped by a variety of factors, including land use and land management, political and legal systems, and technology and economics. As such, they constitute a living record of an area's past, a visual chronicle of its history. Cultural landscapes are not static; however, modern and natural forces are continually reshaping them, posing a significant preservation challenge.

Cultural landscapes can be broken into four broad categories: historic sites—those that are significant for their association with a historic event, activity, or person; historic designed landscapes—those that were consciously designed or laid out according to design principles or in a recognized style or tradition; historic vernacular landscapes—those that evolved over time as a result of use or development and that reflect endemic traditions, beliefs, customs, or values; and ethnographic landscapes—those that are related to particular places or areas that contemporary peoples link to their traditional way of life and cultural heritage.

Two landscapes have been formally defined. The northern landscape encompasses all of the North, South, and Heritage units of the national monument (NPS 2007a). The southern landscape encompasses the Sny

Magill unit (NPS 2007b). Both are categorized as “historic site” for their association with an historic event, activity, or person.

The entire landscape at Effigy Mounds may also fall into the ethnographic landscape category. It is linked to contemporary American Indians and associated closely with their cultural heritage, belief systems, and way of life. However, additional evaluation of the landscape and its associations with contemporary American Indians would need to be undertaken to determine whether this is the case.

With the advent of European settlement, the mounds that had survived centuries with little change began to disappear as lands were leveled for farming or town sites. Forested areas were cut down and erosion damaged many mounds that had survived the millennia. Mounds continue to be lost or damaged by development in the region. As mounds are damaged or destroyed, the mounds at Effigy Mounds National Monument become more and more important to preserve.

MUSEUM COLLECTIONS

The museum collections support the national monument's interpretive themes and assist in research and resource management programs. Approximately 34,800 items are in the collection, 29,500 of which are catalogued and approximately 5,300 remain to be catalogued at the time of this writing. The objects are overwhelmingly cultural in nature and categorized into archeological, ethnological, and historical collections. The national monument collections also include natural history categories on biology, paleontology, and geology associated with the origins of the national monument and its native flora and fauna.

The museum cultural collections and archives consist of artifacts, field notes, and manuscripts. Much of the collection was gathered by Ellison Orr and donated to the National Park Service. Some pieces of the collection are not directly related to

excavations conducted within Effigy Mounds National Monument but are significant for comparison with collections gathered within the park and elsewhere. Data gathered through excavations and surveys conducted since the national monument was established are housed within the visitor center.

Collections are used for exhibits, illustration of ideas and concepts in the interpretive program, research to understand the site's early inhabitants and environment, and for comparison with other similar collections elsewhere.

Museum collections are stored in the lower level of the visitor center. This location is above the 500-year floodplain of the Yellow

and Mississippi Rivers. Temperature and humidity variations are monitored. Artifacts are contained in metal storage cabinets. Archives are kept in file cabinets and on bookshelves. Maps and drawings are kept in map files.

Although the collection storage meets minimum NPS standards, the space does not function well in several ways. There is little room to spread out maps and documents or to work on the collection. Visiting researchers cannot be accommodated due to the lack of space and the fact that the national monument does not have a dedicated curator to assist.

NATURAL RESOURCE TOPICS

Effectively managing and interpreting the primary cultural resources for which the monument was established requires an understanding of the evolution of the physical landscape throughout the monument. The varied topography at Effigy Mounds provides conditions in which a range of plant and animal communities flourishes, enabling early societies and cultures to develop and prosper.

SOILS

The principal soil type of the hilltop prairies is Fayette silt loam. It occurs in the uplands on benches along stream valleys. The light colored Fayette soil is well drained and has developed from loess (silty, windblown materials). In profile, the brownish gray silt loam surface soil is 4 to 8 inches thick with the yellowish brown silty clay subsoil extending down to about 28 inches (NPS 2000). A list of soil units within the boundaries of Effigy Mounds is found in Table 8.

Table 8: Soils

Name	Description
Boone loamy sand	On slopes ranging from 9-18%
Caneek silt loam	Channeled, 0-2% slopes, in floodplain of Yellow River. Prime farmland only if drained and protected from flooding or not frequently flooded.
Dubuque silt loam	9-18% slopes, some are moderately eroded. Farmland of statewide importance
Fayette silt loam	5 to 40% slopes, some moderately eroded, farmland of statewide importance
Ion silt loam	0-2% slopes, in floodplains
Lacrescent silt loam	25-70% slopes, on slopes of bluffs
Lawson silt loam	0-2% slopes. Prime farmland only if drained and protected from flooding or not frequently flooded.
Medary silt loam	14-25% slopes
Nordness silt loam	18-40% slopes
Paintcreek silt loam	9-30% slopes
Village silt loam	9-18% slopes, some moderately eroded
Volney Channery loam	5-9% slopes
Yellowriver silt loam	14-25% slopes
Zwingle silt loam	1-9% slopes. Farmland of statewide importance

Source: Soil Survey Geographic Database, Natural Resources Conservation Service

VEGETATION

Vegetation on the wooded hills consists of a mix of hardwoods such as oak, maple, hickory, and basswood. The white oak grows on ridge tops in drier sites, and it was heavily used by farmers and landowners to construct barns, houses, wagons, and boats. Red oak trees grow on slopes with moist soil and can reach impressive sizes. Black oaks grow along the bluff edge while chinquapin oak can be found among the limestone outcroppings. Interspersed throughout the area are a variety of less-common species, including ironwood, blue beech, and eastern red cedar. Many shrubs grow in the uplands, including hazelnut, gray dogwood, and prickly ash.

Indian grass, big bluestem, switchgrass, and little bluestem are predominate grass species of the tallgrass prairie at Effigy Mounds. Compass plant, butterfly weed, blazing star, goldenrods, asters, and purple and grey headed coneflower add color to the open grasslands.

Various species of pondweed along with water milfoil, elodea, watershield, duckweed, arrowhead, bulrush, cattail, and wild rice populate the quiet backwaters and ponds of the monument. When present, filamentous and plankton algae are bioindicators that identify areas polluted with excessive nutrients.

The monument was created from the acquisition of private land that had been farmed and logged, altering the native vegetation mosaic. After 50 years of NPS protection, maturing stands of trembling and big-toothed aspen mark where the woods had been cleared. Sugar maple and basswood are now replacing the aspen. Sumac is found in the forest-prairie ecotone.

The Heritage Addition still appears to be heavily forested but most of the merchantable timber was removed prior to acquisition by the National Park Service causing forest succession to be set back.

The Sny Magill Unit is in a floodplain and is inundated annually by spring floods. The

vegetation in this unit is dominated by silver maple, elm, and green ash. Swamp white oak is well represented in this unit.

Micro Habitats

The combination of topography, longitude, latitude, and climate of northeast Iowa has produced unique microhabitats that support island populations of flora and fauna. These microenvironments include north facing algific talus slopes and "goat prairies."

Algific talus slopes are usually found on north facing slopes. They are cold air seeps connected to crevices in the limestone bedrock, which are connected to underground caverns. The movement of cold air exiting the slope through the crevices creates a colder, moister environment down slope of the vent. This seepage of cold air creates microhabitat for groups of relict ice age plant communities.

These plant communities are remains of plant populations that are associated with more northern climates. As the glaciers advanced during the last ice age, plant communities that were adapted to northern climates moved south. With the warming of the climate and the retreat of the glaciers, the plants environmentally adapted to the cold climate moved north also. The modifying effect of the cold air seeps creates an artificially induced microclimate that maintains remnants of the prehistoric ice age plant communities (NPS RMP 2000). Cold air seeps do exist in the monument but it is not known if these are true algific talus slopes or if the associated flora and fauna species occur here.

Goat prairies are small prairie remnants found on bluff faces. These prairies are associated with shallow soil, south facing slopes, and rock outcrops. The south aspect, shallow soil, and drier conditions select the drought tolerant native grasses over woody vegetation, giving the prairie species a competitive advantage.

Locating, identifying, and monitoring of all special microhabitats are important for maintaining and protecting the pre-settlement

ecological remnants. The greatest potential for the existence of federally listed T&E species occurs in these areas. At present, the status of federally listed T&E species associated with these areas is unknown and the need for survey of these areas is important.

Nonnative Vegetation

Negative effects to native populations occur from disruption and displacement by aggressive, exotic species that have a competitive advantage or do not have natural controls. Asiatic honeysuckle, buckthorn, garlic mustard, multiflora rose, and purple loosestrife are non-native species that have been identified in and around Effigy Mounds National Monument. If these exotic species continue to multiply, they will out-compete and replace native species that have existed in this location for thousands of years. If allowed to multiply unchecked, aggressive nonnative species may eventually supplant native vegetation and replace it with an exotic monoculture that does not supply adequate food or cover for local fauna.

National Park Service units that have exotic species problems develop an integrated pest management program to identify and locate infestations of exotic species, determine their impact on the resource, and develop strategies that will prevent, eliminate, or control the occurrence of undesirable species.

WILD AND SCENIC RIVERS

The Yellow River is listed in the Nationwide Rivers Inventory. Units of the National Park System that contain river segments listed in the Nationwide Rivers Inventory must comply with section 5(d)(1) of the Wild and Scenic Rivers Act, which instructs each federal agency to assess whether those rivers or segments are suitable for inclusion in the National Wild and Scenic Rivers System.

The inventory study that placed the river on the Nationwide Rivers Inventory found the Yellow River to be free flowing and possess the following Outstandingly Remarkable

Values: Scenery, Recreation, Geology, Wildlife, History, and Culture.

Included in this general management plan is an assessment to determine if the Yellow River is eligible and suitable for inclusion in the National Wild and Scenic Rivers System (Appendix D). The assessment covers the 3.5-mile segment that is within the boundaries of the monument.

FISH AND WILDLIFE

Fish

Fish are found in the Mississippi River, Yellow River, Sny Magill Creek, and many of the smaller streams and creeks in the monument. A list provided by the USFWS contains 118 species of fish known to occur in the Upper Mississippi River National Fish and Wildlife Refuge adjacent to the monument. The most common species are gizzard shad, common carp, emerald shiner, river shiner, bullhead minnow, and bluegill (USFWS 1991). There are reports of native trout in Dousman Creek. The fish species sampled in Sny Magill Creek have remained relatively constant through the years and are typical of Iowa coldwater streams. Based on survey results, Sny Magill creek is dominated by a single species, the fantail darter (*Etheostoma flabellare*). In 2001, the first occurrence of slimy sculpin (*Cottus cognatus*), a cold water fish that is intolerant of environmental degradation, was noted in Sny Magill Creek (North Carolina State University 2001). Recreational fishing is allowed in the monument, governed by state regulations.

Aquatic Invertebrates

Unionid mussels (freshwater clams) may be among the most endangered group of animals in North American waters. Unionid populations are declining due to a number of factors relating to habitat alteration and human interference. In Iowa, the decline is from habitat loss, siltation, pollution, and loss of larval host species (NPS 2000). The

increased spread of exotic species present in the Mississippi River (i.e., the zebra mussel), have placed additional stress on fragile populations, causing the loss of unionid species in many regions. Unionid mussels are present in the Yellow River and Johnson's Slough (adjacent to the Sny Magill Unit).

Birds

Almost 300 species of birds are known to nest or migrate through Effigy Mounds National Monument. The monument is on the Mississippi Flyway, one of the major bird migration routes on the continent. Each spring and fall, neotropical birds use the forested bluffs along the Mississippi for feeding and resting stopovers. Migrating raptors use the thermals rising from the bluffs on their biannual flight to and from nesting and wintering sites along the Mississippi Flyway.

Wetlands in the monument provide habitat for many resident and migratory birds. In spring and fall, wood ducks, mallards, Canada geese, and an occasional osprey are found feeding and resting in Founder's Pond. On or along the Mississippi River are seen Canada geese, mallards, blue-winged teals, wood ducks, ruddy ducks, and swans. Prothonotary and cerulean warblers inhabit the floodplain forest along the sloughs.

Colonies of great blue heron, great egrets, and double crested cormorants nest in colonial nest sites, or rookeries, in trees on the river islands. The rookeries are very active in the spring when young fledgling birds are fed by their parents.

The bald eagle (*Haliaeetus leucocephalus*) potentially occurs statewide and is listed as breeding and wintering in Allamakee and Clayton Counties. During the winter, this species feeds on fish in the open water areas created by dam tailwaters, the warm water effluents of power plants and municipal and industrial discharges, or in power plant cooling ponds. The more severe the winter, the greater the ice coverage and the more concentrated the eagles become. They roost at

night in groups in large trees adjacent to the river in areas protected from the harsh winter elements. They perch in large shoreline trees to rest or look for fish to feed on. The bald eagle was federally listed as threatened but was delisted by the Fish and Wildlife Service in 2007 due to population recovery.

Wild turkeys were once thought to be extirpated from the area but are now common in the monument. Peregrine falcons and red-shouldered hawks are also seen in the monument (see discussion on Special Status Species below).

Amphibians

The abundant wetlands in Effigy Mounds National Monument are habitat for numerous species of amphibians, including bullfrogs, American toads, leopard, pickerel, green, western chorus, spring peepers, and gray tree frogs.

Reptiles

The limestone bluffs unique to northeastern Iowa are home to a variety of reptiles. The black rat snake is the largest and most commonly seen snake in the monument. The brown, northern redbelly, eastern garter, and prairie ringneck snakes are common but, due to their small size, are difficult to find. The five-lined skink is the only lizard common to the monument.

Several species of turtles inhabit the lowlands and marshy areas of the monument, including the painted turtle, map turtle, Blanding's turtle, and soft-shell turtles. Snapping turtles, reaching lengths of 15 inches and weighing 40 pounds or more, inhabit the Mississippi River and often take short forays inland.

Historically, the timber rattlesnake has been found in the region, although documented sightings have not taken place for many years. With the recent addition of 1,045 acres to the monument, the protection of suitable habitat for the timber rattlesnake is more likely. This, combined with the monument's efforts to return more prairie ecosystem, increases the

likelihood of rattlesnakes once again colonizing secluded bluff tops.

Mammals

The Mississippi River, Yellow River, and adjacent wetlands provide the preferred habitat of many small mammals. Chipmunks, squirrels, beaver, muskrat, river otter, and mink occupy the quiet sloughs and river edges. Occasional sightings of gray fox (*Urocyon cinereoargenteus*) and coyote (*Canis latrans*) have been reported. Whitetail deer and red fox inhabit the floodplain and upland forests. Recently, an unnatural increase in population density of whitetail deer has been reported in the area.

Up until the mid-1800s, northeast Iowa supported a small elk population. Elk disappeared from the region following European settlement. Likewise, the timber wolf was extirpated from the region by the 1930s. Isolated reports of wolves, black bear, and mountain lions have increased steadily over the past 10 years. Although it is suspected these sightings constitute the wanderings of young males, the rugged terrain may provide the right combination of habitat and seclusion to encourage these species to re-inhabit the region.

Nonnative Species

The zebra mussel is a fast-spreading species that was inadvertently introduced to this continent from Asia. They are established in the great lakes and have been found in the Mississippi River. Their presence disrupts lake and river ecosystems and clogs industrial equipment. It may be only a matter of time before the Mississippi and its tributaries are severely affected by this quick-spreading species.

SPECIAL STATUS SPECIES

Information on federally listed species was provided by the U.S. Fish and Wildlife Service in a letter dated January 13, 2005 (Appendix B).

Animals

The **Higgins eye pearly mussel** (*Lampsilis higginsii*) is listed as endangered for the Mississippi River north of Lock and Dam 20, which includes Allamakee and Clayton counties, Iowa. This species prefers sand/gravel substrates with a swift current and is most often found in the main channel border or an open, flowing side channel. While there is no designated critical habitat, the Higgins Eye Recovery Team has designated habitats essential to the recovery of the species. These areas include Allamakee County, Iowa (river miles 655.8-658.4 Right); Harper's Slough area, Allamakee County, Iowa (river mile 639-641.4R); Marquette-McGregor area, Clayton County, Iowa (river mile 634-636); McMillan Island area, Clayton County, Iowa (river mile 616.4-619.1R).

The endangered **Iowa pleistocene snail** (*Discus macclintocki*) is found on north-facing slopes of the Driftless Area in Clayton County. It occupies algific talus slopes at the outlet of underground ice caves along limestone bluffs within a narrow regime of soil moisture and temperature. This snail is a relic of pre-glacial times; it was once widespread but is now known only from a cave in Bixby State Preserve, approximately 20 miles southwest of the Sny Magill Unit. The snail's survival in a nonglaciated Driftless Area within the boundaries of the last four glaciations is so unique that the species was first described and had long been known only as a fossil. The existence of this snail depends on its requirement for a "fossil" climate at the mouth of the cave where temperature and humidity are relatively constant. Although the snail has not been found on the monument specific habitat conditions may exist in the area.

Plants

The **prairie bush clover** (*Lespedeza leptostachya*) is listed as threatened and considered to potentially occur statewide in Iowa, including Allamakee and Clayton counties. It occupies dry to mesic prairies with gravelly soil. There is no critical habitat

designated for this species. This species should be searched for whenever prairie remnants are encountered.

The **western prairie fringed orchid** (*Platanthera praeclara*) is listed as threatened and considered to potentially occur statewide in Iowa, including Allamakee and Clayton counties. It occupies wet to mesic grassland habitats. There is no critical habitat designated for this species. According to the USFWS, this species should be searched for whenever wet prairie remnants are encountered.

The **northern monkshood** (*Aconitum novaboracense*) is listed as threatened in Allamakee and Clayton counties. It occupies north-facing, cold-seeping slopes in the Driftless Area of northeast Iowa and one slope along the Iowa River. There is no critical habitat designated for this species.

State Listed Species

Information on state listed species that may occur in the monument was provided by the Iowa Department of Natural Resources. The monument's resource specialist compiled a list of state listed species found in the monument (Appendix E).

State Endangered Species

Red-shouldered hawks are fairly common in the monument and are most often seen soaring above the riverside bluffs. Their preferred breeding habitat is riparian forests and wooded swamps. Nests are built in coniferous trees 20 to 60 feet tall and are re-used several years in a row. Red-shouldered hawks are more able to tolerate human disturbance if there are mature trees and a high canopy available (Ehrlich, Dobkin, and Wheye 1988). The Yellow River floodplain has been identified as one of 12 nesting sites and one of two multiple nesting sites of the red-shouldered hawk in the state (NPS RMP 2000).

The peregrine falcon (*Falco peregrine*) has an extensive natural distribution and is found on all continents except Antarctica. The American peregrine falcon breeds in Mexico,

the United States, and Canada. Peregrines lay their eggs in "scrapes" in the soft earth on the floor of ledges and small, shallow caves located high on cliff walls (USFWS Endangered Species webpage). They prefer open land or open forests for foraging.

Peregrine falcons were endemic to the area with the last nesting pair reported in 1965 about 20 miles north of the monument. In 1998 and 1999, a total of 19 peregrines were released at Effigy Mounds by the Raptor Resource Center of Bluffton, Iowa. The falcons were released from boxes placed at Hanging Rock. The intent was to release captive-bred birds on the cliffs of the Mississippi River and have them imprint on the limestone bluffs overlooking the river. It is hoped that some of the birds will return to the cliffs to set up territories and nest among the ancient sites along the river.

The bluff vertigo is a land snail that inhabits forested limestone or dolomite cliffs and outcrops. Common plant associations for this species in Iowa are scattered conifers, yew, and deciduous trees such as maples (NatureServe 2005).

State Threatened Species

Jeweled shooting star is a flowering plant of the primrose family. In the monument, it is found in three locations on limestone outcrops near bluff tops and moist cliff faces (IDNR 2005).

The slender ladies-tresses (*Spiranthes lacera*), a native orchid, was recently discovered in the North Unit. Flowers are very tiny, less than 1/4 inch, white with a green throat, and are arranged in a large spiral around the flowering stalk. The number of spirals can vary greatly. It is found on sandy soils in dry meadows or sunny clearings in woods. In the monument, it has been found on restored fields. The extent of this plant in the monument is currently unknown.

State Species of Special Concern

The pugnose minnow (*Notropis emiliea*) is about 2 inches long and feeds on aquatic

invertebrates. It is found in northern Mississippi river basins, usually in lowlands in clear to turbid, sluggish, often weedy waters of lakes, reservoirs, sloughs, swamps, and streams of all sizes (NatureServe 2005). It has been found near the Yellow River in the Heritage Addition (IDNR 2005).

VIEWSHEDS

Overlooks such as Fire Point and Eagle Rock provide the visitor with dramatic views of the Mississippi River Valley with its braided channels, wooded islands, and steep bluffs. As seen from bluff top viewpoints, the panorama of the Heritage Addition appears to be a seamless extension of the cultural and natural landscape represented within the monument.

The bluffs of the Mississippi extend downstream (south) as far as the eye can see. Hawks soar above the wooded islands in the river's channel, and crows populate the bluff tops. In autumn, the forest presents a vivid display of color.

Signs of the modern age are few, consisting of a road, a bend of the railroad track, some farmland, and a few silos in the distance.

A procession of conical mounds lines a trail back into the woods looking west from the Mississippi. Little Bear Mound and companion Great Bear Mound are a short distance from the river, and beyond that are more mounds of the conical and linear style. The visitor is able to contemplate these mounds in a primitive setting, without the distractions of roads, parking lots, or the other intrusions often encountered at archaeological sites accessible to the public.

A concern is the viewshed from the overlooks in the North Unit looking to the east. The view across the river is of Prairie du Chien, Wisconsin. Although mitigated somewhat by distance, reflective surfaces such as metal roofs can detract from the quality of the view under certain light conditions.

A regional pattern of development that evolved during the past decade indicates that there are probable future land use pressures on Effigy Mounds National Monument from outside its boundaries. Residential expansion is impacting the traditional farmlands and wooded lands surrounding the monument. The influence of these factors is only expected to increase during the upcoming years, resulting in increasing impacts to natural viewsheds.

VISITOR USE AND UNDERSTANDING

VISITOR EXPERIENCE

Effigy Mounds National Monument provides an opportunity for monument visitors to explore the remnants of a past culture that constructed hundreds of sacred earthen mounds, some in the shape of birds and bears. This window to the past also provides a modern link with 16 affiliated American Indian tribes that consider this place to have significant meanings. The monument protects and preserves over 200 intact mounds and their surrounding cultural and natural landscapes and provides an uncrowded atmosphere that enhances the visitor's opportunity to understand and connect with these distinctive resources. It continues to be a challenge for the monument staff to facilitate protection of the archeological resources while providing opportunities for visitors to discover and connect with the historic human presence here.

Visitors to Effigy Mounds can enjoy self-guided tours or join a ranger for a walk, talk, or historical demonstration. Hiking trails provide access to several areas with concentrations of preserved mounds. Visitors can also experience a unique variety of habitats, including upland forest, prairie, and wetlands. The views of the Mississippi River are scenic and provide visitors an opportunity to understand the complex web of protected areas adjacent to Effigy Mounds. Birding is becoming particularly popular due to the diverse habitats encompassed by Effigy Mounds.

The monument's visitor center is open June to Labor Day from 8:00 a.m. to 6:00 p.m. every day, and weekdays 8:00 a.m. to 4:30 p.m. and weekends 8:30 a.m. to 4:30 p.m. during the rest of the year. The monument is closed for Thanksgiving, Christmas, and New Years Day. Entrance Fees, which permit day use only, are charged. Although people seem to locate the visitor center with little trouble, wayfinding

signs outside the monument are few in number and in some cases placed in non-standard areas.

Visitors are encouraged to begin their exploration of Effigy Mounds at the visitor center, where they can receive orientation and wayfinding information along with a schedule of special events and opportunities. They can also purchase interpretive material and books from the cooperating association bookstore and view exhibits and a film about the monument's resources. After exploring the visitor center, many visitors proceed on the short trail to the three accessible burial mounds behind the visitor center and from there, to the main North Unit trail. Automobile access to the interior of the monument is not permitted.

The visitor center and support offices are currently fairly crowded some times of the year, which has some impact on visitors receiving appropriate orientation and interpretation. Some of the current interpretive media and orientation information does not adequately address the diversity of park themes and visitors.

For those wanting a more in-depth experience, the monument offers 14 miles of challenging hiking trails that crisscross the monument. Many visitors take advantage of the short, disabled accessible, wetlands trail adjacent to the visitor center. For those with a little more time, rangers recommend the steep, 2-mile-long trail loop, which leads to several burial and effigy mounds adjacent to Fire Point. The North Unit also offers a 7-mile-long trail providing access to more cultural and scenic areas. Longer hikes are available in the more secluded South Unit, known for its Marching Bear Group and outstanding prairie habitats.

Special events and activities are available throughout the year and include special ranger-led programs, bird walks, living history

moonlight hikes, and cultural demonstrations. The largest special event is the “Hawk Watch Weekend” which attracts the greatest number of visitors every year in early fall. The monument also conducts viewings of park-related films in the winter.

Thousands of students visit the monument every year to participate in the curriculum-based education program. The monument’s staff accommodates educational program requests on a reservation basis and can offer resources that facilitate teacher-led educational experiences within the monument. During inclement weather, the visitor center gets extremely crowded when student groups and other visitors are forced indoors.

The Sny Magill Unit of Effigy Mounds contains at least 106 mounds representing one of the largest concentrations of mounds in one location found in North America. Visitors have an opportunity to peruse some basic orientation information in a brochure available at the visitor center. Currently, vehicle access can be challenging with the low overhead clearance under the railroad track and the soft-surfaced trail. Many visitors come to this unit to fish and access the river at the state-maintained boat ramp.

The secluded nature and unique resources of Effigy Mounds National Monument invite visitors to not only gain a deeper awareness of the cultural landscape, but to also explore one of the few preserved and still wild areas in this part of the country. The combination of a centralized point for orientation and the ability to then extend a visit onto easy trails or strenuous hikes offers abundant opportunities for many, diverse experiences.

Effigy Mounds National Monument is 65 miles south of La Crosse and 105 miles west of Madison, Wisconsin. A large number of visitors access the monument through Prairie du Chien, Wisconsin via U.S. Highway 18 or via Iowa state highway 76, which is a segment of The Great River Road.

VISITOR USE

Effigy Mounds is purely a day use area. The majority of visitors initially utilize the visitor center and its adjacent trails, but some expand their explorations to the other trails within the monument. Other recreational users utilize the Yellow River or the Mississippi River adjacent to the monument to boat and fish. About 16,000 fishing visitors were counted in 2007.

Most visitors are locals who live within a 3-4 hour drive, some of whom bring out-of-area visitors on a recurring basis. Approximately 40% of visitation happens in the summer, with the majority of winter visitation occurring during the annual winter film festival. Subjectively, visitation patterns appear to be changing with the busiest month no longer being October, but occurring toward the end of summer. The monument does attract a number of international visitors as well.

Prior to 2004, Sny Magill visitation was not recorded in annual statistics, which partially accounts for the jump in recreational visitation from 2004 forward (Table 9).

Table 9: Effigy Mounds Visits

Year	Recreational Visits	Visitor Center
2007	88,268	47,567
2006	91,175	50,196
2005	89,746	48,121
2004	96,189	52,154
2003	80,859	52,502
2002	76,260	49,811
2001	81,045	51,411
2000	78,762	50,163

Source: Effigy Mounds National Monument

VISITOR UNDERSTANDING

Visitor understanding of the monument's resources and their inherent meanings is facilitated through effective interpretation and education programs. Interpretive services include both personal services (rangers greeting visitors at the visitor center) and nonpersonal services like the wayside exhibit that describes the people who built the mounds and their culture. Interpretation is made more effective by giving visitors adequate orientation and wayfinding guidance, both in and outside the monument.

The current personal and nonpersonal opportunities provided for visitors to Effigy Mounds are successful in facilitating visitor understanding. However, an expansion and/or re-organization of the visitor center and an increase in interpretive staff would be an effective way to increase visitor understanding and enjoyment, thus promoting greater park stewardship.

The majority of visitors start their experience in the visitor center where they can contact a ranger, sales person, or volunteer, watch the 15-minute movie, and enjoy the exhibits. In addition to these interpretive experiences, visitors are also given orientation and wayfinding information. As they move out into the resource, they receive other interpretive messages via guides, ranger activities and talks, wayside exhibits, and printed material like site bulletins. These also provide a knowledge base for those who wish to explore the more strenuous and/or secluded hikes.

Educational groups receive personal guided experiences, as staff is available. Environmental study guides and materials are available for on-site and pre-visit education.

VISITOR SAFETY AND ACCESS

When hiking in the monument, visitors are cautioned to be aware of the weather as summer can be very hot and humid and winters can be cold and snowy. Trails are

occasionally closed due to hazardous conditions. Summer heat and humidity can cause heat-related illness.

The only access to the South Unit trail system involves crossing the highway adjacent to the monument boundary, which can be hazardous due to limited sight distance and heavy traffic moving at a high rate of speed. Alternatives to this situation are currently being discussed.

