National Park Service
U.S. Department of the Interior

Effigy Mounds National Monument
Iowa

Effigy Mounds National Monument

Cultural Landscape Report and Environmental Assessment

Public Review Draft, February 2016

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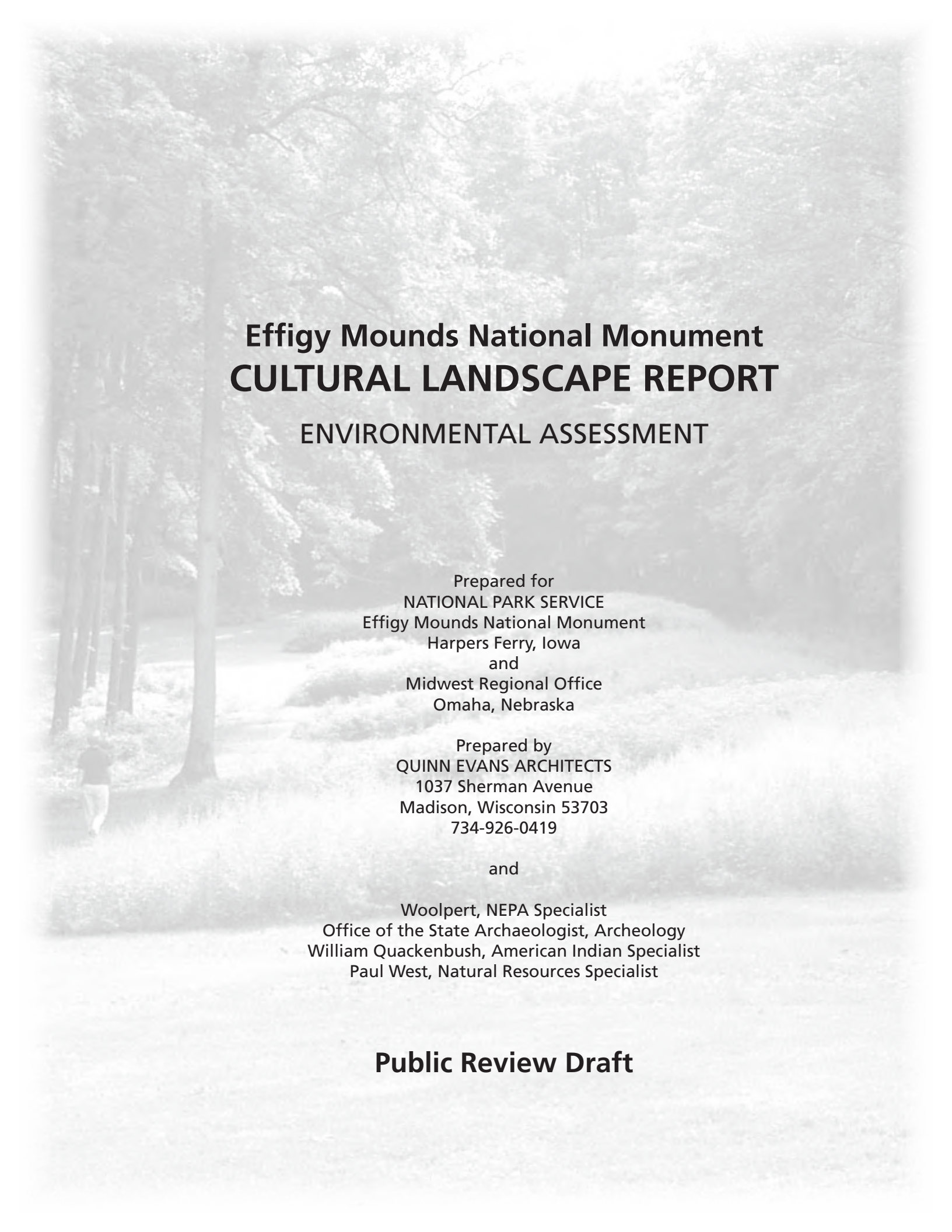

Effigy Mounds National Monument
CULTURAL LANDSCAPE REPORT

ENVIRONMENTAL ASSESSMENT

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Public Review Draft

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Many individuals and groups contributed to the preparation of this report and the planning process upon which it is based. These contributions added substantial value to the process and final document. The project team is grateful for all support provided.

Representatives of American Indian tribes with connections to the Monument served an important role in the project by attending meetings and discussing issues with the project team, helping to guide the development of the presentation of historical information and treatment recommendations. Their input added greatly to the value and validity of the planning process and resulting document. Representatives of the 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 of Mdewakanton Sioux Indians 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, Shakopee Mdewakanton Sioux Community of Minnesota, Upper Sioux Community, Minnesota, Winnebago Tribe of Nebraska, Yankton Sioux Tribe, Omaha Tribe of Nebraska, Ponca Tribe of Nebraska, Standing Rock Sioux Tribe, Sisseton-Whapeton Oyate, Santee Sioux Nation, and Crow Creek Sioux Tribe. William Quackenbush, Tribal Historic Preservation Officer for the Ho-Chunk Nation of Wisconsin, provided expertise related to traditional use of plants by members of the Ho-Chunk Nation of Wisconsin, and also served as a liaison between the CLR project team and other formal representatives of American Indian tribes. His guidance enhanced the ability of the project team to integrate concerns of tribal nations into the analysis and recommendations.

Several other stakeholders supported the project through their participation and input. In particular, the State Historical Preservation Office, represented by Doug Jones, and the Office of the State Archaeologist, represented by John Doershuk, Shirley Schermer, and Lara Noldner, attended meetings and reviewed drafts of the report. Their input and suggestions held great value.

Throughout the project, the staff at Effigy Mounds National Monument provided information, assistance, critique, and guidance reflecting their outstanding knowledge of, and dedication to, the resources associated with the Monument. The commitment and guidance provided by Superintendent James Nepstad, Cultural Resource Specialist Albert LeBeau, Natural Resource Manager Rodney Rovang, and Biological Science Technician Jessica Salesman, enhanced the process and ensured accuracy and appropriate representation of information within the report. Marla McEnaney, Historical Landscape Architect with the Midwest Regional Office of the National Park Service served as project manager for the effort and expertly guided the project.

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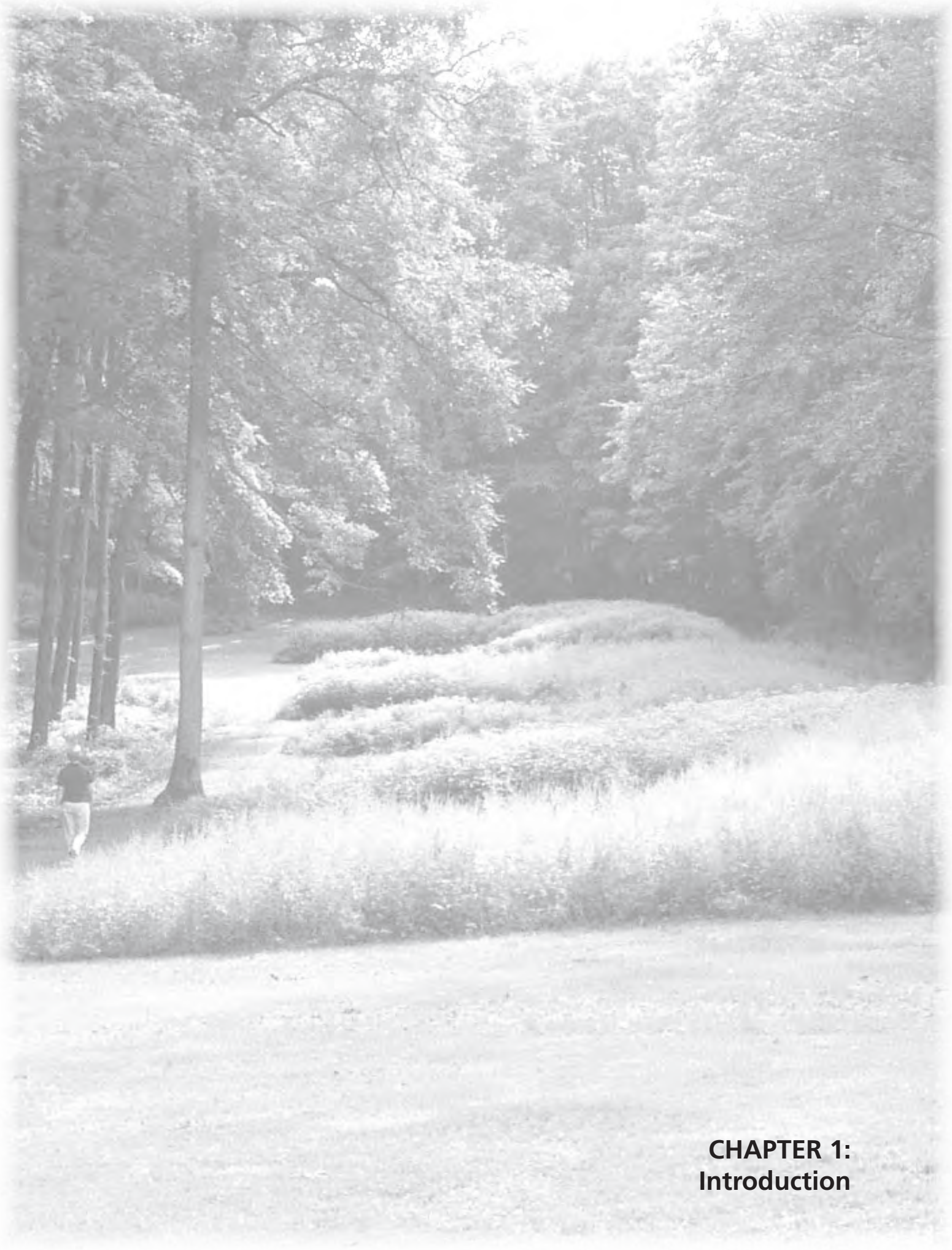

CHAPTER 1: Introduction

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Introduction

This document presents the Cultural Landscape Report and Environmental Assessment (CLR/EA) for Effigy Mounds National Monument (EMNM or the Monument) in northeastern Iowa. The Monument preserves a landscape of great cultural value in a beautiful and contemplative natural setting, including over 200 American Indian mounds located in one of the most picturesque sections of the Upper Mississippi River Valley. The mounds are considered sacred by many Americans, especially the culturally associated American Indian tribes. The recommended treatment has been developed through collaboration with formal representatives of American Indian Nations associated with the Monument landscape and strives to honor and respect culturally significant aspects of the Monument while encouraging appropriate use, education and interpretation.

This CLR/EA provides documentation of the historical development, existing conditions, analysis of landscape characteristics, and treatment recommendations for the Monument landscape. It builds upon the many studies, investigations, and documents that exist for the Monument, including numerous archeological investigations.

This CLR/EA is the primary document used to guide management and stewardship of the cultural landscape at Effigy Mounds National Monument. It provides comprehensive guidance to ensure that long-term preservation, stewardship and use objectives are met to the greatest extent possible.

Study Area and Landscape Character Areas

Project Study Area

The Monument is located in northeastern Iowa adjacent to the Mississippi River (see Figure 1-1). It includes 2,526 acres in Allamakee and Clayton Counties characterized by forested uplands, steep bluffs, floodplain terraces, and swift cutting streams channeling into the bedrock terrain on the west bank of the Mississippi River. More than 200 conical, linear, compound and effigy mounds constructed between 500 BC and AD 1300 are located within the Monument. The Monument also contains other archeological sites.

The Monument is divided into four management units defined by the 2013 General Management Plan: North Unit, South Unit, Heritage Unit, and Sny Magill Unit. The North, South and Heritage Units combined include 2,406 acres containing 106 verified mounds. The Sny Magill Unit is located approximately ten miles south of the North Unit and comprises one of the densest concentrations of extant mounds in the country. Ninety-nine designated mounds and twelve mound-like features are located within a one hundred twenty acre site. The mounds are clustered closely together in this low-lying area on the western bank of the Mississippi River.

For the purposes of this cultural landscape report, landscape character areas (LCA) are used within the four management units to further define the landscapes at the Monument.

Landscape character areas are areas that contain similar physical characteristics, qualities, attributes and associated cultural landscape resources. The nine LCAs used throughout the report are described in the following section (see Figure 1-2).

North Unit Landscape Character Areas (LCA 1-4)

The North Unit includes the Monument's headquarters, maintenance facility, visitor center and trails which provide access to several mound groups and scenic views. Four LCAs are located within the North Unit. Drawings illustrating existing conditions for each LCA are provided at the end of Chapter 3. In addition to the mounds, this unit also includes archeological sites, including rock shelters and village sites. Information regarding these sites and their locations is protected and not presented in the CLR.

Landscape Character Area 1 (LCA 1)

The northernmost LCA includes mounds 1 through 9 (Hanging Rock Mound Group), the northern portion of the Hanging Rock Trail and the Hanging Rock Overlook.

Landscape Character Area 2 (LCA 2)

This area includes mounds 10 through 20, below-ground remnants of mounds 95 through 96, the Third Scenic View Trail and Overlook, Twin Views Trail and Overlooks, and a section of the Hanging Rock Trail. The location of mounds 95-96 is protected and not illustrated on the CLR drawings.

Landscape Character Area 3 (LCA 3)

LCA 3 includes mounds 21 through 54 (the Great Bear, Little Bear, and Fire Point Mounds) and the Fire Point and Eagle Rock overlooks.

Landscape Character Area 4 (LCA 4)

This area includes the Monument visitor center, parking lot, administrative and maintenance offices, mounds 55 through 61, trail heads leading to the north and south, and Founder's Pond. Highway 76 bisects LCA 4. Studies conducted by the Midwest Archeological Center indicate that at least 40 to 50 mounds were once present on the Yellow River terrace. Agricultural plowing and construction of the Monument parking lot, visitor center, and residences may have disturbed at least 30 of these mounds.[1]

South Unit Landscape Character Areas (LCA 5-7 and part of LCA 8)

The South Unit includes trails that provide access to mound groups, two scenic overlooks, and the Old Military Road and associated cistern. There are three LCAs in the South Unit. This unit also includes rock shelters and cabin sites. Information regarding these sites and their locations is protected and not presented in the CLR.

Landscape Character Area 5 (LCA 5)

LCA 5 includes mounds 62 through 64, two non-numbered mounds at site 13AM446, the Founders Pond Overlook, Nazekaw Point Trail and Nazekaw Point Overlook. The South Unit Trail provides a rugged pedestrian route and limited access for maintenance vehicles into the South Unit from Highway 76.

[1] Midwest Archeological Center, "Known, Probable, and Possible Mound Locations in Developed Area" map, (U.S. Department of the Interior, National Park Service, Midwest Archeological Center, June 2012).

Landscape Character Area 6 (LCA 6)

Area 6 includes mounds 65 through 68 (the South Prairie Mound Group). The South Unit Trail passes through the west side of the character area and spur-trails provide pedestrian access to the mounds.

Landscape Character Area 7 (LCA 7)

The southern portion of the South Unit contains LCA 7 which includes mounds 69 through 86, a portion of the Old Military Road, the South Unit Trail, and a spur trail that provides pedestrian access to mounds. A tree identified as a portal tree by Bill Quackenbush, Tribal Historic Preservation Officer for the Ho-Chunk Nation of Wisconsin, is located near the east end of mound 86.

Heritage Unit Landscape Character Area (part of LCA 8)

Portions of LCA 8 lie within the Heritage and South Units in remote locations which are difficult to access. A network of abandoned logging routes provides limited access to some portions of the area. The Yellow River winds through this character area from east to west. The river and its floodplain are flanked on the north and south by steep slopes and deciduous forest. Archeological sites in the Heritage Unit include historic sites, scatters, isolated flakes and bones, and two unverified mounds. Information regarding these sites and their locations is protected and not presented in the CLR.

LCA 8, Area A

LCA 8A includes two bear-shaped effigy mounds (the Twin Bear Mounds, no numbers; located at site 13AM186).

LCA 8, Area B

LCA 8B includes the Heritage Bird Group, comprising two linear mounds (97 and 98) which are adjacent to each other, one bird mound (99), and one linear mound referred to as the heritage linear mound (no number; located at site 13AM209).

LCA 8, Area C

LCA 8C includes one conical mound (Mound 87, the Heritage Lone Mound).

Sny Magill Unit Landscape Character Area 9 (LCA 9)

The Sny Magill Unit contains ninety-nine designated mounds (Mounds 1-99), twelve mound-like features (identified as A-O) and seven low rises (identified as AA-AG) located within a one hundred and twenty acre site.[2] The mounds are clustered closely together in a low-lying area on the western bank of the Mississippi River. The majority are conical, with six linear, two bear, and two bird effigies included. The Sny Magill access trail provides pedestrian access through the site.

[2] More information about the mounds is provided in Appendix D: Mound Conditions.

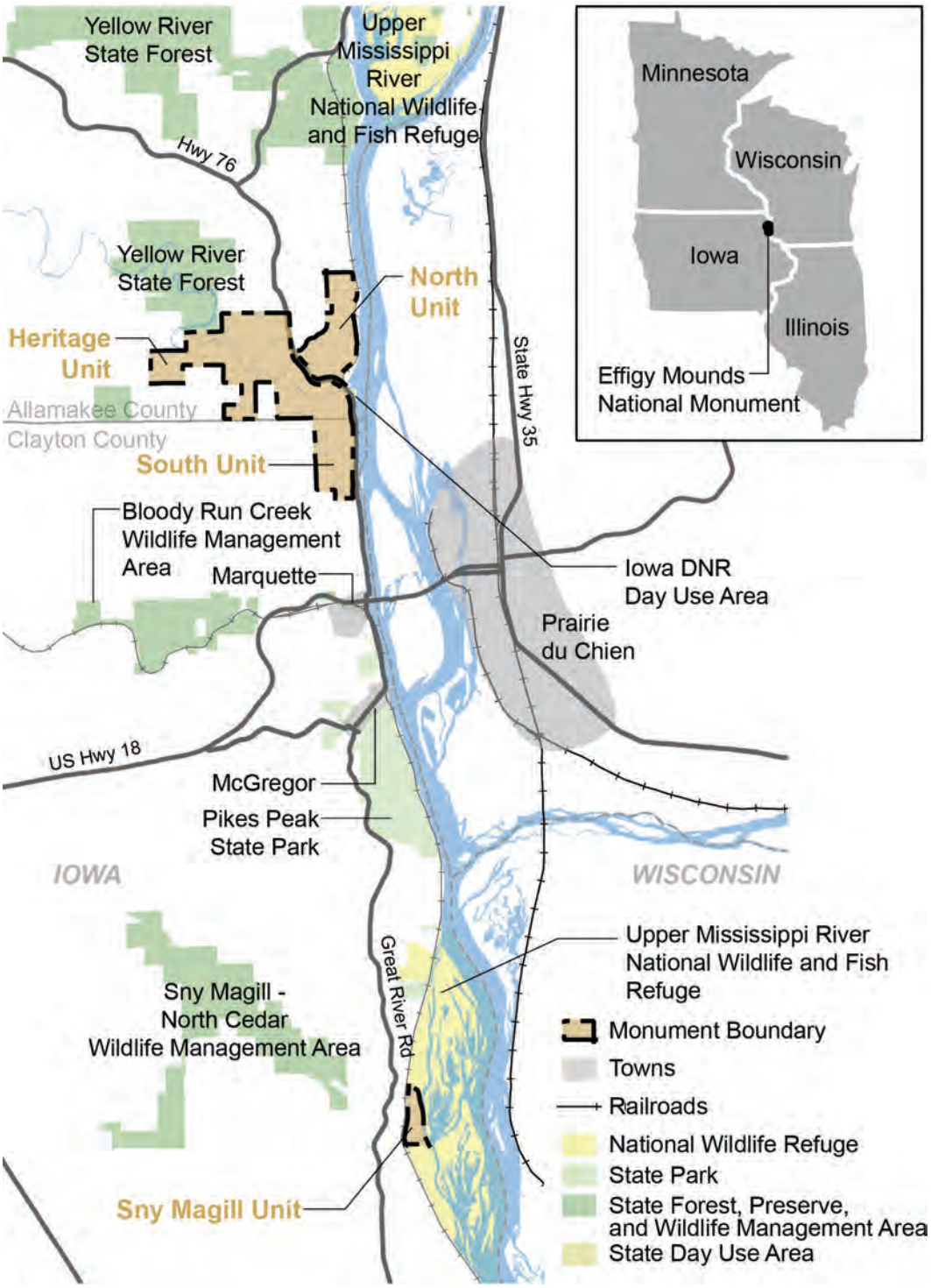


Figure 1- 1: Regional Location of Effigy Mounds National Monument and nearby Federal, State, and County Properties (source: NRGIS Library, GIS Section Iowa DNR; Wisconsin State Legislature Statewide GIS Datasets, USGS National Map).

Figure 1- 2: Landscape Character Areas One through Nine, Effigy Mounds National Monument, Iowa.

Purpose and Need for the Project

Purpose

The purpose of this combined Cultural Landscape Report and Environmental Assessment is to document and record the history and current conditions of the historic landscapes within Effigy Mounds National Monument (EMNM) and to provide guidance for the future treatment and use of these landscapes. The document informs conservation of significant cultural and natural resources while providing guidance for enhancing opportunities and facilities for visitor education and use.

Need

The CLR/EA is needed to guide treatment and use of resources associated with the significant historic landscapes within the Monument. The 2013 General Management Plan indicated the need to complete a cultural landscape report. This report provides a comprehensive understanding of the historic development of these landscapes and evaluates their significance.

Based on the management framework established in the GMP, the landscape at the Monument is to be managed to emulate the conditions present during the time when the mounds were constructed. The cultural landscape report is necessary to clarify those conditions and to identify desired future conditions for cultural landscapes. The GMP also specifies that natural and cultural resources are to be preserved using "natural processes that sustained the moundbuilders [sic][3] and protected their heritage through time, combined with the appropriate management practices to conserve them for the future."[4]

Project Objectives

Project objectives include: documenting and describing the appearance of the project site from the period when the mounds were constructed through the present day; documenting the existing conditions of the project site; evaluating the integrity of the landscape; and providing a preferred treatment recommendation for managing the historic landscape.

[3] "Mound building" as a term is offensive to some American Indian nations. This document avoids the use of the term except in direct quotes from source material, which are indicated with [sic] throughout the document.

[4] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument* (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2013), 55.

Project Scope and Methodology

The project scope includes preparation of a complete Cultural Landscape Report with an Environmental Assessment for the project area, meeting applicable guidelines and standards including *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques; The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Historic Landscapes;* federal regulations (40 CFR 1500-1508) implementing the *National Environmental Policy Act of 1969 (*NEPA); regulations of the *Council on Environmental Quality* (40 CFR 1508.9); *NPS Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-Making;* the *National Historic Preservation Act of 1966* (as amended); and *Executive Order 13007, Indian Sacred Sites*. Other applicable regulatory requirements include: the *National Park Service Organic Act,* the *American Indian Religious Freedom Act,* the *Act for the Preservation of American Antiquities of 1906,* the *Historic Sites Act of 1935,* the *National Park Service Director's Order Number 28: Cultural Resource Management,* the *Archeological Resources Protection Act,* and the *Federal Endangered Species Act.*[5]

Part I provides an overview of the physical evolution and traditional uses of the natural landscape, existing conditions documentation, and analysis of the cultural landscapes within the project area. This includes evaluation of the character-defining features, materials, and qualities that make the landscape significant. Multiple sources were consulted to document the appearance of the landscape during each time period including survey notes, journals, limited photographic images, paintings and pollen analysis.

Part II selects an appropriate management philosophy based on *The Secretary of the Interior's Standards for Treatment of Historic Properties with Guidelines for the Treatment of Historic Landscapes*, and provides a plan for the treatment and management of the historic landscape cultural and natural resources within the project area that is consistent with the landscape's significance, condition, and use.

Although the federal government has standard guidelines for the preparation of Cultural Landscape Reports and others for Environmental Assessments, there are no guidelines for preparing a combined report. The Midwest Regional Office of the National Park Service has recognized that combining the two documents increases the efficiency of the overall document by integrating the information generated through the Cultural Landscape Report with the in-depth evaluation process inherent to the Environmental Assessment.

In July 2013, Brenda Williams, Quinn Evans Architects (QEA) and Steve Jones (QEA) travelled to Effigy Mounds National Monument (EMNM) to attend a pre-proposal meeting.[6] The project team conducted site investigations and research at EMNM in October/November 2013. Documentation of existing conditions presented within this

[5] Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (Washington, DC: U.S. Department of the Interior, National Park Service, Cultural Resource Stewardship and Partnerships, Park Historic Structures and Cultural Landscapes Program, 1998); and Charles A. Birnbaum and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* (Washington, DC: Department of the Interior, National Park Service, 1996).

[6] Lists of attendees of all project meetings are included in Appendix C: Consultation and Coordination.

CLR is based on those investigations. Some conditions may have changed, as over two years have passed since the investigations occurred.

A project initiation meeting was held with NPS staff on 29 October 2013. Two project meetings, in April 2014 and April 2015, included tribal representatives, Iowa SHPO, and OSA staff. The meetings provided a venue for sharing information about the project and gathering input to help guide the planning process and development of landscape treatment recommendations. Report drafts were reviewed by the same representatives, prior to the preparation of the Public Review draft (January 2016). More information about project meetings and agency consultation is included in Appendix C: Consultation and Coordination.

Project Team

The project team included National Park Service (NPS) representatives, tribal representatives, and a consulting team led by Quinn Evans Architects (QEA). Project team member roles are described in the following narrative.

NPS Representatives from Effigy Mounds National Monument include Jim Nepstad, Superintendent; Albert LeBeau, Cultural Resource Program Manager; Rodney Rovang, Natural Resource Manager; Jessica Salesman, Biological Science Technician; Bob Palmer, Chief of Law Enforcement and Interpretation; Jeremy Parker, Maintenance Foreman; and Merle Frommelt, Education Specialist. Midwest Regional Office representatives include Marla McEnaney, Historical Landscape Architect, Midwest Regional Office, who served as the contracting officer's technical representative; and Nicholas Murray, Contracting Specialist. Anne Vawser, Archeologist of the Midwest Archeological Center Park Archeology Program, provided input and guidance regarding treatment of archeological resources.

American Indian Nations and Tribes with connections to the Monument (also referred to as Partner Tribes herein) served as an important part of the project team. The American Indian partners are associated through past inhabitation of the area. The NPS desires to make them partners in the management of the resources within the Monument. The American Indian partners that participated included the 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 of Mdewakanton Sioux Indians 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, Shakopee Mdewakanton Sioux Community of Minnesota, Upper Sioux Community, Minnesota, Winnebago Tribe of Nebraska, Yankton Sioux Tribe, Omaha Tribe of Nebraska, Ponca Tribe of Nebraska, Standing Rock Sioux Tribe, Sisseton-Whapeton Oyate, Santee Sioux Nation, and Crow Creek Sioux Tribe. All tribes were invited to join the project process through participation in key project meetings and review of materials at each stage of the process.

The consultant team included Quinn Evans Architects (QEA) members Steve Jones, AIA, Brenda Williams, ASLA, and Stephanie Austin, MLA. QEA team members provided project management, documentation and analysis of cultural landscapes, and treatment recommendations. Bill Quackenbush provided expertise related to traditional Ho-Chunk Nation of Wisconsin plant use, existing conditions of vegetation, served as a liaison

between the team and tribal representatives and participated in the development of treatment recommendations. Mr. Quackenbush is a member of the Ho-Chunk Nation of Wisconsin Nation and served as an essential part of the project team by providing an American Indian perspective that was integrated throughout the project process. Paul West supported the team with issues related to management of native plant communities and climate change and participated in the development of treatment recommendations. Woolpert team members included Will Ballard and Joe DiMisa who offered guidance related to National Environmental Policy Act (NEPA) issues, affected environment and environmental consequences and participated in the development of treatment recommendations. Melody Pope and Bill Whittaker of the Iowa Office of the State Archaeologist supported the team by documenting general conditions of archeological resources, developing an overview of previous archeological reports and participating in the development of treatment recommendations. Dan Williams of Lunde Williams provided support related to GIS maps.

Relation to Other Planning and Legislation

The Monument was established by presidential proclamation on October 25, 1949 to preserve

> ... the 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.

A series of legislative acts authorizing boundary expansions and the acquisition of land resulted in the Monument's current 2,526 acres. More information about the legislation is provided in Chapter 2: Site History. Appendix E includes pertinent legislation.

Several other planning projects provided background and management information for this CLR/EA including the *Effigy Mounds National Monument, Iowa, Final General Management Plan/Environmental Impact Statement* (February 2013), *Cultural Landscape Inventory, Yellow River* (2013), and *Cultural Landscapes Inventory, Draft: Sny Magill* (undated). These documents, along with research conducted as part of this CLR/EA, inform the development of treatment alternatives and analysis of potential impacts to park resources.

General Management Plan

The General Management Plan (GMP) for the Monument was finalized in February 2013. It is the guiding management document under which the CLR is tiered. The GMP indicates that a cultural landscape report is needed for the entire Monument to help direct management of resources. It provides an overall concept for landscape management at the Monument stating that, when possible, the landscape should emulate the conditions present during the time when the mounds were constructed. The GMP also specifies that natural and cultural resources are to be preserved through natural processes that sustained the people who constructed the mounds and protected their heritage through time, combined with the appropriate management practices to conserve them for the future.[7]

[7] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 55.

The selected management alternative (Alternative B) provides enhanced natural and cultural resource protection, opportunities for increased understanding of the Monument, and expanded opportunities for visitors to experience relative quiet and solitude. This approach is to be accomplished with a minimum amount of development. The preservation and restoration of landscapes are intended to provide people with connections between the cultures associated with building the mounds and the natural environment that affected their lives and beliefs.

Three management zones are included in the plan, including a backcountry zone, developed zone, and discovery zone (see Figure 1-3). The backcountry zone places an emphasis on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experiences. The discovery zone places an emphasis on enhancing visitor access and understanding of the mounds, while maintaining a natural setting. Development is designed to enhance understanding and includes waysides and signs. Ranger-led activities occur in this area. Maintenance activities occur primarily to preserve resources and secondarily to enhance visitor experience as much as possible. In the development zone, the emphasis is on providing facilities and amenities for visitor services and Monument operations. Despite being zoned for development, the existence of remnants of numerous mounds in this area requires thoughtful consultation with associated tribes and other parties whenever changes or improvements are contemplated. Maintenance activities in this zone are focused on the maintenance of resources and facilities that support preservation, visitor experiences, safety, and park operations.[8]

A variety of trail types enable visitors to experience the quiet, contemplative setting while enhancing an atmosphere of respect toward the sacred nature of the Monument. In addition to the current conditions presented by mounds that have had the covering vegetation manicured so that the mounds are clearly visible, other conditions would be maintained. Consistent with the resource conditions and visitor experiences defined in the backcountry zone, visitors to some areas of the Monument would be able to experience a walk on marked trails through natural, undeveloped landscapes and view some mounds in a more natural 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 primary resources.[9]

All of the Heritage Unit and the majority of the North Unit are part of the backcountry management zone. The portion of the North Unit immediately north of the visitor center, including the main trail and access road, is part of the discovery zone. The majority of the South Unit is zoned for backcountry, except the area immediately south of Highway 76 which is part of the discovery zone. The majority of the Sny Magill Unit is zoned for backcountry, except a small portion which contains an improved trail and is zoned for discovery.

[8] Ibid., 51.
[9] Ibid.

Environmental Assessment Impact Topics

Park resources were considered in accordance with NPS *Management Policies 2006*. The NPS is charged with managing park resources and maintaining them in an unimpaired condition for future generations in accordance with the NPS-specific statutes, including the Organic Act of 1916 and the National Parks Omnibus Management Act of 1998; general environmental laws such as the Clean Air Act, the Clean Water Act, the Endangered Species Act of 1973, National Environmental Policy Act (NEPA), and the Wilderness Act; Executive Orders; and applicable regulations. NEPA is the basic national charter for protection of the environment. Title I of NEPA contains a Declaration of National Environmental Policy which requires the Federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony.

The CLR/EA only evaluates the treatment alternatives developed as part of the CLR/EA effort. After developing the alternatives, the impact topics will be revisited. If it appears that an alternative affects resources at an impact level of minor or greater, the affected topic(s) will be added to those analyzed within the CLR/EA.

These impact topics were identified based on federal laws, regulations, and Executive Orders; NPS *Management Policies 2006*; and NPS knowledge of limited or easily impacted resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

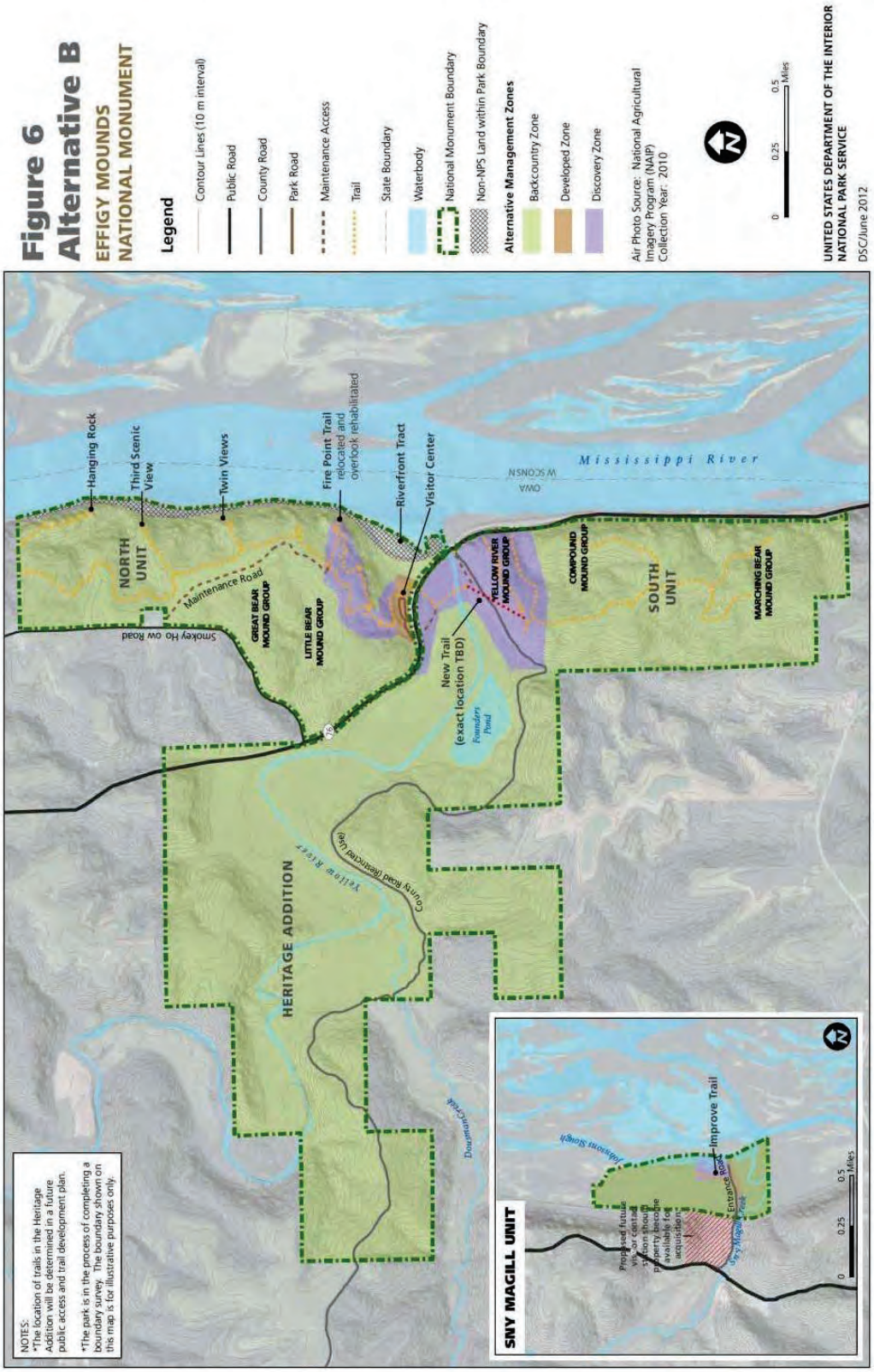


Figure 1- 3: General Management Plan Selected Management Alternative B (source: EMNM GMP, 2013)

Impact Topics Selected for Analysis

Cultural Resources

Cultural resources include archeological resources and cultural landscapes. Archeological resources consist of artifacts, objects, or sites that represent past human activity, occupation or habitation. Cultural landscapes are features of the human-built environment, natural environment (or a combination of both) that represent aspects of a way of life or a people, group, or family in time and space. Natural systems and features, vegetation, topography, spatial organization, land use, circulation and viewsheds are elements of the cultural landscape that will be addressed in this report. The mounds at the Monument can be considered archeological or ethnographic resources and/or components of the Monument's cultural landscape. Implementation of any treatment alternative could affect cultural resources at the Monument; therefore, this topic will require analysis in this document.

Ethnographic Resources

Ethnographic resources are resources associated with a people's cultural system or way of life. These resources include technology, sites, structures, material features, and natural resources. The mounds at the Monument can be considered archeological or ethnographic resources and/or components of the Monument's cultural landscape. The mounds are ethnographic resources that may be minimally affected by treatment alternatives. Therefore, this topic is retained for further analysis.

Visitor Experience

The Organic Act of 1916 and NPS management policies require the National Park Service to provide opportunities for 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 at the Monument. Currently, walking trails allow visitors to view the mounds. Interpretive signage and recorded monologues accessed by cell phone are used to provide visitor interpretation. The visitor center provides further interpretive opportunities for visitors including a museum and an introductory film. Rangers conduct programs from mid-June through Labor Day. The health and safety of visitors may be affected by treatment alternatives and will be addressed in this section of the report. Treatment alternatives may propose changes to the visitor experience; therefore, this topic is being retained for further analysis.

Monument Operations

Monument operations include facilities maintenance, compliance management, employee and visitor health and safety, and administrative oversight. Changes in Monument operations will likely need to occur depending on the treatment alternative selected. Therefore, this topic is being retained for further analysis.

Wildlife

Title I of NEPA contains a Declaration of National Environmental Policy which requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. The NPS policy is to protect the components and processes of naturally occurring biotic communities, including the natural abundance, diversity, and ecological integrity of plants and animals.

Effigy Mounds National Monument is home to a wide variety of wildlife, including woodland, wetland, and prairie creatures. Wildlife concerns at the Monument focus on preserving or restoring natural habitats. Treatment actions may change the land cover which could have a proportional effect to wildlife that rely on the habitat. Considering the potential change in land cover (and its potential change in wildlife habitat), effects to wildlife from the treatment alternatives will be considered in this document.

Special Status Species

The Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.) requires examination of impacts to all federally-listed threatened, endangered, and candidate species. Section 7 of the ESA requires all federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the NPS *Management Policies 2006* and Director's Order 77 *Natural Resources Management Guidelines* require the NPS to examine the impacts on federally-listed, endangered and candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species.

Correspondence was conducted between the National Park Service and the USFWS in 2012 to support the preparation of the GMP EIS. USFWS identified six Federally-listed species in the vicinity of the Monument. During 2013 project interviews, Monument staff commented that the only known Federally-listed species identified at the park is the Higgins eye pearlymussel (a Federally-listed endangered species). In 2014, the Iowa Department of Natural Resources (IDNR) commented that there are 15 listed species and two Iowa special concern species in the vicinity of the Monument. These species are more thoroughly described in Chapter 3 of this document. Additionally, *A Vegetation Survey of Grasslands and Rare Plants of Effigy Mounds National Monument* describes multiple prairie remnants, oak savannahs, and other habitats where rare plant species may exist.[10] Since there are a broad range of landscapes (and associated habitats) included in the CLR, impacts to special status species will be analyzed in this document.

Soils

Soils in the Effigy Mounds area originated from erosion of limestone bedrock and were deposited by wind or water in relatively recent geologic times. The dominant soil type in the area is Fayette Silt Loam, which is well drained and occurs on uplands and benches along stream valleys. Other soils in the area of Effigy Mounds include Boone, Caneek, Dubuque, Ion, Lacrescent, Lawson, Medary, Nordness, Paintcreek, Village, Volney, Yellowriver, and Zwingle soils.

Soils underlying the mounds are emplaced by humans and are not natural soil landforms. Cultural landscape treatment alternatives are foreseen to have some effects to soils. Although effects are foreseen to be minimal, impacts to soils will be analyzed in this document.

[10] Thomas J. Blewett, *A Vegetation Survey of Grasslands and Rare Plants of Effigy Mounds National Monument* (Biology Department, Clarke College, Dubuque, Iowa, 1986).

Impact Topics Dismissed from Further Analysis

Geology

Geology in the Effigy Mounds region is known as the Paleozoic Plateau, or more commonly as the Driftless Area, because it was not affected by glaciers during the last glacial maximum (Wisconsinan) (see Figure 1-4). The area is geologically unique because it is composed of erosional topography drained by an intricate system of rivers and streams. These erosional processes resulted in high divides, high bluffs, and rock outcroppings. Implementation of the proposed action alternatives would result in minimal to no impacts on site geology. Some shallow surface excavation and grading would be required for trail construction; however, surface excavations required for trail construction would unlikely extend to a depth that would affect the underlying geology. As a result, the proposed action alternatives would have little to no impacts on geologic resources at Effigy Mounds National Monument. Because impacts on geologic resources would be minimal, this impact topic was dismissed from further analysis in this CLR/EA.

Water Resources: Water Quality

Dousman Creek is a cold water trout stream that joins the Yellow River in the central portion of the Heritage Unit of the Monument. The Yellow River is the primary watercourse traversing the Monument before joining the Mississippi River. A portion of the Yellow River (including the segment that flows through the Monument) is listed on Iowa's impaired waters list for high levels of fecal coliform bacteria. Founders Pond is located adjacent to the Yellow River near the central portion of the Monument. Sny Magill Creek flows in an easterly direction across the Sny Magill Unit and is used for recreational trout fishing. The Sny Magill Unit borders a portion of the Mississippi River. Implementation of proposed alternatives could result in small areas of excavation, grading, and exposure of soil material for trail construction, which would increase the potential for sediment to enter waterways until work is complete and vegetation is reestablished. However, transport of sediment to the Mississippi River, the Yellow River and upstream drainages would be minimized using best management practices (BMPs) to contain sediment and control erosion. Therefore, effects to water resources: water quality will not be analyzed further in this document.

Water Resources: Wetlands

Section 404 of the Clean Water Act (CWA) and Executive Order 11990 requires federal agencies to avoid impacts to wetlands whenever possible. Further, the NPS Management Policies 2006, section 4.6.5, Wetlands and DO-77-1 (Wetland Protection) provide guidelines for development proposed in wetlands, which includes a sequenced approach. Based on the policy, the NPS employs a sequence of:

a. avoiding adverse wetland impacts to the extent practicable,
b. minimizing impacts that could not be avoided, and
c. compensating for remaining unavoidable adverse wetland impacts via restoration of degraded wetlands.