Visitors are oriented to the need for fitness and self-sufficiency when exploring the monument's trail system. The elevation changes can be challenging while uneven and possibly slippery trail surfaces are common. The chance of meeting other people or employees on these trails can be minimal, thus there is a need to be self-sufficient.

Many of these hazards are partially mitigated by adequate orientation at the visitor center, and information from the monument's website and interpretive handouts.

The visitor center offers enhanced access options along with an accessible restroom and exhibit area. The boardwalk trail also offers an accessible hike for those visitors who might find other trails too challenging. Other trails in the monument are, for the most part, uneven and primitive due to the nature of the site.

RECREATIONAL USE OF THE YELLOW RIVER

The National Park Service recognizes there is historic and current recreational use on the Yellow River inside and outside the monument boundaries. This use includes fishing, canoe and kayak paddling, and motor boating. The use of motorboats is associated with fishing and is estimated by the monument staff to be quite low.

No hunting is allowed in the monument and fishing is governed by state regulations. Because it is a navigable river, the State of Iowa has some management authority for the water and its use.

Approximately 3 miles of the river flow through monument lands before joining the Mississippi River near the monument headquarters. The Yellow River is a backwater for the Mississippi here and is quite sluggish for the last 3 miles. Upstream of the monument, the river flows quite fast for Iowa and, therefore, is attractive to paddlers.

A place along the river near highway 76 has been used as an unauthorized canoe take-out for many years. Safety concerns about the

steep banks and vehicles moving into and out of the highway have prompted the National Park Service to close this take-out. Another consideration is that part of the take-out is on private land where the National Park Service has no authority to make any improvements. Paddlers have access to public put-in and take-out points upstream of the monument and at a site on the Mississippi River just below the mouth of the Yellow River.

SOCIOECONOMIC ENVIRONMENT

SOCIOECONOMIC BENEFITS OF THE NATIONAL PARK SERVICE

- National parks generate more than 4 dollars in value to the public for every tax dollar invested.
- Nationwide, the national parks support \$13.3 billion of local private-sector economic activity and 267,000 private-sector jobs.
- National parks attract businesses and individuals to the local area, resulting in economic growth in areas near parks that is an average of 1 percent per year greater than state-wide rates over the past three decades.
- The social benefits of national parks are many and extend well beyond economic values (Hardner and McKenney 2006).

A trend that has affected most units of the National Park Service in the past several years is a decrease in visitation. Of particular note is the apparent decrease in interest by the nation's young people. The Assistant Secretary of the Interior for Parks and Wildlife, Lyle Lavery, has made it a priority for the NPS to entice America's youth back into the parks (comments made to the Denver Service Center on November 29, 2007).

ECONOMICS IN THE STUDY AREA

For the purposes of this document, the study area (area of consideration) for socioeconomic analysis is Clayton and Allamakee counties, Iowa, and Crawford County in Wisconsin. Although all the monument units are in Iowa, the City of Prairie du Chien, Wisconsin, is socially and economically linked to the monument because of its proximity and availability of visitor services (e.g., restaurants, hotels, and auto service stations).

Allamakee County, Iowa

The headquarters, visitor center, and most of the monument are located in Allamakee County. Waukon, Harpers Ferry, and other small, rural communities form the population base of this county. The U.S. Census Bureau estimates that the county's population was 14,709 in 2005. The population increased by 6.1 percent in the past 15 years (1990-2005). The State of Iowa experienced an increase of 6.8% in population over the same period. The average number of persons per square mile in the county was 23 in 2000 while the statewide average was 52.

The median household income in Allamakee County in 1999 was \$33,947 while the median for Iowa was \$39,469. The per capita income in 1999 was \$16,599 while the figure for the state was \$19,674. According to the 2000 employment figures provided by the U.S. Census Bureau, the economy of Allamakee County is based on manufacturing; education, health and social services; agriculture (including forestry, fishing, hunting, and mining); and retail trades.

Federal spending from all sources in Allamakee County totaled \$77,416,000 in 2004.

Clayton County, Iowa

The Sny Magill Unit and most of the South Unit are located in this county along with Marquette, McGregor, and other communities. The U.S. Census Bureau indicates that the county's population was 18,337 in 2005. The population decreased by 3.8 percent in the past 15 years (1990-2005). The State of Iowa experienced an increase of 6.8 percent in population over the same period. The average number of persons per square mile in the county was 24 in 2000 while the statewide average was 52.

The median household income in this county in 1999 was \$34,068 while the median for

Iowa was \$39,469. The per capita income in 1999 was \$16,930 while the figure for the state was \$19,674. Based on the 2000 employment figures, the economy of Clayton County is centered around manufacturing; education, health, and social services; agriculture (including forestry, fishing, hunting, and mining); and retail trades (U.S. Census Bureau).

Federal spending from all sources in Clayton County totaled \$108,715,000 in 2004.

Crawford County, Wisconsin

The City of Prairie du Chien (population 6,018) and several smaller towns lie within this county. The U.S. Census Bureau indicates that the county's population was 17,134 in 2005. The population increased by 7.6 percent in the past 15 years (1990-2005). The State of Wisconsin experienced an increase of 12.8 percent in population over the same period. The average number of persons per square mile in 2000 was 30 while the Wisconsin statewide average was 99.

The median household income in the county in 1999 was \$34,135 while the median for Wisconsin was \$43,791. The per capita income in 1999 was \$16,833 while the figure for the state was \$21,271. According to U.S. Census Bureau employment figures, Crawford County is economically based in manufacturing; education, health, and social services; retail trades; and a combination of agriculture, forestry, fishing and hunting, and mining.

Federal spending from all sources in Crawford County totaled \$97,996,000 in 2004.

VISITOR SPENDING IN THE PLANNING AREA

Effigy Mounds National Monument hosted 91,175 recreation visits in 2006, the latest year

of complete data. According to a visitor study conducted by the National Park Service in 2005, ninety-three percent of visitors were on day trips and seven percent were on overnight trips staying in motels or bed and breakfast facilities, or camping in the area.

The results of the visitor study were used with the NPS money generation model to calculate the level of economic effect visitor spending has in the area. For analysis, the total recreation visits were converted to 36,470 party days in the local area (party days = number of days each party of visitors spent in the vicinity). On average, visitors spent \$60 per party per day in the study area. Total visitor spending was \$2.18 million dollars in 2006 (Table 10). This includes spending in sales, income, and jobs in businesses selling goods and services directly to park visitors.

The direct effects of the \$2.18 million spent by Effigy Mounds visitors were \$1.59 million in sales, \$564,000 in personal income (wages and salaries), \$875,000 million in value added, and 39 jobs supported. Large direct effects were \$445,000 in food and drinking places, \$312,000 in retail trade and \$68,000 in the hotel sector. As visitor spending circulates through the local economy, an additional \$480,000 in sales, \$161,000 in personal income, \$295,000 in value added, and six jobs were created in secondary effects (Table 11).

The Total Effects figures shown in Table 10 are the sum of the following:

- Direct effects accrued largely to tourism-related business in the area,
- Indirect effects accrued to a broader set of economic sectors that serve these tourism businesses, and
- Induced effects that are the impacts of household expenditures from the income earned in a directly or indirectly affected industry.

Table 10: Visits and Spending by Visitor Segment, 2006

	Day Trips	Hotel	Camping	Total
Recreation Visitors	84,763	4,559	1,823	91,175
Segment Shares in Rec. Visits	93%	5%	2%	100%
Visitor Party Days	33,918	1,824	729	36,471
Avg. Spending Per Party Day	\$ 55	\$ 147	\$ 87	\$ 60
Total Spending	\$923,000	\$268,000	\$64,000	\$2,178,000

Source: NPS Public Use Statistics Office Money Generation Model

Table 11: Economic Effects of Visitor Spending by Sector, 2006

Sectors	Sales	Personal Incomes	Jobs	Value Added
Direct Effects				
Motels, Hotels, B&Bs and Cabins	\$ 68,000	\$ 20,000	2	\$ 30,000
Campgrounds	\$ 6,000	\$ 1,000	0	\$ 2,000
Restaurants & Bars	\$ 445,000	\$ 140,000	12	\$ 195,000
Admissions & Fees	\$ 492,000	\$ 169,000	13	\$ 277,000
Retail	\$ 312,000	\$ 159,000	10	\$ 248,000
<u>Others</u>	<u>\$ 262,000</u>	<u>\$ 75,000</u>	<u>2</u>	<u>\$ 123,000</u>
Total	\$ 1,585,000	\$ 564,000	39	\$ 875,000
Secondary Effects	\$ 480,000	\$ 161,000	6	\$ 295,000
Total Effects	\$ 2,065,000	\$ 725,000	45	\$ 1,170,000

Source: NPS Public Use Statistics Office Money Generation Model

MONUMENT OPERATIONS AND FACILITIES

The staff is responsible for managing the cultural and natural resources on 2,526 acres of NPS land as well as accommodating about 90,000 visitors each year. The monument's base funding was \$844,000 in fiscal year 2006. The monument charges an entrance fee during the summer months and fee collections have averaged \$22,815 in the last three years. Most of this money (85%) can be used by the monument to provide visitor services.

There are 17 full-time-equivalent employees at Effigy Mounds National Monument to provide interpretation and education, resource management, administration, facility management, and law enforcement at the four units. Seasonal employees, cooperating association employees, and volunteers assist the permanent staff in some of these duties.

Monument staff provide interpretation and education programs centered around the visitor center and major trails in the North Unit. The visitor center is staffed at all times the monument is open (362 days a year). Interpreters conduct visitor programs such as talks or guided walks as well as roving interpretation on the major trails during the primary visitor season. Administrative staff keep everything running and track the budget. One less than full time law enforcement ranger provides needed law enforcement. Permanent and seasonal natural resource staff perform resource restoration actions and well as conduct monitoring of sensitive resources.

All units are open for day use only although not physically closed at night. There is currently one part-time commissioned law enforcement ranger on staff.

In addition to the visitor center/ administration building, there are access roads, a maintenance facility, paved parking lot, boardwalks, soft-surfaced trails, former employee residences (now used as storage), and utilities that NPS staff are responsible for maintaining.

The greatest outdoor maintenance workload is around the visitor center and in the North Unit where the largest proportion of visitation occurs. Work in the North Unit often requires transporting equipment and supplies from the maintenance yard located near the visitor center.

The Sny Magill Unit is more than 10 miles away from the maintenance yard, so crews must also travel to do work at this unit. A fence and foot path need occasional maintenance. Stabilization of the riverbank and protective maintenance of the mounds is ongoing. Iowa Department of Natural Resources maintains the access road, parking area, and boat ramp in this unit. There are no visitor services or NPS presence here or even much indication that it is an NPS unit.

One operational concern is the presence of radon in the basement of the headquarters building. Radon is a naturally occurring gas that can increase humans' risk of lung cancer at certain exposure levels. This gas has been measured at 8 picocuries/liter in a basement working area, well above the level of 4 or below that is considered safe for constant exposure.

CHAPTER 4
Environmental
Consequences



INTRODUCTION

The National Environmental Policy Act (NEPA) requires that environmental documents discuss the environmental impacts of a proposed federal action, feasible alternatives to that action, and any adverse environmental effects that cannot be avoided if a proposed action is implemented. In this case the proposed federal action would be adoption of a general management plan (GMP) for Effigy Mounds National Monument. The following portion of this document analyzes the environmental impacts of implementing the alternatives on cultural resources, natural resources, the visitor experience, the socioeconomic environment, and monument operations. The analysis is the basis for comparing the beneficial and adverse effects of implementing the alternatives.

Because of the often general, conceptual nature of the actions described in the alternatives, the impacts of these actions are analyzed in general qualitative terms. Thus, this environmental impact statement should be considered a programmatic analysis. If and when site-specific developments or other actions are proposed for implementation subsequent to this general management plan, appropriate detailed environmental and cultural compliance documentation will be prepared in accord with NEPA and National Historic Preservation Act requirements.

Impact analysis discussions are organized by impact topic and then by alternative under each impact topic. Each topic discussion begins with a description of the methods and assumptions used for analysis.

Each impact topic discussion also describes cumulative impacts and presents a conclusion. At the end of this section there is a brief discussion of unavoidable adverse impacts; irreversible and irretrievable commitments of resources; the relationship of short-term uses of the environment and the maintenance and enhancement of long-term productivity, and

energy requirements and conservation potential. The impacts of each alternative are briefly summarized in table 6, at the end of “Chapter 2: Alternatives, Including the Preferred Alternative.”

CUMULATIVE IMPACT ANALYSIS

A cumulative impact is described in the Council on Environmental Quality’s regulation 1508.7 as follows:

Cumulative impacts are incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other action. Cumulative impacts can result from individually minor, but collectively significant, actions taking place over a period of time.

To determine potential cumulative impacts, *other* projects within and surrounding Effigy Mounds National Monument were identified. Projects were identified by discussions with the park, federal land managers, and representatives of county and town governments. Potential projects identified as cumulative actions included any planning or development activity currently being implemented, or that would be implemented in the reasonably foreseeable future. The CEQ regulations do not require bureaus to catalogue or exhaustively list and analyze all individual past actions. Other actions were considered in the analysis only if they are relevant and useful because they have a significant cause-and-effect relationship with the direct and indirect effects of the proposed alternatives

These actions are evaluated in conjunction with the impacts of each alternative to determine if they have any cumulative effects on a particular natural, cultural, or

socioeconomic resource or visitor use. For those cumulative actions that are in the early planning stages, the qualitative evaluation of cumulative impacts was based on a general description of the project.

Past Actions

Designation of Effigy Mounds National Monument in 1949 and expansion of the monument in 1961 and 2000 set aside over 2500 acres for protection of the Indian mounds, associated natural resources, and historic sites. Many mound groups outside the monument boundaries have been destroyed by agricultural practices and other types of land uses.

Present Actions

Rural residential development has been slowly increasing in Clayton and Allamakee counties in Iowa. In some cases, large farms are being subdivided and sold as “ranchettes.” This is occurring near the monument’s north boundary along Highway 76. Natural viewsheds have been affected by commercial and industrial development across the Mississippi River in Prairie du Chien, Wisconsin, where reflective surfaces (roofs, etc.) detract from the view. Rock and gravel mining operations also are affecting views from the North Unit and the approach to the Sny Magill Unit.

The Mississippi River Trail is a multi-state effort to create a continuous bike and hike trail along the length of the Mississippi River from Wisconsin to Louisiana. The National Park Service supports this effort and would offer Effigy Mounds National Monument as a destination point. However, bicycles are not allowed on monument trails.

Future Actions

While the current agricultural land use on most property adjacent to the monument is not incompatible with the monument’s goals, it can be assumed that this use will continue to be replaced with residential development and subdivisions. Of particular concern is the possible change in land use on the private land adjoining the South Unit where mounds lie

very close to the boundary. If implemented, a proposal to bring coal by train from Wyoming to regional power plants would add up to 27 120-car trains per week on the tracks adjacent to the monument’s eastern boundary.

A trend that has affected most units of the National Park Service in the past several years is the decrease in visitation. Of particular note is the apparent decrease in interest by the nation’s young people. The Assistant Secretary of the Interior for Parks and Wildlife, Lyle Laverty, has made it a priority for the NPS to reverse this trend and entice America’s youth back into the parks (comments made to the Denver Service Center on November 29, 2007).

IMPAIRMENT OF NATIONAL MONUMENT RESOURCES AND UNACCEPTABLE IMPACTS

In addition to determining the environmental consequences of implementing the preferred and other alternatives, NPS *Management Policies 2006* (§1.4) requires analysis of potential effects to determine whether or not proposed actions would impair a park’s resources and values.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adverse impacts on park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of the park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service management discretion to allow certain impacts within a park, that discretion is limited by the statutory requirement that the National Park Service must leave resources and values unimpaired

unless a particular law directly and specifically provides otherwise.

The prohibited impairment is an impact that, in the professional judgment of a responsible NPS manager, would harm the integrity of monument resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values (NPS *Management Policies 2006*). An impact on any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

Impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessionaires, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park. A determination on impairment is made in the "Environmental Consequences" section in the conclusion section for each required impact topic related to the park's resources and values.

An evaluation of impairment is not required for some impact topics, including visitor experience (unless the impact is resource based), NPS operations, or the socioeconomic environment. When it is determined that an action(s) would have a moderate to major adverse effect, a justification for nonimpairment is made. Impacts of only negligible or minor intensity would, by definition, not result in impairment.

The National Park Service also considers whether a proposed action would cause an "unacceptable impact," which *Management Policies 2006* describes as "impacts that fall short of impairment, but are still not acceptable within a particular park's environment."

Should there be an adverse effect on the park's resources or values, the decision maker considers the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question. Criteria from section 1.4.7.1 of *Management Policies* would be applied to all minor, moderate, and major impacts to determine if an impact is unacceptable. Decision makers considered these criteria from §1.4.7.1 and §8.2: Would any of the impacts individually or cumulatively:

- be inconsistent with a park's purposes or values, or impede the attainment of a park's desired future conditions for natural and cultural resources as identified through the park's planning process, or
- create an unsafe or unhealthful environment for visitors or employees, or
- diminish opportunities for current or future generations to enjoy, learn about, or be inspired by park resources or values, or
- unreasonably interfere with
 - park programs or activities, or
 - an appropriate use, or
 - the atmosphere of peace and tranquility, or the natural soundscape maintained in wilderness and natural, historic, or commemorative locations within the park.
 - NPS concessioner or contractor operations or services.

IMPACT ANALYSES

The planning team based the impact analysis and conclusions in this chapter primarily on the review of existing literature and studies, information provided by experts in the National Park Service, and other agencies and NPS staff insights and professional judgment. The team's method of analyzing impacts is further explained below. It is important to remember that all the impacts have been assessed assuming mitigating measures would be implemented to minimize or avoid impacts. If mitigating measures described in the "Alternatives Including the Preferred Alternative" section were not applied, the potential for resource impacts and the magnitude of those impacts would increase.

Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision Making* presents an approach to identifying the duration (short or long term), type (adverse or beneficial), and intensity or magnitude (e.g., negligible, minor, moderate, or major) of the impact(s), and that approach has been used for all topics except cultural resources in this document. Direct and indirect effects caused by an action were considered in the analysis. Direct effects are caused by an action and occur at the same time and place as the action. Indirect effects are caused by the action and occur later in time or farther removed from the place, but are still reasonably foreseeable.

The impacts of the action alternatives describe the *difference between* implementing the no-action alternative and implementing the action alternatives. To understand a complete "picture" of the impacts of implementing any of the action alternatives, the reader must also take into consideration the impacts that would occur under the no-action alternative.

SECTION 106 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED, AND IMPACTS TO CULTURAL RESOURCES

In this general management plan, impacts on cultural resources will be described according to the Advisory Council on Historic Preservation "Regulations for the Protection of Historic and Cultural Properties." (36 CFR 800 implementing Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470(f)) in addition to the analysis described above for NEPA (see Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision Making).

Section 106 requires federal agency officials to take into account the effects of their undertakings on historic properties, and to afford the Advisory Council on Historic Preservation (ACHP) an opportunity to comment.

Unlike analyses under the National Environmental Policy Act, under the Section 106 process, an "effect" is defined as "an alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16i). According to the criteria of "adverse effect" in the regulations (36 CFR 800.5 (a)(1)),

An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

The regulations further specify that

Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance, or be cumulative.

The federal agency official consults with the state historic preservation officer and other consulting parties (possibly including the Advisory Council on Historic Preservation) regarding measures to avoid, minimize, or mitigate adverse effects to a historic property. These agreed-upon measures are memorialized in a memorandum of agreement that is signed by the agency, the state historic preservation officer, and other consulting parties.

The Advisory Council regulations do not specify thresholds for effects and do not recognize adverse versus beneficial effects. Effects are determined relative to the character-defining features of the National Register of Historic Places (NRHP) listed or eligible property—36 CFR 800 does not define what constitutes mitigation, but it provides a process for determining appropriate mitigation in consultation with the state historic preservation officer and other parties. Cultural resources, including historic properties, are nonrenewable. Adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss of integrity of the property that can never be recovered. Therefore, although actions to mitigate the adverse effect may be carried out in compliance with Section 96, the effect on a historic property remains adverse.

A determination of no adverse effect means there is an effect, but the effect would not meet the criteria of adverse effect (36 CFR 800.5(b)).

The impact analyses in this general management plan are for the purposes of the

National Environmental Policy Act. They are intended to assist the National Park Service with coordinating its compliance with this act and with Section 106 of the National Historic Preservation Act of 1966, as amended. The National Park Service will comply with Section 106 in accordance with 36 CFR 800 as it continues land and resource planning and refines its management portions with alternatives analyses and specific proposals for individual properties. As is required under 36 CFR 800, the National Park Service will consult with the Iowa state historic preservation officer and other consulting parties to determine areas of potential effects; to identify cultural resources and evaluate their National Register of Historic Places eligibility; to determine effects on historic properties; and to develop measures to avoid, minimize, or mitigate adverse effects on historic properties. Measures to avoid, minimize, or mitigate adverse effects would be outlined in a memorandum of agreement (or programmatic agreement). A Section 106 summary is included for each of the cultural resource topics discussed.

NEPA METHODOLOGY FOR ASSESSING IMPACTS—CULTURAL RESOURCES

Potential impacts (direct, indirect, and cumulative effects) are described in terms of type, context (are the effects site-specific, local, or regional), duration (are the effects short-term (less than one year), long-term (more than one year), or permanent) and intensity (is the degree or severity of effects negligible, minor, moderate, or major). Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this environmental impact statement.

Cumulative Impacts: The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), require assessment of cumulative impacts in

the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for all alternatives, including the no-action alternative.

Cumulative impacts were determined by combining the impacts of the alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Effigy Mounds National Monument and, if applicable, the surrounding region.

Impacts to Cultural Resources and §106 of the National Historic Preservation Act: In this document impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are intended, however, to comply with the requirements of both NEPA and §106 of the National Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's regulations implementing §106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to cultural resources were also identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected, national register-eligible or national register-listed cultural resources; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect must also be made for affected national register listed or national register-

eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the national register, e.g. diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects caused by the alternatives that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the national register.

CEQ regulations and the National Park Service's Conservation Planning, Environmental Impact Analysis and Decision Making (Director's Order #12) also call for a discussion of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect as defined by §106 is similarly reduced. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under §106 may be mitigated, the effect remains adverse.

A §106 summary is included in the impact analysis sections. The §106 summary is an assessment of the effect of the undertaking (implementation of the alternative) on National Register eligible or listed cultural resources only, based upon the criterion of effect and criteria of adverse effect found in the Advisory Council's regulations.

ARCHEOLOGICAL RESOURCES

Impacts Common to all Alternatives

Archeological resources could be affected by actions of the public and by actions taken by park staff to preserve, maintain, or interpret such resources. Wherever ground-disturbing activities are proposed, an archeologist would be consulted to determine the level of archeological evaluation necessary. If the area was previously inventoried and no such resources are likely to occur, additional archeological testing may be unnecessary. If there is any likelihood that such resources exist, archeological testing and/or excavation would be undertaken following appropriate consultation with the state historic preservation officer and associated American Indian tribes.

The public is asked to stay on the trail system throughout the national monument and to stay off the mounds. However, visitors often feel the need to climb up on the mounds, whether to see them better or because they don't understand the damage that can result. New areas of the national monument do not have trails, and visitors may unknowingly walk on unmarked mounds. This occasional activity can result in erosion of the mound which, if left unchecked, could result in major damage or even loss of the mound's integrity. However, continued ranger patrol and emphasis on visitor education would discourage visitors from straying from marked trails, committing acts of vandalism, and causing inadvertent destruction of cultural remains; any adverse impacts would be expected to be minimal.

Although rare, deliberate acts of excavation for artifacts—called “pothunting”—do occur. These activities result in damage to the mounds and possibly loss of archeological artifacts that are integral to an understanding of the mounds and the cultures that constructed them.

Inadvertent, and often unavoidable, damage may also result during trail maintenance or rerouting, road repair preservation and

maintenance of the mounds. Some of the mounds have trees growing on them. Large trees are left intact when damage from their removal would jeopardize the integrity of the mound. Saplings are removed. Occasionally a tree on a mound may die or be blown down. A dead tree is cut down at the base and left to deteriorate, trees that have been blown down are removed in a manner least damaging to the mound. However, both result in some damage to the mound. As roots decay, the soil collapses in upon itself and the mound loses integrity of shape, height, and archeological context. Where pothunting or a “blow-down” has occurred, maintenance staff fills the holes with “clean” fill material (free of cultural debris) and revegetates. These actions result in varying levels of loss of mound integrity, and impacts would be adverse.

Because no systematic archeological inventory and evaluation of archeological sites has occurred within the national monument, impacts village sites and rock shelters, whether from natural forces or visitor actions are unknown. Vigilance by park staff appears to be effective in the most frequently visited areas of the national monument, but it is unknown what impacts may be occurring elsewhere. This general management plan recommends a complete archeological survey of the entire national monument.

Historic archeological resources have not been inventoried within the national monument. Aside from the Military Road and associated cistern, the “Jefferson Davis Sawmill,” and a small portion of the Red House Landing, there are likely a number of historic farmsteads and roads of possible local significance. A possible fur trade camp may also exist. A portion of the Military Road is maintained by national monument staff and provides partial access to the South Unit.

When archeological resources are identified, limited testing may be necessary to determine size, date of use, and national register eligibility. This would not result in loss of the site or adversely affect the qualities of the site that make it eligible for inclusion in the National Register.

Under all alternatives, Effigy Mounds would seek funding to meet the Archeological Resources Protection Act requirement that all archeological resources be inventoried and evaluated for inclusion in the National Register of Historic Places. Mounds and other known archeological sites would continue to be monitored by park staff to note any changes in condition and to take appropriate actions necessary for their continued preservation. All ground-disturbing activities would be preceded by archeological evaluation to determine the best method of identifying any archeological resources that may be present.

All archeological materials and all original archives associated with the collections that are associated with Effigy Mounds National Monument would remain at the site.

A complete archeological inventory of Effigy Mounds National Monument meeting Section 110 standards (National Historic Preservation Act of 1966, as amended) has not been undertaken. As a result, prior to actions proposed in this plan that affect areas of the national monument that have not been adequately inventoried, site specific archeological evaluations would be undertaken to ensure that archeological resources are not adversely affected.

For the purposes of this document, all impacts to an archeological site (other than mounds) would have a long-term impact.

Negligible: Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for §106 would be *no adverse effect*.

Minor: **Adverse impact** — disturbance of a site(s) results in little, if any, loss of integrity. The determination of effect for §106 would be *no adverse effect*.

Moderate: **Adverse impact** — disturbance of a site(s) results in loss of integrity. The determination of effect for §106 would be *adverse*

effect. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.

Major: **Adverse impact** — disturbance of a site(s) results in loss of integrity. The determination of effect for §106 would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Impacts from Implementing Alternative A – No Action

Specific actions in the no-action alternative that could require some level of archeological survey and evaluation work prior to implementation include the following:

Trails Development: In areas of the national monument where new trails are necessary, pre-development archeological survey of the right-of-way would be undertaken to ensure there would be no effect on archeological sites or features.

Development of old roads as trails: In the Heritage Area, a number of old roads would be developed as pedestrian and maintenance trails. All these roads would be evaluated to ensure they do not pass through or in some other way affect archeological resources. Few if any adverse effects would be anticipated.

Removal of old roads: In the Heritage Area, any roads not needed for pedestrian or maintenance use would be obliterated and reseeded. As with those used for trails, these roads would be evaluated to determine eligibility for inclusion in the national register and possible impact on any archeological resources or values present. The removal of roads determined to be eligible for the national register would result in adverse effects; for roads determined to be ineligible, there would be no effect.

Installation of a new water and wastewater system at the visitor center: Prior to installation, a location free of archeological resources would be identified. This action should have no effect on archeological resources.

Completion of the Yellow River mounds boardwalk: The route of the boardwalk would be surveyed for archeological resources. Should significant archeological resources be identified, other means of reaching the site would be evaluated to avoid any impact.

Connection of the Yellow River Bridge trail with the Marching Bear trail: Archeological survey of the proposed route would be undertaken prior to trail construction. Should significant resources be identified, the trail route would be altered to avoid any effect on archeological resources.

Mississippi Riverbank Stabilization: This project currently underway would continue as a means of providing some protection to the existing Sny Magill mounds. This work may result in damage to mounds near the riverbank. Appropriate archeological evaluation and possible excavation intervention would be implemented prior to any such work. Loss of any such mounds would be an adverse effect.

Although potential impacts to archeological resources resulting from visitor, use, pothunting, and inadvertent damage could be adverse, the overall care and preservation of the national monument and the efforts of the staff to identify, protect, and preserve all

cultural resources would result in an overall determination of no adverse effect.