The National Wetlands Inventory (NWI) map for the area shows extensive wetlands along the Yellow River floodplain and the Sny Magill Unit. The Sny Magill Unit is mapped as wetlands primarily due to flooding from the Mississippi River. However, during much of the year the mounds are not in wetland conditions and the area is easily walkable by visitors. Elsewhere at the Monument, mounds are not directly associated with wetlands. Because the action alternative only proposes preservation of cultural

Figure 1- 4: Effigy Mounds National Monument is located in the Driftless Area – a transitional landscape between the Paleozoic Plateau to the east and glaciated land to the west (source: Southwest Badger Resource Conservation and Development Council and ESRI, accessed 2014).

resources in the Sny Magill Unit and the other landscape units are not within wetland areas, this topic is dismissed from further consideration in this CLR/EA.

Climate Change

The 2009 U.S. Global Climate Research Program (USGCRP) report, *Global Climate Change Impacts in the U.S.*, forecasts the potential impacts of predicted climate change for all regions of the U.S., including the Midwest region. Heat waves that are more frequent, more severe, and longer lasting could occur in the future. Precipitation is projected to increase in winter and spring, and become more intense throughout the year. Native species will face increasing pressures from changing climactic conditions and invasive species moving to warmer regions.

Although some effects of climate change are considered known or likely to occur, many potential impacts are unknown. Much depends on the rate at which the temperature would continue to rise and whether global emissions of greenhouse gases (GHG) can be reduced or mitigated. Climate change science is a rapidly advancing field and new information is being collected and released continually.

When considering climate change in an environmental analysis, the NPS must address both how the treatment alternatives may contribute to climate change, as indicated by their GHG emissions, and how climate change would impact park resources.

Emissions associated with implementation of the treatment alternatives could contribute to GHG emissions. Although implementation activities associated with the action alternatives would contribute to GHG emissions, such emissions would be temporary and/or sporadic. As an example, if motorized equipment such as chain saws were to be used for tree removal, emissions would occur sporadically over a number of years. So it is likely that the effects of implementation-related GHG emissions on climate change would not be discernible at a regional scale or global scale. In addition to GHG emissions, vegetation management would be adaptive over time to address changing weather patterns. Therefore this topic was dismissed from further analysis in this CLR/EA.

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 the 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; therefore this topic was dismissed from further analysis in this CLR/EA.

Socioeconomics and Environmental Justice

Socioeconomic impacts are effects to employment, occupations, income, and tax bases related to a proposed action. The potential treatment alternatives will not alter the number or types of jobs at the Monument. Future income for park workers (and the associated income taxes) is foreseen to follow past normal income trends.
Under a policy established by the Secretary of the Interior, to comply with Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, departmental agencies should identify and evaluate (during the scoping and/or planning processes) minority and low-income populations to assure that they are not disproportionately affected by the proposed action. According to US Census Bureau data, Clayton and Allamakee Counties, Iowa and Crawford County, Wisconsin do not contain high concentrations of minority and low-income populations. Therefore, the potential impacts to socioeconomics and environmental justice from proposed action alternatives will not be analyzed further in this document.

Table 1-1. Minority and Low-Income Populations[11]

	Percent Minority	**Percent Persons Below Poverty**
Clayton County, Iowa	3.4	12.5
Allamakee County, Iowa	7.8	12.6
Crawford County, Wisconsin	2.8	12.6
USA Nationwide	26.0	15.4

Prime and Unique Farmlands

In August 1980, the Council on Environmental Quality (CEQ) directed Federal agencies to assess the effects of their actions on farmland soils classified by the USDA NRCS as prime or unique. Prime or unique farmland is defined as soil that produces general crops including common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. Inside EMNM boundaries three soil units (Caneek, Lawson, and Ion silt loams) are considered prime farmland soils if drained and protected from flooding. These soils are along the Yellow River. Proposed action alternatives are not expected to propose development in or around the river floodplain that would irreversibly convert prime farmland to other uses; therefore this topic was dismissed from further analysis in this CLR/EA

Wilderness Areas

Wilderness areas are congressionally-designated under the Wilderness Act of 1964. The Wilderness Act of 1964 defined wilderness as “in contrast with those areas where man and his own works dominate the landscape, is hereby recognized as an area where the earth and community of life are untrammeled by man, where man himself is a visitor who does not remain.” There are no designated wilderness areas at the Monument therefore; this topic was dismissed from further consideration.

Air Quality

The 1970 Clean Air Act, as amended in 1990 (42 U.S.C. 7401 et seq.), requires federal land managers to protect air quality in parks, while the 2006 NPS *Management Policies* address the need to analyze air quality during park planning. Section 118 of the 1970 Clean Air Act requires the park to meet all federal, state, and local air pollution standards.

[11] 2013 US Census Bureau American Community Survey.

Section 176(c) of the 1970 Clean Air Act requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient air quality standards.

Iowa currently has two areas that are designated as non-attainment for National Ambient Air Quality Standards (NAAQS): Council Bluffs for lead and Muscatine for one-hour sulfur dioxide. The remainder of the state (including the Effigy Mounds area) is either in maintenance or attainment for all six of the primary pollutants: carbon monoxide, lead, nitrogen dioxide, ozone, particulates, and sulfur dioxide.

Local air quality may be temporarily affected by dust and vehicle emissions during the period of construction for any of the alternatives. Operating equipment during this period would result in increased vehicle exhaust emissions. Hydrocarbons, nitrous oxide, and sulfur dioxide from these emissions would be rapidly dissipated by dilution with the ambient air. To reduce equipment emissions, the park would limit idling of motorized vehicles during construction. As another BMP, dust control measures would be implemented during the period of project construction. Smoke from prescribed burns may occur which would reduce air quality. However, the park is currently preparing a fire management plan and smoke management BMPs will be used during prescribed fires that may be recommended for the treatment alternatives.

Overall, there could be adverse impacts to localized air quality due to dust and airborne pollutants generated from motorized equipment or prescribed fires to manage vegetation or construct trails; however, these short term effects would last only as long as the life of construction of a project or prescribed burn, so local and regional air quality is unlikely to be affected by any of the proposed alternatives. Therefore, this topic was dismissed from further consideration.

Water Resources: Floodplains

Executive Order 11988 (Floodplain Management) directs Federal agencies and their actions to avoid, to the extent possible, the long-term and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. 100-year floodplains shown on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) are present at the Monument, including lands adjacent to the Yellow River and the west bank of the Mississippi River. The entire Sny Magill Unit is within the 100-year floodplain and the Mississippi River floodway, with the unit experiencing complete or partial inundation for short periods in the spring.

A National Park Service study determined that the mounds at the Sny Magill Unit are experiencing silt deposition over a long period due to inundation from the nearby Guttinburg lock and dam. That lock and dam is designated by the St. Paul District Corps of Engineers as Lock and Dam Number 10 and is one of the series of locks and dams designed to maintain a minimum nine-foot water depth for navigation in the upper Mississippi River.

The majority of mounds at the North, South, and Heritage Units of the park are located on bluffs above the river valleys and are not within the FEMA designated 100-year floodplain. A small quantity of mounds may be located in 100-year floodplain near the confluence of the Yellow River and the Mississippi River. Changes to the land cover or modifications to the mounds would be negligible when compared with the geographic

coverage of floodplain area in the vicinity of the Monument. The proposed action alternatives would have no impacts on natural floodplain values and natural floodplain functions. In addition, no proposed action alternatives would increase the risk to life or property. Because there would be no impacts to floodplain values or functions, this impact topic was dismissed from further analysis in this CLR/EA.

Water Resources: Wild and Scenic Rivers

National parks that contain segments listed on the Nationwide Rivers Inventory are required under the Wild and Scenic Rivers Act to assess whether the segments are suitable for inclusion in the National Wild and Scenic Rivers system. A segment of the Yellow River near its confluence with the Mississippi River is being considered by the National Park Service for inclusion in the National Wild and Scenic Rivers system. However, potential action alternatives addressed in this CLR/EA are not inconsistent with the Outstandingly Remarkable Values (ORVs) within the Yellow River area near the Mississippi River; therefore this topic is not considered for further analysis.

Hazardous Materials

There is no readily available data on the potential for hazardous materials or contamination in the project area; however, park staff with a long history of park knowledge states that there is no history of environmental contamination at the Monument. An abandoned lead mine is located near the Jefferson sawmill site; however, no hazardous materials contamination was found when that portion of the park was acquired during the Heritage Unit acquisition. Prior to the establishment of the National Monument in 1949, the Effigy Mounds area contained the Jefferson sawmill, farmsteads, and forests. Hazardous materials contamination in the areas of the mounds is not known, but is unlikely given the history of the site as containing protected resources since the 1940s. That period is generally recognized as the beginning of more widespread human activities leading to environmental contamination.

Any site where the presence of hazardous materials is considered to be in question would be avoided in developing treatment alternatives. However, if environmental contamination is encountered during trail construction or vegetation management, all appropriate BMPs will be employed. Park staff would adhere to appropriate NPS policies and directives, State of Iowa, and Occupational Safety and Health Administration (OSHA) safety precautions for workers at the project sites; therefore, this topic was dismissed from further consideration.

Museum Collections

The Monument has an extensive museum collection and archives. The collection consists of approximately 34,800 cultural resource and natural history items. The cultural resource collection consists of archeology, ethnology, archives, and history items. Much of this collection was donated to the Monument by Ellison Orr (a central figure in the establishment of the Monument). The natural history collection consists of biology (flora and fauna), paleontology, and geology specimens. Although the park's collections continue to grow, it is not anticipated that implementation of any proposed action alternative would result in a large number of new items that require storage and curation in the park's museum collections; therefore this topic is dismissed from further consideration.

Soundscape Management

In accordance with NPS *Management Policies 2006* and Director's Order #47, *Sound Preservation and Noise Management*, an important part of the NPS mission is preservation of natural soundscapes associated with National Park units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all natural sounds that occur in park units, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequencies, magnitudes, and duration of human-caused sound considered acceptable varies among NPS units, as well as potentially throughout each park unit, being generally greater in developed areas and less in undeveloped areas.

Natural sounds predominate at the Monument because of its mostly undeveloped character. Effects to soundscapes are mainly from noises outside the Monument's boundaries such as traffic noise on Iowa State Highway 76 (Great River Road) and trains on the railroad. Occasionally, noise from fishing boats can be heard from the Mississippi and Yellow Rivers. Noise associated with visitors primarily occurs in the vicinity of the visitor center, which is located on Iowa State Highway 76.

The noise associated with tree removal, other vegetation management actions and trail construction would be temporary, resulting in occasional, short-term, adverse impacts to the soundscape of the Monument. The potential for excessive sound impacts to the treatment areas is not foreseen; therefore, this topic is dismissed from further consideration.

Lightscape Management

In accordance with NPS *Management Policies 2006*, the NPS strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human-caused light. The majority of the Monument is located where manmade light sources are few and the proposed action alternatives do not propose additional lighting. Therefore this topic is dismissed from further consideration.

Terminology

This section includes definitions of terminology used in the report.

Archeological resource	Any material remains of human life or activities which are at least 50 years of age, and which are of archeological interest.[12]
Character area	An area defined by the physical qualities (such as vegetation, topography, and views) of a cultural landscape and the type and concentration of cultural resources present.[13]
Character-defining feature	A prominent or distinctive aspect, quality, or characteristic of a cultural landscape that contributes significantly to its physical character. Land use patterns, vegetation, furnishings, decorative details and materials may be such features.[14]
Component landscape	A discrete portion of the landscape which can be further subdivided into individual features. A component landscape may be individually eligible for listing on the National Register.[15]
Cultural landscape	A geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.[16]
Cultural landscape report	The primary management document for cultural landscapes within the National Park Service. A cultural landscape report documents the history and existing conditions of a cultural landscape, evaluates its significance according to the Secretary of the Interior's standards, and provides design and management recommendations for the property.[17]
Environmental Assessment	An assessment of the possible positive or negative impact that a proposed project may have on the environment, together consisting of the environmental, social and economic aspects.[18]

[12] Birnbaum and Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, 9.
[13] Ibid.
[14] Ibid., 4.
[15] Ibid.
[16] Ibid.
[17] Page, Gilbert, and Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, 129.
[18] *Environmental Quality Improvement Act of 1970*, 43 FR 56003, Nov. 29, 1978, as amended (42 U.S.C. 4371 et seq.), sec 309 of the Clean Air Act, as amended (42 USC 7609) and E.O. 11514 (Mar. 5, 1970, as amended by EC 11991, May 24, 1977).

Ethnographic landscape	Area containing natural and cultural resources that associated people define as heritage resources, including plant and animal communities, geographic features, and structures.[19]
Feature	The smallest element(s) of a landscape that contributes to its significance and that can be the subject of a treatment intervention.[20]
Historic character	The sum of all visual aspects, features, materials, and spaces associated with a cultural landscape's history. These qualities are often referred to as character-defining.[21]
Historic designed landscape	A landscape that was consciously designed or laid out by a landscape architect, master gardener, architect, engineer, or horticulturist according to design principles, or an amateur gardener working in a recognized style or tradition. The landscape may be associated with a significant person, trend, or event in landscape architecture; or illustrate an important development in the theory and practice of landscape architecture. Aesthetic values play a significant role in designed landscapes.[22]
Historic property	Any pre-Columbian or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.[23]
Historic significance	The recognized importance a property displays when it has been evaluated, including when it has been found to meet National Register Criteria.[24]

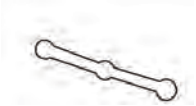
[19] Birnbaum and Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, 4.
[20] Ibid.
[21] Ibid.
[22] Ibid., 5.
[23] Advisory Council on Historic Properties, *36 CFR Part 800 : Protection of Historic Properties*, 2004.
[24] Barbara Little, Erika Martin Seibert, Jan Townsend, John H. Sprinkle, and John Knoerl, *Preservation Brief 36: Protecting Cultural Landscapes, Planning, Treatment and Management of Historic Landscapes* (Washington, DC: Department of the Interior, National Park Service, 2000), 8.

Historic vernacular landscape	A landscape that evolved through use by the people whose activities or occupancy shaped it. Through social or cultural attitudes of an individual, a family, or a community, the landscape reflects the physical, biological, and cultural character of everyday lives. Function plays a significant role in vernacular landscapes.[25]
Historic site	A landscape significant for its association with a historic event, activity or person.[26]
Integrity	The authenticity of a property's historic identity, evinced by the survival of physical characteristics that existed during the property's historic or pre-Columbian period. The seven qualities of integrity as defined by the National Register program are *location*, *setting*, *feeling*, *association*, *design*, *workmanship*, and *materials*.[27]
Landscape characteristics	The tangible and intangible characteristics of a landscape that define and characterize the landscape and that, individually and collectively, give a landscape character and aid in understanding its cultural value. The following are included: natural systems and features, spatial organization, land use, cultural traditions, cluster arrangement, circulation, topography, vegetation, buildings and structures, views and vistas, constructed water features, small-scale features, archeological sites.[28]
Effigy Mound	A mound built in the shape of an animal or bird. Descriptions of the effigy shapes are interpretations influenced by current assumptions.[29]
 Conical Mound	A conical mound is a cone or oval shaped mound that usually contains human burials.[30]

[25] Birnbaum and Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, 5.
[26] Ibid.
[27] Ibid.
[28] Page, Gilbert, and Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, 139.
[29] National Park Service, "Effigy Mounds National Monument Glossary of Terms," revised November 7, 1999.
[30] Ibid.

Linear Mound

A linear mound is constructed in the shape of a cigar or candy bar.[31] It is likely that linear mounds were constructed through the same process as compound mounds, by connecting conical mounds with linear segments.[32] It is possible that some linear mounds are fish effigies.



Compound Mound

A compound mound is a series of conical mounds connected with short linear segments.[33] Evidence indicates that at least some of these were constructed in multiple phases.

Bear, Wildcat, Buffalo or other large mammal Effigy

Mammal shaped mounds may be distinguished as bears, wildcats or buffalo and appear as the mammal would if it were lying on its side. At the Monument, the majority of the mammal-shaped effigy mounds are arranged as if they are walking downstream (with their feet toward the water).[34]

Bird Effigy

A bird effigy mound is constructed in the shape of a bird. The majority of the bird effigy mounds at the Monument are arranged as if the birds are flying downstream or to the east.[35]

National Register of Historic Places

The official list of the Nation's historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the National Park Service's National Register of Historic Places is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources.[36]

[31] Ibid.
[32] William Whittaker, personal interview, October 2013.
[33] Ibid.
[34] Jill Y. O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument* (Omaha, Nebraska: Midwest Regional Office, National Park Service, U.S. Department of the Interior, 1989), 5.
[35] Ibid.
[36] Page, Gilbert, and Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*, 141.

Preservation	The act or process of applying measures necessary to sustain the existing form, integrity, and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project.[37]
Rehabilitation	The act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values.38
Restoration	The act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period of time by means of the removal of features from other periods in its history and reconstruction of missing features from the restoration period. The limited and sensitive upgrading of mechanical, electrical, and plumbing systems and other code-required work to make properties functional is appropriate within a restoration project.39
Statement of Significance	Narrative documenting the recognized importance a property displays when it has been evaluated, including when it has been found to meet National Register Criteria.40
Theme	A means of organizing properties into coherent patterns based on elements such as environment, social/ethnic groups, transportation networks, technology, or political developments that have influenced the development of an area during one or more periods of history. A theme is considered significant if it can be demonstrated, through scholarly research, to be important in American history.41
Vernacular	Term used to categorize methods of construction which use locally available resources and traditions to address local needs. These resources tend to evolve over time and reflect the environmental, cultural and historical context in which they exist.

[37] Ibid.
[38] Ibid.
[39] Birnbaum and Peters, 1996.
[40] Little et al., *Preservation Brief 36: Protecting Cultural Landscapes, Planning, Treatment and Management of Historic Landscapes*, 8.
[41] *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (Washington, DC: Department of the Interior, National Park Service, 1995).

CHAPTER 2:
Site History

CHAPTER 2: SITE HISTORY

This chapter provides an overview of the development of the physical landscape at Effigy Mounds National Monument. It begins with an explanation of the significance of the Monument. This is followed by examples of traditional use of the landscape by American Indians. Next, a description of the physical landscape and cultural traditions associated with key time periods are provided in the section entitled "Cultural Landscape: Physical Landscape and Cultural Traditions." Information related to indigenous accounts and archeological investigations is integrated throughout this section. The chapter is completed with an introduction to archeological research conducted that focuses on the Monument. Multiple sources were consulted to document the appearance of the landscape during each time period including survey notes, journals, photographic images, paintings and pollen analysis.

Significance

Effigy Mounds National Monument is historically significant for its association with American Indian mounds. The Monument preserves outstanding representative examples of significant phases of American Indian 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 current and future generations.

The General Management Plan (GMP) presents the significance of the Monument based on five themes. The following section is an excerpt from the GMP.

> *GMP Significance Statement 1:* The Monument contains nationally significant archeological resources including one of the largest concentrations of burial mounds in the United States, with 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 peoples in this region prior to European contact.
>
> *GMP Significance Statement 2:* The natural and cultural resources of the Monument are intricately connected—the moundbuilding [sic][1] cultures were the result of the dynamic interface of people and their environment. The native vegetation communities associated with the moundbuilding [sic] era were 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.
>
> *GMP Significance Statement 3:* The Monument contains historic resources that represent Euro-American settlement of the area and the displacement of historic

[1] See note 3, Chapter 1.

American Indian culture. Conversely, early scientific research conducted in the Monument during the late 1800s began the period of understanding and preservation of the rich American Indian culture.

GMP Significance Statement 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 [sic] 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.

GMP Significance Statement 5: The Monument is identified by present-day members of the Monument's traditionally associated tribes as a sacred landscape.[2]

In addition to the themes identified by the GMP, one additional significance theme has been revealed through the cultural landscape report analysis.

Potential Statement 6: The Monument includes resources associated with the development of recreational facilities by the National Park Service in the late 1940s and early 1950s. The trails and related structures were initially constructed during Mission 66 and many remain today.[3]

To determine the period of significance for the Monument landscape, dates associated with each significance statement have been identified. They are:

Significance Statement	**Associated Dates**	**Rationale**
GMP Significance Statement 1	Woodland Period 2,800-1,000 years ago	The period of mound construction.
GMP Significance Statement 2	Woodland Period 2,800-1,000 years ago	The period of mound construction.
GMP Significance Statement 3	1673-1949	Period associated with Euro-American and European immigrant settlement and documentation of the mounds.
GMP Significance Statement 4	Mid-1800's to present	Era of scientific interest in the mounds and their builders.
GMP Significance Statement 5	1946-present	Transfer of land to federal government initiated relationship between government ownership and tribal associations.
Potential Statement 6	1946-1961	Initial development of the Monument facilities.

[2] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*. (U.S. Department of the Interior, 2013), 10-12.
[3] Mission 66 was a United States National Park Service ten-year program that was intended to dramatically expand Park Service visitor services by 1966, in time for the 50th anniversary of the establishment of the Park Service.

Traditional Use of the Landscape by American Indians

The landscape within Effigy Mounds National Monument is culturally significant to many Americans, especially the culturally associated American Indian nations and tribes. These include the 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 of Mdewakanton Sioux Indians of Minnesota, Prairie Island Indian Community in the State of Minnesota, Sac and Fox Tribe of the Mississippi in Iowa, Sac and Fox Nation of Missouri in Kansas and Nebraska, Sac and Fox Nation, Oklahoma, Shakopee Mdewakanton Sioux Community of Minnesota, Upper Sioux Community, Minnesota, Winnebago Tribe of Nebraska, Yankton Sioux Tribe, Omaha Tribe of Nebraska, Standing Rock Sioux Tribe, Sisseton-Whapeton Oyate, Santee Sioux Nation, and Crow Creek Sioux Tribe. Just like no two families have the same traditions, each American Indian community has unique beliefs, customs and practices that have been passed down through the generations. As a result, there is no one "American Indian" perspective of Effigy Mounds National Monument. Each cultural group has different stories and traditions that correspond to the mounds, natural features, and cultural use of the landscape.

The National Park Service is developing a broader understanding of these diverse connections through ethnographic research focused on the traditional cultural significance of the Monument. The Midwest Regional Office is conducting investigations to determine if EMNM is eligible for listing in the National Register of Historic Places as a traditional cultural property.[4] The traditional cultural significance of a historic property is significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices. EMNM may qualify as a traditional cultural property as a location associated with the traditional beliefs of an American Indian group about its origins, its cultural history, or the nature of the world; and/or a location where American Indian religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with traditional cultural rules of practice.[5]

While it is not within the scope of this cultural landscape report to clarify the traditional cultural significance of the Monument, it is appropriate to provide examples of traditional use related to the landscape. Input from American Indians has been incorporated into the project. A member of the Ho-Chunk Nation of Wisconsin provided one perspective to help non-native readers gain insight related to American Indian associations with the land.

History as spoken by aboriginal people indigenous to the Effigy Mounds area refers to time extending to the last glacial period. During the transitional periods the indigenous inhabitants witnessed many changes to the landscape and environment. As the glaciers receded, the mega-fauna and flora present for thousands of years were replaced by plants and animals previously unknown in the region. As the environment changed, humans

[4] Marla McEnaney, Midwest Regional Office, National Park Service, personal communication, February 2015.
[5] National Register Bulletin 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties.* U.S. Department of the Interior, National Park Service.

adapted by studying and learning from the new conditions. Efficient utilization of plants and animals allowed ancient people to survive and thrive, becoming rich in population and culture. Today's modern American Indians are descendants of these ancient civilizations.

Traditionally, members of the Ho-Chunk Nation of Wisconsin have a deep understanding of the environment and how it relates to daily life. To many indigenous people, the world is a living breathing entity referred to as Grandmother Earth. How one cares for her environmental components - air, water and land - is how one cares for their own grandmother who has nurtured them their entire life. This philosophy is a vital component in a way of life that recognizes Grandmother Earth as an integral part of cultural beliefs. Protecting, preserving and perpetuating her features provides great benefits to life and culture. Grandmother Earth shares life sustaining gifts of water, land, and air, providing ample resources for human use. American Indians believe that people must be careful to avoid depleting environmental resources. They strive to only use what is needed and avoid use of scarce resources until they are naturally replenished.

Effigy Mounds National Monument is an excellent example of a range of past, present and future land use related to the vast array of cultural components current American Indians recognize. The landscape contains features related to traditions established thousands of years ago. Located on site are many resources members of the Ho-Chunk Nation of Wisconsin continue to utilize today. The effigy mounds and other cultural features at the Monument serve as direct links between today's Ho-Chunk Nation of Wisconsin, their ancestors, and a connection with Grandmother Earth.

During the period when the mounds were constructed, a wide variety of types of wild and domesticated plants provided the diversity necessary to support the population. As indigenous people gradually shifted from a living supported by wild plants and animals to incorporating agriculture, diets were supplemented and a more sedentary lifestyle emerged. This led to the establishment of larger communal villages that were only sustainable in locations where abundant natural resources existed.

Traditionally plants were utilized for a wide range of applications. Many mosses, ferns, grasses, forbs, shrubs and trees had traditional uses that continue today. These include use as food, seasonings, drugs, medicine, clothing, shelter/housing/coverings, tools, ceremonial/sacred items, incense, dyes, hunting and fishing gear, games, and decoration.

Today, American Indians continue to use the landscape resources associated with Effigy Mounds National Monument in many ways their ancestors did, recognizing various components that played a part in the establishment of the mounds. Components necessary for the establishment and use of mound sites include villages or settlement sites, fasting and other cultural sites, plants, food, water, soundscapes, and views.[6]

One example is the traditional use of plants. Members of the Ho-Chunk Nation of Wisconsin have compiled an extensive database of plants with traditional uses. Tables 2-1 through 2-6 provide lists of plants, their Ho-Chunk Nation of Wisconsin names, English translation of Ho-Chunk Nation of Wisconsin plant names, traditional use types,

[6] William Quackenbush, March 17, 2014. Mr. Quackenbush is a member of the Ho-Chunk Nation of Wisconsin who consulted with Ho-Chunk leaders regarding materials provided for this report, 2013-2015.

scientific names, and a website link that includes information about the plants. The lists of plants with traditional uses are not provided as a guide for use or medical advice. Misuse of some of these plants can be dangerous. The lists are not exhaustive and are provided only as examples of plants found at EMNM that were likely present before and during the period when the mounds were being built. Many of these same plants are still used today. During site visits to Effigy Mounds in the fall of 2013, ninety-two plants with traditional uses were observed within the project area.[7]

[7] William Quackenbush, October 2013.

AMERICAN INDIAN PLANT USE - EFFIGY MOUNDS NATIONAL MONUMENT - HO CHUNK NATION Perspective					
Common Name	**Ho-Chunk Name**	**English Definition**	**Traditional Uses**	**Scientific Name**	**Website info**
Allegheny Blackberry	Hassep	Black berry	Medicine, drug, food, dye	*Rubus allegheniensis*	http://plants.usda.gov/java/profile?symbol=RUAL
American Bittersweet	Makazi	Medicine Yellow	Medicine, drug	*Celastrus scandens*	http://plants.usda.gov/java/profile?symbol=CESC
American Hazelnut	Huksik	Indian nut	Food, tools, hunting, fishing	*Corylus americana*	http://plants.usda.gov/java/profile?symbol=COAM3
Anemone or Thimbleweed	Makawira'aphi		Medicine, drug	*Anemone cylindrical*	http://plants.usda.gov/java/profile?symbol=ANCY
Arrow-Leaved Aster	Poaxu	Sweat	Medicine, drug, ceremonial	*Aster cordifolius*	http://plants.usda.gov/java/profile?symbol=SYCO4
Basswood	Hisge		Medicine, drug, household use, tools, shelter, coverings	*Tilia americana*	http://plants.usda.gov/java/profile?symbol=TIAM
Black Elderberry	Hicocox	Hollow stem	Medicine, drug, food	*Sambucus nigra*	http://plants.usda.gov/java/profile?symbol=SANI4
Black Snakeroot	Maka' apzazac	Medicine leaves fine small roots	Household, animal deterrent	*Sanicula marilandica*	http://plants.usda.gov/java/profile?symbol=SAMA2
Black Walnut	Cakhu		Medicine, drug, food, dye	*Juglans nigra*	http://plants.usda.gov/java/profile?symbol=JUNI
Black-eyed Susan	Poaxu	Sweat	Ceremonial, medicine, drug	*Rudbeckia hirta*	http://plants.usda.gov/java/profile?symbol=RUHI2
Bloodroot	Pexhisuc	Red Gourd	Medicine, drug, dye	*Sanguinaria canadensis*	http://plants.usda.gov/java/profile?symbol=SACA13
Blue Flag Iris	Makasagre	Medicine fast	Medicine, drug	*Iris versicolor*	http://plants.usda.gov/java/profile?symbol=IRVE2
Bog Goldenrod	Poaxu	Sweat	Ceremonial, medicine, drug	*Solidago uliginosa*	http://plants.usda.gov/java/profile?symbol=SOUL
Bracken Fern	Coserekehu	Fern	Medicine, drug, household use	*Pteridium aquilimum*	http://plants.usda.gov/java/profile?symbol=PTAQ
Broadleaf Arrowhead	Siporo	Rice round	Food	*Sagittaria latifolia*	http://plants.usda.gov/java/profile?symbol=SALA2
Buckthorn	Naconik	Little green stick	Medicine, drug	*Rhamnus alnifolia*	http://plants.usda.gov/java/profile?symbol=RHAL
Bur Oak	Piksigu		Food, medicine, drug, tools, household use, games	*Quercus macrocarpa*	http://plants.usda.gov/java/profile?symbol=QUMA2
Bush-clover (Roundhead Lespedeza)	Xawizi	Weed Yellow	Ceremonial	*Lespedeza capitata*	http://plants.usda.gov/java/profile?symbol=LECA8
Butternut	Cazuke	Fruit Tree	Medicine, drug, food, dye	*Juglans cinerea*	http://plants.usda.gov/java/profile?symbol=JUCI
Canada Goldenrod	Poaxu	Sweat	Ceremonial, medicine, drug	*Solidago canadensis*	http://plants.usda.gov/java/profile?symbol=SOAL6

Table 2- 1: Plants with Traditional Uses, Ho-Chunk Nation of Wisconsin Perspective, sheet 1 of 5[8]

[8] Please note that the lists of plants with traditional uses are not provided as a guide for use or medical advice. Misuse of some of these plants can be dangerous. The lists are not exhaustive and are provided only as examples.

AMERICAN INDIAN PLANT USE - EFFIGY MOUNDS NATIONAL MONUMENT - HO CHUNK NATION Perspective					
Common Name	**Ho-Chunk Name**	**English Definition**	**Traditional Uses**	**Scientific Name**	**Website info**
Canoe Birch	Nahaska	Tree - white skin	Food, tools, hunting, fishing, household use,	*Betula papyrifera*	http://plants.usda.gov/java/profile?symbol=BEPA
Common Ragweed	Makahikikuruza	Medicine headache wash	Medicine, drug	*Ambrosia artemisiifolia*	http://plants.usda.gov/java/profile?symbol=AMAR2&photoID=amar2_009_avp.tif
Common Vervain	Makarejuksuksik	medicine - fine roots	Medicine, drug	*Verbena hastata*	http://plants.usda.gov/java/profile?symbol=VEHA2
Cow Parsnip	Maka' apxete	Medicine big leaves	Medicine, drug, ceremonial	*Heracleum maximum*	http://plants.usda.gov/java/profile?symbol=HEMA80
Culver's Root	Makaski -or- Makarejuzi	Medicine root bitter -or- Medicine root yellow	Medicine, drug	*Veronicastrum virginicum*	http://plants.usda.gov/java/profile?symbol=VEVI4
Eastern Wahoo or Burning Bush	Naksikhazminak	Little Stick Berries	Medicine, drug	*Euonymus atropurpurea*	http://plants.usda.gov/java/profile?symbol=EUATA2
False Spikeweed, False Solomon's Seal, or False Lily of the Valley	Wakewaruc	Coon Berries	The root is a physic.	*Maianthemum racemosum*	http://plants.usda.gov/java/profile?symbol=MARA7
Fleabane	Poaxu	Sweat	Used in the sweat bath	*Erigeron strigosus*	http://plants.usda.gov/java/profile?symbol=ERST3
Floating Pondweed	Kecoksikxununik	Turtle feet small	Medicine, drug, seasoner	*Potamogeton natans*	http://plants.usda.gov/java/profile?symbol=PONA4
Flowering Spurge	Na'apraxatake	Leaf Milk	Medicine, drug	*Euphorbia corollata*	http://plants.usda.gov/java/profile?symbol=EUCO10
Forked Aster	Poaxu	Sweat	Ceremonial	*Aster furcatus*	http://wisplants.uwsp.edu/scripts/detail.asp?SpCode=ASTFUR
Giant Sunflower	Poaxu	Sweat	Ceremonial, food	*Helianthus giganteus*	http://plants.usda.gov/java/profile?symbol=HEGI
Great Water-dock	Hisuc	Water red	Medicine, drug	*Rumex orbiculatus*	http://plants.usda.gov/java/profile?symbol=RUOR2
Hoary Vervain	Caxiwico	Green flowers	Medicine, drug	*Verbena stricta*	http://plants.usda.gov/java/profile?symbol=VEST
Honey Locust	Naksikpahik	Sharp bushes	Ceremonial	*Gleditsia triacanthos*	http://plants.usda.gov/java/profile?symbol=GLTR
Indian Pipe	Xawiska	Flowers white	Medicine, drug	*Monotropa uniflora*	http://plants.usda.gov/java/profile?symbol=MOUN3
Indian Spikenard	Pejahu	Sand hill crane-lake	Medicine, drug	*Aralia racemosa*	http://plants.usda.gov/java/profile?symbol=ARRA
Jack in the Pulpit	Waxge	To look down	Medicine, drug	*Arisaema triphyllum* L. Schott	http://plants.usda.gov/java/profile?symbol=ARTR
Joe-Pye Weed	Wirotapanahi	Smudge	Used as a smudge for illnesses	*Eupatorium maculatum*	http://plants.usda.gov/java/profile?symbol=EUMAB

Table 2- 2: American Indian Plant Use, Ho-Chunk Nation of Wisconsin Perspective, sheet 2 of 5[9]

[9] Please note that the lists of plants with traditional uses are not provided as a guide for use or medical advice. Misuse of some of these plants can be dangerous. The lists are not exhaustive and are provided only as examples.

AMERICAN INDIAN PLANT USE - EFFIGY MOUNDS NATIONAL MONUMENT - HO CHUNK NATION Perspective					
Common Name	**Ho-Chunk Name**	**English Definition**	**Traditional Uses**	**Scientific Name**	**Website info**
Kentucky Coffee Tree	Napacaknakhu		Medicine, drug, food, seasoner,	*Gymnocladus dioicus*	http://plants.usda.gov/java/profile?symbol=GYDI
Lamb's Quarters	Raxgemakejahagep	Old ground growing	Food, seasoner	*Chenopodium album*	http://plants.usda.gov/java/profile?symbol=CHAL7
Large-toothed Aspen	Wasge		Medicine, drug, tool, game	*Populus grandidentata*	http://plants.usda.gov/java/profile?symbol=POGR4
Leadplant	Xawisku	Sweet Root	Medicine, drug	*Amorpha canescens*	http://plants.usda.gov/java/profile?symbol=AMCA6
Meadow-rue	Xawinpanapi	Smells good	Medicine, drug, tools, household	*Thalictrum dasycarpum*	http://plants.usda.gov/java/profile?symbol=THDA
Milkwort	Cesicosok	Buffalo tail	Medicine, drug, food	*Polygala sanguinea*	http://plants.usda.gov/java/profile?symbol=POSA3
New Jersey Tea	Cawaruc	Deer Food	Medicine, drug	*Ceanothus americanus*	http://plants.usda.gov/java/profile?symbol=CEAM
Northern Pin Oak	Piksikrakekhu		Food, medicine, drug, tools, household use, games	*Quercus ellipsoidalis*	http://plants.usda.gov/java/profile?symbol=QUEL
Northern Red Oak	Huksigu	Nut tree	Food, medicine, drug, tools, household use, games	*Quercus rubra*	http://plants.usda.gov/java/profile?symbol=QURU
Orange Milkweed (butterfly)	Makaska	Medicine White	Food, medicine, tools, household use, hunting/fishing	*Asclepias tuberosa*	http://plants.usda.gov/java/profile?symbol=ASTU
Ostrich Fern	Cukeresge or Cusereke	Stand up - lots of leaves	Medicine, drug, household use	*Osmunda claytoniana*	http://plants.usda.gov/java/profile?symbol=OSCL2
Pasture Rose	Hassuc	Red berries	Medicine, drug	*Rosa carolina*	http://plants.usda.gov/java/profile?symbol=ROCA4
Peach-leaf Willow	Rugixete		Medicine, drug	*Salix amygdaloides*	http://plants.usda.gov/java/profile?symbol=SAAM2
Poison Ivy	Rujas' xuu	Blisters skin	Medicine, drug	*Toxicodendron radicans*	http://plants.usda.gov/java/profile?symbol=TORA2&photoID=tora2_007_avp.tif
Quaking Aspen	Wasge		Medicine, drug, tool, game	*Populus tremuloides*	http://plants.usda.gov/java/profile?symbol=POTR5
Red Elderberry	sosoc		Medicine, drug, food	*Sambucus racemosa*	http://plants.usda.gov/java/profile?symbol=SARA2
Round-Leaved Dogwood	Rugisucge	Smoking bark	Medicine, drug, ceremonial	*Cornus rugosa*	http://plants.usda.gov/java/profile?symbol=CORU
Ruff-leafed sunflower	Sawazi or Hinuc	yellow legs or snuff	Ceremonial, food	*Helianthus strumosus*	http://plants.usda.gov/java/profile?symbol=HEST
Sarsaparilla	Tosanak Axucge	Otter armband	Medicine, drug, food, ceremonial	*Aralia hispida*	http://plants.usda.gov/java/profile?symbol=ARHI2

Table 2- 3: American Indian Plant Use, Ho-Chunk Nation of Wisconsin Perspective, sheet 3 of 5[10]

[10] Please note that the lists of plants with traditional uses are not provided as a guide for use or medical advice. Misuse of some of these plants can be dangerous. The lists are not exhaustive and are provided only as examples.

AMERICAN INDIAN PLANT USE - EFFIGY MOUNDS NATIONAL MONUMENT - HO CHUNK NATION Perspective					
Common Name	**Ho-Chunk Name**	**English Definition**	**Traditional Uses**	**Scientific Name**	**Website info**
Sarsaparilla (Bristly Greenbriar)	Waxacsep	Black Stickers	Medicine, drug, food, seasoner	*Smilax tamnoides*	http://plants.usda.gov/java/profile?symbol=SMTA2
Self heal	Wirasarak	Heal all	Medicine, drug	*Prunella vulgaris*	http://plants.usda.gov/java/profile?symbol=PRVU
Showy Goldenrod	Makarejuserec	Medicine root Long	Ceremonial, medicine, drug	*Solidago speciosa*	http://plants.usda.gov/java/profile?symbol=SOSP2
Silky Dogwood	Cawaruc	Deer feed	Medicine, drug, ceremonial	*Cornus obliqua*	http://plants.usda.gov/java/profile?symbol=COOB9
Slippery Elm	Makarak ap	Elm leaves	Used as a sore throat lozenge and in many combinations.	*Ulmus rubra*	http://plants.usda.gov/java/profile?symbol=ULRU
Spreading Dogbane	Waruhaxawi	Fireflies' weed	Medicine, drug	*Apocynum androsaemifolium*	http://plants.usda.gov/java/profile?symbol=APAN2
Squirt Cucumber or Wild Cucumber	Xa'o'oke	Hoot owl	Medicine, drug, decoration, games	*Echinocystis lobata*	http://plants.usda.gov/java/profile?symbol=ECLO
Staghorn Sumac	Haznihu	Berries, water leaking out	Food, tools, games, medicine, drug	*Rhus typhina*	http://plants.usda.gov/java/profile?symbol=RHTY
Stiff Goldenrod			Medicine, drug, tool	*Oligoneuron rigidum*	http://plants.usda.gov/java/profile?symbol=OLRI
Strawberry Weed (Norwegian cinquefoil)	Hisucxununik	Yellow flower	Medicine, drug	*Potentilla norvegica*	http://plants.usda.gov/java/profile?symbol=PONO3
Swamp Dogwood or Gray Dogwood	Masigusge	Arrow wood	Medicine, drug, ceremonial	*Cornus racemosa*	http://plants.usda.gov/java/profile?symbol=CORA6
Sweet White Water Lily	Kecoksik	Red turtle feet	Medicine, drug	*Nymphaea odorata*	http://plants.usda.gov/java/profile?symbol=NYOD
Tall Milkweed (common)	Mahic		Food, medicine, tools, household use, hunting/fishing	*Asclepias exaltata*	http://plants.usda.gov/java/profile?symbol=ASEX
Tick Trefoil	Waraxgaxgapkeparasti	Stickers, flat	Medicine, drug, food, seasoner	*Desmodium cuspidatum*	http://plants.usda.gov/java/profile?symbol=DECU
Tinker's Weed or Orangefruit Horse Gentian	Makakirikirik	Medicine soft	Medicine, drug, food	*Triosteum aurantiacum*	http://plants.usda.gov/java/profile?symbol=TRAU4
Western Silvery Aster	Paxsisik umaka	Diarrhea medicine	Medicine, drug	*Aster sericeus*	http://plants.usda.gov/java/profile?symbol=SYSE2
White Oak	Nahaska	Tree nuts	Food, medicine, drug, ceremonial, tools, household use, games	*Quercus alba*	http://plants.usda.gov/java/profile?symbol=QUAL
White Pine	wazi		Medicine, drug, food, shelter, hunting, fishing	*Pinus strobus*	http://plants.usda.gov/java/profile?symbol=PIST

Table 2- 4: American Indian Plant Use, Ho-Chunk Nation of Wisconsin Perspective, sheet 4 of 5[11]

[11] Please note that the lists of plants with traditional uses are not provided as a guide for use or medical advice. Misuse of some of these plants can be dangerous. The lists are not exhaustive and are provided only as examples.