Development of trails, development of old roads as trails, removal of old roads not eligible for inclusion in the national register, installation of new water and wastewater systems at the visitor center, completion of the Yellow River Mounds boardwalk, and connection of the Yellow River Bridge trail to the Marching Bear trail should have no effect, if an archeological inventory identifies no archeological resources or if such resources are discovered and avoidance is feasible.

Removal of old roads determined to be eligible for inclusion on the national register and Mississippi River stabilization that results in damage to mounds or other archeological resources would have adverse impacts under Section 106 of the National Historic Preservation Act.

The overall National Environmental Policy Act effect on the national monument's cultural resources would be long-term, minor, and beneficial.

Cumulative Effects. The area around Effigy Mounds National Monument has been farmed for many generations. Although farming has likely resulted in the loss of many mounds, others have likely been saved due to the vigilance of the landowner and the mounds' existence in areas of terrain too difficult to farm. Now, however, farmlands surrounding the national monument are being subdivided for home sites, and such resources are again being threatened.

Farther afield, the States of Iowa and Wisconsin and the Ho Chunk Indian Nation of Wisconsin have established parks and preserves to protect mounds similar to those at Effigy Mounds National Monument. Awareness of the importance of these archeological features is growing even as more and more of these features are lost to development and erosion outside these preserves.

As described above, implementation of the no-action alternative would result in both

adverse and no adverse effects to archeological resources, although the overall determination of effect would be no adverse effect. The adverse and no adverse impacts of this alternative, in combination with the predominantly adverse impacts of other past, present, and reasonably foreseeable future actions, would result in an adverse effect cumulative impact.

Conclusion. Although potential impacts to archeological resources resulting from visitor use, pothunting, and inadvertent damage could be adverse, the overall care and preservation of the national monument, and the efforts of the staff to identify, protect, and preserve all cultural resources, would result in an overall determination of no adverse effect. The adverse effect of the no-action alternative would be a very small component of the adverse effect cumulative impact.

Because there would be no major adverse effects on this resource, there would be no impairment. The overall National Environmental Policy Act effect on the national monument's cultural resources would be long-term, minor, and beneficial.

Impacts from Implementing Alternative B – the Preferred Alternative

Actions in Alternative B that could require some level of archeological evaluation work prior to implementation include:

Trails Development: In areas of the national monument where new trails are necessary, pre-development archeological survey of the right-of-way would be undertaken to ensure there would be no effect on archeological sites or features. The same would be true for minor trail realignment.

Development of old roads as trails: In the Heritage Area, a number of old roads would be developed as pedestrian and maintenance trails. All these roads would be evaluated to ensure they do not pass through or in some other way affect archeological resources. Few if any adverse effects would be anticipated.

Removal of old roads: In the Heritage Area, any roads not needed for pedestrian or maintenance use would be obliterated and the land reseeded. As with those used for trails, these roads would be evaluated to determine eligibility for inclusion in the national registers and possible impact on any archeological resources or values present. The removal of roads determined to be eligible for the national register would result in adverse effects; for roads determined to be ineligible, there would be no effect.

Installation of a new water and wastewater system at the visitor center: Prior to installation, a site free of archeological resources would be located. This action should have no effect on archeological resources.

Completion of the boardwalk to the Yellow River mounds: As with new trail construction, the boardwalk could be designed to avoid archeological resources to result in a determination of no effect.

Construction of an accessible overlook at Fire Point: Archeological evaluation prior to construction would ensure that no archeological features would be affected. There would be no effect on archeological resources at the site.

South Unit entry road: The entry road would only be redesigned to provide safer access following evaluation of the development area by an archeologist. This should result in a determination of no effect.

Installation of a visitor contact shelter at Sny Magill: Archeological evaluation of the location prior to construction would ensure that no archeological features would be affected. There would be no effect on archeological resources at the site.

Construction of an Administration/ Research Center at headquarters in the North Unit: This facility would replace existing facilities in the maintenance area of the national monument headquarters. There would be no effect on archeological resources at the site.

Railroad trestle improvement at Sny Magill: Raising and widening the railroad trestle at Sny Magill to allow better site access would require prior archeological evaluation to determine the likelihood of archeological resources present. If archeological resources are present, they could be adversely affected.

Restoration of the Fire Point mound in the North Unit: Restoration to its original dimensions would require additional soil to recreate the original outline. Soil from outside the national monument, free of cultural debris would be used. The existing mound remnant would not be disturbed so this action would have an effect but not an adverse effect on the remaining mound structure.

Construction of a trail at Sny Magill: This trail would encourage people to stay off the mounds. Walking on mounds is a particular problem at times when the existing trail is wet or occasionally submerged and the mounds form the only high areas available. A new trail or boardwalk would be constructed in this unit according to a site development plan. Prior to construction, an archeologist would evaluate the probability of archeological resources being damaged by construction and make a recommendation for realignment or mitigation excavation. Construction would constitute an effect but that effect would not be adverse.

Red House Landing Acquisition: A portion of the historic Red House Landing, both an archeological site and a historic town, is within the national monument boundary. This alternative would acquire the portion currently outside the boundary for preservation. This action would have an effect on the Red House Landing site but that effect would not be adverse.

Maintain a portion of the Military Road for South Unit Access: Continuing to maintain the Military Road as a trail and as maintenance access to the south unit would have an effect on the Military Road, but that effect is not expected to be adverse.

Actions proposed above should have a no adverse effect determination under Section

106 and a long-term minor, beneficial impact under the National Environmental Policy Act guidelines.

Cumulative Effects. The area around Effigy Mounds National Monument has been farmed for many generations. Although farming has likely resulted in the loss of many mounds, others have likely been saved due to the vigilance of the landowner and the existence of the mounds on terrain too difficult to farm. Now, however, farmlands surrounding the national monument are being subdivided for homesites, and such resources are again being threatened.

Farther afield, the States of Iowa and Wisconsin and the Ho Chunk Indian Nation of Wisconsin have established parks and preserves to protect mounds similar to those at Effigy Mounds National Monument. Awareness of the importance of these archeological features is growing even as more and more of these features are lost to development and erosion outside these preserves.

As described above, implementation of the preferred alternative could result in both adverse and no adverse effects to archeological resources, although the overall determination of effect would be no adverse effect. The adverse and no adverse impacts of the alternative, in combination with the predominantly adverse impacts of other past, present, and reasonably foreseeable future actions, would result in an adverse effect cumulative impact. The adverse effects of the preferred alternative, however, would be a small component of the adverse effect cumulative impact.

Conclusion: No actions described in alternative B would result in loss or significant damage to archeological resources. Construction of a boardwalk at Sny Magill could encourage visitors to avoid walking on the mounds. If that were to happen, there could be a marked improvement in the preservation of the mounds. The overall impact of alternative B is not expected to be adverse under Section 106 of the National

Historic Preservation Act would be long-term minor and beneficial under the National Environmental Policy Act guidelines..

Because there would be no major adverse effects on this resource, there would be no impairment.

Impacts from Implementing Alternative C

Actions in Alternative C that could require some level of archeological evaluation work prior to implementation include:

Trails Development: In areas of the national monument where new trails or realignment of existing trails are necessary, pre-development archeological survey of the right-of-way would be undertaken to ensure there would be no effect on archeological sites or features.

Development of old roads as trails: In the Heritage Area, a number of old roads would be developed as pedestrian and maintenance trails. All these roads would be evaluated to ensure they do not pass through or in some other way affect archeological resources. Few if any adverse effects would be anticipated.

Removal of old roads: In the Heritage Area, any roads not needed for pedestrian or maintenance use would be evaluated for eligibility in the national register. If found to be ineligible, the roads would be obliterated and the land reseeded. If found to be eligible for the national register, the National Park Service would work with the state historic preservation office to preserve the roads or determine appropriate mitigation measures. As with those used for trails, these roads would be evaluated to determine possible impact on any other archeological resources present. No impact is expected to be adverse.

Installation of a new water and wastewater system at the visitor center: Prior to installation, a site free of archeological resources would be located. This action should have no effect on archeological resources.

South Unit entry road: The entry road would only be redesigned to provide safer access following evaluation of the development area

by an archeologist. This should result in a determination of no effect.

Acquisition of portions of FTD and Red House Landing: Acquisition and documentation of these properties would ensure their preservation into the future. Testing for documentation purposes, if necessary, could have an adverse effect on archeological resources.

Actions proposed above should have a no adverse effect determination under Section 106 and a long-term minor, beneficial impact under the National Environmental Policy Act guidelines.

Cumulative Effects. The area around Effigy Mounds National Monument has been farmed for many generations. Although farming has likely resulted in the loss of many mounds, others have likely been saved due to the vigilance of the landowner and the existence of the mounds on terrain too difficult to farm. Now, however, farmlands surrounding the national monument are being subdivided for homesites, and such resources are again being threatened.

Farther afield, the States of Iowa and Wisconsin and the Ho-Chunk Indian Nation of Wisconsin have established parks and preserves to protect mounds similar to those at Effigy Mounds National Monument. Awareness of the importance of these archeological features is growing even as more and more of these features are lost to development and erosion outside these preserves.

As described above, implementation of alternative C could result in both adverse and no adverse effects to archeological resources, although the overall determination of effect would be no adverse effect. The adverse and no adverse impacts of this alternative, in combination with the predominantly adverse impacts of other past, present, and reasonably foreseeable future actions, would result in an adverse effect cumulative impact. The adverse effects of alternative C, however, would be a small component of the adverse effect cumulative impact.

Conclusion. No actions described in alternative C would result in loss or significant damage to archeological resources. The overall impact of alternative C is not expected be adverse. Any adverse effect of the preferred alternative would be a small component of the adverse effect cumulative impact under Section 106 of the National Historic Preservation Act and would be long-term, minor, and beneficial under the National Environmental Policy Act guidelines.

Because there would be no major adverse effects on this resource, there would be no impairment.

CULTURAL LANDSCAPES

A Cultural Landscape Inventory (CLI) of Effigy Mounds National Monument for all but ethnographic landscapes has been completed and its results concurred in by the Iowa State Historic Preservation Officer. (A CLI is a computerized, evaluated inventory of all cultural landscapes within a park area. Its purpose is to identify cultural landscapes and to provide information on location, historical development, character-defining features, and management).

Two landscapes were identified, the northern landscape encompassing the North, South, and Heritage units and the southern landscape encompassing the entire Sny Magill Unit. Both were designated “historic site” for their connection to an event, activity, or person. An ethnographic landscape may exist that is connected to contemporary American Indians. However, such a landscape has not been studied and an official determination has not been made. Therefore, effects of the alternatives on such an undefined landscape have not been attempted.

Definitions of Intensity Levels

Negligible: Impact(s) is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for §106 would be *no adverse effect*.

Minor: **Adverse impact** — alteration of a pattern(s) or feature(s) of the landscape would not diminish the overall integrity of the landscape. The determination of effect for §106 would be *no adverse effect*.

Moderate: **Adverse impact** — alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be *adverse effect*. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.

Major: **Adverse impact** — alteration of a pattern(s) or feature(s) of the landscape would diminish the overall integrity of the landscape. The determination of effect for §106 would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Impacts from Implementing Alternative A – No-action

Proposed in alternative A are trails development or realignment in the North and South units, some riverbank stabilization and some removal of trees and vegetation to protect mounds at Sny Magill. Careful design would ensure that the development and

realignment of trails would minimally affect the scale and visual relationships among landscape features. In addition, the topography, vegetation, circulation features, and land use patterns of the monument would remain largely unaltered. No adverse effects would be anticipated. Ongoing riverbank stabilization and some tree removal undertaken to preserve mounds would continue at Sny Magill. There is some likelihood of damage to individual mounds associated with these activities but the overall effect would not be adverse.

Cumulative Effects: No cultural landscapes outside the national monument have been identified although lands within Yellow River State Forest have similar qualities and may qualify. With the advent of European settlement, the mounds that had survived centuries with little change began to disappear as lands were leveled for farming and townsites. Forested areas were cut down and erosion damaged many mounds that had survived millennia. Mounds continue to be lost or damaged by development in the region—an adverse effect. In addition, rapid subdivision of farmlands around the national monument and active logging on adjacent private lands is resulting in the loss of similar wooded lands. The overall impact to cultural landscapes would be adverse.

As described above, implementation of the no-action alternative would result in no adverse effects to cultural landscapes. The no adverse impacts of this alternative, in combination with the adverse impacts of other past, present, and reasonably foreseeable future actions, would result in an adverse effect cumulative impact. The no-action alternative would contribute to the adverse cumulative impact.

Conclusion. No adverse effects to cultural landscapes under the no-action alternative would be anticipated. The no-action alternative would not contribute to the adverse cumulative impact.

Because there would be no major adverse effects on this resource, there would be no impairment or unacceptable impacts.

Impacts from Implementing Alternative B – the Preferred Alternative

Alternative B proposes removing nonnative plants and animals; using fire to manage the forest and meadow ecosystems; limiting development to existing, already developed locations and road corridors; developing trails, narrowing roads into trails, and removing roads; restoring a damaged mound at Fire Point; and acquiring land. Each of the actions, except trail construction, would help to restore the landscape to an earlier time and appearance. Trail construction with appropriate signs would help to keep visitors from walking in sensitive areas of the landscape providing protection for the mounds and native vegetation. Trail construction at Sny Magill has the potential to adversely affect the landscape depending upon the materials used to develop the trail.

Cumulative Effects: No cultural landscapes outside the national monument have been identified although lands within Yellow River State Forest have similar qualities and may meet cultural landscape criteria. With the advent of European settlement, the mounds that had survived centuries with little change began to disappear as lands were leveled for farming and town sites. Forested areas were cut down and erosion damaged many mounds that had survived millennia. Mounds continue to be lost or damaged by development in the region—an adverse effect. In addition, rapid subdivision of farmlands around the national monument and active logging on adjacent private lands are resulting in the loss of similar wooded lands. The overall impact to cultural landscapes would be adverse.

As described above, implementation of the preferred alternative could result in a possible adverse effect to a cultural landscape at Sny Magill. The impacts of this alternative, in combination with the adverse impacts of other past, present, and reasonably foreseeable future actions, would result in an

adverse effect cumulative impact. The preferred alternative could contribute to the adverse cumulative impact.

Conclusion. A possible adverse effect to cultural landscapes under the preferred alternative would be anticipated. The preferred alternative would contribute to the adverse cumulative impact.

Because the possible impact at Sny Magill could be mitigated somewhat through design there would be no impairment or unacceptable impacts of the resource.

Impacts from Implementing Alternative C

Alternative C proposes developing trails, narrowing roads into trails, removing roads, restoring a damaged mound at Fire Point, acquiring land, and constructing a boardwalk to the mound group between the Yellow River and Highway 76. Each of these actions, except boardwalk construction, would help to restore the landscape to an earlier time and appearance. Boardwalk construction would help to keep visitors from walking in sensitive areas of the landscape providing protection for the mounds and other native vegetation.

Actions proposed in Alternative C would have an effect on the cultural landscape, but that effect would not be adverse.

Cumulative Effects: No cultural landscapes outside the national monument have been identified, although lands within Yellow River State Forest have similar qualities and may qualify. With the advent of European settlement, the mounds that had survived centuries with little change began to disappear as lands were leveled for farming and townsites. Forested areas were cut down, and erosion damaged many mounds that had survived millennia. Mounds continue to be lost or damaged by development in the region—an adverse effect. In addition, rapid subdivision of farmlands around the national monument and active logging on adjacent private lands is resulting in the loss of similar wooded lands, and impacts to cultural landscapes could be adverse. However, preservation of the ethnographic landscape

within the national monument would not add to the overall cumulative loss of any such landscapes in the region.

As described above, implementation of alternative C would result in no adverse effects to cultural landscapes. The no adverse impacts of this alternative, in combination with the adverse impacts of other past, present, and reasonably foreseeable future actions, would result in an adverse effect cumulative impact. Alternative C, however, would not contribute to the adverse cumulative impact.

Conclusion. No adverse effect to cultural landscapes under alternative C would be anticipated. Alternative C would not contribute to the adverse cumulative impact.

Because there would be no major adverse effects on this resource, there would be no impairment or unacceptable impacts.

ETHNOGRAPHIC RESOURCES

Definitions of Intensity Levels

Negligible: Impact(s) would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs.

Minor: Adverse impact — impact(s) would be slight but noticeable but would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs.

Beneficial impact — would allow access to and/or accommodate a group's traditional practices or beliefs.

- Moderate:** Adverse impact — impact(s) would be apparent and would alter resource conditions. Something would interfere with traditional access, site preservation, or the relationship between the resource and the affiliated group's practices and beliefs, even though the group's practices and beliefs would survive.
- Beneficial impact — would facilitate traditional access and/or accommodate a group's practices or beliefs.
- Major:** Adverse impact — impact(s) would alter resource conditions. Something would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group's body of practices and beliefs, to the extent that the survival of a group's practices and/or beliefs would be jeopardized.
- Beneficial impact — would encourage traditional access and/or accommodate a group's practices or beliefs.

Actions in Alternative A that could affect Ethnographic Resources

Preservation of mounds: The national monument staff would work to retain the form and appearance of the mounds. Actions would not affect access to the mounds or American Indian ability to practice traditional beliefs. This would result in a site-specific negligible long-term impact.

Ecosystem restoration: The national monument staff would work toward restoration of the existing ecosystem by eliminating or minimizing the impact of non-native species, encouraging the growth of native species, and implementing controlled burns. Access to the mounds would not be affected nor would the groups' ability to

practice their traditional beliefs. This would result in a site-specific, negligible, long-term impact.

Maintenance of natural viewsheds and soundscapes: The national monument staff would work to preserve these important features of the site for all to enjoy. Access to the mounds would not be affected nor would the groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Nomination of eligible cultural resources for inclusion in the National Register of Historic Places: By nominating eligible cultural resources, the National Park Service emphasizes the importance of such resources and makes them a priority for preservation. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Interpretation of resources in a manner sensitive to the sacred nature of the site: The national monument staff would interpret the site to help visitors understand the connections between American Indians and Effigy Mounds. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Actions proposed above should have an overall site specific, long-term, negligible, impact under the National Environmental Policy Act guidelines.

Cumulative Effects: As lands have been developed in the Iowa, Minnesota, and Wisconsin region, and mounds have been lost to development and farming activities or have become inaccessible as private property, access to sites of ethnographic significance to American Indians has diminished. Remaining are Effigy Mounds National Monument, state and local parks, and Indian reservations. This has greatly affected both American Indian access to tradition sites and their ability to practice traditional beliefs. Implementation of this alternative would not add to the overall

cumulative impact of the loss of access and inability to practice traditional beliefs within the region.

Conclusion: No actions described in alternative A, the no action alternative, would result in loss of access or loss of the ability to practice traditional beliefs at Effigy Mounds National Monument. The overall impact is negligible and would not contribute to the overall cumulative effect within the region.

Because there would be no major adverse effects on this resource, there would be no impairment.

Actions in Alternative B that could affect Ethnographic Resources

Preservation of mounds: The national monument staff would work to retain the form and appearance of the mounds. Actions would not affect access to the mounds nor would they affect American Indian ability to practice traditional beliefs. This would result in a site-specific negligible long-term impact.

Ecosystem restoration: The national monument staff would work toward restoration of the existing ecosystem by eliminating or minimizing the impact of nonnative species, encouraging the growth of native species, and implementing controlled burns. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific, negligible, long-term impact.

Maintenance of natural viewsheds and soundscapes: The national monument staff would work to preserve these important features of the site for all to enjoy. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Nomination of eligible cultural resources for inclusion in the National Register of Historic Places: By nominating eligible cultural resources, the National Park Service emphasizes the importance of such resources and makes them a priority for preservation. Access to the mounds would not be affected

nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Interpretation of resources in a manner sensitive to the sacred nature of the site: The national monument staff would interpret the site to help visitors understand the connections between American Indians and Effigy Mounds. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Actions proposed above should have an overall site specific, long-term, negligible, impact under the National Environmental Policy Act guidelines.

Cumulative Effects: As lands have been developed in the Iowa, Minnesota, and Wisconsin region, and mounds have been lost to development and farming activities or become inaccessible as private property, access to sites of ethnographic significance to American Indians has diminished. Remaining are Effigy Mounds National Monument, state and local parks, and Indian reservations. This has greatly affected both American Indian access to tradition sites and their ability to practice traditional beliefs. Implementation of this alternative would not add to the overall cumulative impact of the loss of access and inability to practice traditional beliefs within the region.

Conclusion: No actions described in alternative B, the preferred alternative, would result in loss of access or loss of the ability to practice traditional beliefs at Effigy Mounds National Monument. The overall impact is negligible and would not contribute to the overall cumulative effect within the region.

Because there would be no major adverse effects on this resource, there would be no impairment.

Actions in Alternative C that could affect Ethnographic Resources

Preservation of mounds: The national monument staff would work to retain the form and appearance of the mounds. Actions would not affect access to the mounds nor would they affect American Indian ability to practice traditional beliefs. This would result in a site-specific negligible long-term impact.

Ecosystem restoration: The national monument staff would work toward restoration of the existing ecosystem by eliminating or minimizing the impact of nonnative species, encouraging the growth of native species, and implementing controlled burns. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific, negligible, long-term impact.

Maintenance of natural viewsheds and soundscapes: The national monument staff would work to preserve these important features of the site for all to enjoy. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Nomination of eligible cultural resources for inclusion on the National Register of Historic Places: By nominating eligible cultural resources, the National Park Service emphasizes the importance of such resources and makes them a priority for preservation. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Interpretation of resources in a manner sensitive to the sacred nature of the site: The national monument staff would interpret the site to help visitors understand the connections between American Indians and Effigy Mounds. Access to the mounds would not be affected nor would groups' ability to practice their traditional beliefs. This would result in a site-specific negligible, long-term impact.

Actions proposed above should have an overall site specific, long-term, negligible, impact under the National Environmental Policy Act guidelines.

Cumulative Effects: As lands have been developed in the Iowa, Minnesota, and Wisconsin region, and mounds have been lost to development and farming activities or become inaccessible as private property, access to sites of ethnographic significance to American Indians has diminished. Remaining are Effigy Mounds National Monument, state and local parks, and Indian reservations. This has greatly impacted both American Indian access to tradition sites and their ability to practice traditional beliefs. Implementation of this alternative would not add to the overall cumulative impact of the loss of access and inability to practice traditional beliefs within the region.

Conclusion: No actions described in alternative C would result in loss of access or loss of the ability to practice traditional beliefs at Effigy Mounds National Monument. The overall impact is negligible and would not contribute to the overall cumulative effect within the region.

MUSEUM COLLECTIONS

Museum collections (prehistoric and historic objects, artifacts, works of art, archival documents, manuscripts, and natural history specimens) are generally ineligible for inclusion in the National Register of Historic Places. As such, Section 106 determinations of effect are not provided. However, such collections may be threatened by fire, theft, vandalism, natural disasters, and careless acts. The preservation of museum collections is an ongoing process of preventive conservation, supplemented by conservation treatment when necessary. The primary goal is preservation of artifacts in as stable condition as possible to prevent damage and to minimize deterioration. For purposes of analyzing potential impacts, the thresholds of change for the intensity of an impact to museum

collections used in this general management plan are defined as follows:

- **Negligible** – The effect would be at the lowest level of detection: barely measurable, with no perceptible consequences, either adverse or beneficial, to museum collections.
- **Minor Adverse Effect:** The actions would affect the integrity of few items in the museum collection but would not degrade the usefulness of the collection for future research and interpretation.
- **Minor Beneficial Effect:** The action would stabilize the current condition of the collection or its constituent components to minimize degradation.
- **Moderate Adverse Effect:** The actions would affect the integrity of many items in the museum collection and diminish the usefulness of the collection for future research and interpretation.
- **Moderate Beneficial Effect:** The actions would improve the condition of the collection or its constituent parts from the threat of degradation.
- **Major Adverse Effect:** The actions would affect the integrity of most items in the museum collection and destroy the usefulness of the collection for future research and interpretation.
- **Major Beneficial Effect:** The actions would secure the condition of the collection as a whole or its constituent components from the threat of further degradation.

Impacts from Implementing Alternative A – No-action

In alternative A, collections would remain in the lower level of the visitor. Although minimally meeting NPS museum storage standards, there is little space for collections research. The national monument does not have a curator and cannot accommodate visiting researchers. Because museum display conditions are outdated, only items not affected by a lack of light and temperature

controls can be exhibited in the visitor center. There would be a negligible impact on the museum collections.

Cumulative Effects: Numerous museums with archeological and archival collections exist throughout the upper Midwest as a result of excavations by universities, historical societies, and individuals over the last approximately 150 years. Collections at the University of Northern Iowa, the University of Wisconsin, the University of Iowa, the Iowa Historical Society, and the Wisconsin State Historical Society are extensive. The collections within the national monument make up a small but significant portion of the whole body of knowledge of the moundbuilder culture. Because they contain some of the earliest systematic work undertaken, they have a particular importance to the history of archeology.

The national monument no longer undertakes research excavation into the mounds or other archeological resources. The collections would be expanded only through donation, through testing prior to development, or through excavations of sites inadvertently identified during construction work. This means that the collection is not expected to greatly increase in number of artifacts. The collection's importance, then, lies in its comparative value, that is, its existence for comparison of artifacts from other sites as a means of understanding the development of mound culture.

The no-action alternative would have no new impact on park or regional museum collections and therefore would not contribute to the effects of other actions occurring or proposed for such collections. There would be no impact on the usefulness of the collections for research purposes. Consequently, there would be no cumulative impacts to this topic under the no-action alternative.

Conclusion. Items in the collections would continue to be stored and maintained, minimally meeting NPS museum storage standards. Items on display would continue to

be limited to those that are not affected by the substandard conditions of the exhibit cases. Accessibility to the collection would remain limited. There would be no long-term overall impact on the preservation and usefulness of the collections.

Because there would be no major adverse effects on this resource, there would be no impairment or unacceptable impacts.

Impacts from Implementing Alternative B – the Preferred Alternative

Alternative B proposes development of a multi-purpose center on the site of current houses in the maintenance complex in the North Unit. At this location, the collections would be in a state-of-the-art facility with appropriate space for visiting scholars and researchers to utilize the collections. The new facility would have no effect on the preservation of the collections of the national monument, but a moderate beneficial impact on the usefulness of the collections.

Cumulative Effects: Other research facilities exist within the region for studying the archeological resources of the moundbuilders. However, this facility would allow scholars to study the artifacts in the collection as well as the historical records of early mound research pioneers. Where now the resources of the park are virtually inaccessible due to lack of staff and appropriate workspace, this new facility would allow the collection to be available for legitimate research. Development of this facility would add greatly to the overall ability of students and professional archeologists to study moundbuilder culture.

Preservation of the national monument collections meets all NPS standards presently. This will not change once the collections have been moved to the new facility. The benefit will be to the study of the collections rather than the preservation of the collections. As a result, alternative B would have no new impact on park or regional museum collections and therefore would not contribute to the effects of other actions occurring or proposed for such collections.

There would however, be a moderate beneficial impact on the usefulness of the collections for research purposes. The overall effect would be long term, moderate, and beneficial.

Conclusion. Alternative B would continue to be a generally beneficial program of collections preservation. Accessibility of the collection would be greatly expanded. The impact on the preservation of the collections and their usefulness long term would be moderate and beneficial.

Because there would be no major adverse effects on this resource, there would be no impairment or unacceptable impacts.

Impacts of Implementing Alternative C

In alternative C, the collection remains in its current location in the lower level of the visitor center. Although maintained to National Park Service standards, the facility does not have adequate workspace for curation or use of the collections by visiting scholars. This would not change in alternative C. There would be no impact on the collections from the decision to leave them in their current location. There would be no impact on a researcher's ability to utilize the collection for research.

Cumulative Effects: Alternative C would have no new impact on park or regional museum collections and therefore would not contribute to the effect of other actions occurring or proposed for such collections. There would be no impact on the usefulness of the collections for research purposes. Consequently, there would be no cumulative impacts to this topic under this alternative.

Conclusion. Alternative C would continue to be a generally beneficial program of collections preservation. Accessibility of the collection would continue to be limited. There would be no long-term impact on the preservation of the collections and their usefulness.

Because there would be no major adverse effects on this resource, there would be no impairment or unacceptable impacts.

NATURAL RESOURCES – GENERAL

Analysis of natural resources was based on research, knowledge of monument resources, and the best professional judgment of planners, biologists, hydrologists, and botanists who have experience with similar types of projects. Information on natural resources was gathered from several sources, including the USFWS and site-specific resource inventories for wetlands, water quality, wildlife, fisheries, and vegetation. As appropriate, additional sources of data are identified under each topic heading.

Where possible, map locations of sensitive resources were compared with the locations of proposed developments and modifications. Predictions about short-term and long-term site impacts were based on previous experience with visitor and facilities development impacts on natural resources.

The definitions below assume that mitigation would be implemented. For this document, the planning team qualitatively evaluated the impact intensity for natural resources using specific methodology and threshold definitions.