AMERICAN INDIAN PLANT USE - EFFIGY MOUNDS NATIONAL MONUMENT - HO CHUNK NATION Perspective					
Common Name	**Ho-Chunk Name**	**English Definition**	**Traditional Uses**	**Scientific Name**	**Website info**
White Sage	Xawiskarawirotapanahi	Medicine Root Long	Medicine, drug	*Artemisia ludoviciana*	http://plants.usda.gov/java/profile?symbol=ARLU
White Snakeroot	Wakamaka	Snake Medicine	medicine, drug, household use	*Ageratina altissima*	http://plants.usda.gov/java/profile?symbol=AGALA
Wild Bergamot	Poaxu	Sweat	Medicine, drug, ceremonial	*Monarda fistulosa*	http://plants.usda.gov/java/profile?symbol=MOFI
Wild Black Cherry (Black Plum)	Napakwijanik	Tree cherry drunk	Medicine, drug, food, ceremonial	*Prunus serotina*	http://plants.usda.gov/java/profile?symbol=PRSE2
Wild Ginger	Wamaxe		Food, seasoning, medicine	*Asarum canadense*	http://plants.usda.gov/java/profile?symbol=ASCA
Wild Grape	Hapsic		Food, medicine, drug, household use, housing/shelter, tools	*Vitis* L. *spp.*	http://plants.usda.gov/java/profile?symbol=VITIS
Wild Sarsaparilla	Makakirikiri	Medicine soft	Medicine, drug	*Aralia nudicaulis*	http://plants.usda.gov/java/profile?symbol=ARNU2&photoID=arnu2_1h.jpg
Wild White Indego	Capakginusge		Medicine, drug	*Baptisia alba*	http://plants.usda.gov/java/profile?symbol=BAAL
Witch-hazel	Huksik	Squirrel berries	Medicine, drug, seasoner	*Hamamelis virginiana*	http://plants.usda.gov/java/profile?symbol=HAVI4
Yarrow	Makawirirotapanahi	Medicine Smudge	Medicine, drug	*Achillea millefolium*	http://plants.usda.gov/java/profile?symbol=ACMI2
Yellow Woodsorrel	xawisku	Weed Seed	Give to a baby sick with colic.	*Oxalis stricta*	http://plants.usda.gov/java/profile?symbol=OXST

Table 2- 5: American Indian Plant Use, Ho-Chunk Nation of Wisconsin Perspective, sheet 5 of 5[12]

[12] Please note that the lists of plants with traditional uses are not provided as a guide for use or medical advice. Misuse of some of these plants can be dangerous. The lists are not exhaustive and are provided only as examples.

Cultural Landscape: Physical Landscape and Cultural Traditions

This section provides a description of the physical landscape associated with key time periods at Effigy Mounds National Monument. The landscape descriptions in this section integrate information about tribal use, archeology and ecology, to inform a holistic understanding of the cultural landscape. Consideration of human activities associated with the Monument landscape is an important aspect of this CLR. Tribal oral tradition enhances and enriches this understanding by relating traditional practices. Archeological studies provide analysis of physical evidence. Archeological and tribal perspectives together enhance and enrich understanding of history and heritage.

The most significant period associated with the Monument is the time during which people were constructing the mounds. In the region, the period of mound construction began during the Late Middle Archaic period (the earliest mounds have been dated to about 1200 to 400 BC). The majority of the mounds at Effigy Mounds National Monument were constructed during the Woodland Period (approximately 800 BC to AD 1000). The mounds continue to remain relevant to American Indians today.

Theler and Boszhardt provide a helpful perspective on the relative association of pre-historic cultures to the landscape:

> …envision a foot-long ruler with each inch representing a millennium. On that scale, Columbus would have reached the New World half an inch ago, the United States declared independence less than a quarter of an inch ago, the automobile was invented a tenth of an inch ago, and the age of computers occupies only the last one-thirtieth of an inch. The more than 11 inches before these events represent the time the region was occupied by pre-European American Indian cultures.[13]

Archeological classifications seldom provide clear connections to current tribal groups but they do indicate sequences of material cultures and related traditions that changed over time. In the Upper Mississippi Valley (including the project area) the continuum of human adaptation spans a period of about 12,000 to 14,000 years.[14]

[13] James L. Theler and Robert F. Boszhardt, *Twelve Millennia: Archaeology of the Upper Mississippi River Valley* (Iowa City, Iowa: University of Iowa Press, 2003), ix.
[14] Ibid., x-xi.

Figure 2- 1: Driftless Area in the Upper Mississippi River Basin: a roughly 24,000 square mile region not impacted in the Wisconsinan Glaciation (source: Southwest Badger Resource Conservation and Development Council and ESRI, accessed 2014).

Geological Development of the Area

Effigy Mounds National Monument is located within the Paleozoic Plateau of northeast Iowa. Historically called Iowa's Switzerland for its steep hills, forests, and pastoral setting, this area is also called the Driftless Area because it was not covered by glaciers during the last (Wisconsinan) glacial period, and therefore no glacial drift was deposited (see Figure 2-1 for location of the Driftless Area). The plateau is built upon Ordovician and Cambrian bedrock, laid down roughly half a billion years ago. The oldest rock, Jordan Sandstone (Cambrian), forms the base and is visible along Hwy 76 in the South Unit. The hard limestones/dolomites of the Prairie du Chien group form many of the overlook outcroppings as well as the 'cap rock' on the bluffs that can restrict or direct travel from bluff top to bottom. St. Peter Sandstone is the youngest rock underlying the park and is only present in the southern half of the South Unit. It is not a well consolidated rock, and its uneven weathering formed Rattlesnake Knob and the plateau where the Marching Bear mound group is located.

The Paleozoic Plateau was glaciated during one of the pre-Illinoian glacial episodes, roughly half a million years ago, but not during the most recent Wisconsinan episode. As a result, the landscape has been eroding for the last 500,000 years and displays high relief, V-shaped valleys, vertical bedrock outcrops and bluffs, caves, springs, and sinkholes. The Paleozoic Plateau is split by the Mississippi valley and its dendritic valley systems. The Mississippi valley was largely carved by glacial outwash from the melting of Wisconsinan glaciers, creating a huge valley in which the Mississippi meanders, flanked by high bluffs.[15]

Upland soils present on blufftops are somewhat erosional, with soil being removed by erosion slightly faster than soil is deposited by wind. Archeologically, this means there is not likely to be significant stratification of site deposits. However benches, terraces, fans, and bottoms within larger valleys can be accretional, burying and preserving archeological sites.

The erosional nature of blufftop soils means that the mounds on them will inevitably disappear, but this process may take millennia if the blufftops have adequate vegetation cover. Mounds built on terraces, benches, and bottoms will eventually be buried, covered by silt or alluvium. This burial process varies depending on topographical setting. It is possible that many mounds within the Mississippi floodplain were buried prior to Euro-American and European immigrant settlement.[16]

During the last glacial period approximately 19,500 BC to 14,000 BC, vegetation in Iowa was characterized by open tundra. Spruce forests replaced the tundra as the climate began to warm from 14,000 BC to 10,000 BC.[17]

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[15] Jean C. Prior, *Landforms of Iowa* (Iowa City, Iowa: University of Iowa Press, 1991), 87–97.
[16] Michael M. Benedetti, *Sedimentation Study at Sny Magill Unit, Effigy Mounds National Monument*.
[17] "The Vascular Plants of Iowa: An Annotated Checklist and Natural History," University of Iowa Press Digital Editions, The University of Iowa, 2010, http://uipress.lib.uiowa.edu/vpi/IowaFlora.aspx#vegetational.

Early American Indian Occupations

Paleo-Indian and Early Archaic Periods (approximately 12,000-7,500 BC)

Humans have lived in Iowa for at least 12,000 to 14,000 years. Paleo-Indians are known for well-made stone tools. Previously thought to be specialists in hunting big game, including Pleistocene megafauna, recent research indicates a more diversified subsistence, focused on local small game and flora.

As the last ice sheets associated with the Wisconsin glacier retreated, warmer climates led to changes to local ecosystems. The low-lying Mississippi River trench was strewn with rocks, gravel and sand left behind by the glaciers (glacial outwash). Shifts in climate resulted in dramatic flooding of the valley caused by rapidly-draining glacial lakes. Humans lived in the Mississippi valley, but evidence of their habitation was either buried or destroyed by the shifting landscape.[18]

Archeological evidence of Paleo-Indian occupation in Allamakee and Clayton Counties includes six sites that are all located in upland landscapes. Although documentation is not sufficient to definitively describe cultural traditions associated with the Paleo-Indian period, a pattern consisting of small camps or hunting locations on sandy ridges of outwash in the river valley has been identified.[19]

Vegetation in northeastern Iowa progressed from spruce-larch forest with hardwoods (approximately 10,000 BC), to deciduous forest (approximately 7,000 BC), prairie (approximately 3,000 BC) and finally forest and savanna (approximately 1,500 BC through Euro-American and European immigrant settlement). Topography has remained substantially consistent with the exception of the Mississippi River valley. [20]

Archaic Periods Landscape and Culture (approximately 7,500-800 BC)

During the Early and Middle Archaic periods, the elevation of the Mississippi River floodplain landscape continued to increase as sediment accumulated. This process continued into the Hypsithermal climatic episode, which was a warm period during the interval from approximately 7,000 BC to 3,000 BC[21] As a result of this process, a large proportion of the ground surface (and archeological resources) associated with the Early and Middle Archaic record in valleys is buried by alluvium in streams while other sites have been destroyed by natural processes.[22] Upland Archaic sites are likely to be near the surface, with little stratigraphic separation from later occupations.

Since the last glaciation, major ecosystems in the Effigy Mounds area (and larger Driftless area region) shifted between forests, savannas, and prairies. The upland forests varied from oak dominance in drier periods, to maple in wetter periods. Savannas and

[18] Green et al., "Effigy Mounds National Monument Cultural Affiliation Report," 35.
[19] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, Reference #R6115020062*, 31-33.
[20] "The Vascular Plants of Iowa: An Annotated Checklist and Natural History."
[21] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, Reference #R6115020062*, 34; definitions of aggradation and Hypsithermal from Wikipedia on-line encyclopedia.
[22] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, Reference #R6115020062*, 35.

prairies were prevalent in drier periods, especially where fire naturally occurred or was used as a management tool by American Indians. Even during extended moist periods, prairies and savannas likely persisted on south and west facing slopes, which are typically hotter and drier because of their aspect. Maples and some pines likely persisted in steep ravines, where microclimates are cooler and moist, enhancing fire resistance.

The Early Archaic (ca. 7,300-3,000 years ago) culture included highly mobile hunting groups who lived in an environment of newly established early Holocene deciduous forests. The presence of people on the landscape included short-term occupations such as hunting camps. One hypothesis is that small groups were dispersed throughout the region during the cool seasons. If larger groups came together, this would occur during the warm season in locations near important resources like chert or abundant food sources.[23]

Archaic sites in Iowa are notable for the earliest unambiguous evidence of house basins, burials, and preserved organic features, allowing for a more detailed glimpse of daily life. As large game associated with the previous era became extinct, hunting shifted to smaller species, including white-tailed deer.[24] Middle and Late Archaic culture settlement and subsistence patterns reflect greater sedentary behavior and increased reliance upon resources associated with base camps, multiseasonal occupations, more substantial structures, and burials.[25]

The deciduous forest and riverine environments served as important resource bases as groups continued to maintain an economic system that emphasized hunting, fishing, and gathering.[26] Agriculture in Eastern North America developed slowly, beginning as early as 5,000 to 3,000 years ago (3000 BC to 1000 BC). The first plants native to eastern North America to be domesticated included gourds and squashes (*Cucurbita pepo* ssp. ovifera), sumpweed or marsh elder (*Iva annua var. macrocarpa*), common sunflower (*Helianthus annuus var. macrocarpa*) and goosefoot (*Chenopodium berlandieri*). [27]

Evidence for more sedentary behavior, beginning about 7,000 years ago, includes the appearance of large ground stone artifacts that are not easily transportable, such as ground stone hammers, mauls, manos, and grinding slabs. Also, an increase in the size

[23] Ibid., 37.
[24] Ibid., 36; and James A. Brown and Robert K. Vierra, "What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology," in *Archaic Hunters and Gatherers in the American Midwest*, ed. James L. Phillips and James A. Brown (New York: Academic Press, 1983), 165-195.
[25] James A. Brown, "Long-Term Trends to Sedentism and the Emergence of Complexity in the American Midwest," in *Prehistoric Hunter-Gatherers: The Emergence of Cultural Complexity*, ed. T. Douglas Price and James A. Brown (Orlando, Florida: Studies in Archaeology, Academic Press, 1985), 201-234; and Brown and Vierra, "What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology," 165-195.
[26] Green et al., "Effigy Mounds National Monument Cultural Affiliation Report," 36; and Brown and Vierra, "What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology," 165-195.
[27] David L. Asch and William Green, *Crops of Ancient Iowa: Native Plant Use and Farming Systems* (Iowa City, Iowa: Iowa Office of the State Archaeologist, submitted to the Leopold Center for Sustainable Agriculture, Ames, Iowa, Grant No. 90-34, 1992), 1-2 and 108-109.

and diversity of pit features, diversification of local resources, and an apparent increase in burials, all reflect occupations of sites for extended periods of time.[28]

The construction of mounds began as the late Late Archaic period transitioned into the Late Archaic/Woodland period, approximately 1200 to 400 BC It is likely that there is continuity in cultural practices between the Late Archaic and Early Woodland periods. A number of mortuary practices from the Archaic period appear to have transitioned into Woodland period burials, including pre-mound surface preparation, bundle burials, rock features, skull placements, and lithic artifacts.[29] There is evidence of Red Ocher burials in Mound 43 at the Sny Magill Unit. Here a mix of Late Archaic and Early Woodland points were found with copper artifacts, early thick-walled ceramics and ocher layers.[30] Red Ocher sites date to the transition between the Late Archaic and Woodland periods.[31] Though cultural ages of mound groups are ambiguous, it appears that early mounds would have been conical or linear in form, while effigy mounds were constructed in later periods.[32]

Woodland Period (approximately 800 BC – AD 1,000)

The majority of mounds at Effigy Mounds National Monument were built during the Woodland Period. American Indian oral tradition indicates that this period was a trying time for indigenous people due to substantial political and cultural transitions. People began to congregate in the effigy mound cultural region establishing village and clan networks.[33] Archeological investigations have led to the same conclusion.[34]

The Woodland period is known for ceramics, mounds, and use of plants. There is evidence for continued seasonal movement, and the aggregation of larger village sites, but little evidence of substantial structures. Food was a mix of wild woodland and riverine resources with some horticulture. Common wild resources included shellfish, fish, deer, small animals, nuts, wild rice, wild grape, plums, cherries, and raspberries. Woodland period populations likely grew food in small garden plots. Domesticated crops included chenopodium, knotweed, maygrass, squash, sunflower, and maize. Although

[28] Thomas E. Emerson and Dale L. McElrath, "The Eastern Woodlands Archaic and the Tyranny of Theory," in *Archaic Societies: Diversity and Complexity Across the Midcontinent*, ed. Thomas E. Emerson, Dale L. McElrath, and Andrew C. Fortier (Albany, New York: State University of New York Press, 2009).
[29] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, Reference #R6115020062*, 67.
[30]Paul L. Beaubien, "Cultural Variation within Two Woodland Mound Groups of Northeastern Iowa," *American Antiquity* 19 (1953): 56–66.
[31] Thomas C. Pleger, "Old Copper and Red Ocher Social Complexity," *Midcontinental Journal of Archaeology* 25 (2000): 169–190.
[32] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, Reference #R6115020062*, 144-145.
[33] William Quackenbush, personal communication, 2015. Mr. Quackenbush is a member of the Ho-Chunk Nation of Wisconsin who consulted with Ho-Chunk leaders regarding materials provided for this report, 2013-2015.
[34] Tribal representatives have expressed clearly that archeological investigations of mounds are a desecration of sacred sites and this type of activity is strongly discouraged. The NPS does not undertake physical investigations of mounds. The information available was collected prior to the establishment of the National Monument.

domesticated plants were important, archaeology suggests hunting and gathering still provided most of their food.[35]

Evidence related to the Hopewell tradition throughout North America provides insight into American Indian culture during the period when the mounds were constructed. The Hopewell tradition refers to dispersed groups that flourished along rivers in the northeastern and Midwestern United States from approximately 50 BC to A.D 350.[36] One interpretation of the culture groups and their associated locations indicates twenty different societies existed (see Figure 2-2). It is likely that others are not yet understood.[37] The groups interacted via trade networks that extended from the Southeastern United States to the Canadian shores of Lake Ontario.[38] Precious materials were collected from remote locations and brought back to population centers.[39]

The Middle Woodland period (50 BC to 350 BC) in northeastern Iowa is generally associated with the Havana Hopewell Cultural Group. Artistic artifacts of the Hopewell Interaction Sphere have been located in small numbers in conical mounds along the Mississippi River dating to this period. Hopewellian style grave goods have been identified in several mounds in the Monument's North Unit. In addition to imported materials, archeological sites at Effigy Mounds NM have yielded locally-produced materials in the Havana Hopewell style. Ceramics characteristic of the Havana Hopewell were created at a village site within the Monument boundary.[40] Hopewellian mounds are also likely to be present at Sny Magill.[41]

Hopewellian mounds were constructed with a distinctive structure. Topsoil was removed from the location and a level platform was created. Rocks and pebble features were incorporated into the structural arrangements and offerings, and the mounds frequently incorporated central tombs. Intentional fill layers are sometimes found including constructed layers of rocks, mucky soils, and burned soils or rocks. Mounds in northeastern Iowa include significantly fewer artifacts associated with the Hopewell Interaction Sphere than sites to the south; however, the types of materials found in these mounds suggests that the people living in northeastern Iowa at this time were following the ritual precepts of the Hopewell belief system.[42]

Burials within Late Woodland mounds from the effigy mounds region include a variety of techniques including examples of cremation, bundle burial, and extended burials. More than one burial type can be found within the same mound group. Grave goods tend to be

[35] Stoltman and Christiansen, "The Late Woodland Stage in the Driftless Area of the Upper Mississippi Valley," 497–524; Rosebrough, "Every Family a Nation: A Deconstruction and Reconstruction of the Effigy Mound 'Culture' of the Western Great Lakes of North America;" and Asch and Green, *Crops of Ancient Iowa: Native Plant Use and Farming Systems*, 1-2 and 108-109.
[36] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, Reference #R6115020062*, 45-63.
[37] http://www.hopewellbrand.com
[38] Ibid. The trade networks have been referred to collectively as the Hopewell exchange system.
[39] http://www.nps.gov/hocu/forteachers/classrooms/hopewell-artifact-map-locator.htm
[40] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, BCA #1087*, 42-46.
[41] Ibid., 62.
[42] Ibid., 61-62.

utilitarian, commonly projectile points or ceramics. Some mounds have a prepared ceremonial surface, such as an "altar" of stone slabs, imported soils, burned layers, or rock outlines. 'Altars' of stone slabs and more elaborate mound construction preparations tend to occur more frequently in Middle Woodland mounds.[43]

Of the twelve radiocarbon dates made from the Monument, two are Late-Archaic/Early Woodland; four conical mounds date to the Middle Woodland Hopewell; three effigy mounds date to the Late Woodland period; one linear mound is Late Woodland; and one sample indicates a modern age date at an effigy mound.[44] This suggests mound construction was continuous throughout the Woodland period, and implies effigies are associated with the Middle and Late Woodland periods.[45] The end of effigy mound construction coincides with the end of the Woodland period and the appearance of Late Oneota sites.

Despite attempts to define the culture groups who constructed effigy mounds as one culture type, there is little evidence to support the idea that effigy mound construction is a trait of a bounded population. People who built effigy mounds varied widely in settlement patterns, subsistence, material culture, style, and ritual behavior.[46] Figure 2-3 shows the extent of the area where effigy mounds were constructed, which centered on the southern portion of what is now Wisconsin, including portions of northern Illinois and eastern Minnesota and Iowa.

Woodland Period Environmental Conditions

Since the last glaciation, the major ecosystems in the Effigy Mounds (and larger Driftless area region) shifted among forests, savannas, and prairies. The upland forests likely shifted between oak dominance in drier periods, and maple in wetter periods. Savannas and prairies likely dominated in drier periods, especially where fire naturally occurred or was used as a management tool by American Indians. Even during extended moist periods, prairies and savannas likely persisted on south and west facing slopes, which are typically hotter and drier because of their aspect. These areas served as refugia to colonize larger areas when it was drier or following a fire. Conversely, maples and some pines likely persisted in steep ravines, which create a microclimate that resists fire and is typically cool and moist.

A few cultural changes in the archeological record correlate with environmental changes. A decline in fire correlates with a reduction in prairie around 2000 years ago, within a century of the transition between Early Woodland and Middle Woodland tradition. As temperatures cooled slightly, the prairie ecosystem declined and vegetation changed to oak savanna with a mosaic of prairie, upland forest, and floodplain forest. This mosaic of vegetation associated with cooler temperatures and less grass is likely to have included abundant edge habitat excellent for deer, an important resource for Woodland peoples. After that, regular fires on the landscape decreased in severity (ca. AD 300) and a

[43] Ibid.
[44] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, BCA #1087*, 136.
[45] Rosebrough, "Every Family a Nation: A Deconstruction and Reconstruction of the Effigy Mound 'Culture' of the Western Great Lakes of North America."
[46] Rosebrough, "Every Family a Nation: A Deconstruction and Reconstruction of the Effigy Mound 'Culture' of the Western Great Lakes of North America."

Figure 2- 2: Hopewell Tradition Culture Group Locations (source: http://www.hopewellbrand.com)

Figure 2- 3: Regional map showing the area where effigy mounds were constructed (source: Effigy Mounds National Monument, accessed 2014).

transition toward greater tree canopy cover was initiated.[47] Population growth during the Late Woodland period (AD 500 to AD 1300) increased parallel to environmental stability. Although these correlations do not indicate direct relationships, they provide a perspective for consideration of ways that American Indians used and responded to environmental conditions as portions of the landscape shifted from being dominated by prairie and oak savannah to eastern deciduous forest.[48]

A diagram illustrating conceptual landscape conditions during this period shows features present within the project area during the period from 6,000 to 700 years ago (see POC-1). All of the mounds present today were constructed within this time period. Also present (but not illustrated due to the protected nature of this information) were ten rock shelters and two habitation/village sites. Pollen records, surveyors notes from the 1840s, illustrations, and other sources all indicate that, during this time period, the bluff landscapes along large rivers were commonly a mixture of vegetation communities, including floodplain forest, upland forest, oak savanna, and prairie. The distribution of plant communities was largely influenced by topography, which affects local climate (sun aspect) and fire patterns. POC-1 illustrates the expected location and extent of vegetation communities likely present at the Monument during the period when the mounds were constructed. Chapter 3, LA-2, provides a comparison of vegetation patterns during several time periods.

The association of most of the mounds in the North, South, and Heritage Units with high bluffs indicates a possible correlation with open areas of prairie or oak savanna. These high sites with open vegetation are likely to have provided long-reaching views of the sky and across the landscape, especially up and down the Mississippi River. The bluff tops where mounds are located may have been managed as open prairies and savannas in order to maintain views and to keep the grounds open for ceremonial use.

It is possible that more mounds were constructed in low areas that have been buried by sediment or removed by erosion. The dense collection of mounds at the Sny Magill Unit landscape may have been constructed on a raised plateau, which has been gradually eroded and filled by sediment from flooding. Other mound sites in similar settings may have been submerged or washed away by the current. POC-1 also indicates the location of a natural funnel and several possible funnels. Natural funnels are topographic conditions utilized by both people and animals as the easiest path between two points.[49] A funnel is a tapered valley that can be used for hunting, circulation, and access to springs, streams, and rivers.

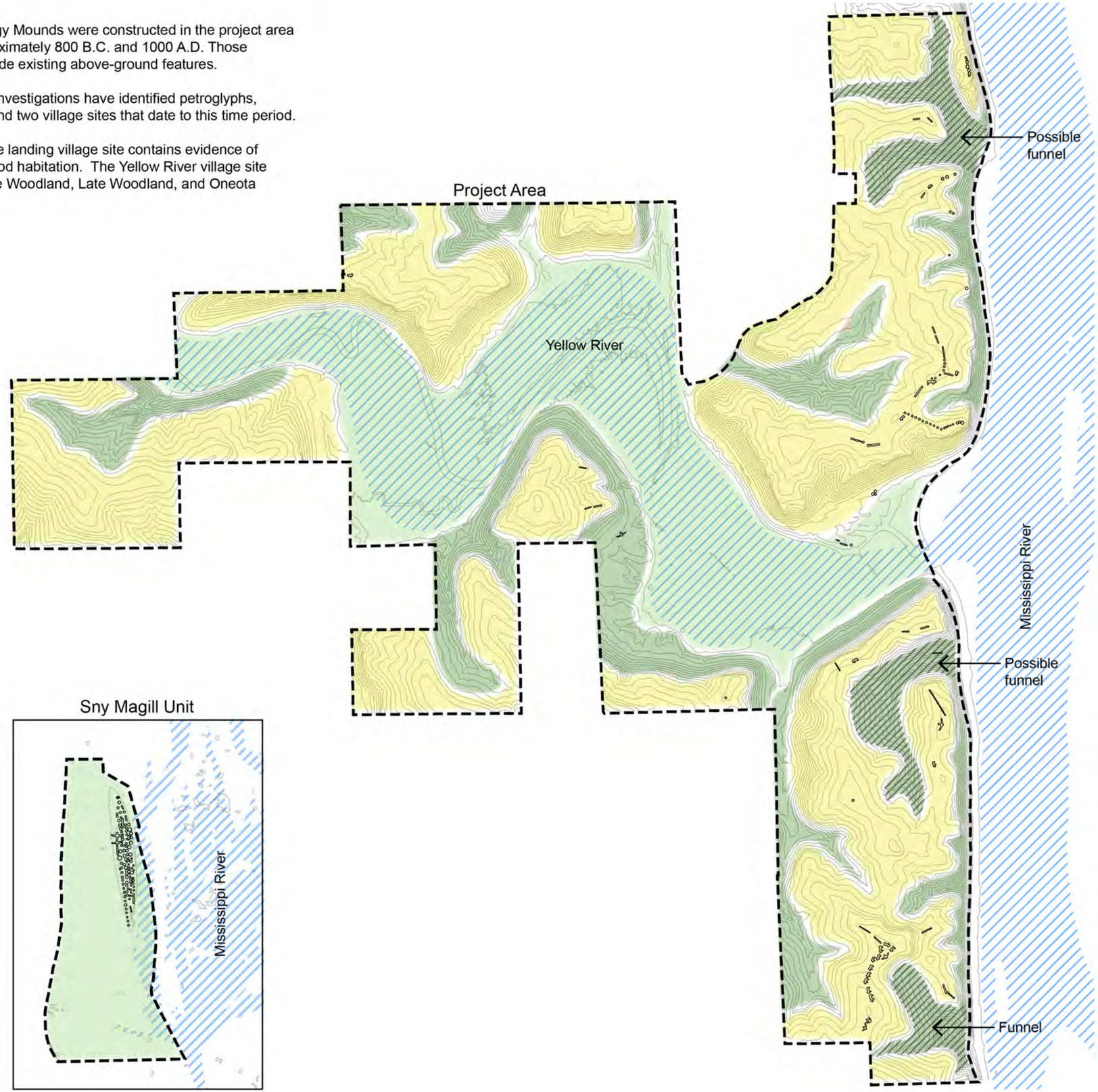
Next page: POC – 1: Period of Change Diagram, approximately 800 BC – AD 1,000

[47] Sarah McGuire Bogen and Sara C. Hotchkiss, *Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument* (National Park Service Great Lakes Northern Forest Cooperative, Ecosystem Study Unit Cost Sharing Grant 144-ND24, 2007), i; Betsie Blumberg, "Reconstruction prehistoric ecology to restore the paleo-environment at Effigy Mounds." *Park Science* 26.2 (2009) No. 2:12-13.
[48] Bogen and Hotchkiss, *Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument*, ii.
[49] William Quackenbush, Tribal Historic Preservation Officer, Ho-Chunk Nation of Wisconsin. Mr. Quackenbush consulted with Ho-Chunk elders regarding materials provided for this report, 2013-2015.

Notes:
Numerous Effigy Mounds were constructed in the project area between approximately 800 B.C. and 1000 A.D. Those illustrated include existing above-ground features.

Archeological investigations have identified petroglyphs, rockshelters, and two village sites that date to this time period.

The Red House landing village site contains evidence of Woodland Period habitation. The Yellow River village site includes Middle Woodland, Late Woodland, and Oneota components.



EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Period of Change Diagram, ca. 800 BC - AD 1000

Legend

- Project Area
- Mound
- Natural funnel
- Approximate location of prairie or oak savanna
- Approximate location of upland forest or oak savanna
- Approximate location of floodplain forest or wetland
- Approximate Location of Rivers
- 20 ft contours (2 ft contours in Sny Magill) based on current topography

Sources

1. Effigy Mounds National Monument GIS database (mound locations from LIDAR, project boundary, topography).
2. Woodland period sites mapped by Whittaker and Hlack, Iowa Office of the State Archaeologist.
3. Oneota Site Components from Benn and Stadtler, "Effigy Mounds National Monument Archeological Overview and Assessment" NPS, MWAC, 2004.
4. Vegetation communities estimated based on Bogen, Sarah McGuire and Sara C. Hotchkiss. 2007. Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument. National Park Service Great Lakes Northern Forest Cooperative, Ecosystem Study Unit Cost Sharing Grant 144-ND24.
5. River locations estimated based on topography from Effigy Mounds National Monument GIS database and hydrography from the USGS National Hydrography Dataset, accessed 2013.

QUINN EVANS ARCHITECTS

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N

0 800 1,600 3,200 Feet
1 inch = 1,600 feet

POC-1

Oneota Culture (700 – 350 years ago)

The transition from Woodland to Oneota occupation brought with it the earliest direct connection to historic American Indians. Oneota is a term used by archeologists to refer to a cultural complex that existed in the eastern plains and Great Lakes area from about AD 900 to around 1700. The connection between the Ioway and Oneota on the Upper Iowa River has long been recognized. Making a link between Oneota and other cultural groups in Iowa related to the Ioway, such as the Ho-Chunk, Missouria, and Otoe, is reasonable. [50] From an archeological viewpoint, the transition from the Late Woodland to Oneota is poorly understood. It appears the Late Woodland groups who constructed mounds, influenced by Middle Mississippian groups to the south, transitioned into Late Oneota, but there is academic debate over this issue.[51]

Oneota occupation included large population centers with intensified farming of maize and other crops. Structures included earthworks, storage facilities and a variety of house types.[52] In some locations, homes were large long-house structures that housed several families. Burials were made in a variety of ways. Some were placed under the long-house floors, others were made in non-mounded cemeteries and some were placed into earlier Woodland mounds.[53] Archeological evidence of Oneota occupation near the Monument is scarce, possibly reflecting seasonal or temporary use rather than permanent settlement.[54]

Members of the Ho-Chunk Nation of Wisconsin consider this as a period of continued separation and disbursement of American Indians in the region. Active construction and maintenance of the mound systems was discontinued but the sites continue to serve as sacred links to the spirit world and Grandmother Earth. The burials and sacred sites retain great significance to the Ho-Chunk Nation of Wisconsin today.[55]

Protohistoric Era (ca. 1650-ca. 1672)

The interface between American Indian oral tradition and Euro-American written history occurred in the mid- to late 17th century in the area surrounding the Monument. The timing of initial historical accounts coincides with a period of severe disruption for the indigenous population. Algonquian-speaking groups were plagued by disease and upheaval as they urgently moved west ahead of Euro-American and European immigrant settlement and trade that pushed the Iroquois into new territory. When French explorers

[50] Mildred Mott Wedel, "Oneota Sites on the Upper Iowa River," *The Missouri Archaeologist* 21.2–4 (1959), 1–181; and e.g., Lance M. Foster, *The Indians of Iowa* (Iowa City, Iowa: University of Iowa Press, 2009).
[51] Stoltman and Christiansen, "The Late Woodland Stage in the Driftless Area of the Upper Mississippi Valley," 497–524; Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, BCA #1087*; and Rosebrough, "Every Family a Nation: A Deconstruction and Reconstruction of the Effigy Mound 'Culture' of the Western Great Lakes of North America."
[52] Lynn M. Alex, *Iowa's Archaeological Past* (Iowa City, Iowa: University of Iowa Press, 2000).
[53] Green et al., "Effigy Mounds National Monument Cultural Affiliation Report," 42.
[54] Ibid., 42.
[55] William Quackenbush, Tribal Historic Preservation Officer, Ho-Chunk Nation of Wisconsin. Mr. Quackenbush consulted with Ho-Chunk elders regarding materials provided for this report, 2013-2015.

Marquette and Joliet arrived, they observed an indigenous population in a state of upheaval.[56]

A number of groups temporarily occupied the area in the mid to late 1600s. By the second half of the 17th century, a diverse group of refugees clustered on the western side of Lake Michigan in what would become Wisconsin, northern Illinois, and the Upper Peninsula of Michigan - a region referred to as the *pays d'en haut*, or "upper country," by early French explorers. The region became socially and politically defined by population groups. Inhabiting the area were Iroquois-speaking groups, the Huron-Petuns; Siouxan-speaking groups, the Winnebago; and Algonquin-speaking groups (the Ottawa, Potawatomi, Fox, Sauk, Kickapoo, Miami, Illinois, and others). Geographical boundaries between groups were loosely defined and new groups formed as the bonds of kinship and obligation shifted.[57]

During their brief tenure in the region the Kickapoo became well established. The Ioway moved west ca. 1680s/1690s and the presence of the Ottawa, Huron, Kickapoo and Miami in the area was short-lived. They were followed by several groups who resided in the region on a permanent basis during the 18th and 19th centuries including the Ho-Chunk, Dakota, Sauk, and Meskwaki.[58]

European Exploration and Expansion (1673-1848)

First European contact and fur trade

In 1673 Louis Joliet, a French Canadian explorer, and Father Jacques Marquette, a Catholic Jesuit priest and missionary, were the first non-natives to explore and map much of the Mississippi River. They arrived in the project area on June 17, 1673. Prior to this, limited European trade goods had arrived in Iowa via trade routes such as the *Chemin des Voyageurs*.[59]

The confluence of the Mississippi and Wisconsin Rivers, as well as other secondary routes including the Yellow River, made the region around Prairie du Chien an area of trade. Furs and other trade goods were transported along the Mississippi River system and through the interior of Iowa to Prairie du Chien. They were purchased and shipped up the Wisconsin River to the lower Great Lakes through the Mackinac Straits, then transported through eastern Canada along the St. Laurence River, which provided access to Atlantic Ocean trade routes. In 1685, French explorer Nicholas Perrot established a trading post near Prairie du Chien.

One account indicates a camp site and possibly trading post were established by Johnathan Carver at the mouth of the Yellow River in ca. 1766. Notations regarding the presence of a French trader, Menominee camp and three Ho-Chunk lodges in this location in 1826 have not been verified.[60]

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[56] Richard White, *The Middle Ground: Indians, Empires, and Republics in the Great Lakes Region, 1650-1815* (New York: Cambridge University Press, 1991), 1-23.
[57] Green et al,"Effigy Mounds National Monument Cultural Affiliation Report," 43.
[58] Ibid.
[59] William E. Whittaker, and John F. Doershuk, "Where Were the Chemin des Voyageurs?" *Newsletter of the Iowa Archeological Society* 60, no. 4 (2010), 4–5.
[60] Ellison J. Orr, Miscellaneous Letters Pertaining to Archeology, 1939–1949, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City, 105.

Ownership disputes and reorganization

The Upper Mississippi River Valley was a tension point between competing American Indian, French, English, Spanish, and United States interests.[61] In Prairie du Chien, trading posts and military forts were built well before Euro-American and European immigrant settlement.[62] Throughout the eighteenth century, the French and British controlled the east bank of the Mississippi, including Prairie du Chien.[63] In 1738, Pierre-Paul Marin may have built a trading post at the head of Sny Magill slough and traded with the Sauk, Meskwaki, and Ho-Chunk, but this location is disputed.[64] After 1763, the Spanish controlled the west bank of the Mississippi, continuing the fur trade established by the French. During the American Revolutionary War, Prairie du Chien was a rendezvous location for British troops and their American Indian allies. Relations between British and United States traders deteriorated after the war and the site was granted to the United States by the Treaty of Paris (1783). British loyalists did not completely withdraw until after the War of 1812.

At the time of the 1803 Louisiana Purchase, the Sauk and Meskwaki Tribes occupied the west bank of the Mississippi River south of the Upper Iowa River, while the Ho-Chunk lived along the east bank of the Mississippi River near Prairie du Chien. The Dakota controlled regions to the north.[65] Through a treaty titled the Treaty with the Sauk and Foxes, 1804, the rights to approximately 50 million acres of land in the Upper Mississippi Valley, including portions of northwestern Illinois, southwestern Wisconsin, and northeastern Missouri, were removed from the Sauk and Meskwaki Tribes.[66] The treaty was struck between future president William Henry Harrison and five unauthorized representatives of the Sauk and Meskwaki nations, transferring the lands for $2,234.50 in goods at the time of signing and the promise of a $1,000 annuity, also to be paid in goods.[67]

Numerous tribes inhabited the area around Prairie du Chien. In 1825, the location was visited by members of the Ho-Chunk, Sauk, Meskwaki, Dakota, Menominee, Ioway, Chippewa, Ottawa, and Potawatomi Nations. Twice a year, Prairie du Chien was the location of a rendezvous where traders and American Indians met.[68]

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[61] Cynthia L. Peterson, "Historical Tribes and Early Forts," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009), 15.
[62] Ibid.
[63] Vicki L. Twinde-Javner, "Fort Shelby, Fort McKay, and the First Crawford, 1814–1831," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009), 75–84.
[64] Peterson, "Historical Tribes and Early Forts," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, 15.
[65] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*, 26.
[66] Ibid., 26; and United States, "Treaty with the Sauk and Foxes, 1804," comp. and ed. Charles J. Kappler, *Indian Affairs, Laws and Treaties* (Washington, D.C.: Government Printing Office, 1904).
[67] Ibid., and Wisconsin Historical Society, "Turning Points in Wisconsin History, The Black Hawk War." http://www.wisconsinhistory.org/turningpoints/tp-012/?action=more_essay.
[68] Twinde-Javner, "Fort Shelby, Fort McKay, and the First Crawford, 1814–1831," 75–84; and Giacomo Beltrami, *A Pilgrimage in Europe and America leading to the discover of the sources of*

Forts, American Indian Removal, and the Blackhawk War

To protect the area from British attacks through Canada during the War of 1812, the United States government constructed Fort Shelby at Prairie du Chien in 1814. The fort was the site of one of the few major western battles of the War of 1812.[69] In the summer of 1814, the British briefly took control of the region after defeating Fort Shelby. The region reverted to American control after the war (1815).

Fort Crawford was constructed in 1816 at the former site of Fort Shelby, and was part of a chain of forts built along the Mississippi River after the war of 1812 (see Figure 2- 4).[70] The fort was occupied by U. S. soldiers who patrolled the region to maintain treaty obligations until the forced removal of American Indians from the region was completed. In 1826, a family of settlers was killed near the site of the future Monument, possibly near Paint Creek, a tributary of the Mississippi north of the Yellow River. The event came to be known as the Methode Massacre. Transcripts of the U.S. Army's investigations of the Methode Massacre indicate several Ho-Chunk and Menominee lodges, and the home of a French trader, were located at the mouth of Paint Creek and along the Yellow River.[71]

In 1825, a Great Council of Plains and Woodland Tribes was called to Fort Crawford. Attendees included members of the Dakota, Sauk, Meskwaki, Ioway, Ottawa, Chippewa, Potawatomie, Ho-Chunk, and Menominee Tribes and Nations. A treaty titled The Treaty with the Sioux, etc., 1825, attempted to establish boundaries between a number of tribes and nations including the Dakota, the Sauk and Meskwaki, the Iowa, the Chippewa, the Ho-Chunk, the Menominee, and the Ottawa, Chippewa, and Potawatomie tribes of Illinois, in an effort to reduce clashes.[72] The treaty acknowledged the difficulties of establishing these boundaries, with particular consideration toward hunting lands. However, the initial dividing line between the Sauk and Meskwaki and the Sisseton, Wahpeton, and Mdewakanton Sioux failed to reduce conflicts. Another council was convened at Fort Crawford in 1830, resulting in another treaty titled The Treaty with the Sauk and Foxes, etc. Through this treaty, a neutral ground consisting of a 40-mile wide strip between these tribes was established, comprised of 20 miles of land on both sides of the 1825 line.[73] The neutral ground was surveyed in 1832 and encompassed almost all of Allamakee County (see Figure 2-5).[74]

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the Mississippi and Bloody River: with a description of the whole course of the former and of the Ohio (London: Hunt and Clarke, 1828), 172-174.

[69] Twinde-Javner, "Fort Shelby, Fort McKay, and the First Crawford, 1814–1831," 75–84.

[70] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 14.

[71] U.S. Army, "Methode Massacre Hearings," 1827, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City.

[72] United States, "Treaty with the Sioux, etc., 1825," comp. and ed. by Charles J. Kappler, *Indian Affairs: Laws and Treaties* (Washington, D.C.: Government Printing Office, 1904).

[73] United States, "Treaty with the Sauk and Foxes, etc., 1830," comp. and ed. by Charles J. Kappler, *Indian Affairs: Laws and Treaties* (Washington, D.C.: Government Printing Office, 1904).

[74] Ellen L. Sulser correspondence to Curtis Peebles, "Survey of the Neutral Strip, Iowa," July 13, 1993, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.