SOILS

Predictions about site impacts were based on knowledge of impact on soils from development of visitor and operations facilities under similar circumstances. Short-term impacts are those expected to last one year or less while long-term impacts would last longer than one year. The following categories were used to evaluate the potential impacts on soils:

- **Negligible** — The impact on soils would be slight and largely unnoticeable. Any effects on productivity or erosion potential would not be measurable.
- **Minor** — An action would change a soil's profile in a relatively small area, but it would not appreciably increase the potential for erosion of additional soil.
- **Moderate** — An action would result in a change in quantity or alteration of the topsoil, overall biological productivity, or the potential for erosion to remove small quantities of additional soil. Changes to localized ecological processes would be of limited extent.
- **Major** — An action would result in a change in the potential for erosion to remove large quantities of additional soil or in alterations to topsoil and overall biological productivity in a relatively large area. Key ecological processes would be altered, and landscape-level changes would be expected.

Impacts from Implementing Alternative A – No-action

Minimal impacts on soil resources would be expected as a result of implementing alternative A. Actions include construction of a boardwalk spur to the mound group south of the visitor center and a connecting trail from the existing bridge into the South Unit. Short-term impacts (during construction) would be minor and adverse from disruption and possible loss of topsoil. Long-term impacts from these trails are anticipated to be negligible and adverse. Existing adverse impacts to soils under the trails such as compaction and erosion would continue.

Cumulative Effects. Actions affecting soil resources that have occurred or will occur include agricultural and residential development on adjacent lands and construction of infrastructure such as utility lines and roadways.

Farming, ranching, and logging have occurred historically around and in the units of the monument before it was established. The only place this did not occur was where the topography was so rough that it prevented efficient agricultural or timber operations. These activities have adversely impacted the

soils to varying degrees by affecting compaction, displacement, erodibility, and nutrient content.

Impacts on soils have also occurred in the national monument. Construction of service and public roads, structures, trails, and other developments in the monument have disturbed soils and affected productivity of the land. Impacts from existing roads and developments in the monument would remain. Resource management activities such as prescribed burning affect soil by direct heating and increasing the potential for erosion after burning until revegetation occurs. Prescribed burns would not be allowed to get hot enough to sterilize the soil. Impacts from existing roads and developments in the monument would remain as no removal is prescribed in the no-action alternative.

The no-action alternative would have a slight contribution to these effects, and when considered in combination with the above minor to moderate adverse impacts on soil resources, would result in a minor adverse cumulative impact.

Conclusion. If implemented, alternative A would have short-term minor adverse impacts and long-term negligible adverse impacts to soil resources in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

Impacts from Implementing Alternative B – the Preferred Alternative

Alternative B would result in a change in the level of development at the monument. The proposed multi-purpose center would be constructed where the housing units are now. Because this would be on previously disturbed ground, there would be no new impacts to soil resources as a result of this action. Mitigating measures and NPS standard operating procedures would be employed to reduce soil

loss and other adverse effects during removal of the houses and construction of the center.

An accessible trail would be constructed at Sny Magill according to a site development plan to be prepared after completion of this general management plan. This trail would most likely be on or near the alignment of the existing trail, so short-term adverse impacts would be negligible, caused by soil disturbance and possible loss by wind and water erosion during construction. By moving visitors off the ground and onto the trail, impacts to soft, wet soil would be alleviated, so long-term impacts to soils would be beneficial and negligible. The proposed visitor contact station would be built on disturbed ground on acquired land and would have no new effect on soils.

Actions proposed in this alternative also include construction of visitor trails in the Heritage Addition and the South Unit. An access trail to get visitors and monument operations into the Heritage Addition would be constructed according to a visitor access/trail development plan. Additional trails would be established on old logging roads. A boardwalk spur from the existing boardwalk to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit would be constructed. Impacts to soils would include removal or displacement of topsoil during construction and changes to erosion potential. These short-term impacts would be minor and adverse. Long-term impacts from these trails would include soil compaction and possible erosion, and are anticipated to be negligible and adverse.

Cumulative Effects. Actions affecting soil resources that have occurred or will occur include agricultural and residential development on adjacent lands and construction of infrastructure such as utility lines and roadways.

Farming, ranching, and logging have occurred historically around and in the units of the monument before it was established. The only place this did not occur was where the

topography was so rough that it prevented efficient agricultural or timber operations. These activities have adversely impacted soils to varying degrees by affecting characteristics such as compaction, displacement, erodibility, and nutrient content.

Impacts on soils have also occurred in the national monument. Construction of service and public roads, structures, trails, and other developments in the monument have disturbed soils and have affected productivity of the land. Impacts from existing roads and developments in the monument would remain. Resource management activities such as prescribed burning affect soil by direct heating and increasing the potential for erosion after burning until revegetation occurs. Properly conducted prescribed burns would not be allowed to get hot enough to sterilize the soil.

The preferred alternative would have a modest contribution to these effects and, when considered in combination with the above minor to moderate adverse impacts on soil resources, would result in a minor adverse cumulative impact.

Conclusion. Alternative B would have short-term, minor, adverse impacts and long-term, negligible, adverse impacts to soil resources in the monument. It would result in a minor, adverse, cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

Impacts from Implementing Alternative C

Minimal impacts on soil resources would be expected as a result of implementing alternative C. Actions would be to construct a boardwalk spur to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit. Short-term impacts would be minor and adverse from disruption and possible loss of topsoil during construction. Long-term impacts from these trails would include soil compaction and

possible erosion and are anticipated to be negligible and adverse.

Cumulative Effects. Actions affecting soil resources that have occurred or will occur include agricultural and residential development on adjacent lands and the construction of infrastructure such as utility lines and roadways.

Farming, ranching, and logging have occurred historically around and in the units of the monument before it was established. The only place this did not occur was where the topography was so rough that it prevented efficient agricultural or timber operations. These activities have adversely impacted soils to varying degrees by affecting compaction, displacement, erodibility, and nutrient content.

Impacts on soils have also occurred in the national monument. Construction of service and public roads, structures, trails, and other developments in the monument have disturbed soils and have affected productivity of the land. Impacts from existing roads and developments in the monument would remain. Resource management activities such as prescribed burning affect soil by direct heating and increasing the potential for erosion after burning until revegetation occurs. Prescribed burns would not be allowed to get hot enough to sterilize the soil.

This alternative would have a slight contribution to these effects, and when considered in combination with the above minor to moderate adverse impacts on soil resources, would result in a minor adverse cumulative impact.

Conclusion. If implemented, alternative C would have short-term, minor, adverse impacts and long-term, minor, adverse impacts to soil resources in the monument. It would result in a minor, adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

WILD AND SCENIC RIVERS

Included in this general management plan is the assessment to determine if the Yellow River is eligible and suitable for inclusion in the National Wild and Scenic Rivers System (Appendix D). The National Park Service has found that the 3.5-mile segment of the Yellow River that flows through the monument is suitable and is recommending it for designation as a national wild and scenic river. Therefore, the river must be managed to prevent any change to the characteristics that make it suitable for wild and scenic river designation. The National Park Service compared the management actions for each alternative with the criteria identified in the Wild and Scenic Rivers Act and associated NPS policies to determine if the river's free-flowing character or identified outstandingly remarkable values would be affected.

Duration of Impact. A short-term impact would last less than 1 year following implementation of an action. A long-term impact would last longer than 1 year after implementing the action.

Intensity of Impact. The intensity or magnitude of impacts on wild and scenic river values have been described as negligible, minor, moderate, or major.

- **Negligible** — Impacts would have no discernable effect on wild and scenic river values.
- **Minor** — Impacts would be detectable and affect a limited area that meets wild and scenic river suitability.
- **Moderate** — Impacts would be sufficient to cause a change in the wild and scenic river values and they would be readily apparent.
- **Major** — Impacts would substantially alter the wild and scenic river values, eliminating the characteristics that meet the criteria for consideration as wilderness.

Type of Impact. Impacts were classified as adverse if they would adversely affect wild

and scenic river values or integrity. Conversely, impacts were classified as beneficial if they would enhance wild and scenic river values or integrity.

Impacts from Implementing Alternative A – No-action

The no-action alternative would not cause any changes to current situations affecting the wild and scenic river suitability characteristics of the Yellow River. Existing conditions and influences on the outstandingly remarkable values identified for the river would continue as they are now.

There would be no new development or change in existing development in the river corridor under this alternative; therefore, there would be no effect.

Cumulative Effects. Agriculture, residential development, and commercial land uses in the Yellow River watershed have removed water, disrupted natural runoff, disturbed natural precipitation percolation, and adversely affected water quality. The river is listed on Iowa's impaired waters list for high levels of fecal coliform bacteria, possibly from upstream concentrated animal feeding operations.

Three bridges have been built over the Yellow River near its mouth – one pedestrian bridge in the monument and a highway bridge and railroad bridge outside the monument. The National Park Service currently has no control or jurisdiction over the Yellow River outside the monument. If the river were to be designated, the National Park Service would review project proposals to determine if there would be any impacts to Wild and Scenic River values.

These actions have resulted in minor adverse impacts on the Yellow River. This alternative would not contribute to these impacts and therefore would have no project-related cumulative effects.

Conclusion. Alternative A would have no effect on the Yellow River's Wild and Scenic River values. Because this alternative would

have no effect, there would be no project-related cumulative effects and no impairment of this resource.

Impacts from Implementing Alternative B – the Preferred Alternative

Actions proposed in alternative B that could affect the Yellow River revolve around providing public access to the Heritage Addition. Alternatives considered in a future access plan for this unit may include building a pedestrian bridge to span the Yellow River or a trail along highway 76 from the visitor center parking lot. It was determined that the bridge option could affect the scenic value of the river, one of the outstandingly remarkable values. However, it is unknown exactly where this bridge would be and what the final design would look like, so an analysis of impacts is impossible. Specific environmental impact analysis would be conducted during development of the access plan. Building the bridge may be precluded if it were found to be in conflict with protecting Wild and Scenic River values.

There would be no other development or change in existing development in the Yellow River corridor under this alternative. Therefore, there would be no effect on Wild and Scenic River values.

Cumulative Effects. Agriculture, residential development, and commercial land uses in the Yellow River watershed have removed water, disrupted natural runoff, disturbed natural precipitation percolation, and adversely affected water quality. The river is listed on Iowa's impaired waters list for high levels of fecal coliform bacteria, possibly from upstream contained animal feeding operations.

Three bridges have been built over the river near its mouth—one pedestrian bridge in the monument and a highway bridge and railroad bridge outside the monument. The National Park Service currently has no control or jurisdiction over the Yellow River outside the monument. If the river were to be designated, the Park Service would review project

proposals to determine if there would be any impacts to Wild and Scenic River values.

These actions have resulted in minor adverse impacts on the Yellow River. This alternative would not contribute to these impacts and therefore would have no project-related cumulative effects.

Conclusion. The preferred alternative would have no effect on the Yellow River's Wild and Scenic River values and suitability. Because this alternative would have no effect, there would be no project-related cumulative effects and no impairment of this resource.

Impacts from Implementing Alternative C

This alternative would not result in any changes to current situations affecting the Wild and Scenic River suitability characteristics of the Yellow River. Existing conditions and influences on the outstandingly remarkable values identified for the river would continue as they are now.

There would be no new development or change in existing development in the river corridor under this alternative; therefore, there would be no effect.

Cumulative Effects. Agriculture, residential development, and commercial land uses in the Yellow River watershed have removed water, disrupted natural runoff, disturbed natural precipitation percolation, and adversely affected water quality. The river is listed on Iowa's impaired waters list for high levels of fecal coliform bacteria, possibly from upstream contained animal feeding operations.

Three bridges have been built over the river near its mouth—one pedestrian bridge in the monument and a highway bridge and railroad bridge outside the monument. The National Park Service currently has no control or jurisdiction over the Yellow River outside the monument. If the river were to be designated, the Park Service would review project proposals to determine if there would be any impacts to Wild and Scenic River values.

These actions have resulted in minor adverse impacts on the Yellow River. This alternative would not contribute to these impacts and therefore would have no project-related cumulative effects.

Conclusion. Alternative C would have no effect on the Yellow River's Wild and Scenic River suitability. Because this alternative would have no effect, there would be no project-related cumulative effects and no impairment of this resource.

VEGETATION

Impacts were assessed qualitatively. Information was gleaned from general documents such as the monument's resource management plan, and results of site-specific surveys. Predictions about impacts were based on previous experience with development impacts on natural resources.

- **Negligible** — The impact on vegetation (individuals and/or communities) would be at such a low intensity that it would not be measurable. The abundance or distribution of individuals would be only slightly affected. Ecological processes and biological productivity would not be affected.
- **Minor** — An action would not necessarily decrease or increase the area's overall biological productivity. An action would affect the abundance or distribution of individuals in a localized area but would not affect the viability of local or regional populations or communities.
- **Moderate** — An action would result in a change in overall biological productivity in a small area. An action would affect a local population sufficiently to cause a change in abundance or distribution, but it would not affect the viability of the regional population or communities. Changes to ecological processes would be of limited extent.
- **Major** — An action would result in overall biological productivity in a relatively large

area. An action would affect a regional or local population of a species sufficiently to cause a change in abundance or in distribution to the extent that the population or communities would not be likely to return to its/their former level (adverse), or would return to a sustainable level (beneficial). Key ecological processes would be altered.

Impacts from Implementing Alternative A—No Action

Minimal impacts on vegetation would be expected as a result of implementing alternative A. Actions would be to construct a boardwalk spur to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit. Construction of 1 mile of trails would cause a loss of about 1 acre of vegetation. Short-term impacts (during construction and until revegetation occurs) would be minor and adverse. Long-term impacts from these trails are anticipated to be negligible and adverse and include a slight permanent loss of vegetation and possible increase in the spread of exotic plants.

Cumulative Effects. Actions affecting vegetation that have occurred or will occur include agricultural and residential development on adjacent lands and construction of infrastructure such as utility lines and roadways.

Farming, ranching, and logging have occurred historically around and in the units of the monument before it was established. The only place this did not occur was where the topography was so rough it prevented efficient agricultural or timber operations. Much of the native forest in the area has been cut down for lumber or to clear land for planting crops. More than a century of fire suppression has also affected vegetation. These activities adversely impacted native vegetation communities by disrupting natural plant succession, replacing native vegetation with monotypic nonnative plants (crops), and introducing noxious weeds that out-compete

native vegetation for sunlight, moisture, and nutrients.

Impacts on vegetation also occurred in the national monument. Construction of service and public roads, structures, trails, and other developments in the monument removed vegetation. Impacts from existing roads and developments in the monument would remain. Resource management activities, such as prescribed burning, attempt to restore natural vegetative succession and increase plant diversity.

The no-action alternative would have a slight contribution to these effects and, when considered in combination with the above minor to moderate adverse impacts on vegetation, would result in a minor adverse cumulative impact.

Conclusion. Implementing alternative A would have short-term, minor, adverse impacts and long-term, negligible, adverse impacts to vegetation in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

Impacts from Implementing Alternative B – the Preferred Alternative

Alternative B would result in a change in the level of development at the monument that could affect vegetation. The proposed multi-purpose center would be constructed where the housing units are now. Because this would be on previously disturbed ground, there would be no new impacts to vegetation as a result of this action.

A trail or boardwalk would be constructed at Sny Magill according to a site development plan to be prepared. Construction of the trail would result in the loss of vegetation, but since this would most likely be on the alignment of the existing trail, short-term and long-term adverse impacts would be negligible. A small visitor contact station would be built on disturbed ground on

acquired land and would have no new effect on vegetation.

Actions proposed in this alternative also include construction of visitor trails in the Heritage Addition and the South Unit. An access trail to get visitors and monument operations into the Heritage Addition would be constructed according to a visitor access/trail development plan. Additional trails would be established on old logging roads. A boardwalk spur from the existing boardwalk to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit would be constructed. Impacts would include loss of vegetation in the construction corridors—about one acre total. Short-term impacts would be minor and adverse. Long-term impacts from these trails are anticipated to be negligible and adverse and include a slight permanent loss of vegetation and possible increase in the spread of exotic plants.

Cumulative Effects. Actions affecting vegetation that have occurred or will occur include agricultural and residential development on adjacent lands and the construction of infrastructure such as utility lines and roadways.

Farming, ranching, and logging have occurred historically around and in the units of the monument before it was established. The only place this did not occur was where the topography was so rough that it prevented efficient agricultural or timber operations. Much of the native forest in the area has been cut down at one time or another for lumber or to clear land for planting crops. More than a century of fire suppression has also affected vegetation. These activities have adversely impacted native vegetation communities by disrupting natural plant succession, replacing native vegetation with unnatural monotypic plants (crops), and introducing noxious weeds that out-compete native vegetation for sunlight, moisture, and nutrients.

Impacts on vegetation have also occurred in the national monument. Construction of service and public roads, structures, trails, and

other developments in the monument have removed vegetation. Impacts from existing roads and developments in the monument would remain. Resource management activities, such as prescribed burning, attempt to restore natural vegetative succession and increase plant diversity.

Alternative B would have a modest contribution to these effects and, when considered in combination with the above minor to moderate adverse impacts on vegetation, would result in a minor adverse cumulative impact.

Conclusion. Implementing the preferred alternative would have short-term, minor, adverse impacts and long-term, negligible, adverse impacts to vegetation in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

Impacts from Implementing Alternative C

Alternative C would result in a small change in the level of development at the monument.

This alternative would include construction of a boardwalk spur to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit. Short-term impacts would be minor and adverse. Long-term impacts from these trails are anticipated to be negligible and adverse and include a slight permanent loss of vegetation and possible increase in the spread of exotic plants.

Cumulative Effects. Actions affecting vegetation that have occurred or will occur include agricultural and residential development on adjacent lands and construction of infrastructure such as utility lines and roadways.

Farming, ranching, and logging have occurred historically around and in the units of the monument before it was established. The only place this did not occur was where the

topography was so rough that it prevented efficient agricultural or timber operations. Much of the native forest in the area has been cut down at one time or another for lumber or to clear land for planting crops. Over a century of fire suppression has also affected vegetation. These activities have adversely impacted native vegetation communities by disrupting natural plant succession, replacement with monotypic nonnative vegetation communities by disrupting natural plant succession, replacing native vegetation with monotypic nonnative plants (crops), and introducing noxious weeds that out-compete native vegetation for sunlight, moisture, and nutrients.

Impacts on vegetation have also occurred in the national monument. Construction of service and public roads, structures, trails, and other developments in the monument have removed vegetation. Impacts from existing roads and developments in the monument would remain. Resource management activities, such as prescribed burning, attempt to restore natural vegetative succession and increase plant diversity.

Alternative C would have a modest contribution to these effects and, when considered in combination with the above minor to moderate adverse impacts on vegetation, would result in a minor adverse cumulative impact.

Conclusion. Implementing alternative C would have short-term and long-term, minor, adverse impacts to vegetation in the monument. It would result in a minor, adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

FISH AND WILDLIFE

Impacts on fish and wildlife are closely related to impacts on habitat. The analysis considered whether actions would be likely to displace some or all individuals of a species in the

monument or would result in loss or creation of habitat conditions needed for the viability of local or regional populations. Impacts associated with fish and wildlife might include any change in habitat quality or quantity, food supply, protective cover, or distribution or abundance of species.

Short-term impacts are those expected to last during construction and for one year or less—allowing for vegetation recovery and for wildlife to become accustomed to the new structure. Long-term impacts would last longer than one year.

- **Negligible** — The impact would not be measurable on individuals, and the local populations would not be affected.
- **Minor** — An action would affect the abundance or distribution of individuals in a localized area but would not affect the viability of local or regional populations.
- **Moderate** — An action would affect a local population sufficiently to cause a minor change in abundance or distribution but would not affect the viability of the regional population.
- **Major** — An action would affect a regional or local population of a species sufficiently to cause a change in abundance or in distribution to the extent that the population would not be likely to return to its former level (adverse), or would return to a sustainable level (beneficial).

Impacts from Implementing Alternative A – No Action

There would be no changes in management of fish, wildlife, or habitat in the monument.

A boardwalk spur from the existing boardwalk to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit would be constructed. Impacts would include loss of habitat in the construction corridors—about 1 acre total. Short-term impacts to wildlife would be minor and adverse during construction from the increased human

presence and noise resulting in displacement of individuals. Long-term impacts are anticipated to be negligible and adverse from fear and avoidance reactions to human use of the trails.

Cumulative Effects. Regional wildlife populations have been affected by human activities such as agricultural, commercial, and residential land uses and the introduction of nonnative species. There have been minor to moderate adverse impacts in the form of habitat loss or disruption associated with these activities.

Establishment of the national monument and acquisition of the Heritage Addition resulted in long-term beneficial impacts on wildlife by preserving these pieces of habitat and eliminating hunting. However, elimination of hunting is a reason being cited by locals for the recent unnatural increase in the white tail deer population. This high density of deer is causing some resource damage.

Spread of nonnative zebra mussels into the Mississippi River and its tributaries results in disruption of natural lake and river ecosystems.

The no-action alternative would contribute a slight adverse increment to these effects and, when considered in combination with the above minor to moderate adverse impacts on fish and wildlife, would result in a minor, adverse cumulative impact to fish and wildlife resources.

Conclusion. Implementing alternative A would have short-term minor adverse impacts and long-term negligible adverse impacts to fish and wildlife in the monument. It would result in a minor adverse cumulative impact. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

Impacts from Implementing Alternative B – the Preferred Alternative

Some small adverse impacts on habitat would be expected as a result of implementing the preferred alternative. The proposed multi-purpose center would be constructed where the housing units are now. Short-term, minor, adverse impacts to wildlife could occur because of the increased noise and human activity during demolition and construction. Because this would be in an area that offers little value as wildlife habitat, there would be no long-term impacts as a result of this action.

A trail or boardwalk would be constructed at Sny Magill according to a site development plan that would be prepared for this unit. Short-term, minor, adverse impacts in the form of wildlife fear and avoidance reactions would occur during the construction phase. Long-term adverse impacts would be negligible because the trail would most likely be built near the existing trail and would be low enough that animals would have no trouble crossing it. The visitor contact station would be built on disturbed ground on acquired land and have no effect on habitat.

Construction of visitor trails would also occur in the Heritage Addition and the South Unit. An access trail to get visitors and monument operations into the Heritage Addition would be constructed. Additional trails would be established on old logging roads. A boardwalk spur from the existing boardwalk to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit would be constructed. Impacts would include loss of habitat in the construction corridors—about 1 acre total. Short-term impacts to wildlife would be minor and adverse during construction from the increased human presence and noise. Long-term impacts from these trails, such as disturbance from trail users, are anticipated to be negligible and adverse.

Cumulative Effects. Regional wildlife populations have been affected by human activities such as agricultural, commercial, and residential lands uses and the introduction of

nonnative species. Quality habitat available for wildlife has been increasingly restricted and fragmented. Hunting and the extirpation of natural predators have adversely affected population structure and dynamics of game species. There have been direct and indirect, minor to moderate, adverse impacts associated with these conditions.

Establishment of the national monument and acquisition of the Heritage Addition have resulted in long-term beneficial impacts on wildlife by preserving these pieces of habitat and eliminating hunting. However, elimination of hunting is a reason being cited by locals for the recent unnatural increase in the white-tail deer population. This high density of deer is causing some resource damage.

The spread of nonnative zebra mussels into the Mississippi River and its tributaries results in disruption of natural lake and river ecosystems.

Alternative B would provide a small adverse contribution to these effects and, when considered in combination with the above minor to moderate adverse impacts, would result in a minor adverse cumulative impact to fish and wildlife resources.

Conclusion. Implementing the preferred alternative would result in short-term, minor, adverse impacts and long-term, negligible, adverse impacts to fish and wildlife. Cumulative effects would be minor and adverse. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

Impacts of Implementing Alternative C

Alternative C would result in a small change in the level of development at the monument. This alternative would also include construction of a boardwalk spur to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit. Impacts would include loss of habitat in the construction corridors—about

one acre total. Short-term impacts to wildlife would be minor and adverse during construction. Long-term impacts, such as disturbance from trail users, are anticipated to be negligible and adverse.

Cumulative Effects. Regional wildlife populations have been affected by human activities such as agricultural, commercial, and residential land uses and the introduction of nonnative species. Quality habitat available for wildlife has been increasingly restricted and fragmented. Hunting and the extirpation of natural predators have adversely affected population structure and dynamics of game species. There have been direct and indirect, minor to moderate, adverse impacts associated with these conditions.

Establishment of the national monument and acquisition of the Heritage Addition resulted in long-term beneficial impacts on wildlife by preserving these pieces of habitat and eliminating hunting. However, elimination of hunting is a reason being cited by locals for the recent unnatural increase in the white-tail deer population. This high density of deer is causing some resource damage.

Spread of nonnative zebra mussels into the Mississippi River and its tributaries results in disruption of natural lake and river ecosystems.

Alternative C would have a slight adverse contribution to these effects and, when considered in combination with the above minor to moderate adverse impacts on fish and wildlife, would result in a minor adverse cumulative impact to fish and wildlife resources.

Conclusion. Implementing alternative C would result in short-term, minor, adverse impacts and long-term, negligible, adverse impacts to fish and wildlife. Cumulative effects would be minor and adverse. Because there would be no moderate or major adverse impacts, there would be no impairment of this resource or unacceptable impacts as a result of implementing this alternative.

SPECIAL STATUS SPECIES

Through coordination with the U.S. Fish and Wildlife Service and the Iowa Department of Natural Resources, listed species were identified that may be located in or near the monument. Information on each species, including their preferred habitat, prey, and foraging areas was gathered. Park staff then collected more specific information such as the absence or presence of each species within the monument boundaries. Short-term impacts would last one year or less; long-term impacts would occur for more than one year. For special status species, the following impact intensities were used. These definitions are consistent with the language used to determine effects on threatened and endangered species under section 7 of the Endangered Species Act.

- **No effect** — The action would have no effect on the special status species or critical habitat.
- **Negligible** — The action could result in a change to a population or individuals of a species or designated critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence and would be within natural variability. This impact intensity equates to a U.S. Fish and Wildlife Service “may affect, not likely to adversely affect” determination.
- **Minor** — The action could result in a change to a population or individuals of a species or designated critical habitat. The change would be measurable, but would be small and localized. This impact intensity equates to a U.S. Fish and Wildlife Service “may affect, not likely to adversely affect” determination.
- **Moderate** — The action could result in a detectable change to a population or individuals of a species or designated critical habitat. Changes to the population or habitat might deviate from natural variability but the changes would not threaten the continued existence of the species in the park. This impact intensity

equates to a U.S. Fish and Wildlife Service “may affect, not likely to adversely affect” or a “likely to adversely affect” determination.

- **Major** — The action would result in a noticeable effect on the viability of a population or individuals of a species or designated critical habitat. Changes to the population or habitat would substantially deviate from natural variability and either threaten or help ensure the continued existence of the species in the park. A major adverse impact would be considered a “take” situation and would equate to a U.S. Fish and Wildlife Service “likely to adversely affect” determination.

“Not likely to adversely affect” is the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

Short-term impacts are those expected to last during construction and typically up to one year—allowing for vegetation recovery and for wildlife to become accustomed to the new structure. Long-term impacts would last longer than one year.

Impacts from Implementing Alternative A – No Action

This alternative would continue current management of the national monument with no changes in wildlife or habitat management.

The trail construction proposed in this alternative would not occur in habitat that is known to be used by any of the special status species. As part of standard mitigation, a complete clearance of project areas would be conducted by qualified personnel prior to any

construction to ensure that no special status species would be harmed.

Therefore, there would be no effect on the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species.

Cumulative Effects. Habitat loss or disruption is the most common reason for a terrestrial species to become threatened or endangered. Loss or fragmentation of habitat has occurred in the region as a result of commercial and residential development, road construction, and agriculture. Incremental development continues to adversely affect the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter, and reproduction sites. Wildlife is slowly becoming more restricted by current land uses, increasing development, and human activity, causing individuals and populations to either adapt or move. This trend is anticipated to continue.

The Iowa Pleistocene snail has such stringent habitat criteria that it is especially susceptible to habitat disturbance. Although the snail has not been found on the monument, specific habitat conditions exist for its survival and these are now protected by the National Park Service.

General threats in the Driftless Area include the spraying of 2,4,5-T, a defoliant. This spraying is being done to convert forest and brush land into pasture for livestock. Necessary habitat components for some species may be removed.

Establishment of the national monument and acquisition of the Heritage Addition resulted in long-term beneficial impacts on plants and animals by preserving these pieces of habitat.

Because this alternative would not contribute to the impacts of other past, present, or foreseeable future actions, there would be no project-related cumulative impacts on federally listed or other special status species.

Conclusion. The no-action alternative would have no effect on the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species. There would be no project-related cumulative effects on federally listed or other special status species. No impairment of these species or unacceptable impacts would result from implementing this alternative.