In 1829, a sawmill was established by Captain T.F. Smith on the Yellow River in what is now the Heritage Unit.[75] In 1831, Jefferson Davis, then a young lieutenant, was charged to superintend the sawmill.[76] The army also owned a tract of land south of the Yellow River, referred to as the "post garden tract." The land provided timber, firewood, and garden vegetables for the fort.[77]

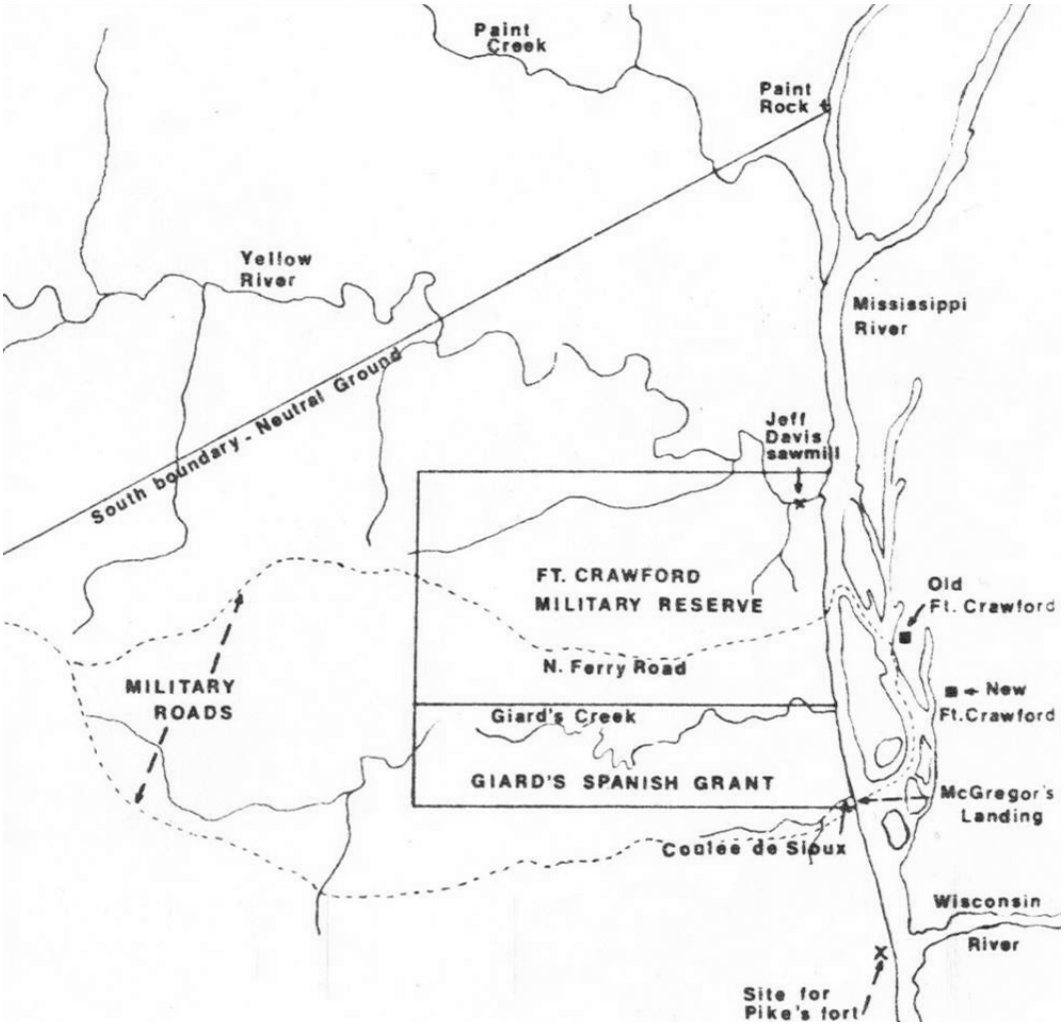

Figure 2- 4: Fort Crawford, the Fort Crawford Military Reserve, the Neutral Ground South Boundary, and the location of Paint Creek (source: Effigy Mounds National Monument archives).

[75] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 17.
[76] Ibid.
[77] Ibid.

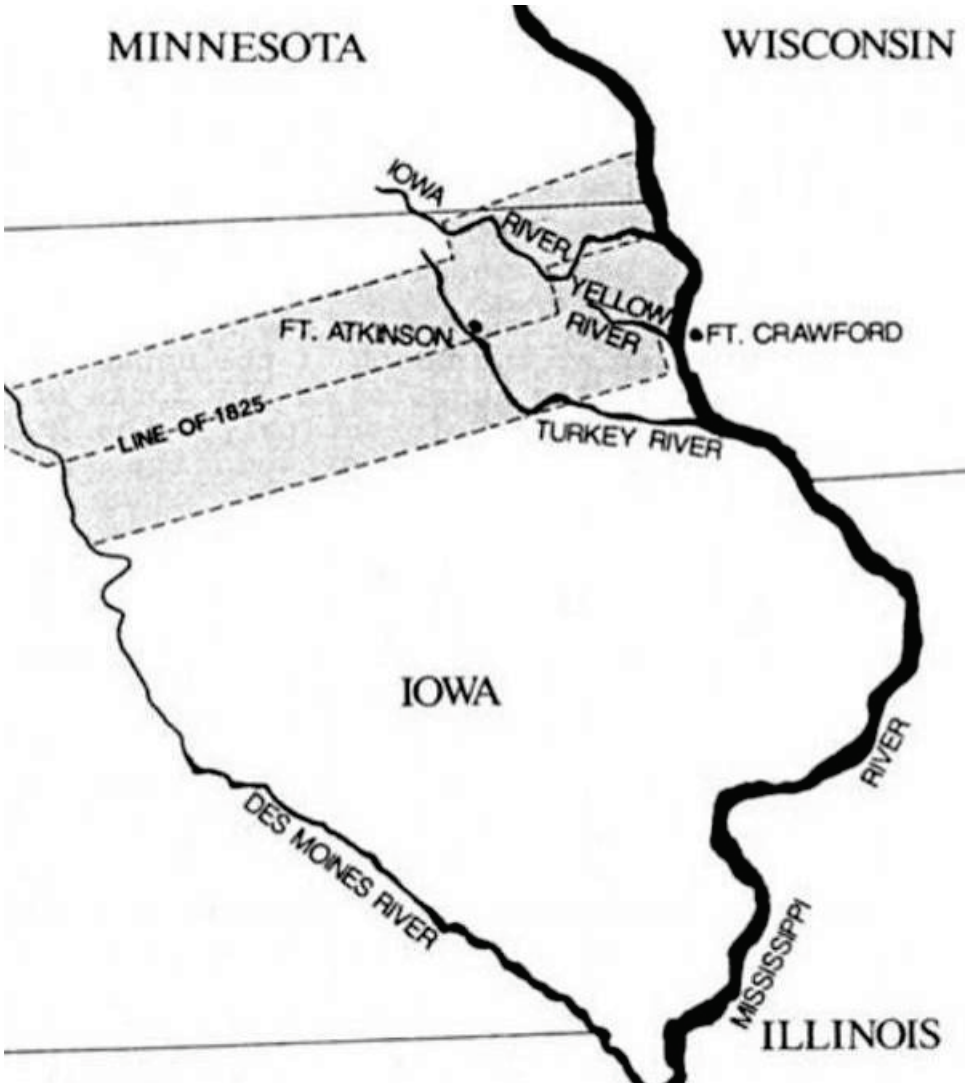

Figure 2- 5: The Neutral Strip, 1830 (source: O'Bright, 1989).

The Yellow River Mission School and farm was established at the western edge of the current Monument boundary in the 1830s to provide education—mainly focused on agricultural practices—for displaced members of the Ho-Chunk.[78] Following completion of the Yellow River mission buildings, the machinery was removed from the sawmill and the structures abandoned. A few years later, the buildings burned to the ground.[79]

In 1829, a government order directed Sauk families in Illinois and Wisconsin to move across the Mississippi River in return for enough corn to get through the winter. The Government failed to honor its promises and in the summer of 1832 a group of about

[78] Jonathan R. Sellars and Leslie A. Ambrosino, *Cultural Resource Investigations at the Yellow River Mission (13AM289), Yellow River State Forest, Allamakee County, Iowa, CAS 314* (Creston, Iowa: Consulting Archaeological Services, 2001); and www.accessgenealogy.com, "Winnebago Mission School and Trading Post.
[79] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 17-18.

1,200 Sauk lead by Ma-ka-tai-me-she-kia-kiak (Black Hawk) crossed back over the river to harvest their corn and re-establish their village home of Saukenuk. Believing that the 1804 treaty (the Treaty with the Sauk and Foxes) was fraudulent, Ma-ka-tai-me-she-kia-kiak expected Ho-Chunk and British allies to come to his aid. His group of Sauk warriors, women, and children found their corn fields trampled by cattle and fenced by settlers. They were attacked by U.S. Army troops who pursued them as they attempted to retreat to safety on the western side of the Mississippi. Efforts to surrender were unsuccessful and the group suffered extensively over a 16 week period of pursuit. Survivors reached the banks of the Mississippi on 1 August 1832 and attempted to cross but were massacred by the military even as they attempted again to surrender. Of the group of 1,200 who tried to return to their homeland, only about 150 survived. The cruelty and power displayed by U.S. troops deeply affected other Wisconsin Indian nations who did not attempt to resist the military after this tragedy.[80]

Following the Black Hawk War, the Ho-Chunk were forced to relinquish lands in southern Wisconsin to the federal government in 1832 and 1837, and received in exchange the eastern portion of the Neutral Ground between the Red River and the Mississippi Rivers. The Ho-Chunk were removed to this reservation by federal forces in 1840 (see Figure 2- 5).[81] The federal government used this strategy both to remove the Ho-Chunk from Wisconsin, and also to place an additional buffer between the Dakota, Sauk and Meskwaki. [82]

During the 1830s and 1840s, troops from Fort Crawford implemented the evacuation of American Indians from the area. During this period the Military Trail on the south end of the Monument was used on a regular basis.[83] Passage of the Indian Removal Act in 1830 authorized the president to negotiate with American Indians in southern states for their removal to federal territory west of the Mississippi River in exchange for their homelands. Supported by those who deemed the demise of the Indian tribal nations as inevitable, the Removal Act paved the way for the forced relocation of tens of thousands of American Indians to the West.

The removal of American Indians from their homelands was excruciating in ways difficult for present-day Americans to understand. The indigenous population had extensive understanding of the regional landscape, Grandmother Earth, who was provider and home to cultural groups whose existence relied directly on knowledge of their environment. Being moved did not just mean finding a new location to live. It changed every aspect of day-to-day life for people whose lives were closely integrated with their environmental surroundings.

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[80] Wisconsin Historical Society, Turning Points in Wisconsin History, The Black Hawk War: http://www.wisconsinhistory.org/turningpoints/tp-012/?action=more_essay
[81] Ellison Orr, "The Story of the Half-Way House," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[82] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 17-18.
[83] Twinde-Javner, "Fort Shelby, Fort McKay, and the First Crawford, 1814–1831," 75–84; and Vicki L. Twinde-Javner, "The Second Fort Crawford, 1829–1856," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009).

An example of one type of indigenous knowledge is a birch bark map used by Ioway Chief Non-chi-ning-ga in 1837 during a meeting in Washington, D.C. The map illustrates locations of villages and travel routes related to lakes and rivers within the Upper Midwest and eastern Great Plains. It also indicates movements of the Ioway through time, from Green Bay, Wisconsin, around AD 1600 through Wisconsin and Nebraska for the ensuing 237 years (see Figures 2-6 and 2-7).[84] During this period, American Indians encountered foreigners on an increasing basis.

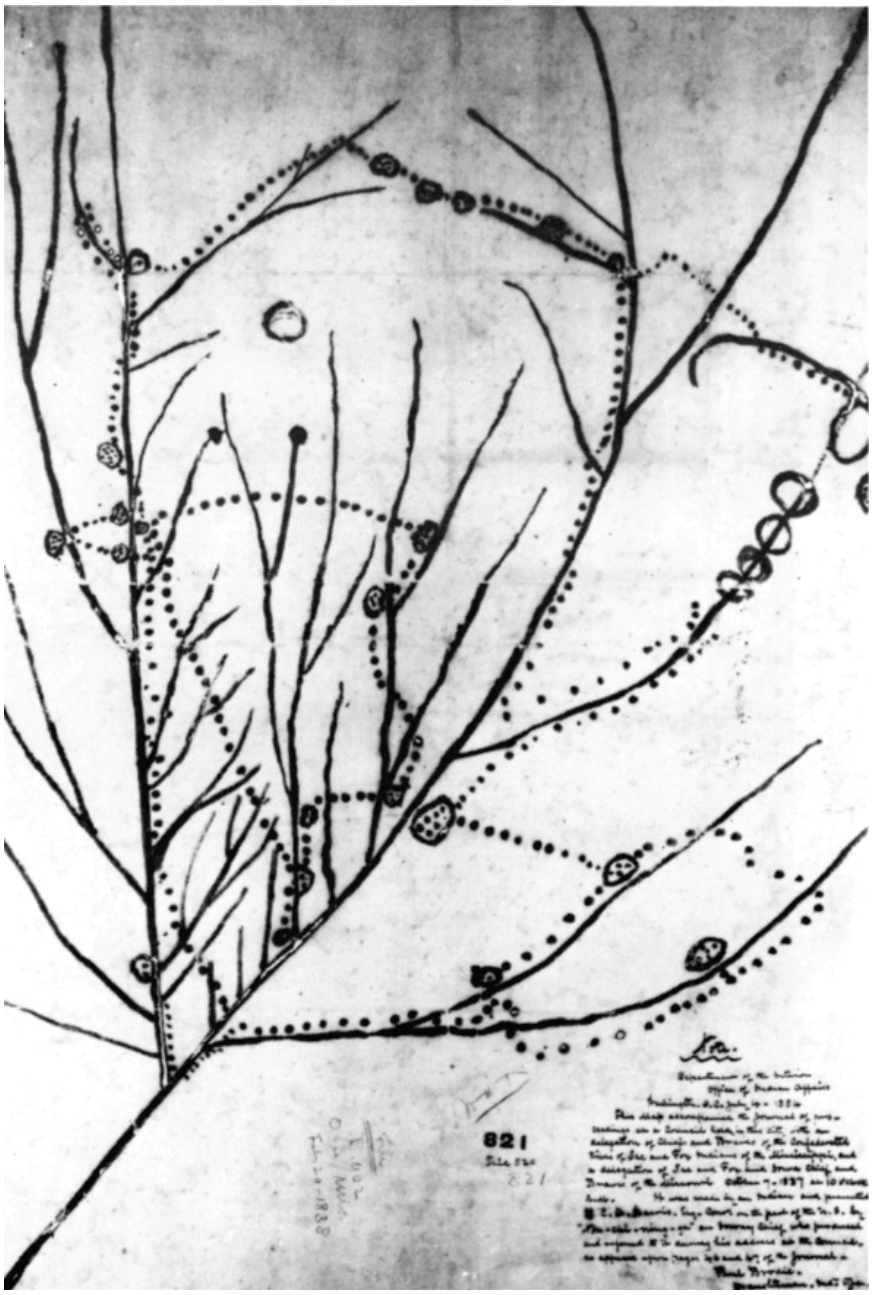

Figure 2- 6: The original Ioway map used by Non-Chi-Ning-Ga in 1837 is very detailed. (source: http://archaeology.uiowa.edu/1837-iowa-map).

[84] http://archaeology.uiowa.edu/1837-ioway-map

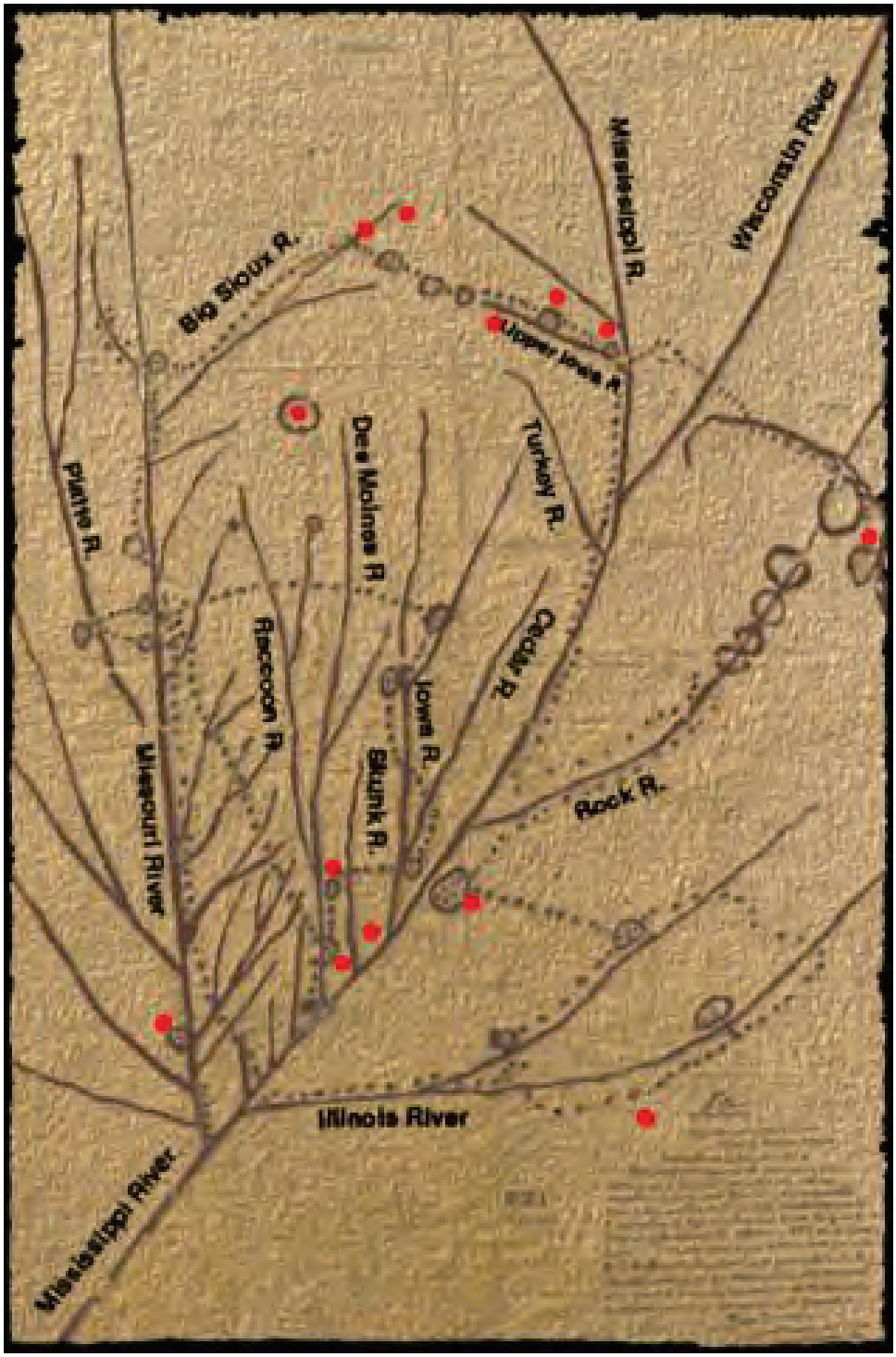

Figure 2- 7: Annotations added to the 1837 Ioway map illustrate locations of villages and transportation routes in relationship to the regional rivers (source: William Green, "Plate 18: Ioway Indian Map of 1837," in *An Atlas of Early Maps of the American Midwest: Part II*. ed., W. Raymond Wood (Springfield, IL: Illinois State Museum, 2001).

Fort Atkinson was built in 1840 to facilitate the removal of American Indians from their homelands and enforce order between the frontiersmen, the Dakota, the Ho-Chunk, and the Sauk and Meskwaki. The fort was located on the Turkey River approximately 50 miles from the west bank of the Mississippi River.[85] Two roads provided circulation routes between Fort Atkinson, Iowa and Fort Crawford at Prairie du Chien in Wisconsin (see Figure 2-4). From these two forts, the U.S. military succeeded in divesting the Winnebago, Sauk, Fox, and Dakota of their traditional lands, and resettling them west of the Mississippi River during the 1840s. The land was made available for mineral exploration and agricultural settlement in Wisconsin and Iowa.[86] The northern military route passed through EMNM and remnants are still evident on the landscape today (see Figure 2-4, Figure 2-8 and POC-2).[87]

Much of the material used to construct the fort and supply the troops stationed at Fort Atkinson was hauled by mule team from Prairie du Chien on the military road. The journey between Prairie du Chien and Fort Atkinson took two days.[88] The government built a "half-way house" to provide overnight shelter for those travelling the route. In 1841 Joel and Zeruiah Post established a tavern at the site.[89] As it was the custom of the teamsters to pay for their accommodations on the way back to Prairie du Chien, after receiving their pay for the trip at Fort Atkinson, a shortcut was soon developed that avoided the board bills due at the half-way house. The shortcut, referred to as "Sucker Chute," eventually became the main road. A new tavern was built at the crossroads of the main trail and Sucker Chute and the half-way house was abandoned.[90]

[85] Ellison Orr, "The Story of the Half-Way House."
[86] National Register of Historic Places, Old Military Road Determination of Eligibility, Effigy Mounds National Monument, Clayton County, Iowa, National Register #70062, 1.
[87] Ibid., 4.
[88] Ellison Orr, "The Story of the Half-Way House."
[89] Ibid.
[90] Ibid.

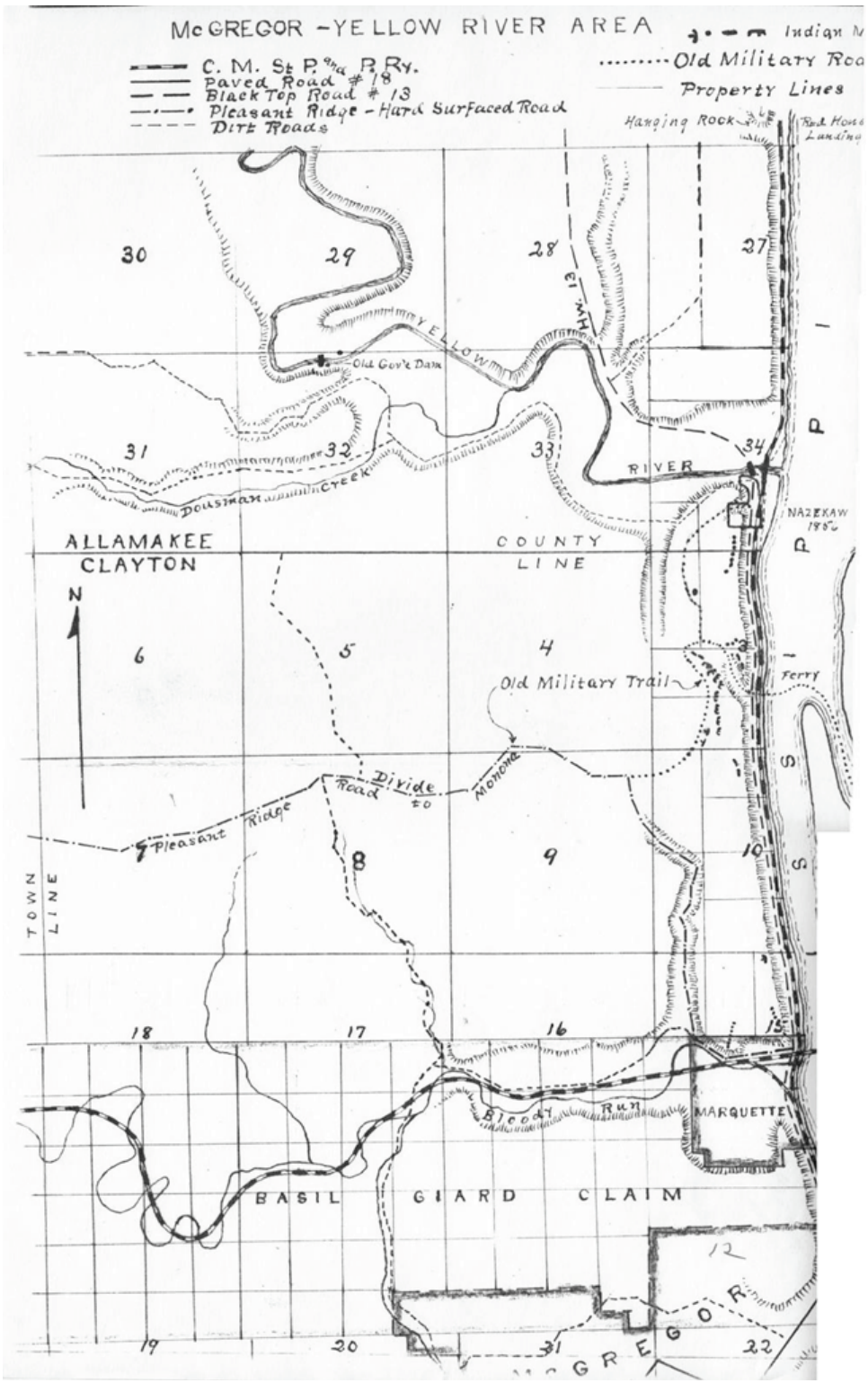

Figure 2- 8: The path of the Old Military Road through the location of the National Monument (source: Effigy Mounds National Monument archives).