Impacts from Implementing Alternative B – the Preferred Alternative

Although there would be some changes in the development footprint under this alternative, they would not occur in known habitat for any of the listed animal species. As part of standard mitigating measures, a complete clearance of project areas would be conducted by qualified personnel prior to any construction to ensure that no special status species would be harmed.

This alternative recommends designation of the Yellow River as a national Wild and Scenic River. This designation would protect and preserve its free-flowing nature and habitat qualities in perpetuity, resulting in long-term beneficial impacts to aquatic special status species such as the Higgins Eye pearly mussel.

Therefore, this alternative may affect, but is not likely to adversely affect, the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species.

Cumulative Effects. Habitat loss or disruption is the most common reason for a terrestrial species to become threatened or endangered. Loss or fragmentation of habitat has occurred in the region as a result of commercial and residential development, road construction, and agriculture. Incremental development continues to adversely affect the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter, and reproduction sites. Wildlife is slowly becoming more restricted by current land

uses, increasing development, and human activity, causing individuals and populations to either adapt or move. This trend is anticipated to continue.

General threats in the Driftless Area include the spraying of 2,4,5-T, a defoliant. This spraying is being done to convert forest and brush land into pasture for livestock. Necessary habitat components for some species may be removed by this practice.

The Iowa Pleistocene snail has such stringent habitat criteria that it is especially susceptible to habitat disturbance. Although the snail has not been found on the monument, specific habitat conditions exist for its survival and these are now protected by the National Park Service.

Establishment of the national monument and acquisition of the Heritage Addition resulted in long-term beneficial impacts on plants and animals by preserving these pieces of habitat.

The impacts of other past, present, or foreseeable future actions are both beneficial and adverse, but the overall cumulative impacts are considered moderate and adverse. Alternative B would have a slight contribution to these effects that is both adverse and beneficial and, when considered in combination with the actions listed above, would result in a minor, adverse, cumulative impact on special status species.

Conclusion. If implemented, the preferred alternative may affect, but is not likely to adversely affect, the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species. There would be minor, adverse, cumulative effects on federally listed or other special status species. No impairment of these species or unacceptable impacts would result from implementing this alternative.

Impacts from Implementing Alternative C

Although there would be some changes in the development footprint under this alternative,

they would not occur in known habitat for the listed animal species.

This alternative recommends designation of the Yellow River as a national Wild and Scenic River. This designation would protect and preserve its free-flowing nature and habitat qualities in perpetuity, resulting in long-term beneficial impacts to aquatic special status species such as the pearly mussel.

Therefore, this alternative would not be likely to adversely affect the prairie bush clover and the Higgins eye pearly mussel. It would have no effect on the Iowa Pleistocene snail, western prairie fringed orchid, northern monkshood, or state-listed species.

Cumulative Effects. Habitat loss or disruption is the most common reason for a terrestrial species to become threatened or endangered. Loss or fragmentation of habitat has occurred in the region as a result of commercial and residential development, road construction, and agriculture. Incremental development continues to adversely affect the abundance and diversity of wildlife by changing the capacity of habitats to provide necessary food, shelter, and reproduction sites. Wildlife is slowly becoming more restricted by current land uses, increasing development, and human activity, causing individuals and populations to either adapt or move. This trend is anticipated to continue.

The Iowa Pleistocene snail has such stringent habitat criteria that it is especially susceptible to habitat disturbance. Although the snail has not been found on the monument, specific habitat conditions exist for its survival and these are now protected by the National Park Service.

General threats in the Driftless Area include the spraying of 2,4,5-T, a defoliant. This spraying is being done to convert forest and brush land into pasture for livestock. Necessary habitat components for some species may be removed.

Establishment of the national monument and acquisition of the Heritage Addition resulted

in long-term beneficial impacts on plants and animals by preserving these pieces of habitat.

The impacts of other past, present, or foreseeable future actions are both beneficial and adverse, but the overall cumulative impacts are considered moderate and adverse.

Alternative C would have a slight contribution to these effects that would be both adverse and beneficial and, when considered in combination with the actions listed above, would result in a minor, adverse, cumulative impact on special status species.

Conclusion. Alternative C may affect, but is not likely to adversely affect, the federally listed Higgins eye pearly mussel, Iowa Pleistocene snail, prairie bush clover, western prairie fringed orchid, northern monkshood, or state-listed species. There would be minor, adverse, cumulative effects on federally listed or other special status species. No impairment of these species or unacceptable impacts would result from implementing this alternative.

VISUAL RESOURCES/VIEWSHEDS

The impact intensity of a development on a viewshed depends on the type of development, its location, and what mitigation is applied. For example, a development in the foreground of a viewshed has a much larger impact than the same development located 3 miles away. Mitigation could involve unobtrusive design or colors. All three factors are evaluated together to determine the level of impact a proposed development would have.

For the purposes of this analysis, a *viewshed* is defined as the landscape seen from key observation points identified in the “Affected Environment” chapter of this plan. The *foreground* is defined as that part of the viewshed from the observation point to the first horizon/line of sight (e.g., a ridge top) or a line 2 miles away, whichever is closer. The *middle ground* is defined as that part of the viewshed 2 to 5 miles from the observation

point. The *background* is everything more than 5 miles from the observation point.

Assessments of potential impacts on viewsheds were based on comparisons between the no-action alternative and the action alternatives. Short-term impacts would last less than one year; long-term impacts would occur for one year or more. The following intensity definitions were used.

- **Negligible** — The action would not detract from existing natural views; proposed development in the foreground, middle ground, or background would be essentially unnoticeable.
- **Minor** — The action would be noticeable to some observers but would not detract from natural views. There could be small changes to existing form, line, texture, or color in the background.
- **Moderate** — The action would be noticeable to most observers and may detract from natural views in a limited portion of a viewshed. There could be modest changes to existing form, line, texture, or color in the middle ground or background.
- **Major** — The action would be immediately noticeable and would detract from the natural setting in most of a viewshed. It would result in large changes to existing form, line, texture, or color in the foreground, middle ground, or background, or portions of the natural viewscape would be obstructed.

Impacts from Implementing Alternative A—No-action

Under the no-action alternative, there would be minimal impacts on visual resources of the monument. The only action proposed that would affect scenic views is the construction of a boardwalk spur to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit. Impacts would be greatest during and immediately after construction as changes occur to the line, form, and texture of the

natural hillsides. Once vegetation regrows around the trail, these impacts would become less noticeable. Short-term impacts to the viewshed seen from near the visitor center or the boardwalk would be minor and adverse while long-term impacts would be negligible and adverse.

Cumulative Effects. Natural viewsheds enjoyed from the monument have been adversely affected by commercial and industrial development across the Mississippi River in Prairie du Chien, Wisconsin, where reflective surfaces (roofs, etc.) detract from the view. Rock and gravel mining operations also affect views from the North Unit and the approach to the Sny Magill Unit. These actions have resulted in long-term minor to moderate adverse impacts.

The agricultural practice of clearing off trees and brush from ridgetops to plant crops also affects viewsheds, but this may approximate the look of natural prairies and meadows that once occurred in the area and so may have no effect.

Establishment of the monument, Yellow River State Forest, and Pikes Peak State Park has served to create havens of non-development that will become increasingly important as rural development continues to expand so they have a long-term beneficial effect.

The no-action alternative would have a slight adverse contribution to these effects and, when considered in combination with the above minor adverse impacts on visual resources, would result in a minor adverse cumulative impact.

Conclusion. The no-action alternative, if implemented, would have a short-term minor adverse impact and a long-term negligible adverse impact on visual resources in the monument. Cumulative effects would be minor and adverse. Implementing this alternative would not result in impairment of this resource.

Impacts from Implementing Alternative B—the Preferred Alternative

Alternative B includes actions that would affect visual resources. Replacing the two park houses with the research/ administrative center would affect visual resources in the visitor center area by increasing the mass of structures. Two separate, relatively small structures would be replaced by one much larger structure. A design for the center has not been made, but would follow NPS design standards that emphasize using materials, colors, and design elements that blend in and do not detract from the natural scene. Because this would occur in a developed area and the mitigating measures listed in Chapter 2 would be used, impacts are anticipated to be long-term and adverse but minor.

Construction of visitor trails would occur in the Heritage Addition and the South Unit. An access trail to get visitors and monument operations into the Heritage Addition would be constructed. Additional trails would be established on old logging roads. A boardwalk spur from the existing boardwalk to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit would be constructed. Impacts would be greatest during and immediately after construction of these trails as changes occur to the line, form, and texture of the natural landscape. Once vegetation regrows around the trails, these impacts would become less noticeable. Short-term impacts to viewsheds would be minor and adverse while long-term impacts would be negligible and adverse because no more than one new trail could be seen from any observation point.

At the Sny Magill Unit, new development would include an accessible trail and a visitor contact structure. The trail would be of a low-profile design and most likely placed on top of the existing trail so the short-term and long-term impacts would be minor and adverse. The small visitor contact structure would be built on acquired land west of the unit and there would be long-term, negligible, adverse impacts expected to viewsheds from the unit.

Cumulative Effects. Natural viewsheds enjoyed from the monument have been adversely affected by commercial and industrial development across the Mississippi River in Prairie du Chien, Wisconsin, where reflective surfaces (roofs, etc.) detract from the view. Rock and gravel mining operations also affect views from the North Unit and the approach to the Sny Magill Unit. These actions have resulted in long-term minor to moderate adverse impacts.

The agricultural practice of clearing off trees and brush from ridge tops to plant crops also affects viewsheds, but this may approximate the look of natural prairies and meadows that once occurred in the area and so may have no effect.

Establishment of the monument, Yellow River State Forest, and Pikes Peak State Park has served to create havens of non-development that will become increasingly important as rural development continues to expand so they have a long-term beneficial effect.

Alternative B would have a modest adverse contribution to these effects and, when considered in combination with the above minor, adverse impacts on visual resources, would result in a minor, adverse, cumulative impact.

Conclusion. Implementing the preferred alternative would have short-term and long-term, minor, adverse impacts on visual resources in the monument. Cumulative effects would be minor and adverse. Implementing this alternative would not result in impairment of this resource.

Impacts from Implementing Alternative C

There would be small impacts on visual resources of the monument under alternative C.

An action proposed that would affect scenic views is the construction of a boardwalk spur to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit. Impacts would be greatest during and immediately after construction as changes

occur to the line, form, and texture of the natural hillsides. Once vegetation regrows around the trail, these impacts would become less noticeable. Short-term impacts to the viewshed seen from near the visitor center or the boardwalk would be minor and adverse while long-term impacts would be negligible and adverse.

Cumulative Effects. Natural viewsheds enjoyed from the monument have been adversely affected by commercial and industrial development across the Mississippi River in Prairie du Chien, Wisconsin, where reflective surfaces (roofs, etc.) detract from the view. Rock and gravel mining operations also affect views from the North Unit and the approach to the Sny Magill Unit. These actions have resulted in long-term, minor to moderate, adverse impacts.

The agricultural practice of clearing off trees and brush from ridgetops to plant crops also affects viewsheds, but this may approximate the look of natural prairies and meadows that once occurred in the area and so may have no effect.

Establishment of the monument, Yellow River State Forest, and Pikes Peak State Park has served to create havens of non-development that will become increasingly important as rural development continues to expand so they have a long-term beneficial effect.

Alternative C would have a slight adverse contribution to these effects and, when considered in combination with the above minor adverse impacts on visual resources, would result in a minor, adverse, cumulative impact.

Conclusion. Alternative C, if implemented, would have short-term and long-term, minor to moderate, adverse impacts on visual resources in the monument. Cumulative effects would be minor and adverse. Implementing this alternative would not result in impairment of this resource.

VISITOR USE AND EXPERIENCE

This impact analysis considers various aspects of visitor use and experience at Effigy Mounds National Monument, including visitors' ability to experience the park's primary resources and their natural and cultural settings (including vistas, natural sounds and smells, and wildlife); overall visitor access to the park; the freedom to experience the resources at one's own pace, visitor safety (both actual and perceived); opportunities for recreational activities; and opportunities for people with disabilities. The analysis is based on how visitor use and experiences would change with the way management prescriptions were applied in the alternatives. The analysis is primarily qualitative rather than quantitative due to the conceptual nature of the alternatives.

Impacts on visitor use and experience were determined considering the best available information regarding visitor use and experience.

Consultation with American Indian groups has revealed that these groups are concerned not only about the preservation of cultural resources and properties, but also about the need to interpret the sacredness of the area from an American Indian perspective.

For analysis purposes, impact duration, intensities, and types for visitor experience impact topics have been defined as follows:

Duration of Impact. A short-term impact would affect only one season's use by visitors. A long-term impact would last more than 1 year and would be more permanent in nature.

Intensity of Impact. Impacts were evaluated comparatively between alternatives, using the no-action alternative as a baseline for comparison with each action alternative:

- **Negligible** — Visitors would likely be unaware of any effects associated with implementation of the alternative.
- **Minor** — Changes in visitor use and/or experience would be slight but detectable, would affect few visitors, and would not

appreciably limit or enhance experiences identified as fundamental to the park's purpose and significance.

- **Moderate** — Some characteristics of visitor use and/or experience would change, and many visitors would likely be aware of the effects associated with implementation of the alternative; some changes to experiences identified as fundamental to the park's purpose and significance would be apparent.
- **Major** — Multiple characteristics of visitor experience would change, including experiences identified as fundamental to the park's purpose and significance; most visitors would be aware of the effects associated with implementation of the alternative.

Type of Impact. Adverse impacts are those that most visitors would perceive as undesirable. Beneficial impacts are those that most visitors would perceive as desirable.

Impacts from Implementing Alternative A – No Action

Visitor Experience and Interaction with Resources

Continuation of current management strategies and trends with no substantial change in visitor opportunities, services, and facilities would extend currently identified impacts on the visitor experience.

The current visitor center and adjacent parking area would be maintained and subsequent noise and activity may continue to adversely impact visitor experience in the developed area. Crowding in the visitor center due to intermittent heavy visitation and educational groups, especially in inclement weather, would continue to adversely impact some visitors to the area and its resources. As the visitor center is the primary venue for visitors to receive significant personal and nonpersonal interpretive services, this would likely affect other aspects of their visit as well. Additionally, visitor access in the visitor

center area would be enhanced with the completion of an accessible boardwalk to the Yellow River mounds.

Visitors to the Heritage Addition would experience this area mainly on their own with occasional ranger-led activities and canoeing being the primary activities to interact with the resources. Some visitors to this area may experience minor adverse impacts if they attempt to explore this area without obtaining adequate wayfinding and interpretive information at the visitor center or from a ranger prior to their visit.

Visitors to the North Unit would continue to find their visit enhanced with access to personal interpretive services and nonpersonal services, mainly at the visitor center, and interpretive wayside exhibits. However, some lack of access to personal services may degrade the visitor experience by causing visitor frustration over being unable to get adequate information and interpretation they need.

The opportunity to experience a quiet contemplative setting in the South Unit would continue to be valuable to many visitors, although others may find the lack of personal services to be a minor detriment.

Sny Magill would continue to be managed primarily for resource preservation and not for visitor convenience. The opportunity to experience the mounds in this relatively primitive setting, with few park-provided amenities, would continue to be an attraction for some visitors and a detriment for others.

Opportunities are offered at all units for many types of experiences—from social interactions in developed areas to solitude in natural settings and from brief visits in visitor contact stations to extended visits exploring the grounds and trails. Continuing to have this diversity of opportunities available would result in an on-going, moderate, long-term benefit to visitors seeking experiences that meet individual needs to fit time constraints, levels of interest, educational level, or physical ability.

Orientation and Information

Continuation of current practices would provide visitors the opportunity to visit these units, but primary orientation for all the units would continue to take place at the visitor center. If visitors miss or forgo the opportunity to experience the visitor center's multi-faceted interpretive opportunities and personal interactions, it could moderately affect their visit and subsequent desire to return again.

NPS staff in the visitor center provide quality orientation and information to visitors. However, some visitors tour the national historic site without going to the visitor center. Continuation of this situation creates a moderate beneficial long-term impact on those visitors who do go to the center and a minor to moderate adverse impact on visitors who do not go to the center. The impact is considered adverse because they do not receive the important interpretation and orientation to fully appreciate the historic site. Under this alternative, wayfinding signs would be maintained and installed where needed, which may allay some potential adverse impact on visitor experience.

Visitors to the South Unit would receive the majority of their information and interpretation through nonpersonal media including wayside exhibits and publications. Sny Magill visitors would also receive the majority of their orientation and interpretation at the visitor center prior to visiting this unit.

Interpretation and Education

Existing formal and informal interpretation and resource education at the visitor center and on ranger-led activities in the various units would continue a moderate beneficial impact on visitors to the site.

At the Heritage Addition, South Unit, and Sny Magill Unit, the low level of interpretive staffing, unmarked and unmaintained trails, and the absence of access provide minimal opportunities for self-guiding exploration and learning about key resources and stories at

these units. Continuation of these conditions would result in a long-term minor adverse impact on visitors to these units.

Safety

Safety information would continue to be available at the visitor center and on trail signs. Lack of potable water and public restrooms may continue to present safety issues to visitors in the isolated units. South Unit trail access in the current location adjacent to the highway would continue to place visitors who choose to use these trails at risk of an automobile/pedestrian collision. Visitors who choose not to walk the trail would not have access to high-quality landscapes and the section of this unit that best reflects the Moundbuilding Culture.

Cumulative Effects. The lack of wayfinding guidance for visitors approaching the park from the east has and would continue to confuse some visitors. Local chambers of commerce, museums, and other attractions offer some visitor information and interpretation related to Effigy Mounds.

Visitation trends would likely increase in the long-term. This could result in congestion at parking and activity sites. Some visitors might experience a sense of crowding, especially during scheduled special events and when educational groups are visiting. Increased visitation and time spent at the national monument would result in short-term, minor, adverse impacts during events; long-term, moderate, beneficial impacts would result by development of increased or renewed public interest in the mounds and related American Indian culture.

This alternative would not result in any new actions that would contribute to these effects and so would not have any cumulative effects.

Conclusion. Implementing the no-action alternative would result in the continuation of long-term minor to moderate adverse impacts and minor beneficial impacts to aspects of visitor use and experience but would not result in any new impacts. Because actions proposed in this alternative would have no

new effects on visitor use and experience, there would be no project-related cumulative impacts.

Impacts from Implementing Alternative B – The Preferred Alternative

Visitor Experience and Interaction with Resources

This alternative emphasizes enhanced visitor experience with greater understanding and protection of the area's cultural and natural resources. The construction of a regional research center would solidify the monument's pivotal role in mound research and management, greatly enhancing the interpretive division's ability to work more effectively with other divisions in revealing resource meanings and creating expanded opportunities for superior visitor experiences.

The visitor center and parking area would remain at their current location. The interior of the visitor center would be reconfigured to take advantage of the extra space vacated when administrative personnel move to offices in the new research center, providing additional space for modification of the exhibit, sales area, and visitor contact area. This would produce a moderately beneficial impact on visitor experience due to the reduction in crowding, especially from large educational groups, and enhanced visitor access to exhibits and interpretive personnel. Visitor experience would be further enhanced due to the greater depth of information and interpretive content afforded by the improved facilities and reconfigured exterior. Some short-term adverse impacts would occur to visitor experience during construction of the multi-purpose center.

Expanded visitor access to the mound groups, notably the groups at Sny Magill and above the Yellow River, with enhanced accessibility, would contribute to a greater diversity of visitor experience and greater insight into the natural and cultural resources preserved in the monument. The quality of visitor experience would continue to be enhanced by encouraging a quiet and contemplative

exploration of the monument's resources. Combined, this would create a major long-term beneficial impact on visitor experience and understanding.

Visitors to the Heritage Addition would experience this area mainly on their own. Primary activities would include hiking, wildlife viewing, and canoeing, with occasional ranger-conducted activities. Visitors would receive the majority of orientation and initial interpretation at the visitor center, to avoid impacting the contemplative nature of the site. Visitor experiences at this unit would be moderately enhanced via the trails and improved information available at the visitor center, however, visitors may continue to experience minimal adverse impacts if they access the area without experiencing the visitor center first, due to lack of information. Educational experiences utilizing the Yellow River and adjacent wetlands would offer enhanced educational opportunities as well.

Visitors to the North Unit would encounter greater opportunities to experience and understand the park resources through enhanced personal services including Ranger guided hikes and talks. Visitor experience would be further enhanced by extension and realignment of some trails, accompanied by appropriate upgrades and renovations of nonpersonal interpretive media. Visitor experiences at this unit would be moderately enhanced via the expanded information and interpretation available at the improved visitor center, however Visitors may continue to experience minimal adverse impacts if they access the area without experiencing the visitor center first.

Visitors to the South Unit would continue to receive the majority of their information and interpretation through nonpersonal media including wayside exhibits and publications. Visitor experience would be moderately enhanced by extension and realignment of some trails, upgrades and renovations of nonpersonal interpretive media, and the opportunity to understand the influence that the natural world had on the moundbuilders.

Additionally, visitors would be better able to explore and understand the 19th century American Indian culture. The opportunity to experience a quiet contemplative setting would continue to be valuable to many visitors, although some may find the lack of personal services to be a minor detriment.

Sny Magill would continue to be managed for resource preservation, however visitor access to and interpretation of the site would expand. Visitor use would continue to be somewhat limited and resources would be monitored to protect them from visitor impacts. A visitor contact station would be established and visitors would benefit from increased personal services, including ranger-guided walks and demonstrations. Some nonpersonal services like wayside exhibits and expanded publications would be created and distributed, but these services would be introduced so as not to impact the scene. Visitor experience would be moderately enhanced by these changes and additions.

Opportunities would increase in all units for many types of experiences — from social interactions in developed areas to solitude in natural settings and from brief visits in visitor contact stations to extended visits exploring the grounds and trails. An expanded diversity of opportunities available would result in an on-going moderate long-term benefit to visitors seeking experiences that meet individual needs to fit time constraints, levels of interest, educational level, or physical ability.

Orientation and Information

The expansion of nonpersonal interpretive media in the North, South, Heritage and Sny Magill units and providing a Visitor Contact Station at Sny Magill would improve orientation and interpretive opportunities for visitors, especially those who do not experience a primary orientation at the visitor center. Visitor's who miss or forgo the opportunity to experience the visitor center's multi-faceted interpretive opportunities and personal interactions could still experience a minor negative impact during their visit, but

the overall experience for the majority of park visitors would show minor to moderate improvement. Some of this impact may also be offset by the use of new technology to enhance the visitor's experience in pre-trip planning and at the site.

Under this alternative, primary orientation for the monuments would be at the renovated visitor center. The central location of the visitor center would provide opportunity for visitors who arrive at the center before visiting other units to acquire the information needed to decide what type of visit they would enjoy and which zone(s) would accommodate them the best. The small visitor contact facilities at Sny Magill would provide specific unit information and orient visitors to the site, the off-site visitor center, and the other units. This combination of renovated visitor facilities would create a moderate long-term beneficial impact for visitors who utilized these two contact centers prior to exploring the other units.

Interpretation and Education

Enhanced formal and informal interpretation and resource education at the visitor center, at the Visitor Contact station in Sny Magill and on ranger-led activities in the various units would create a moderate to major beneficial impact on visitors to the site. The reduction in crowding at the primary visitor center and enhanced visitor access to exhibits and interpretive personnel would produce a moderately beneficial impact on visitor experience there.

At the Heritage Addition, South Unit, and Sny Magill, the higher level of interpretive staffing, upgraded and re-routed trails and viewing platforms, and the enhanced nonpersonal interpretive media would expand opportunities for self-guided exploration and learning about key resources and stories at these units. An expansion of the resource education program in concert with the new research center would greatly benefit visitors, students, and researchers. These changes would result in a long-term major beneficial

impact on most visitors and their experience here.

Two additional interpretive division employees would be needed to staff these units year-round in this alternative.

Safety

Safety information would continue to be available at the visitor center, at the new visitor contact station in Sny Magill and from renovated orientation and information signs in all of the park's units. Lack of potable water and public restrooms would continue to present safety issues to visitors at the isolated units. Modified trail access would no longer place visitors who choose to access high-quality landscapes that best reflect the mound culture, at risk of an automobile / pedestrian collision.

Some visitors might still experience a sense of crowding, especially during scheduled special events and when there is a concentration of school children in that area. Increases in visitation and time spent at the national monument would result in short-term minor adverse impacts during these events.

Cumulative Effects. Some lack of wayfinding guidance for visitors approaching the park from the east may confuse some visitors. The number of state and county parks and forests in the region may cause some visitors to not realize that Effigy Mounds is a national monument managed by the National Park Service. This could be partially offset by the information provided by local chambers of commerce, museums, and other attractions.

Visitation trends would likely increase in the long-term. This could result in congestion at parking and activity sites. Some visitors might experience a sense of crowding, especially during scheduled special events and when educational groups are visiting. Increased visitation and time spent at the national monument would result in short-term minor adverse impacts during events; long-term moderate beneficial impacts would result by development of increased or renewed public

interest in the mounds and related American Indian culture.

Future development on private land at the national monument's borders would adversely impact the scenic views as well as cause sound encroachment, adversely affecting visitor experience.

When impacts discussed above are considered in combination with the impacts of this alternative, the resulting cumulative effects on the visitor experience would be long term, moderate, and beneficial. This alternative's contribution to these effects would be modest.

Conclusion. Implementing alternative B would result in moderate long-term beneficial impacts on the visitor experience. The overall cumulative impacts would be long-term, minor, and beneficial; however, this alternative's contribution to these effects would be modest.

Impacts from Implementing Alternative C

Visitor Experience and Interaction with Resources

Alternative C would emphasize the natural environment and its interconnectedness with cultural resources. Natural viewsheds and soundscapes would be protected as much as is feasible under this alternative. This alternative would emphasize increasing formal education and outreach programs. The primary emphasis on preservation would continue as it does today in the North, South, and Sny Magill units. The proposed zoning would place more of the monument in the Discovery Zone while primary visitor trails would be confined to the Visitor Trails Zone in the North, South, and Sny Magill units. The quality of visitor experience would continue to be enhanced by encouraging a quiet and contemplative exploration of the monument's resources.

The visitor center and parking area would remain at their current location. The interior of the visitor center would be reconfigured to take advantage of the extra space vacated when administrative personnel move to

offices in former park houses, providing some additional space for modification of the exhibits, sales area, and visitor contact area. This would produce a moderately beneficial impact on visitor experience due to the reduction in crowding, especially from large educational groups, and enhanced visitor access to exhibits and interpretive personnel. Visitor experience would be further enhanced by the greater depth of information and interpretive content afforded by the improved facilities and reconfigured exterior.

Some extension and improvement of existing trails would encourage more visitors to explore more of resources in all units. Increased use of trails could somewhat reduce opportunities for quiet and contemplation, but would provide more opportunities for visitors to connect with the meanings inherent in monument resource's.

Visitors to the Heritage Addition would experience this area mainly on their own. Primary activities would include hiking, wildlife viewing, and pass-through canoeing, with no take-out allowed. Visitors would receive the majority of orientation and initial interpretation at the visitor center, to avoid impacting the contemplative nature of the site. Visitor experiences at this unit would be slightly enhanced via the improved information and interpretation available at the improved visitor center and nonpersonal information available in other units, however, visitors may experience minor to moderate adverse impacts if they access the area without receiving adequate information, due to lack of nonpersonal and personal services.

Visitors to the North Unit would encounter greater opportunities to experience and understand the park resources through enhanced personal services including ranger-guided activities and an expanded trail system into the prairie that connects with the Hanging Rock Trail. Visitor experience would be further enhanced by extension and realignment of some trails, accompanied by appropriate upgrades and renovations of nonpersonal interpretive media. Visitor experiences at this unit would be moderately

enhanced via the expanded information and interpretation available at the improved visitor center, however visitors may continue to experience minor adverse impacts if they access the area without experiencing the visitor center first.

Visitors to the South Unit would continue to receive the majority of their information and interpretation through nonpersonal media including wayside exhibits and publications. Visitor experience would be moderately enhanced by extension and realignment of some trails, including the connection of the Yellow River Bridge trail to the Marching Bear Trail. Upgrades and renovations of nonpersonal interpretive media would afford the opportunity to understand the influence that the natural world had on the moundbuilders. The opportunity to experience a quiet contemplative setting would continue to be valuable to many visitors, although some may find the lack of personal services to be a minor to moderate detriment.

Sny Magill would continue to be managed for resource preservation, with no appreciable increase in visitor access to the site. Recreational visitors to the Mississippi River would continue to be accommodated.

Nonpersonal services, like wayside exhibits and expanded publications, would be created and distributed, but these services would be introduced so as not to impact the scene. Visitor understanding of the moundbuilders relationship with the natural environment would be enhanced by these modifications. During heavy visitation, roving interpretive rangers would provide a more personalized experience for visitors. The opportunity to experience mounds and the Mississippi River in this relatively primitive setting would continue to be an attraction for some visitors and a detriment for others. Visitors would experience a minor to moderate benefit with the advent of these changes and additions.

Opportunities would increase in all units for some types of experiences—from social interactions in developed areas to solitude in

natural settings and from brief visits in visitor contact stations to extended visits exploring the grounds and trails. An expanded diversity of opportunities available would result in a minor to moderate long-term benefit to visitors seeking experiences that meet individual needs to fit time constraints, levels of interest, educational level, or physical ability

Orientation and Information

Continuation of current practices would provide visitors the opportunity to visit all the units, but primary orientation for the units would continue to take place at the visitor center. If visitors miss or forgo the opportunity to experience the visitor center's multi-faceted interpretive opportunities and personal interactions, it could adversely affect their visit and subsequent desire to return. Some of this impact may be offset by the use of new technology to enhance the visitor's experience in pre-trip planning and at the site.

The NPS staff in the visitor center provides quality orientation and information to visitors. Continuation of this situation creates a moderate beneficial long-term impact on those visitors who do go to the center. Under this alternative, wayfinding signs would be maintained and installed where needed, which may allay some impact on the experience of visitors who do not enter the center.

Interpretation and Education

This alternative would create a moderately beneficial impact on interpretation and education programs at the monument. It would provide better use of existing facilities and a better level of access for visitors with disabilities, including some expansion of interpretation facilities, an increase in interpretive media, and a minimal expansion of the trail system. Expansion of interpretive media and personal services at all units would enhance opportunities for visitors to appreciate and understand the monument's values while continuing to preserve cultural and natural resources. Space for educational groups would be provided in the vacated

maintenance bay; this would provide moderate beneficial impacts to these groups.

At the Heritage Addition, South Unit, and Sny Magill, the enhanced nonpersonal interpretive media would expand opportunities for self-guided exploration and learning about key resources and stories at these units. In addition, an expansion of the resource education program in concert with increased facilities for students and groups would combine to result in a long-term moderate beneficial impact for many visitors and students.

Removing some administrative offices from the visitor center would provide space for more exhibits interpreting additional topics needed by visitors to increase their understanding of monument's themes and related stories. An attendant renovation of the visitor center and additional space for education and other groups would further enhance the visitor experience with reduced crowding and more access to personal services. Providing improved media and greater access to staff at the visitor center, along with occasional ranger-led activities out in the resource would have a moderate beneficial impact on visitor experience.

Additional interpretive division employees would be needed to staff these units year-round in this alternative.

Safety

Safety information would continue to be available at the visitor center and from renovated orientation and information signs in all of the park's units. Lack of potable water and public restrooms would continue to present safety issues to visitors at the isolated units. Modified trail access would no longer place visitors who choose to access high-quality landscapes that best reflect the mound culture, at risk of an automobile / pedestrian collision.

Some visitors might still experience a sense of crowding, especially during scheduled special events and when there is a concentration of school children in that area. Increased

visitation and time spent at the national monument would result in short-term minor adverse impacts during these events.

Visitors would be primarily on their own in the South Unit and consequently may benefit from some additional safety guidance in the literature and from personal contacts.

Cumulative Effects. Some lack of wayfinding guidance for visitors approaching the park from the east may confuse some visitors. The number of state and county parks and forests in the region may cause some visitors to not realize that Effigy Mounds is a national monument managed by the National Park Service. This could be partially offset by the information provided by local chambers of commerce, museums, and other attractions.

Visitation trends would likely increase in the long-term. This could result in congestion at parking and activity sites. Some visitors might experience a sense of crowding, especially during scheduled special events and when educational groups are visiting. Increased visitation and time spent at the national monument would result in short-term minor adverse impacts during events; long-term moderate beneficial impacts would result by development of increased or renewed public interest in the mounds and related American Indian culture.

Future development at the national historic site's borders would adversely impact the scenic views as well as cause sound encroachment.

When impacts discussed above are considered in combination with the impacts of this alternative, the resulting cumulative effects on the visitor experience would be long term, minor to moderate, and beneficial. This alternative's contribution to these effects would be small.

Conclusion. Implementing alternative C would result in minor to moderate long-term beneficial impacts on the visitor experience. The overall cumulative impacts would be long-term, minor, and beneficial; however,

this alternative's contribution to these effects would be small.

SOCIOECONOMIC ENVIRONMENT

The National Park Service applied logic, experience, and professional judgment to analyze the impacts on the social and economic situation resulting from each alternative. Economic data, historic visitor use data, expected future visitor use, and future developments of the national monument were all considered in identifying, discussing, and evaluating expected impacts.

Duration of Impact. In general, short-term impacts are temporary in duration and typically are transitional effects associated with implementation of an action (e.g., related to construction activities) and are less than 1 year. In contrast, long-term impacts extend beyond 1 year (e.g., operational activities) or have a permanent effect on the socioeconomic environment.

Intensity of Impact. Assessments of potential socioeconomic impacts were based on comparisons between the no-action alternative and each of the action alternatives.

- **Negligible** — The effects on socioeconomic conditions would be below or at the level of detection.
- **Minor** — The effects on socioeconomic conditions would be slight but detectable, and only affect a small portion of the surrounding population. The impact would be considered slight and not detectable outside the affected area.
- **Moderate** — The effects on socioeconomic conditions would be readily apparent. Any effects would result in changes to socioeconomic conditions on a local scale in the affected area.
- **Major** — The effects on socioeconomic conditions would be readily apparent. Measurable changes in social or economic conditions at the county level occur. The

impact is severely adverse or exceptionally beneficial in the affected area.

Type of Impact. National Park Service policy calls for the effects of the alternatives to be characterized as being beneficial, adverse, or indeterminate in nature. With respect to economic and social effects, few standards or clear definitions exist as to what constitutes beneficial or positive changes, and those considered adverse or negative. For example, rising unemployment is generally perceived as adverse, while increases in job opportunities and average per capita personal income are regarded as beneficial. In many instances, however, changes viewed as favorable by some members of a community are seen as unfavorable by others. For example, the impact of growth on housing markets and values may be seen as favorable by construction contractors and many homeowners, but adverse by renters and by local government officials and community groups concerned with affordability. Consequently, some of the social and economic impacts of the alternatives are described in such a manner as to allow the individual reader to determine whether they would be beneficial or adverse (impact is indeterminate with respect to “type”).

Impacts from Implementing Alternative A – No-Action

The no-action alternative would have a slight effect on the regional economy. A boardwalk spur from the existing boardwalk to the mound group south of the visitor center and a connecting trail from the bridge into the South Unit would be constructed under this alternative. This would be a short-term, negligible to minor, beneficial economic impact because of the materials that would be purchased locally and/or because of possible construction contracts.

Implementing this alternative would continue the input of federal dollars into the region in the forms of employee wages and the purchase of supplies and materials. This is estimated to be \$12.4 million over the next 20 years.

The average length of time of a visit or length of stay in the region would not likely change. Visitors would continue to visit the national monument in the same manner and experience the same social conditions.

Cumulative Effects. The social and economic situation in Allamakee, Clayton, and Crawford counties is affected by a combination of many factors, including the presence of a unit of the National Park Service. Some of the \$300 million in federal spending in the three counties is generated by Effigy Mounds National Monument, such as in the forms of employee wages and construction contracts. The livelihoods of service-related businesses in the region rely to some degree on the inflow of tourist dollars, especially to restaurants and motels. Although tourism is not the most important driving factor in the regional economy, the nationwide downward trend in national park visitation may be adversely affecting tourism-dependant businesses on a negligible level.

The total direct economic value of public recreation areas also includes two sets of values: (1) the user benefit that people receive from their visit and (2) the values capitalized in land near the recreation area. Economic studies have shown that the value of land can increase with the number of outdoor recreation opportunities and the proximity to outdoor recreation space (Clawson and Knetsch 1966). Therefore, the continued presence of Effigy Mounds National Monument provides an important benefit to the people and property values in the vicinity.

The no-action alternative would contribute a slight beneficial amount to the above impacts of past, present, and future actions on socioeconomic conditions and, when considered in combination with other actions, would result in a minor beneficial cumulative impact.

Conclusion. Implementing the no-action alternative would have a short-term, negligible to minor, beneficial economic impact in the region. The overall cumulative effects would be minor and beneficial.

Impacts from Implementing Alternative B – the Preferred Alternative

Full implementation of this alternative would require the National Park Service to hire nine additional employees to handle the increased workload for administration, interpretation, and maintenance. Additional employment would bring in more wages and an increased demand for housing, utilities, services, and goods, resulting in a long-term minor benefit for the local economy.

Construction contracts would be let for several trail segments, the research/administrative center and the Sny Magill visitor contact structure. This would constitute a short-term moderate beneficial economic impact.

Implementing the preferred alternative is estimated to cost a total of \$18.9 million above the current level of spending over the next 20 years. Most of this total would equate to an increase in the input of federal dollars into the region in the forms of employee wages and the purchase of supplies and construction contracts. This would be a long-term, minor to moderate, beneficial impact.

If all the boundary adjustments recommended in this plan were to take place, Allamakee County could lose about \$3,225 in annual property taxes and Clayton County could lose about \$1,250 in annual property taxes. The U.S. Government sometimes makes payments in lieu of taxes to local counties to reimburse them for land acquired by the federal government from private ownership. The impact from this action to the local economy is expected to be long-term, negligible, and adverse.

The number of visitors and average length of visit could increase due to the additional experience opportunities in the Heritage Addition and Sny Magill Unit. Local businesses that rely on the tourist trade would receive a long-term minor benefit. For example, if visitation to the monument were to increase by 10%, about \$240,000 would be added to the local economy through direct and indirect visitor spending each year.

Cumulative Effects. The social and economic situation in Allamakee, Clayton, and Crawford counties is affected by a combination of many factors, including the presence of a unit of the National Park Service. Some of the \$300 million in federal spending in the three counties is generated by Effigy Mounds National Monument in the forms of employee wages and construction contracts for example. The livelihoods of service-related businesses in the region rely to some degree on the inflow of tourist dollars, especially to restaurants and motels. Although tourism is not the most important driving factor in the regional economy, the nationwide downward trend in national park visitation may be adversely affecting tourism-dependant businesses on a negligible level.

The total direct economic value of public recreation areas also includes two sets of values: (1) the user benefit that people receive from their visit and (2) the values capitalized in land near the recreation area. Economic studies have shown that the value of private land can increase with the number of outdoor recreation opportunities and the proximity to outdoor recreation space (Clawson and Knetsch 1966). Therefore, the continued presence of Effigy Mounds National Monument provides an important benefit to the people and property values in the vicinity.

The preferred alternative would contribute a modest beneficial increment to the above impacts of other past, present, and future actions on socioeconomic conditions and, when considered in combination with other actions, would result in a minor beneficial cumulative impact.

Conclusion. Implementing the preferred alternative would have short-term and long-term, moderate, beneficial economic impacts in the region. The overall cumulative effects would be minor and beneficial.

Impacts from Implementing Alternative C

This alternative would have a small effect on the regional economy. Full implementation of this alternative would require the National

Park Service to hire five additional employees to handle the increased workload for interpretation and maintenance. Additional employment would bring in more wages and an increased demand for housing, utilities, services, and goods, resulting in a long-term, minor benefit for the local economy.

Construction contracts would be issued for two trail segments and the maintenance facility in the North Unit. This would result in a short-term minor beneficial economic impact.

Implementing this alternative is estimated to cost a total of \$10.7 million above the current spending over the next 20 years. Most of this total would equate to an increase in the input of federal dollars into the region in the forms of employee wages and the purchase of supplies and construction contracts. This would be a long-term, minor, beneficial impact.

If all the boundary adjustments recommended in this plan were to take place, Allamakee County could lose about \$3,225 in annual property taxes and Clayton County could lose about \$1,250 in annual property taxes. The U.S. Government sometimes makes payments in lieu of taxes to local counties to reimburse them for land acquired by the federal government from private ownership. The impact from this action to the local economy is expected to be long-term, negligible, and adverse.

The average length of time of a visit or length of stay in the region would not likely change under this alternative.

Cumulative Effects. The social and economic situation in Allamakee, Clayton, and Crawford counties is affected by a combination of many factors, including the presence of a unit of the National Park Service. Some of the \$300 million in federal spending in the three counties is generated by Effigy Mounds National Monument in the forms of employee wages and construction contracts, for example. The livelihoods of service-related businesses in the region rely to some degree on the inflow of tourist dollars, especially to

restaurants and motels. Although tourism is not the driving factor in the regional economy, the nationwide downward trend in national park visitation may be adversely affecting tourism-dependant businesses on a negligible level.

The total direct economic value of public recreation areas also includes two sets of values: (1) the user benefit that people receive from their visit and (2) the values capitalized in land near the recreation area. Economic studies have shown that the value of land can increase with the number of outdoor recreation opportunities and the proximity to outdoor recreation space (Clawson and Knetsch 1966). Therefore, the continued presence of Effigy Mounds National Monument provides an important benefit to the people and property values in the vicinity.

Alternative C would contribute a small beneficial amount to the impacts of other past, present, and future actions on socioeconomic conditions and, when considered in combination with other actions, would result in a minor beneficial cumulative impact.

Conclusion. Implementing alternative C would have a short-term and long-term minor, beneficial economic impact in the region. The overall cumulative effects would be minor and beneficial.

MONUMENT OPERATIONS AND FACILITIES

The analysis was conducted in terms of how monument operations and facilities might vary under the different management alternatives. The analysis is qualitative rather than quantitative because of the conceptual nature of the alternatives. Consequently professional judgment was used to reach reasonable conclusions as to the intensity, duration, and type of potential impact. The impact analysis evaluated the effects of the alternatives on staffing, infrastructure, visitor facilities, and services

Duration of Impact. Short-term impacts would be less than 2 years since most planning, design, and construction is generally completed within 2 years. Long-term impacts would extend beyond 2 years.

Intensity of Impact

- **Negligible** — Park operations would not be affected or the effect would be at or below the lower levels of detection, and would not have an appreciable effect on park operations.
- **Minor** — The effects would be detectable, but would be of a magnitude that would not have an appreciable effect on park operations.
- **Moderate** — The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public.
- **Major** — The effects would be readily apparent and would result in a substantial change in park operations in a manner noticeable to staff and the public and be markedly different from existing operations.

Type of Impact. Beneficial impacts would improve NPS operations and/or facilities. Adverse impacts would negatively affect NPS operations and/or facilities and could hinder the staff's ability to provide adequate services and facilities to visitors and employees. Some impacts could be beneficial for some operations or facilities and adverse or neutral for others.

Impacts of Alternative A – No Action

Under the no-action alternative, management and operations of Effigy Mounds National Monument would continue as they are now. The Heritage Addition would continue to be managed on a day-to-day basis without the guidance of a comprehensive long-range plan.

Crowding in the visitor center during visits from large groups would continue to hinder staff work at those times. Staffing levels, particularly in cultural and natural resources management, would continue to be

inadequate for current and future workloads. Office space and working conditions in the headquarters / visitor center building would become cramped if any additional staff were hired, reducing productivity and efficiency.

All maintenance facilities would remain at their current location in the monument. Operations staff would continue to shuttle equipment back and forth to the North Unit, causing wear on equipment and loss of efficiency.

Monument staff would continue to have to limit their time spent in the basement of the headquarters building to reduce their radon exposure.

This alternative would create no new impacts but would result in the continuation of long-term minor adverse impacts to monument operations.

Cumulative Effects. In general, NPS staff members are faced with increasing workloads as a result of new NPS initiatives, program mandates, and reporting requirements. Acquiring the Heritage Addition almost doubled the size of the national monument, subsequently increasing the management workload without any staffing increase.

Past and ongoing projects have had impacts on monument operations and facilities such as construction and maintenance of trails, fences, roads, and other monument infrastructure. Aging facilities (e.g., trails, pavement, etc.) and utilities would continue to be repaired or replaced as needed when funds become available. Eventually, more sustainable and efficient facilities and utility systems would replace aging systems, resulting in minor to moderate, beneficial impacts over the long-term.

While this alternative would not contribute any new effects to the minor adverse effects of other past, present, or foreseeable future actions, it would allow the continuation of minor, adverse cumulative impacts.

Conclusion. The no-action alternative, if implemented, would cause no new impacts on monument operations and facilities but would

result in continuation of long-term minor adverse impacts. Thus, the overall cumulative effect would be minor and adverse.

Impacts from Alternative B – the Preferred Alternative

Implementing this alternative would result in changes to NPS staffing, workloads, and facility maintenance. It would require six additional employees to handle the increased workload for law enforcement, interpretation, maintenance, and administration.

In addition to ongoing tasks, facility management time would be required to coordinate and oversee removal of the houses, construction of the new research / administrative center, and remodeling the visitor center. This could cause a short-term, minor to moderate, adverse impact. The increased square footage (up to 10,000 square feet) of facilities would create a long-term, moderate, adverse impact on monument operations because of the increased cleaning and maintenance workload.

Most of the administrative staff would be moved to offices in the new research center building. This move would most likely increase the amount of room available for staff and eliminate the current difficulties caused by crowds of visitors in the visitor center/ headquarters building. This would result in long-term minor beneficial impacts on the monument staff.

The health concern of exposure to high levels of radon by staff working with the monument's collections would be alleviated when collections are moved into the new building. This would be a long-term, minor, beneficial impact to operations.

Although no employees currently reside in the two houses, implementation of this alternative would remove the availability of NPS housing.

Construction and maintenance of additional trails in the monument would add short- and long-term adverse impacts. But, since there would be few new trails (existing roads would

be used wherever possible), this impact is expected to be minor.

It is unknown at this time how the requirement for more coordination between the maintenance and resource management staff would affect operational efficiency.

Cumulative Effects. In general, NPS staff members are faced with increasing workloads as a result of new NPS initiatives, program mandates, and reporting requirements. Acquiring the Heritage Addition almost doubled the size of the national monument, consequently increasing the management workload. Static base funding levels preclude hiring additional staff to alleviate the workload. Past and ongoing projects have had impacts on monument operations and facilities such as construction and maintenance of trails, fences, roads and other monument infrastructure

Aging facilities (e.g., trails, pavement, etc.) and utilities would continue to be repaired or replaced as needed when funds become available. Eventually, more sustainable and efficient facilities and utility systems would replace aging systems, resulting in minor to moderate, beneficial impacts over the long term.

Alternative B would contribute substantial beneficial and adverse effects to the minor adverse effects of other past, present, and foreseeable future actions. However, the beneficial effects would outweigh the adverse effects, resulting in cumulative effects that are neutral.

Conclusion. Implementing the preferred alternative would result in short-term, moderate, adverse impacts; long-term, minor, adverse impacts; and long-term, minor, beneficial impacts to monument operations and facilities. Cumulative effects would be neutral.

Impacts from Implementing Alternative C

Implementing this alternative would result in some changes to NPS staffing, workloads, and facility maintenance. It would require two

additional employees to handle the increased workload for interpretation and law enforcement.

Most of the administrative staff would be moved to offices in the former houses. This would most likely increase the amount of room available for staff, resulting in long-term, minor, beneficial impacts on the monument staff. No employees currently reside in the two houses; however, this action would remove the availability of NPS housing.

In addition to ongoing tasks, facility management time would be required to coordinate and oversee remodeling the visitor center, and retrofitting the houses to become office space. This could cause a short-term, minor to moderate adverse impact.

Monument staff would continue to have to limit their time spent in the basement of the headquarters building to reduce their radon exposure.

Cumulative Effects. In general, NPS staffs are faced with increasing workloads because of new NPS initiatives, program mandates, and reporting requirements. Acquiring the

Heritage Addition almost doubled the size of the national monument, consequently increasing the management workload. Static base funding levels preclude hiring additional staff to alleviate the workload.

Past and ongoing projects have had long-term, minor, beneficial impacts on monument operations and facilities. Aging facilities (e.g., trails, pavement, etc.) and utilities would continue to be repaired or replaced as needed when funds become available. Eventually, more sustainable and efficient facilities and utility systems would replace aging systems, resulting in minor to moderate, beneficial impacts over the long-term.

Alternative C would contribute modest beneficial and adverse effects to the minor adverse effects of other past, present, and foreseeable future actions, resulting in cumulative effects that are minor and adverse.

Conclusion. Implementing alternative C would result in short-term, minor to moderate, adverse impacts; long-term, minor, adverse impacts. Cumulative effects would be minor and adverse.

NATURAL OR DEPLETABLE RESOURCES AND ENERGY REQUIREMENTS AND CONSERVATION POTENTIAL

Whenever feasible, the National Park Service strives to maximize the use of renewable resources and energy and therefore minimize the use of depletable resources. However, it is not possible with today's technologies to cost-effectively avoid all use of depletable resources in building and operating facilities. Because each of the action alternatives includes some level of construction, they both would impact natural or depletable resources and energy to some extent. Generally, the amount of resources and energy used in a building is related to its size. Other park assets that support visitor use and resource protection such as parking lots and trails also potentially use depletable resources to some extent, however the park's practice is to use wood chips from felled trees (a renewable resource) for trails. Increases or decreases to trails would not impact depletable resource or energy use. Because there is no difference between the alternatives in the amount of parking developed, there would be no difference in this impact topic from parking. Therefore, only the change in the amount of square footage in buildings is used in this analysis to approximate the level of resource and energy use.

Impairment: Unlike most other impact topics, impacts to depletable resources and energy would not be realized within Effigy Mounds National Monument. Rather, these impacts would be felt at the point of extraction (at mining sites, for example), in communities where manufactured products and energy are produced, and in those areas through which resources and fuel are transported. Impacts from use of depletable resources and energy are also felt globally through climate change. Because impacts to this topic would not be realized within the monument, or perhaps even in the vicinity, park resources would not be impaired through impacts to depletable resources and energy requirements.

For this analysis, the following thresholds were used to determine level of impact:

Negligible—Implementation of the alternative would use a noticeably greater amount of depletable resources and energy (for an adverse negligible impact) or lower amount (for a beneficial negligible impact) than is currently being used at the monument, but these levels would represent very small increases or decreases. For the purposes of this analysis, the size of buildings is used as a proxy for the amount of resource and energy use. A change of less than 30% in the size of climate-controlled space over the term of this GMP would be considered a negligible impact.

Minor—Implementation of the alternative would use slightly more depletable resources and energy (for an adverse minor impact) or slightly less (for a beneficial minor impact) than is currently being used at the monument. The level of change in use would be small, but higher than a negligible level of change. A change of 30% to 100% in the size of climate-controlled space over the term of this GMP would be considered a minor impact.

Moderate—Implementation of the alternative would use considerably more depletable resources and energy (for an adverse minor impact) or considerably less (for a beneficial minor impact) than is currently being used at the monument. The change in use level would be high. A change of 100% to 200% in the size of climate-controlled space over the term of this plan would be considered a moderate impact.

Major—Implementation of the alternative would use significantly more depletable resources and energy (for an adverse minor impact) or significantly less (for a beneficial minor impact) than is currently being used at the monument. The change in use level would be very high (an increase of more than 200%

in the amount of climate-controlled space over the term of the GMP).

Duration— All impacts to depletable, non-fuel resources are short-term, because, in each building project, resources would be used only one time (as part of the initial construction).

However, fuel would be used not only in the initial construction effort, but also to continually heat and cool buildings. Therefore, all impacts to energy requirements are long term.

Cumulative Impacts—According to the US Department of Energy's Energy Information Administration, between 1986 and 1992, energy used in commercial buildings in this country grew by about 20% or 3-4 % a year. While energy efficiency has increased in recent years, the demand for energy has increased at a higher rate, so that the amount of energy used in the US continues to climb every year. Any of the action alternatives at Effigy Mounds would, of course, add very little to the cumulative increase in energy use in the commercial building sector when viewed nationwide (in 1992, there were nearly 70 billion square feet of commercial buildings in the US). Nevertheless, under the action alternatives, the rate of increase in energy use in buildings at the monument would be higher in some cases than in the commercial building sector as a whole. For this analysis, the level of impact is stated in comparison to the no-action alternative.

ALTERNATIVE A – NO ACTION

The only buildings at the park today are the visitor center (about 10,000 square feet), the newer maintenance building (about 3,500 square feet), and the three former park houses (together, about 6,500 square feet). The total built area at the park is about 20,000 square feet.

ALTERNATIVE B – PREFERRED

The visitor center would be reconfigured, but space would not be added (still about 10,000 square feet). The newer maintenance building would remain as is (still about 3,500 square feet). The three former park houses would be removed (minus 6,500 square feet) and, in the space they had occupied, a multi-purpose research center would be built (about 15,000 square feet). The small visitor contact station (500 square feet indoors) that would be established at Sny Magill would be a temporary facility that could be removed during flood risk and used only during high visitation periods. Because it would not be climate-controlled year-round, energy use would be lower than for a permanent structure of comparable size.

ALTERNATIVE C

The visitor center would be reconfigured, but space would not be added (still about 10,000 square feet). Although it would be converted to an education center, the newer maintenance building would remain the same size (still about 3,500 square feet). Similarly, the three former park houses would be converted to administrative use, but would remain the same size (together, still about 6500 square feet).

Table 12: Summary of Resource and Energy Impacts

	Square Feet of Built Space	Resource use Impacts	Energy use Impacts	Summary of Impact level
Alternative A	20,000	None (no new construction)	None (no new energy use)	None (baseline for comparison)
Alternative B	30,000 (an additional 10,000)	All new construction would use resources – minor adverse	8,500 square feet of the new construction would be fully climate-controlled (1,500 would not be) – minor adverse	Minor Adverse
Alternative C	20,000	None (no new construction)	None (no new energy use)	None

CLIMATE CHANGE

Related to the energy discussion is climate change, the human-cause change to global climate patterns. Climate change is perhaps the most far-reaching and irreversible threat the national park system has ever faced (NPCA 2007). Climate change in this context refers to a suite of changes occurring in Earth's atmospheric, hydrologic, and oceanic systems. These changes, including increased global air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level, provide unequivocal evidence that the climate system is warming. While the warming trend, commonly referred to as global warming, is discernable over the entire past century and a half, recent decades have exhibited an accelerated warming rate with 11 of the last 12 years ranking among the 12 warmest years on record. Most of the observed temperature increase can be attributed to human activities that contribute heat trapping gases to the atmosphere. These "greenhouse gases"—particularly carbon dioxide from the burning of fossil fuels—cause Earth's atmosphere to act like a blanket and trap the sun's heat. While the insulating effect (or greenhouse effect) of our atmosphere is important to living systems, the rapid

increase in greenhouse gases since the mid 19th century has turned the thermostat up higher than what our systems are adapted to.

While climate change is a global phenomenon, it manifests itself differently in different places. One of the most dramatic effects of global warming is the impact on extreme weather events. A disrupted climate could affect natural and cultural resources, and is likely to interfere with public use and enjoyment of the parks. Although many places in the world have already observed and recorded changes that can be attributed to climate change, the impacts to Effigy Mounds National Monument have not been specifically determined and the actual implications within the lifespan of this general management plan are unknown. While it is well accepted that climate change is occurring, it is unknown as to the rate and severity of impacts at the parks. Climate change is a long-term phenomenon, and the likelihood that significant effects will be seen during the life of this general management plan (15-20 years) is unknown at this time; however, acceleration of climate change impacts could have a more immediate effect on park resources and values.

Relevant Laws and Policies

Executive Order 13423 - Issued on January 24, 2007 by President George W. Bush, it requires federal agencies to “conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically, and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.” It includes requirements for the reduction of greenhouse gases and implementation of other energy and water conservation measures. The order requires agencies to reduce greenhouse gas emissions by 3% annually through the end of fiscal year 2015, or 30% by the end of fiscal year 2015, relative to the baseline of the agency’s energy use in fiscal year 2003.

DOI Secretarial Order 3226 – Issued on January 19, 2001, the order ensures that climate change impacts are taken into account in connection with departmental planning and decision making.

NPS Management Policies 2006 – Section 4.7.2 states that “Parks containing significant natural resources will gather and maintain baseline climatological data for reference.” The policies also state that “The Service will use all available authorities to protect park resources and values from potentially harmful activities . . . NPS managers must always seek ways to avoid, or minimize to the greatest degree possible, adverse impacts on park resources and values.”

Section 9.1.1.6 of *NPS Management Policies 2006* discusses sustainable energy design, requiring any facility development to include improvements in energy efficiency and

reduction in greenhouse gas emissions for both the building envelope and the mechanical systems that support the facility. Additionally, projects that include visitor centers or major visitor services facilities must incorporate LEED (Leadership in Energy and Environmental Design) standards to achieve a silver rating.

Section 9.1.7 of *NPS Management Policies 2006* requires the National Park Service to interpret for the public the overall resource protection benefits from the efficient use of energy, and to actively educate and motivate park personnel and visitors to use sustainable practices in conserving energy.

Any of the action alternatives at Effigy Mounds would, of course, have very little effect on the cumulative level of greenhouse gases or other climate change factors (e.g. carbon footprint) when viewed nationwide. However, there are several management directions that could occur that would reduce the monument’s contribution to climate change. Examples of these include replacing the monument’s current fleet of vehicles and motorized equipment with more fuel-efficient models, adding insulation and weather-proofing to existing buildings, employing solar panels to generate electricity, etc. New construction, such as the multi-purpose building in the preferred alternative, would be constructed with energy efficiency (i.e. sustainability) in mind. As part of a National Park Service-wide initiative, the public would receive educational messages about reducing our impact on the climate. These programs and others would be implemented under any of the alternatives and contribute towards the global effort to reduce human-caused climate change.

UNAVOIDABLE ADVERSE IMPACTS

Unavoidable adverse impacts are defined here as moderate to major impacts that cannot be fully mitigated or avoided.

In alternative A, there would be little potential for unavoidable adverse impacts because there would be no major new development occurring in previously undeveloped areas. Some existing conditions have resulted in unavoidable adverse impacts. The current roads and monument facilities may have been built on top of mounds. The roads and facilities would remain where they are in all alternatives. Cultural resources would continue to be protected through preservation maintenance.

Alternative B would have the highest potential for some unavoidable adverse impacts on natural and cultural resources because it has the most development. However, most of the

development being proposed is relatively “low key” such as trails and small facilities with only small areas of potential effect. A possible exception to this is the proposed research center. This would be built in an already developed area, so would not result in a moderate or major adverse impact. Cultural resources would continue to be protected through active preservation maintenance.

Alternative C would have some potential for unavoidable adverse impacts on natural and cultural resources because it has some new development. Development being proposed is of relatively low impact such as trails. Cultural resources would continue to be protected through preservation maintenance.

In summary, none of the alternatives would result in any unavoidable moderate or major adverse impacts.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Implementing alternative A could result in the consumption of some nonrenewable natural resources in the form of construction materials that would constitute an irretrievable commitment of resources. This potential loss would be very small when compared with the other alternatives. This alternative includes no actions that could result in the loss of archeological resources.

Actions taken to implement alternative B could result in the consumption of nonrenewable natural resources in the form of construction materials and fuels that would

constitute an irreversible commitment of resources. The new facilities in this alternative would result in a loss of habitat and an irretrievable commitment of resources. This alternative includes no actions that could result in the loss of archeological resources.

Implementing alternative C could result in the consumption of nonrenewable natural resources in the form of construction materials that would constitute an irreversible commitment of resources. This alternative includes no actions that could result in the loss of archeological resources.

RELATIONSHIPS BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The primary purpose of Effigy Mounds National Monument is to preserve and interpret the distinct cultural resource of ancient Indian mounds and associated natural resources. Under all action alternatives, the majority of the monument would be in the discovery zone that does not allow development. The National Park Service would continue to manage this zone under all alternatives to maintain natural ecological processes and native biological communities.

Under alternatives B and C, there would be a slight increase in the monument's disturbed area footprint as new trails or structures are constructed in the Heritage Addition and/or the North Unit. This change is so small (1 to 3 acres) that it would not result in a substantial loss of long-term productivity. Natural resource management actions would continue or be enhanced in all alternatives to increase biological diversity and, therefore, increase long-term productivity.

CHAPTER 5
Consultation
and Coordination,
Preparers
and Consultants



PUBLIC AND AGENCY INVOLVEMENT

The *Draft General Management Plan / Environmental Impact Statement for Effigy Mounds National Monument* represents input from National Park Service staff, other agencies and groups, and the public. Consultation and coordination among the agencies and the public were vitally important throughout the planning process. The public had several avenues and opportunities in which to participate during the development of the plan: public meetings and workshops, responses to newsletters, and comments submitted via the NPS planning website and regular mail.

PUBLIC INVOLVEMENT

Public meetings and newsletters were used to keep the public informed and involved in the planning process for Effigy Mounds National Monument. A mailing list was compiled that consisted of members of governmental agencies, organizations, businesses, legislators, local governments, and interested citizens.

The notice of intent to prepare an environmental impact statement was published in the *Federal Register* on June 6, 2005. This was followed by the first newsletter that introduced the planning effort and invited the public to participate in scoping (information gathering). Public meetings held during November 2005 in McGregor, Iowa, and Prairie du Chien, Wisconsin, were attended by 25 people. In addition, a total of 31 written comments were received by the planning team.

A second newsletter summarizing the results of the public scoping effort was sent out in early 2006.

The preliminary alternative concepts for managing the monument were delivered in a third newsletter that was distributed in November 2006. Public meetings on the preliminary alternatives were held in

Prairie du Chien, Wisconsin, and McGregor, Iowa. A total of 12 people attended the two meetings and 24 written comments were received. There was some discussion on the details of the alternatives in the written and oral comments received at the meetings.

National Park Service representatives also met with representatives of city and county governments, and state agencies several times throughout the process.

The public involvement process continues as review and comment on this *Draft General Management Plan and Environmental Impact Statement* are welcomed.

CONSULTATION WITH OTHER AGENCIES/ OFFICIALS AND ORGANIZATIONS (TO DATE)

U.S. Fish and Wildlife Service

Section 7 Consultation

During preparation of this document, NPS staff coordinated informally with the USFWS Field Office for this area in Rock Island, Illinois. The list of threatened and endangered species (Appendix B) was compiled using information received from the USFWS.

In accordance with Section 7 of the Endangered Species Act and relevant regulations at 50 CFR Part 402, the National Park Service determined that implementing the preferred alternative in this general management plan is not likely to result in adverse effects to listed species and so will not require formal consultation. A copy of this draft management plan will be sent to the USFWS field office and the Iowa DNR with requests for written concurrence with this determination.

The National Park Service has committed to consult on future actions conducted under the

framework described in this general management plan to ensure that such actions are not likely to adversely affect threatened or endangered species.

Iowa State Historical Preservation Officer

Section 106 Consultation

Agencies that have direct or indirect jurisdiction over historic properties are required by Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 270, et seq.), to take into account the effect of any undertaking on properties eligible for listing in the National Register of Historic Places. To meet the requirements of 36 CFR 800, the National Park Service sent letters to the Iowa State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation in January 2005, inviting their participation in the planning process (Appendix C).

Under the terms of stipulation VI.E of the 1995 Programmatic Agreement among the National Park Service, the Advisory Council on Historic Preservation, and the National Conference of State Historic Preservation Officers, the National Park Service,

in consultation with the SHPO [state historic preservation office], will make a determination about which are programmatic exclusions under IV.A and B, and all other undertakings, potential effects on those resources to seek review and comment under 36 CFR 800.4-6 during the plan review process.

Table 10 shows the NPS determinations for additional consultations with the SHPO and the Advisory Council on Historic Preservation (ACHP) under the agreement.

A copy of this draft general management plan will be sent to the Iowa SHPO and the ACHP with a request for written concurrence with the determinations of effect made in this plan.

American Indian Tribes

The National Park Service recognizes that indigenous peoples may have traditional interests and rights in lands now under NPS management. Related American Indian concerns are sought through consultations. The need for government-to-government American Indian consultations stems from the historic power of Congress to make treaties with American Indian tribes as sovereign nations. Consultations with American Indians are required by various federal laws, executive orders, regulations, and policies. They are needed, for example, to comply with Section 106 of the NHPA. Implementing regulations of the CEQ for NEPA also call for American Indian consultations.

Letters were sent to the following American Indian groups to invite their participation in several steps of the planning process (see Appendix C for a sample of the letter that was sent to all tribes):

- Flandreau Santee Sioux Tribe of South Dakota
- Ho-Chunk Nation of Wisconsin (formerly the Wisconsin Winnebago Tribe)
- Iowa Tribe of Kansas and Nebraska;
- Iowa Tribe of Oklahoma
- Otoe-Missouria Tribe of Indians, Oklahoma
- Lower Sioux Indian Community in the State of Minnesota
- Prairie Island Indian Community in the State of Minnesota
- Sac & Fox Tribe of the Mississippi in Iowa
- Sac & Fox Nation of Missouri in Kansas and Nebraska
- Sac & Fox Nation, Oklahoma
- Santee Sioux Nation, Nebraska (formerly the Santee Sioux Tribe of the Santee Reservation of Nebraska)
- Shakopee Mdewakanton Sioux Community of Minnesota

- Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota (formerly the Sisseton-Wahpeton Sioux Tribe of the Lake Traverse Reservation)
- Spirit Lake Tribe, North Dakota
- Upper Sioux Community, Minnesota
- Winnebago Tribe of Nebraska

The tribes were briefed on the scope of the planning project and the preliminary alternatives by newsletter and follow-up telephone calls soliciting comments. Some tribal representatives commented that existing treaty rights should continue to be protected and that interpretation in the park should include the American Indian viewpoint. Conversations have been ongoing throughout the planning process to inform the tribes

about the progress of the plan and identify how and to what extent they would like to be involved. The tribes will have an opportunity to review and comment on this draft plan.

FUTURE COMPLIANCE REQUIREMENTS

The specific undertakings of the preferred alternative are listed in table 13. The list shows the NPS determinations for additional consultations with the SHPO and the ACHP under the 1995 programmatic agreement on cultural resources and requirements for natural resources.

Table 13: Future Resource Compliance Required for Implementation of Specific Actions

Action	Compliance Requirement
Visitor Center / Maintenance Area	
Reconfigure VC interior	No further SHPO or ACHP consultation necessary
Remove 2 park housing units and construct an administrative/research center	Further SHPO and ACHP consultation needed
Move collections from VC to admin/research center	No further consultation necessary
Complete the boardwalk between the Yellow River and Highway 76 and connect into Heritage Unit	Further SHPO and ACHP consultation needed
Plant native vegetation around VC	No further consultation necessary
North Unit	
Acquire village sites along Riverfront Tract and evaluate NR/NL status	Further SHPO and ACHP consultation needed
Restore mound at Fire Point and reroute trail and overlook	Further SHPO and ACHP consultation needed
Minor trail re-alignments for resource protection or visitor safety/experience	No further consultation necessary
Construct trails onto prairie that connect to Hanging Rock Trail	Further SHPO and ACHP consultation needed
Construct satellite maintenance facility	Further SHPO and ACHP consultation needed
South Unit	
Connect Yellow River Bridge to Marching Bear Trail	Further SHPO and ACHP consultation needed
Rehabilitate South Unit entrance road for safety	No further consultation needed
Minor trail re-alignments for resource protection or visitor safety/experience	No further consultation needed

Action	Compliance Requirement
Install directional/educational signs	No further consultation needed
Heritage Area	
Pursue acquisition or abandonment of County Road for National Monument use	No further consultation needed
Install trail system using combination of old roads and new trail	Further SHPO and ACHP consultation needed
Install waysides/signs	No further consultation needed
Construct bridge across Yellow River to connect north and south banks	Further SHPO and ACHP consultation needed
Sny Magill Unit	
Continue restoration/stabilization of Mississippi riverbank and select tree removal	Further SHPO consultation needed
Construct visitor access boardwalk	Further SHPO and ACHP consultation needed
Acquire land at unit entrance	No further consultation needed
Install visitor contact station	Further SHPO and ACHP consultation needed
Install waysides/signs	No further consultation needed
NATURAL RESOURCES COMPLIANCE (throughout monument)	
For any of the actions listed above that would result in construction or other disturbing activity in actual or potential habitat for federal or state listed threatened or endangered species	Further consultation needed with the U.S. Fish and Wildlife Service in compliance with Section 7 of the Endangered Species Act and with the Iowa Department of Natural Resources
For any of the actions listed above that would result in construction or other disturbing activity in a waterway	Further consultation needed with the U.S. Army Corps of Engineers in compliance with Section 404 of the Clean Water Act

AGENCIES AND ORGANIZATIONS RECEIVING A COPY OF THIS DOCUMENT

FEDERAL AGENCIES

Advisory Council on Historic Preservation
U.S. Environmental Protection Agency
U.S. Army Corps of Engineers
U.S. Department of the Interior
 National Park Service
 Fish and Wildlife Service
U.S. Department of Agriculture
 Natural Resources Conservation Service

U.S. SENATORS AND REPRESENTATIVES

Honorable Charles Grassley, U.S. Senator
Honorable Tom Harkin, U.S. Senator
Honorable Bruce Braley, U.S. Representative
Honorable Tom Latham, U.S. Representative

IOWA STATE OFFICIALS

The Honorable Chet Culver, Governor
Mark Zieman, State Representative
Chuck Gipp, State Representative
Brian Schoenjahn, State Senator
Mark Zieman, State Senator

IOWA STATE AGENCIES

Iowa State Historic Preservation Officer
Iowa Department of Cultural Affairs
Iowa Natural Heritage Foundation
Iowa Department of Natural Resources
Iowa Department of Transportation
Yellow River State Forest
Pike's Peak State Park

AFFILIATED AMERICAN INDIAN TRIBES

Flandreau Santee Sioux Tribe of South Dakota
Ho-Chunk Nation of Wisconsin (formerly the Wisconsin Winnebago Tribe)
Iowa Tribe of Kansas and Nebraska;
Iowa Tribe of Oklahoma
Otoe-Missouria Tribe of Indians, Oklahoma
Lower Sioux Indian Community in the State of Minnesota
Prairie Island Indian Community in the State of Minnesota
Sac & Fox Tribe of the Mississippi in Iowa
Sac & Fox Nation of Missouri in Kansas and Nebraska
Sac & Fox Nation, Oklahoma
Santee Sioux Nation, Nebraska (formerly the Santee Sioux Tribe of the Santee Reservation of Nebraska)
Shakopee Mdewakanton Sioux Community of Minnesota
Sisseton-Wahpeton Oyate of the Lake Traverse Reservation, South Dakota (formerly the Sisseton-Wahpeton Sioux Tribe of the Lake Traverse Reservation
Spirit Lake Tribe, North Dakota
Upper Sioux Community, Minnesota
Winnebago Tribe of Nebraska

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Jan Harris, Chief, Planning Branch 3.

Harpers Ferry Center

Richard Jones, Interpretive Planner – Responsible for visitor use and experience sections of planning, affected environment, and impact analysis.

Effigy Mounds National Monument

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Kenneth Block, Chief Ranger

Sharon Greener, Administrative Assistant

Rodney Rovang, Natural Resources Manager

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Midwest Regional Office

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Other

Don Weeks, NPS Water Resources

Patt Murphy, Iowa Tribe of Kansas and Nebraska



Appendixes, References, and Index



APPENDIX A: LEGISLATION SUMMARY

Effigy Mounds National Monument, Iowa —

- Presidential Proclamation No. 2860, Oct. 25, 1949, 64th Statutes at Large, 81st Congress, 2d Session, 64 part 2:A371
- Public Law 87-44, May 27, 1961, 75 Stat. 88
- Public Law 106-323, Oct. 19, 2000, 114 Stat. 1289

Presidential Proclamation 2860 established Effigy Mounds National Monument because of “... earth mounds in the northeastern part of the State of Iowa known as the Effigy Mounds are of great scientific interest because of the variety of their forms, which include animal effigy, bird effigy, conical, and linear types, illustrative of a significant phase of the mound-building culture of the prehistoric American Indians ...”

The proclamation also included this statement: “Warning is hereby expressly given to all 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.”

Public Law 87-44 added 272 acres of land to the monument, “. . . for the purposes of preserving certain prehistoric Indian mounds and protecting existing wildlife and other natural values . . .”

Public Law 106-323 allowed for additional lands (Ferguson/Kistler Tract and the Riverfront Tract) to be purchased from willing sellers and adjusted the monument boundary to include these lands. The Ferguson/Kistler Tract is now called the Heritage Addition.

**APPENDIX B: LETTERS TO AND FROM THE U. S. FISH AND WILDLIFE
SERVICE AND IOWA DEPARTMENT OF NATURAL RESOURCES**



United States Department of the Interior

NATIONAL PARK SERVICE
DENVER SERVICE CENTER
12795 W. ALAMEDA PARKWAY
P.O. BOX 25287
DENVER, COLORADO 80225-0287

In reply refer to:
EFMO (85825)

December 29, 2004

Supervisor

Rock Island Ecological Services Field Office
4469 48th Avenue Court
Rock Island, IL 61201

The National Park Service is starting development of a General Management Plan for Effigy Mounds National Monument located in Allamakee and Clayton counties, Iowa (map attached).

This long-term, comprehensive plan will define overall management goals and objectives, identify resources that need protection and prescribe general management actions at the Monument for the next 15-20 years. Specific resources or areas are managed under separate, lower level plans based on the General Management Plan.

As the Project Manager for this federal action, I am requesting a current list of federally-listed or any other special status species that might occur in the vicinity of Effigy Mounds, and designated critical habitat, if any, for such species.

This letter also serves as a record that the National Park Service is initiating consultation with your agency pursuant to the requirements of the Endangered Species Act and National Park Service Management Policies.

I appreciate your attention to this inquiry and look forward to working with your office throughout this planning effort. Please send any responses to:

Matthew Safford
National Park Service (DSC-P)
12795 W. Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287
Phone: (303) 969-2898
Email: <matthew_safford@nps.gov>

Sincerely,
Matthew Safford
Planning Project Manager

Received DSC-P

JAN 19 2005

United States Department of the Interior



FISH AND WILDLIFE SERVICE
 Rock Island Field Office
 4400 44th Avenue East
 Rock Island, Illinois 61201
 Phone: (815) 791-5245 Fax: (815) 791-4344



FOR INFORMATION
 FWS RIF0

January 17, 2005

Mr. Matthew S. Safford
 National Park Service
 Denver Service Center
 12795 W. Alameda Parkway
 P.O. Box 25287
 Denver, Colorado 80225-0287

Dear Mr. Safford:

FWS is in response to your letter of December 29, 2004, regarding the development of a General Management Plan for Effigy Mounds National Monument in Allamakee and Clayton Counties, Iowa.

To facilitate compliance with Section 7(a) of the Endangered Species Act of 1973, as amended, Federal agencies are required to obtain from the Fish and Wildlife Service information concerning any species, listed or proposed to be listed, which may be present in the area of a proposed action. Therefore, we are furnishing you the following list of species which may be present in Allamakee and Clayton Counties, Iowa.

Classification	Common Name (Scientific Name)	Habitat
Threatened	Bald eagle (<i>Haliaeetus leucocephalus</i>)	Breeding and wintering
Threatened	Prairie bush clover (<i>Lespedeza leptostachya</i>)	Dry to mesic prairies
Threatened	Western prairie linged orchid (<i>Platanthera praeclara</i>)	Wet grasslands marshes
Threatened	Northern sharpshooter (<i>Acanthys pygmaea maculosa</i>)	North facing slopes

Mississippi River

2

Endangered	Higgins eye pearl mussel <i>Pearcea ligamentum</i>	Mississippi River
Endangered	Iowa prairie clover sili <i>Desmodium illinoense</i>	Verde hills slopes

The downy-wooded eagle (*Haliaeetus leucorhynchus*) periodically occurs statewide and is listed as nesting and wintering in Allamakee and Clayton Counties. During the winter, this species feeds on fish in the open water areas created by dam outwaters, the warm water effluents of water plants and municipal and industrial discharges, or in power plant cooling ponds. The more severe the winter, the greater the area coverage and the more concentrated the eagles become. They roost at night in groups on large trees adjacent to the river in areas that are protected from the harsh winter elements. They perch on large standing trees to rest or feed on fish. There is no critical habitat designated for this species. The eagle may not be harassed, hunted, or shot when present, nor may its nests be altered.

The prairie bush clover (*Desmodium illinoense*) is listed as threatened and considered to potentially occur statewide in Iowa, including Allamakee and Clayton Counties. It occupies dry to moist prairies with gravelly soil. There is no critical habitat designated for this species. Federal regulations prohibit any commercial activity involving this species or the destruction, malicious damage, or removal of this species from Federal land or any other lands in knowing violation of State law or regulation, including State criminal trespass law. This species should be searched for whenever prairie remnants are encountered.

The western prairie fringed woodrat (*Neotoma floridana*) is listed as threatened and considered to potentially occur statewide in Iowa, including Allamakee and Clayton Counties. It occupies wet to moist grassland habitats. There is no critical habitat designated for this species. Federal regulations prohibit any commercial activity involving this species or the destruction, malicious damage, or removal of this species from Federal land or any other lands in knowing violation of State law or regulation, including State criminal trespass law. This species should be searched for whenever wet prairie remnants are encountered.

The northern minkshood (*Ambloplites rupestris*) is listed as threatened in Allamakee and Clayton Counties. It occupies north-facing slopes in the driftless area of northeast Iowa and one slope along the Iowa River. There is no critical habitat designated for this species. Federal regulations prohibit any commercial activity involving this species or the destruction, malicious damage, or removal of this species from Federal land or any other lands in knowing violation of State law or regulation, including State criminal trespass law.

The Higgins eye pearl mussel (*Pearcea ligamentum*) is listed as endangered for the Mississippi River north of Lock and Dam 20 which includes Allamakee and Clayton Counties, Iowa. This species prefers sand-gravel substrates with a swift current and is most often found in the main channel but occurs in open flowing side channels.

Mr. Marshburn:


3

While there is no designated critical habitat, the Higgins Eye Recovery Team has designated habitats essential to the recovery of the species. These areas include Allamakee County, Iowa River miles 627.8-628.566, Harper's Slough area, Allamakee County, Iowa River mile 636.641-486, Marquette McCreary area, Clayton County, Iowa River mile 634.626-635.626, Mulder Island area, Clayton County, Iowa River mile 635.629-636, Cordova, Rock Island County, Illinois River miles 503.503-521 and Sylva Slough, Rock Island, Illinois River mile 485.3-486.3.

The endangered Iowa pleistocene snail *Iliocyba warreni* is found on north facing slopes of the bluffs and on Clayton County. It occupies algal rock protruding plains slopes at the outlet of underground seeps along bluffs within a narrow regime of soil moisture and temperature. There is no critical habitat designated. It must not be harmed, harassed, or disturbed.

These comments provide technical assistance only and do not constitute a report of the Secretary of the Interior on a project within the meaning of Section 7(b) of the Fish and Wildlife Coordination Act, do not fulfill the requirements under Section 7 of the Endangered Species Act, nor do they represent the review comments of the U.S. Department of the Interior on any forthcoming environmental statement.

If you have any questions regarding our comments, please contact Kristen Dandridge staff at (800) 790-5800 ext. 215.

Sincerely,

 Richard C. Nelson
 Field Supervisor

STATE OF IOWA, DEPARTMENT OF NATURAL RESOURCES
 STATE OF ILLINOIS, DEPARTMENT OF NATURAL RESOURCES



THOMAS J. V. SACK, GOVERNOR
SACILEE M. PERSON, LIE GOVERNOR

Received DSC-P

JAN 27 2005

STATE OF IOWA

DEPARTMENT OF NATURAL RESOURCES
JEFFREY R. VONK, DIRECTOR

January 24, 2005

Mr. Mathew Safford
National Park Service (DSC-P)
12705 West Alameda Parkway
P.O. Box 25287
Denver, CO 80225-0287

RE Request for a list of records for state-listed or special status species within Effigy Mounds National Monument consisting of the North Unit, the South Unit and Sky McGill

Dear Mr. Safford:

Per your request, please find enclosed a diskette containing our computer records for Iowa listed endangered, threatened and special concern species as per your request. Please note that we have included those records that were mapped within all of T96N R3W, T95N R3W and within Section 23 T94N R3W.

If you have any questions about this letter or if you require further information, please contact me at (515) 281-8967.

Sincerely,

KEITH L. DOHRMANN, ENVIRONMENTAL SPECIALIST
POLICY AND COORDINATION SECTION
CONSERVATION AND RECREATION DIVISION

Attachment: Diskette with ArcView files for the data requested
Mapped Area

FILE COPY: Keith L. Dohrmann

05 11901 100

WALLACE STATE OFFICE BUILDING, 601 EAST 9TH STREET, DES MOINES, IOWA 50319

515 281 5078 TDD 515 242 5387 FAX 515 281 6794 WWW.IOWA.DNR.IA

APPENDIX C: LETTERS TO AND FROM THE IOWA STATE HISTORICAL
PRESERVATION OFFICER, THE ADVISORY COUNCIL ON HISTORIC
PRESERVATION, AND AMERICAN INDIAN TRIBES



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Effigy Mounds National Monument
151 Hwy. 76
Harpers Ferry, Iowa 52146-7519

D18(EFMO)

June 15, 2005

Ms. Anita Walker, SHPO
State Historical Society of Iowa
Capitol Complex
East 6th and Locust Street
Des Moines, Iowa 50319

*Notified Doug
Jones of this
letter being sent
to Ms. Walker
6/15/05
Left voice mail
message*

Dear Ms. Walker:

Reference: Effigy Mounds National Monument, General Management Plan and
Environmental Impact Statement

Subject: Initiation of Section 106 Compliance

Over the next several years, the National Park Service will be preparing a combined general management plan and environmental impact statement for Effigy Mounds National Monument in Allamakee and Clayton counties, Iowa, a property listed on the National Register of Historic Places. The general management plan portion will guide monument operations and resource management for the next fifteen to twenty years. The environmental impact statement portion will provide an overall decision-making framework for long-term management direction. Important issues and concerns facing national monument staff will be identified through public scoping along with a reasonable range of management alternatives. These will be analyzed in the environmental impact statement for each alternative's potential environmental consequences on both cultural and natural resources.

In accordance with the consultation process outlined in the Advisory Council Regulations at 36 CFR 800, and the 1995 Programmatic Agreement among the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, and the National Park Service, your expertise and involvement in the planning process are requested.

The planning team will be multi-disciplinary with cultural and natural resources specialists. Other team members will be identified later. Funding for FY 2005 is minimal so the bulk of the data gathering will occur in FY 2006, beginning October 1st of

this year, when the full team expects to visit the national monument. Any issues, concerns, or information you might wish to pass along at this time would be most appreciated.

Should you or any member of your staff desire to participate as a full member of the planning team, please let me know. Regardless, of the level of participation you choose, we will keep you informed about our progress throughout the planning effort, including the schedule of any public meetings. The draft general management plan/environmental impact statement will be sent to you for review and comment.

We look forward to your involvement and believe that your participation in the planning effort for Effigy Mounds National Monument will result in better resources management.

Thank you in advance for your consideration. If you have any questions or require additional information, please contact me at (563) 873-3491 or Mr. Matthew Safford (Project Manager) at (303) 969-2898.

Sincerely,

A handwritten signature in black ink, appearing to read 'Phyllis Ewing', with a large, sweeping flourish extending from the end of the signature.

Phyllis Ewing
Superintendent



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Effigy Mounds National Monument
151 Hwy. 76
Harpers Ferry, Iowa 52146-7519

D18(EFMO)

June 15, 2005

John M. Fowler, Executive Director
Advisory Council on Historic Preservation
Old Post Office Building
1100 Pennsylvania Avenue, Suite 809
Washington, D.C. 20004

Dear Mr. Fowler:

Reference: Effigy Mounds National Monument, General Management Plan and
Environmental Impact Statement

Subject: Initiation of Section 106 Compliance

Over the next several years, the National Park Service will be preparing a combined general management plan and environmental impact statement for Effigy Mounds National Monument in Allamakee and Clayton counties, Iowa, a property listed on the National Register of Historic Places. The general management plan portion will guide monument operations and resource management for the next fifteen to twenty years. The environmental impact statement portion will provide an overall decision-making framework for long-term management direction. Important issues and concerns facing national monument staff will be identified through public scoping along with a reasonable range of management alternatives. These will be analyzed in the environmental impact statement for each alternative's potential environmental consequences on both cultural and natural resources.

In accordance with the consultation process outlined in the Advisory Council Regulations at 36 CFR 800, and the 1995 Programmatic Agreement among the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, and the National Park Service, your expertise and involvement in the planning process are requested.

The planning team will be multi-disciplinary with cultural and natural resources specialists. Other team members will be identified later. Funding for FY 2005 is minimal so the bulk of the data gathering will occur in FY 2006, beginning October 1st.



IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Effigy Mounds National Monument
151 Hwy. 76
Harpers Ferry, Iowa 52146-7519

FILE COPY

October 25, 2005

D18 (EFMO)

Mr. Leonard Wabasha
NAGPRA Representative
Shakopee Mdewakanton Sioux
2330 Sioux Trail, NW
Prior Lake, MN 55372

Dear Mr. Wabasha:

The National Park Service has recently initiated the planning process for the development of a General Management Plan (GMP) for Effigy Mounds National Monument in Allamakee and Clayton counties, Iowa.

The process of developing a GMP follows a series of prescribed steps and will take approximately three to five years to complete. The process is deliberative and intended to build consensus among the many participants, assure logic and consistency in plan proposals, and provide for rational decision-making. The GMP project planning team will comprehensively analyze the national monument's cultural and natural resources, adjacent land uses, and interpretive themes. It will also examine the national monument's role in the context of the larger community, region, and National Park system as well as visitor use. This analysis will provide a framework to guide resources management. Public involvement from all constituencies will be sought throughout the course of the planning process.

The planning team and I invite your participation in this planning effort. Since the national monument is a very special place to so many people it is crucial for us to listen, understand, and consider your views throughout the planning process.

There are several ways that you may participate:

*Send to
attached
list*

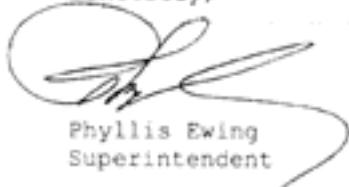
1. As a full team member - attending all planning sessions at the national monument. Either you or someone you delegate would attend all planning meetings to craft management profiles, alternative concepts, alternatives development, and to attend public meetings. This would occur 5-8 times during the project.
2. As a participant reviewer - receiving for review and comment specific products prepared by the team. Rather than attending the planning session, you or your delegate would be sent specific products to keep you aware of the actions of the plan and for your review and comment.
3. As a reviewer of the draft and final plans - this would entail your review and comment only at the draft and final plan stages, similar to the general public.
4. Or, you may delegate your participation to another person whom you trust to represent your tribal interests. In the past this has generally been a representative of another tribe with similar interests for whom the travel is not such a burden. In this instance, you would still be provided with draft and final plans for your review and comment.

Planning will begin with public meetings on November 14 & 15. Public meetings will seek the comment of tribes, the general public, and other concerned agencies, organizations and government entities. You will be receiving a newsletter concerning these public meetings in the near future.

In the meantime, should you have questions about the process or your participation, please do not hesitate to call me. My number is (563) 873-3491.

We hope that you decide to help us with the planning process for Effigy Mounds National Monument. Your participation will help us to better understand the needs of your people and to better protect and sensitively interpret the site to visitors. I look forward to working with you in the upcoming months on this very important and challenging project.

Sincerely,



Phyllis Ewing
Superintendent



March 13, 2006

IN REPLY REFER TO:

D18(EFMO)

United States Department of the Interior

NATIONAL PARK SERVICE

Effigy Mounds National Monument

151 Hwy. 76

Harpers Ferry, Iowa 52146-7519

Mr. Leonard Wabasha
NAGPRA Representative
Shakopee Mdewakanton Sioux
2330 Sioux Trail, NW
Prior Lake, Minnesota 55372

Dear Mr. Wabasha:

The National Park Service is continuing the planning process for the development of a General Management Plan (GMP) for Effigy Mounds National Monument in Allamakee and Clayton counties, Iowa.

The planning team and I, again, invite your participation in this continuing effort. Since the national monument is a very special place to so many people it is crucial for us to listen, understand, and consider your views throughout the planning process.

The next phase of the planning will take place with a workshop on March 28-30, 2006. The primary goal of the workshop is to develop a reasonable range of alternative concepts that address the issues, are within laws and policies, and uphold the purpose and significance of the monument. Part of the alternatives development process involves crafting management prescriptions and zoning schemes. This workshop will take place at the monument visitor center.

The process of developing a GMP follows a series of prescribed steps and will take approximately three to five years to complete. We are currently about one year into the process. The GMP project planning team will comprehensively analyze the national monument's cultural and natural resources, adjacent land uses, and interpretive themes. It will also examine the national monument's role in the context of the larger community, region, and National Park system as well as visitor use. This analysis will provide a framework to guide resources management.

We hope that you decide to help us with the planning process for Effigy Mounds National Monument. Your participation will help us to better understand the needs of your people and to better protect and sensitively interpret the site to visitors.

In the meantime, should you have questions about the process or your participation, please do not hesitate to call me. My number is (563) 873-3491. If you should decide you would like to attend the workshop, please let me know and I can provide you with suggested accommodations.

Sincerely,

Phyllis Ewing
Superintendent

sent to
attached list
3/19/2006

APPENDIX D: YELLOW RIVER WILD AND SCENIC RIVER ASSESSMENT

Wild and Scenic River Eligibility and Suitability Assessment

Yellow River, Iowa

River Segment under Assessment

The segment of the Yellow River within the boundary of Effigy Mounds National Monument, Iowa, approximately 3.5 miles in length (map attached).

Purpose of Assessment

This report documents an assessment to determine if the Yellow River is eligible and suitable for inclusion in the National Wild and Scenic Rivers System.

Jurisdiction

The Yellow River is deemed “navigable” by the state of Iowa, so the water surface and water column are controlled by the state. River shores and bottom within the monument are property of the U.S. Government managed by the National Park Service. The river is managed under concurrent jurisdiction.

Legal and Policy Basis for Assessment

This assessment conforms with the Wild and Scenic Rivers Act of 1968 (P.L. 90-542); “National Wild and Scenic Rivers System; Final Revised Guidelines for Eligibility, Classification and Management of River Areas,” which appeared in the *Federal Register* Vol. 47, No. 173 on September 7, 1982; and, “The Wild and Scenic River Study Process,” a technical report prepared for the Interagency Wild and Scenic Rivers Coordinating Council, dated December 1999.

Section 1(b) of the Wild and Scenic Rivers Act (the Act) states

“It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.”

"Free-flowing" means that a river or segment of river is existing or flowing in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the national wild and scenic rivers system shall not automatically bar its consideration.

Section 5(d)(1) of the act states that,

“In all planning for the use and development of water and related land resources, consideration shall be given by all Federal agencies involved to potential national wild,

scenic and recreational river areas, and all river basin and project plan reports submitted to the Congress shall consider and discuss any such potentials. The Secretary of the Interior and the Secretary of Agriculture shall make specific studies and investigations to determine which additional wild, scenic and recreational river areas within the United States shall be evaluated in planning reports by all Federal agencies as potential alternative uses of the water and related land resources involved.”

The assessment also conforms with NPS *Management Policies 2006* (§4.3.4), which says

“Parks containing one or more river segments listed in the NPS National [Nationwide] Rivers Inventory... will comply with section 5(d)(1) of the Wild and Scenic Rivers Act, which instructs each federal agency to assess whether those rivers or segments are suitable for inclusion in the system. The assessments and any resulting management requirements may be incorporated into a park’s general management plan.”

Maintained by the National Park Service, the National Rivers Inventory (NRI) was compiled, in part, to fulfill the mandate of Section 5(d)(1) that federal agencies consider impacts on potential Wild and Scenic Rivers in all agency planning. This inventory, originally completed in 1982 and updated in 1993, seeks to identify such rivers based on the Act’s basic eligibility criteria. Under a Presidential Directive issued in 1979, each federal agency, as part of its normal planning and environmental review processes, is required to take care to avoid or mitigate adverse effects to rivers in the NRI.

Thirty-five miles of the Yellow River, starting at Highway 60 near Myron, Iowa, and ending with the 3.5 mile segment through the boundary of Effigy Mounds National Monument to the Mississippi River, are listed on the NRI with six outstandingly remarkable values. The last mile, which at the time of the NRI listing was the only part of the river that flowed through the monument since its boundary had not yet been expanded, has been potentially classified as “scenic,” but the first 34 miles have not been classified.

General Description of the Yellow River

The Yellow River flows for about 50 miles from its headwaters near Ossian, Iowa, before emptying into the Mississippi River near the monument headquarters. The Yellow is one of the fastest falling rivers in the state and provides excellent fishing and canoeing opportunities (NRI 1993). Camping and hiking opportunities exist along certain reaches.

The Yellow River watershed is located in northeastern Iowa’s unglaciated “Driftless Area.” This 154,666-acre (62,640-ha) watershed has diverse topographic and natural resource features, along with a variety of resource-related problems similar to those found throughout the watersheds of most tributary streams feeding into the Upper Mississippi River. Situated within a karst region, approximately 90% of the Yellow River’s flow comes from groundwater. The watershed is a diverse, mostly agricultural landscape of incised valleys and rolling uplands. Significant natural habitat exists in the watershed, particularly within its lower reaches where Effigy Mounds National Monument is located. Due to the rugged topography and drainage pattern of this portion of the Driftless Area, small rural communities are situated almost exclusively along the outer fringe of the Yellow River watershed (NPS 2003).

The lower three miles of the Yellow River can act as a backwater of the Mississippi River. Water movement in this reach is sluggish and the level can fluctuate with changes in the flow of either the Yellow or Mississippi rivers.

The state of Iowa manages use on the river surface, including boating and fishing. No hunting is allowed in the monument. The river bottom and shores in Effigy Mounds National Monument

are owned by the U.S. Government and managed by the National Park Service. Recreational uses on the river include infrequent motorboating (only near the mouth of the river), canoeing/kayaking, and fishing from shore or boat.

Results of a limited 1982 study of water quality in the Yellow River showed good water quality. However, in more recent years, there have been fish kills related to the discharge of waste from a meat processing plant near Postville (a few miles upstream from where NRI-listed segment of the river begins). In 2006, a lawsuit challenging this discharge resulted in a settlement forcing a reduction. Additional water quality concerns include a portion of the Yellow River running through Effigy Mounds National Monument which is currently listed on Iowa's impaired waters list for high levels of fecal coliform bacteria and sedimentation due to agricultural runoff.

General Description of Effigy Mounds National Monument

Effigy Mounds National Monument was created in 1949. The purpose of the monument is to preserve outstanding representative examples of significant phases of Indian mound-building cultures in the American Midwest; protect wildlife and the natural values within the monument; and provide for scientific study and appreciation of its features – for the benefit of this and future generations.

ELIGIBILITY ASSESSMENT

Eligibility Criteria

According to the Wild and Scenic Rivers Act, a river or river segment must be free-flowing and possess one or more outstandingly remarkable values to be eligible for inclusion into the National Wild and Scenic Rivers System.

Following criteria established in the Wild and Scenic Rivers Act and guidelines in “*The Wild and Scenic River Study Process*,” a technical paper of the Interagency Wild and Scenic Rivers Coordinating Council, the study team determined whether or not the inventory segment was free-flowing and possessed any outstandingly remarkable values (ORVs). The values considered were scenic, recreational, geological, fish and wildlife, historic, and cultural.

The listing of the Yellow River in the Nationwide Rivers Inventory indicates that the river is free-flowing and possesses the following outstandingly remarkable values: Scenery, Recreation, Geology, Wildlife, History, and Cultural. The following assessment considers the 3.5-mile segment within the current boundaries of the monument.

Free-Flowing Determination. Within Effigy Mounds National Monument, the Yellow River flows in a natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. Thus, the river segment under analysis is determined to be free-flowing in its entirety.

Outstandingly Remarkable Values. In order to be assessed as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant when compared to other rivers on a regional scale defined in the study. All values being considered must be directly related to the river. Only one such value is needed for eligibility.

The region of comparison for each of the values is the Driftless Area of northeastern Iowa.

A review of existing studies and other information from a variety of sources, and professional judgment by members of the study team were the basis for the following analysis of possible ORVs.

Scenery: Forested bluffs, limestone cliffs, and the occasional waterfall can be seen from the river.

The bluffs, rising up to 300 feet above the river, dominate the view. The diversity of habitats (woods, riparian, bluffs), clear water, and opportunities for solitude where only natural sounds can be heard, as well as the unobstructed views free from evidence of human encroachment are components of this value. The hardwood forest turns into a myriad of colors every fall. These combined landscape elements of diverse landforms (topography), vegetation, water, seasonal variations of color, and lack of human intrusions along most of the river segment make this value significant in the region.

Recreation: As one of the fastest falling rivers in the state of Iowa the opportunities for paddling (canoeing and kayaking) are outstanding. The high scenic quality and naturalness make sightseeing, wildlife observation, and photography significant recreational values in the river corridor. Visitors are attracted to the river from throughout the region of comparison and beyond. Motorized watercraft can be used up to 3 miles from the mouth depending on water levels. However this type of use is quite low.

Geology: The river valley showcases the ability of water to erode and dissolve the limestone bedrock to create the rugged terrain of northeast Iowa. During the Ice Ages, the area known as the "Driftless Zone" was left unscathed by the advance and retreat of the continental ice sheets for a million years. Although the area was not directly affected by glaciers, their melt waters carved out the Mississippi River Valley. The river valleys at the base of the bluffs used to be much deeper than what exists today, having been filled in with glacial debris and sediments over the millennia. The oldest layer exposed at the monument is the Jordan sandstone that was laid down during the Cambrian period. This layer is seen along the base of the east facing bluffs and is an important aquifer for the area. There is approximately 500 feet of vertical relief from the water surface at the mouth of the Yellow River (600 ft. above sea level) to the highest point in the Heritage Addition. Limestone/dolomite bluffs rise up to 300 feet above the river.

Fish: Fish species in the Yellow River probably include some or all of the 118 species known to occur in the Upper Mississippi River National Fish and Wildlife Refuge which is adjacent to the monument. A list provided by the U.S. Fish and Wildlife Service indicates that the most common species are gizzard shad, common carp, emerald shiner, river shiner, bullhead minnow, and bluegill. An Iowa state species of concern, the pugnose minnow, has been found near the Yellow River in the Heritage Addition (Natural Resource Commission 1999). Both the brook trout and grass pickerel, state listed species, have been found in Dousman Creek, a tributary to the Yellow River, but not in the Yellow River. Native freshwater mussels are also found in Dousman Creek and the Mississippi River but no live specimens have been found in the Yellow River. The river is not considered a nationally or regionally important producer of resident fish species nor does it provide unique habitat for rare species.

Wildlife: Most of the Yellow River corridor is in an area of the monument (the Heritage Addition) that is in or returning to a relatively natural condition. Thus, the river corridor provides exceptionally high quality habitat for wildlife, including federal and state listed threatened, endangered, or sensitive species. The Yellow River floodplain has been identified as one of 12 nesting sites and one of two multiple nesting sites of the red-shouldered hawk (a state listed endangered species) in Iowa. The river corridor also serves as a wildlife travel corridor because it connects two protected areas – Effigy Mounds National Monument and Yellow River State Forest. These wildlife and wildlife habitat values are increasingly rare in the region due to expanding development.

Historic: On the shores of the Yellow River are the ruins of a historic military sawmill, operated at one time by Jefferson Davis, and a lime quarry. The sawmill and quarry were established

primarily to provide lumber and lime mortar for the construction of Fort Crawford across the Mississippi in Wisconsin. The sawmill has been determined eligible for listing in the National Register of Historic Places. These resources are significant because they are reminders of how early nineteenth century American Indian treaties involved the military in resolving “the Indian question” and opened up the territories for United States expansion and settlement prior to the Mexican War.

Cultural: Effigy Mounds National Monument contains one of the largest concentrations of Indian mounds in the United States including some of the finest and best preserved examples of effigy mounds in their original forms. A number of the mounds that once existed in the Yellow River floodplain and open field areas were destroyed by early farming activities prior to establishment of the national monument. While the native cultures that created the mounds certainly used the Yellow River, the mounds are not directly river related. A habitation site (now called the FTD site) was discovered near the Yellow River’s mouth.

The information presented above was compared to criteria established by the Interagency Wild and Scenic Rivers Coordinating Council to make the determinations shown in the following table.

VALUE	Outstandingly Remarkable?
Scenery	Yes
Recreation	Yes
Geology	Yes
Fish	No
Wildlife	Yes
History	Yes
Cultural	No. Not in river study corridor

Segment Classification

Each segment of a river recommended for designation must be classified as either *Wild*, *Scenic*, or *Recreational* according to the following definitions from the Act:

- (1) *Wild river areas* – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted. These represent vestiges of primitive America.
- (2) *Scenic river areas* – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.
- (3) *Recreational river areas* – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have

undergone some impoundment or diversion in the past.

Eligibility Finding and Tentative Classification

Based on the information above, the segment of the Yellow River being assessed is free of impoundments and possesses five Outstandingly Remarkable Values. Therefore, the National Park Service determines that the Yellow River is *eligible* for possible inclusion into the Wild and Scenic River System. The study team determined that the appropriate tentative classification for the entire segment is “Scenic.”

SUITABILITY ASSESSMENT

A typical boundary for a river study area is one-quarter mile (1,320 feet, 403 meters) from the river's ordinary high water line on both sides of the river up to a maximum of 320 acres per river mile according to the Act. The tentative boundary for the potential Yellow River W&SR would be defined by channel, ordinary high water mark or high bench, and may include terrestrial landscape areas necessary to protect the identified Outstandingly Remarkable Values within the boundaries of Effigy Mounds National Monument (a map illustrating one possible boundary based on the floodplain is attached). The final boundary would be established in a river management plan prepared after designation.

Suitability Criteria

In addition to the outstandingly remarkable values listed previously, the following factors (outlined in the Wild and Scenic Rivers Act) were analyzed for the Yellow River in determining whether or not the river segment is suitable for inclusion in the Wild and Scenic River System: the characteristics which do or do not make the area a worthy addition to the system; current status of landownership and use in the area; reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the system; the extent to which administration would be shared with state and local agencies; the estimated cost of acquisition and administration; the ability of the National Park Service to manage the segment as a WSR and other potential protection mechanisms other than WSR status; and, any historical or existing rights which could be adversely affected. These criteria are addressed below as they apply to the 3.5-mile segment of the Yellow River.

Characteristics that make the area a worthy addition to the National Wild and Scenic River System. The segment identified in this assessment is in the unglaciated or Driftless Area of northeastern Iowa, western Wisconsin, southeast Minnesota, and the northwestern corner of Illinois. There are no other designated segments of the National Wild and Scenic Rivers System within the Driftless Area.

Existing water developments and rights held on the river are associated with livestock, crops, and domestic use. These uses and rights occur upstream of the monument and would not be affected by Wild and Scenic River designation as they would be senior to any rights acquired through designation. No action taken in the general management plan or the recommendation of this assessment can establish an appropriation or Federal reserve water right. An act of Congress designating a Wild and Scenic River may or may not establish a Federal reserve water right. If Congress creates a reserved right, the National Park Service and the state of Iowa may establish minimum instream flows necessary to meet the purposes of the designation.

The Yellow River corridor provides opportunities for recreational activities such as hiking, bird-watching, photography, nature study, and access to cultural sites. There are no good numbers for recreation use in the river area because of its remoteness. Effigy Mounds National Monument receives almost 90,000 visitors each year. The use of motorboats is not prohibited but their use is limited by natural barriers to the first 3 miles or so from the Mississippi River.

Developed or semi-developed river access points are provided upstream of the monument on state forest land and at an IDNR site on the Mississippi River near the mouth of the Yellow River. To avoid the last mile of paddling before the IDNR takeout, some paddlers have been exiting the river at a small spot on the northern bank of the river where a “social” (unauthorized and not formally developed) landing spot near Highway 76. Exiting the river at this social landing saves about 20 minutes of paddling to the developed day use take-out area on the Mississippi River. Until 2000, this social take-out was outside of the boundaries of the monument. Today, the bank of the river is inside of the boundary, but according to the most recent boundary survey paddlers must cross private land to the point where they access their vehicles. The social takeout area is causing damage to the river’s edge through erosion. It also presents a safety hazard both from boaters slipping as they exit their canoes in the soft, muddy bank and from their cars exiting the informal parking site onto a fast moving highway where it is difficult to see oncoming traffic. The GMP alternatives call for closing this take-out site and having paddlers go on downstream to the IDNR take-out.

Status of land ownership. The entire segment of this assessment traverses shores and river bottoms which are owned by the National Park Service. As a navigable river, the water column itself is state-owned. Law enforcement on the river is subject to concurrent jurisdiction. There are no incompatible uses.

Reasonably foreseeable potential uses of the land and water that would be enhanced, foreclosed, or curtailed if the area were included in the system. The segment under consideration is within the boundary of a national monument which is managed to preserve examples of Indian mound-building cultures, protect wildlife and the natural values, and provide for scientific study and appreciation. Upstream from this segment, another 3.8 miles of Yellow River also flows through publicly owned land of the Yellow River State Forest. The Yellow is one of the fastest falling rivers in the state and is known for providing excellent fishing and canoeing opportunities. There are no recreational uses which would be foreclosed or curtailed due to inclusion in the Wild and Scenic River System and its inclusion would enhance the use of this river by visitors.

A pedestrian bridge crosses the Yellow River near the eastern monument boundary. Just outside this boundary, about 500 feet downstream from the pedestrian bridge, a highway and a railroad bridge cross the river. These existing bridges have begun to erode the scenic value of the river. Any additional bridges across the river may further erode the remaining scenic value of the river. Therefore, impacts of the bridge to scenery, as well as to the other qualities that make the river eligible as a Wild and Scenic River. If a new bridge could not be built that would avoid these impacts, it would not be allowed.

Designation of this segment of the Yellow River would enhance its scenic, recreational, geological, wildlife, and historic values and preserve its free-flowing nature.

The extent to which administration would be shared with state and local agencies. This criterion does not apply to this situation because the segment of river under study is completely within the boundary of Effigy Mounds National Monument. It would be administered by the National Park Service.

Estimated cost of acquiring necessary lands, interests in lands, and administering the area if it is added to the National System. There would be no acquisition costs, since the segment under consideration flows through federal land managed by the National Park Service. There would be some administrative cost to the National Park Service to comply with section 7 of the Wild and Scenic Rivers Act (reviews of proposed projects that may affect the river), but this is not expected to be significant. There are no anticipated water resource projects at this point that would be expected to have direct and adverse effects on the values of this segment of the Yellow River.

Ability of the agency to manage and/or protect the river area or segment as a WSR, or other mechanisms (existing and potential) to protect identified values other than WSR designation

The National Park Service currently works collaboratively with the State of Iowa and others to protect the Yellow River. Management of the river, should it be designated, is within the capability of the current monument and regional NPS staff. While there are other mechanisms to protect the values (such as NRI listing and preservation management prescription of the zone surrounding the river in the General Management Plan), WSR designation would strengthen the level of protection.

Historical or existing rights that could be adversely affected. Designation would not affect any existing or historic rights. No legal rights exist on the land surrounding this segment of the Yellow River that would irreparably harm the river's values. The Federal government may acquire water rights under state law but these water rights would be junior to existing rights.

Suitability Finding

Based on the information and analysis above, the 3.5-mile segment of the Yellow River that traverses Effigy Mounds National Monument is *suitable* for inclusion in the National Wild and Scenic River System with the tentative classification of "Scenic." Designation of this segment would provide long-term protection for the outstandingly remarkable river values identified in this assessment.

This study will be forwarded through the Department of the Interior to Congress with a recommendation for designation as a Wild and Scenic River. Final designation requires that Congress must pass, and the President must sign into law, a bill to authorize inclusion of a river into the National Wild and Scenic Rivers System.

Interim Management

Until Congressional action occurs on the NPS recommendation for the segment to be included as a part of the National Wild and Scenic River System, it will be managed to protect the free-flowing characteristics, tentative classification, and outstandingly remarkable values. Environmental impact analysis (e.g., NEPA documentation) for future actions proposed in the river corridor would address potential impacts, and mitigation or alternatives would be applied to avoid adverse impacts to these values and characteristics.

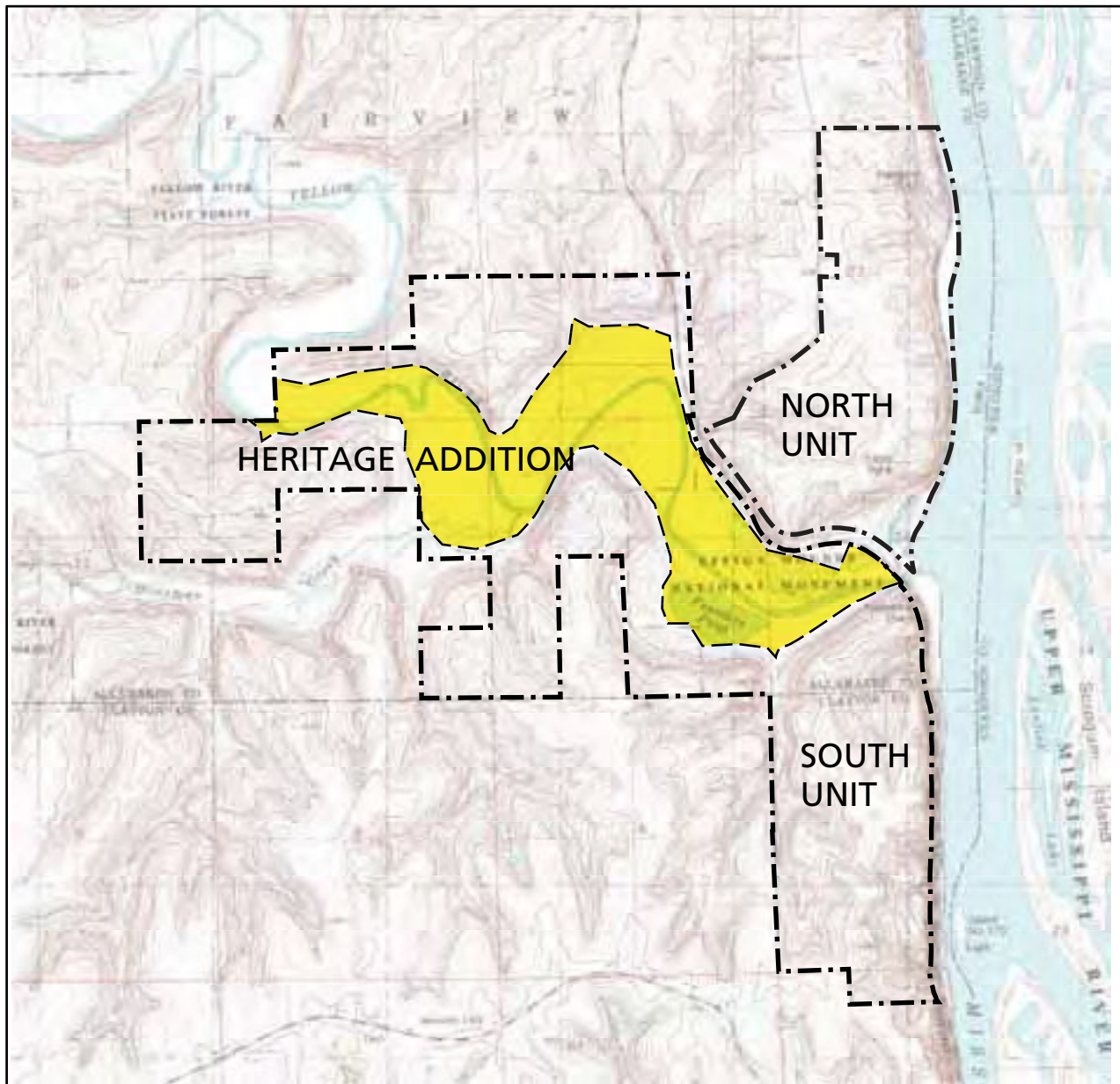
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Sny Magill

NOTE: Scale of Sny Magill area is larger than map on top.

Legend

-  Monument Boundary
-  Possible Wild & Scenic River Boundary

North



POSSIBLE WILD AND SCENIC RIVER BOUNDARY

EFFIGY MOUNDS NATIONAL MONUMENT

UNITED STATES DEPARTMENT OF THE INTERIOR / NATIONAL PARK SERVICE

DSC / Jan. 08 / 394 / 20,027

APPENDIX E: SPECIAL STATUS SPECIES KNOWN IN THE MONUMENT

F-Federal; IA- Iowa; E-Endangered; T-Threatened

1. Higgins eye mussel (*Lampsilis higginsii*) F-Endangered, IA-E
2. Bald eagle (*Haliaeetus leucocephalus*) F-Delisted, IA-E
3. Peregrine falcon (*Falco peregrines*) F- Delisted, IA-E
4. Gray wolf (*Canis lupus*) F- Delisted
5. Red-shouldered hawk (*Buteo lineatus*) IA-E
6. Bluff Veritigo (*Veritigo merimecensis*) IA-E
7. Spectaclecase (*Cumberlandia monodonta*) IA- E
8. Slough sandshell (*Lampsilis teres teres*) IA-E
9. Yellow sandshell (*Lampsilis teres anodontoides*) IA-E
10. Purple cliff break (*Pellaea atropurpurea*) IA-E
11. Yellow-eyed grass (*Xyris torta*) IA-E
12. Leathery grapefern (*Botrychium multifidum*) IA-T
13. Jeweled shooting star (*Dodecatheon amethystinum*) IA-T
14. Creeping juniper (*Juniperus horizontalis*) IA-T
15. Wild lupine (*Lupinus perennis*) IA-T
16. Purple fringed orchid (*Platanthera psycodes*) IA-T
17. Slender ladies-tresses (*Spiranthes lacera*) IA-T
18. Southern bog lemming (*Synaptomys cooperi*) IA-T
19. Grass pickerel (*Esox americanus*) IA-T
20. Central newt (*Notophthalmus veridescens*) IA-T
21. Strange floater (*Strophitus undulates*) IA-T

22. Hawthorn (*Crataegus pruinosa*)
23. Purple coneflower (*Echinacea purpurea*)
24. Prairie dock (*Silphium terebinthinaceum*)
25. Rough bedstraw (*Galium asprellum*)
26. Small white lady's slipper (*Cypripedium candidum*)
27. Summer grape (*Vitis aestivalis*)
28. Southern Flying Squirrel (*Glaucomys volans*)

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