Hostilities between the Ho-Chunk and neighboring tribes abated by the mid-1840s, but the relationship between the Ho-Chunk and white settlers remained problematic, and the Ho-Chunk were relocated once again to the mouth of the Watab River in Minnesota in 1848.[91] The government forced American Indians to cede land throughout Iowa in a series of actions (see Figure 2-9). The Ho-Chunk remained in the area long after official removal from Iowa in 1849, maintaining sugaring and hunting camps until the 1960s.[92] Military traffic on the Old Military Road ceased when the army left Fort Atkinson in 1849. Civilian traffic, including pioneers moving west, continued to use the road until about 1860.[93]

Although trading posts and pioneer squatters were located in Allamakee and Clayton counties prior to authorized settlement, it was not until 1848 that settlement began in earnest. Archeological investigations by John Earl Ingmanson in 1959 unearthed evidence of a small cabin with artifacts including square nails and window glass on the terrace to the north of the Yellow River.[94] Figure POC-2 documents a number of historic settlement sites within the boundaries of the Monument.

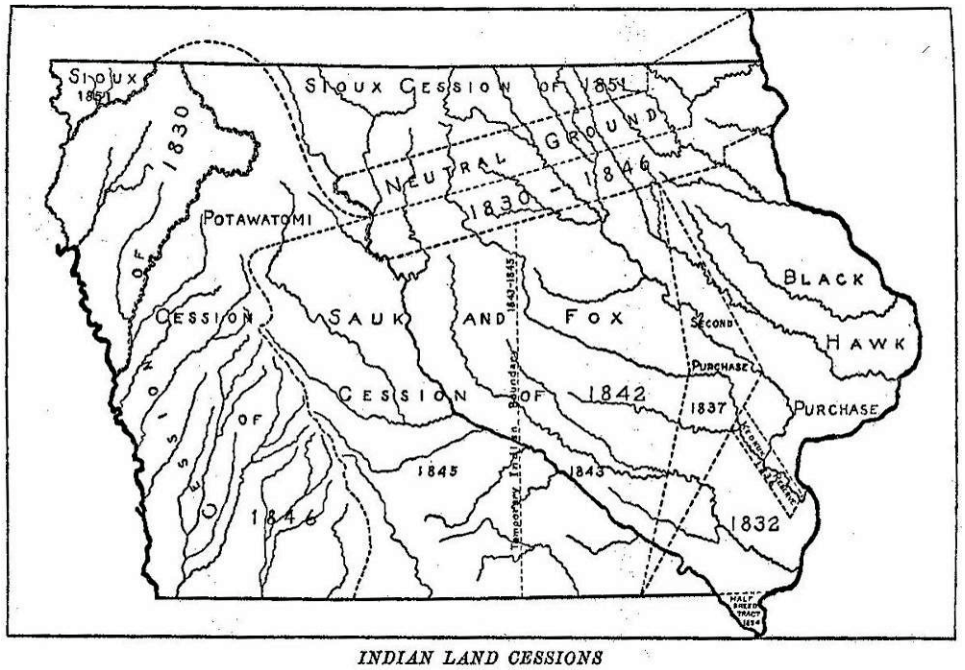

Figure 2- 9: Indian Land Cessions 1830-1851, Iowa (source: Effigy Mounds National Monument GIS Database, from Charles C. Royce, *Eighteenth Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1896-1897,* United States Serial Set, Number 4015).

[91] National Register of Historic Places, Old Military Road Determination of Eligibility, Effigy Mounds National Monument, Clayton County, Iowa, National Register #70062, 3.
[92] Mary R. Carman, "The Last Winnebago in Northeast Iowa," *Journal of the Iowa Archeological Society* 35 (1988), 72–76.
[93] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 18.
[94] "Excavation of House 1," 1959, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.

Descriptions of the Landscape

European explorers made only vague, scattered references to mounds prior to the nineteenth century. Stephen H. Long, of the U.S. Army's Topographical Engineers, documented the presence of mounds on his expeditions through the region in 1817 and 1823. Like many other amateur archeologists and antiquarians of the time, he believed that the mounds had been constructed by a "vanished race," rather than by the ancestors of the region's American Indians who were being forcibly removed from the area.[95] The first written descriptions of effigy mounds in Central Wisconsin, produced by Richard C. Taylor, were published in the American Journal of Science and Arts in 1838. Early surveys were also produced by John Locke and Stephen Taylor during this period. In 1845-1848, E.G. Squier and E.H. Davis mapped mounds throughout the Midwest, including mounds in northeastern Iowa (a summary of archeological information is provided at the end of this chapter).

Upper Mississippi River landscapes were also documented by early European travelers. Painter George Catlin, known for his portraits of American Indians and paintings depicting American Indian life in the 1830s, sketched most of his Upper Mississippi River landscapes on a canoe trip from the Falls of St. Anthony to Dubuque in 1835.[96]

The driftless landforms depicted in *View on the Upper Mississippi Beautiful Prairie Bluffs* (Figure 2-10),*View on the Wisconsin River, Winnebago Shooting Ducks* (Figure 2-11), and *Beautiful Prairie Bluffs, Upper Mississippi* (Figure 2-12) feature steep vegetated bluffs with bald bluff tops. Catlin described the terrain as "ocean swells" of rolling hills.[97] He illustrates forested bluffs with sparse trees on the bluff tops and a mix of deciduous and coniferous species within the floodplain and in valleys between the bluffs. Catlin also painted a representation of the landscape surrounding Fort Crawford in a view from the location of Pike's Peak State Park (Figure 2-14). Vegetation patterns common to the other paintings, including floodplain forests, are repeated.

A photograph of Paint Rock taken by Ellison Orr ca.1937 shows vegetation similar to the open landscapes depicted in Catlin's paintings approximately one hundred years earlier. The south and west facing slopes of the landform, prominent in the photograph, are grassland with sparse trees. Woody vegetation is visible along the east slope of Paint Rock and along the road, which is in the floodplain (see Figure 2-13).[98]

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[95] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*, 26-27.
[96] Smithsonian American Art Museum, "Campfire Stories with George Catlin: An Encounter of Two Cultures," 2003. http://americanart.si.edu/exhibitions/online/catlinclassroom/catlin_browsec.cfm?ID=274. Multiple sources were consulted to document the appearance of the landscape during the early 19th century including survey notes, journals, limited photographic images, and pollen analysis, in addition to the paintings.
[97] George Catlin, Letters and Notes, vol. 2, no. 32, 1841; reprint 1973.
[98] Ellison J. Orr, "Sundry Archaeological Papers and Memoranda, Vol. 6, 1937," manuscript on file, Effigy Mounds National Monument, Harpers Ferry, Iowa, 73.

Figure 2- 10: George Catlin, *View on the Upper Mississippi, Beautiful Prairie Bluffs*, 1835-1836 (source: Smithsonian American Art Museum Luce Foundation Center for American Art).

Figure 2- 11: George Catlin, *View on the Wisconsin River, Winnebago Shooting Ducks*, 1836-1837, (source: Smithsonian American Art Museum Luce Foundation Center for American Art).

Figure 2- 12: George Catlin, *Beautiful Prairie Bluffs, Upper Mississippi,* 1835-1836 (source: Smithsonian American Art Museum Luce Foundation Center for American Art).

Figure 2- 13: Paint Rock, looking north from the road, ca. 1937 (source: Orr, 1937, pg. 73).

Figure 2- 14: George Catlin, *Prairie du Chien, United States Garrison,* 1835-1836 (source: Smithsonian American Art Museum Luce Foundation Center for American Art).

Figure 2- 15: Henry Lewis, 1830, probably done from the bluffs at or near the south edge of the present-day Monument boundary, facing southeast toward Prairie du Chien (source: William Whittaker, *Frontier Forts of Iowa*, Plate 7).

An 1830 print by Lewis documents a similar landscape of scattered trees on the bluff slope in Iowa; the steep Wisconsin bluffs are bare-sloped with scattered trees on the bluff tops. The drawing was likely made from the bluffs near the current southern boundary of the Monument, facing southeast toward Prairie du Chien (see Figure 2-15).

Giacomo Beltrami, who traveled the upper Mississippi River in 1824, described prescribed fires set by American Indians north of Prairie du Chien.

> The vigorous fertility of these countries imparts such strength to the vegetation of the grass and brushwood with which they are overspread, that they obstruct the march of the Indians, and in spite of every precaution produce a rustling which awakens the wild beasts in their coverts. The Indians, who are not easily stopped by difficulties, set fire once a year to the brushwood, so that the surface of all the vast regions they traverse is successively consumed by the flames…
>
> The flames towering above the tops of the hills and mountains, where the wind raged with most violence, gave them the appearance of volcanoes, at the moment of their most terrific eruptions; and the fire winding in its descent through places covered with grass, exhibited an exact resemblance of the undulating lava of Vesuvius or Aetna.[99]

Sketches from the notebooks of Major William Williams, who traveled to Iowa in 1849 "with a view to taking up land for future settlement," illustrate a landscape of sparse trees, bald bluff tops and floodplain forests near Prairie du Chien: [100]

> The river and surrounding country is beautiful here. Immediately on the river along here there is on both sides from one to two miles of bottom and that backed by high bluffs piled up in the form of cones, bare of timber except here and there a solitary one or two hills all green and beautiful. Passed mouth of Turkey River in the night near Cassville.
>
> Landed at McGregors Ferry, Iowa side, Clayton County directly opposite we have in view Priarie du Chien and Fort Crawford. The fort looks exceeding well from this point; very extensive improvements. The buildings painted white as chalk, the town above – both are situated on a very extensive prairie that runs up and down the river as far as the eye can reach and from one to two miles broad. On the back ground a continued range of high bluffs from 200 to 300 feet high and perfectly green with but little timber on them. The timber is in small groves of cedar and oak which dots the hill sides. The bluff slopes toward the prairie by falling off in broken ridges or mounds nearly the shape of cones, growing smaller and change to the form of an oven as they close in upon the Prairie.[101]

[99] Beltrami, *A Pilgrimage in Europe and America*, 176-178.
[100] "Major William Williams' Journal of a Trip to Iowa in 1849," *Annals of Iowa* XII, no. 4 (1920), 241.
[101] Ibid., 257-258.

Williams notes the appearance of mounds in the Prairie du Chien area, as well as the presence of flags marking the graves of distinguished Ho-Chunk tribal members on the bluffs that he indicates are approximately 350 feet high. Williams sketched the character of the hills, mounds, fort, and flags on the bluff tops (see Figures 2-16 and 2-17).[102]

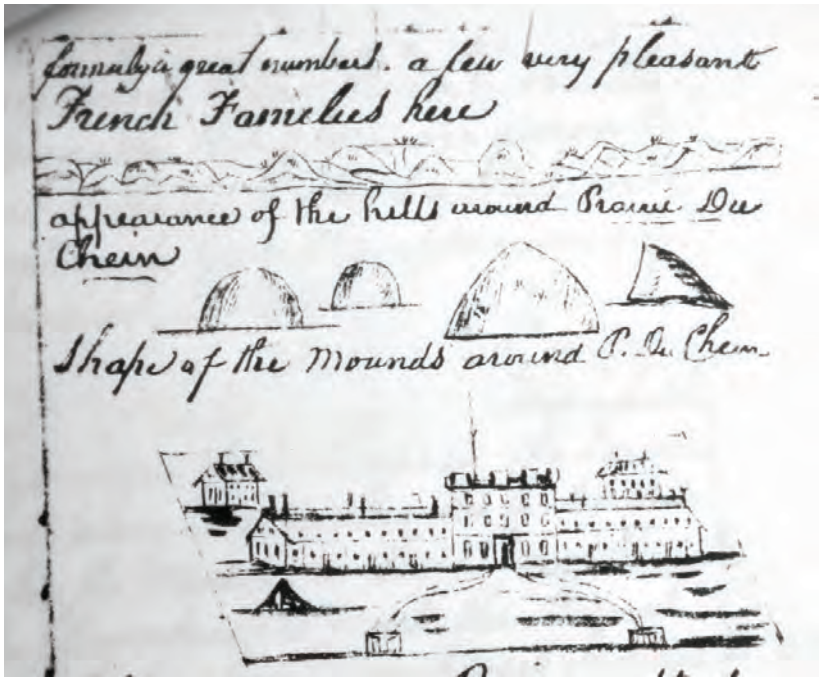


Figure 2- 16: Appearance of the hills and shape of the mounds around Prairie du Chien, 1849 (Williams, W. 1849, 38).

[102] Ibid., 259.

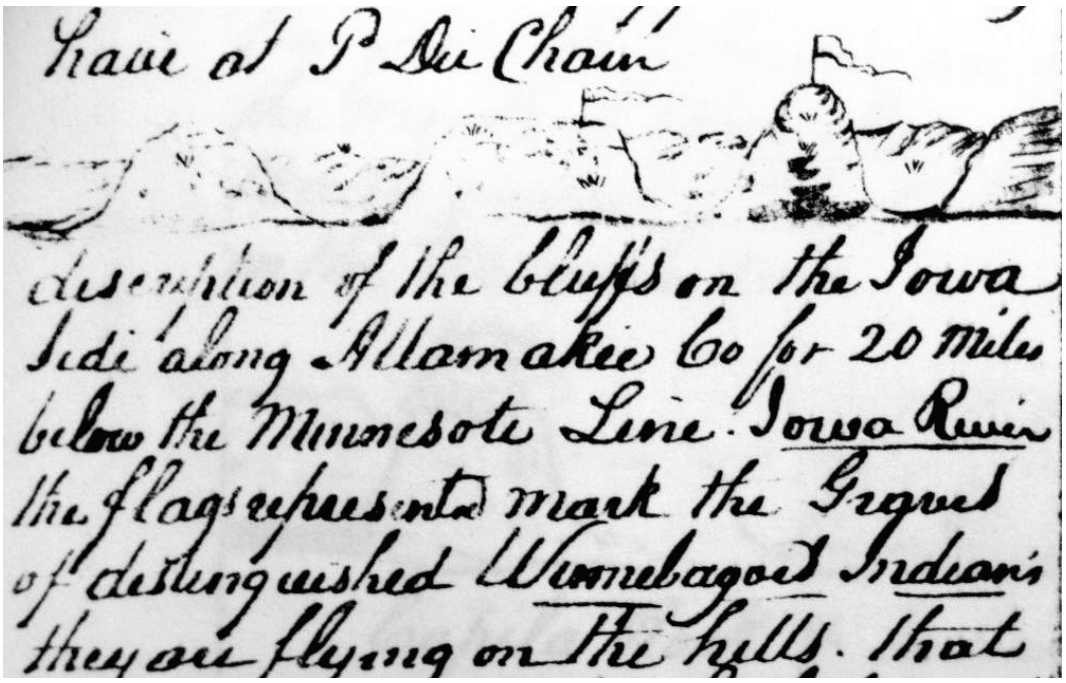


Figure 2- 17: Sketch of bluffs near project area, 1849. "The flags represented mark the ground of distinguished Winnebago Indians they are flying on the hills…" (source: Williams, W. 1849, 5).

T.H. MacBride's 1894 report "The Forest Trees of Allamakee County" describes the forest of northeastern Iowa at the time of Euro-American and European immigrant settlement. He describes the earlier landscape of Allamakee County as largely wooded, especially in the eastern half of the county. River valleys and hillsides were forested, and trees scattered the hilltops. However, the character of the forest was significantly less dense than the "second-growth" forests that were present in 1894. According to MacBride, "more than sixty years ago… one could drive a wagon anywhere through the Iowa forest." MacBride attributes the open characteristics of earlier forests to fire. He also notes that drier areas and southern and western hillsides were significantly less forested than the northern and eastern slopes of the county; if trees were present, hardier bur oaks were more likely to occupy the "unfavorable" dry hillsides.[103]

A description of timber resources and soils accompanying the 1839 geologic survey of the region corroborates MacBride's general description of the landscape:

> North of the Turkey, as far as the mouth of the Yellow River, we find in general prairie, except on the bottom lands of the Mississippi, on both sides of the river, which, as well as its islands, are covered with good timber, such as oak, sycamore, maple, …[104]

[103] T.H. Macbride, "Forest Trees of Allamakee County, Iowa," in *Geology of Allamakee County*, Samuel Calvin (Iowa Geological Survey Annual Report, Vol. 4, 1894), 112-120.
[104] David Dale Owen, *Report of a Geological Exploration of part of Iowa, Wisconsin, and Illinois: Made Under Instructions from the Secretary of the Treasury of the United States, in the Autumn of the Year 1839; with Charts and Illustrations* (Washington, D.C.: U.S. Government Printing Office, 1845).

Figure 2- 18: A plate from David Dale Owen's 1852 geological survey of Wisconsin, Iowa, and Minnesota shows the characteristic exposed bluffs of the Upper Mississippi River, with forested lowlands and scattered trees on the blufftops (source: David Dale Owen, 1852).

One of the best records that we have of recent natural ecosystems is the General Land Office (GLO) notes, which were recorded as the land was surveyed by the US government in 1838 (Clayton County) and 1849 (Allamakee County). These notes provide a record of the most prevalent and dominant tree species as well as narrative that describes the vegetation. These data and narrative--combined with knowledge of how topography and elevation influences vegetation--can be used to estimate the distribution of major ecosystem types.[105] Tree species documented within the Monument boundary include Sugar Maple, White Oak, Red Oak, and Hickory on the bluffs, with Elm, Silver Maple, Ironwood, and White Ash within the Yellow River floodplain.[106] The surveys do not mention Indian mounds. A 2014 study by The Nature Conservancy used tree survey information collected by the GLO to interpret major ecosystem types at each half mile segment along the section line boundaries. The GLO notes confirm that the area was a mix of forest and savanna in the early to mid 1800s, with bottom and wetland ecosystems along the Yellow River. This information has been incorporated into POC-2.[107]

[105] U.S. Government Land Office, *Survey Plat Township 93 Range 3, Iowa Territory*, map, 1838. http://www.glorecords.blm.gov/.; U.S. Government Land Office, *Survey Plat Township 94 Range 3, Iowa Territory*, map, 1838 http://www.glorecords.blm.gov/; U.S. Government Land Office, *Survey Plat Township 95 Range 3, Iowa Territory*, map, 1838. http://www.glorecords.blm.gov/; and U.S. Government Land Office, *Survey Plat Township 96 Range 3, State of Iowa*, map, 1849. http://www.glorecords.blm.gov/.
[106] Beth Lynch, *PLS Witness Trees: Allamakee and Winneshiek Counties*, map, 2007.
[107] Theodore A. Sickley and David J. Mladenoff, "Ecosystem Type from Historic Land Survey Records," University of Wisconsin-Madison, Department of Forest Ecology and Management, The Nature Conservancy Wisconsin, 2014.

POC-2 illustrates features present within the project area during the period from 1673 through 1848. The locations of the Mississippi and Yellow Rivers are approximate, as documentation from this period does not align exactly with current topographic data. The locations of vegetation communities illustrated are also approximate reflecting a brief period of time when surveys were conducted. Vegetation communities known to exist in the area during this period include floodplain forest with local patches of marshes and wet meadows along the riverways and several upland vegetation types that were distributed based on topography and range from dry to moist: prairie, oak woodlands, oak savanna, oak-hickory forests, and maple forests. Small patches of moist cliff and talus environments were (and are still) embedded within forested areas and have a microclimate that supports a suite of species uncommon in other vegetation types in the region. The locations of the plant communities were transcribed by the NPS in 2012 from Government Land Office Surveys conducted in 1832-1858 and adjusted for this project to align with current topographic conditions.[108]

The diagram also illustrates the approximate location of the Old Military Road, established in 1840. Other developments known to exist during this time are noted. Their locations are not illustrated either because information regarding these sites and their locations is protected, or the location of the site is unknown.

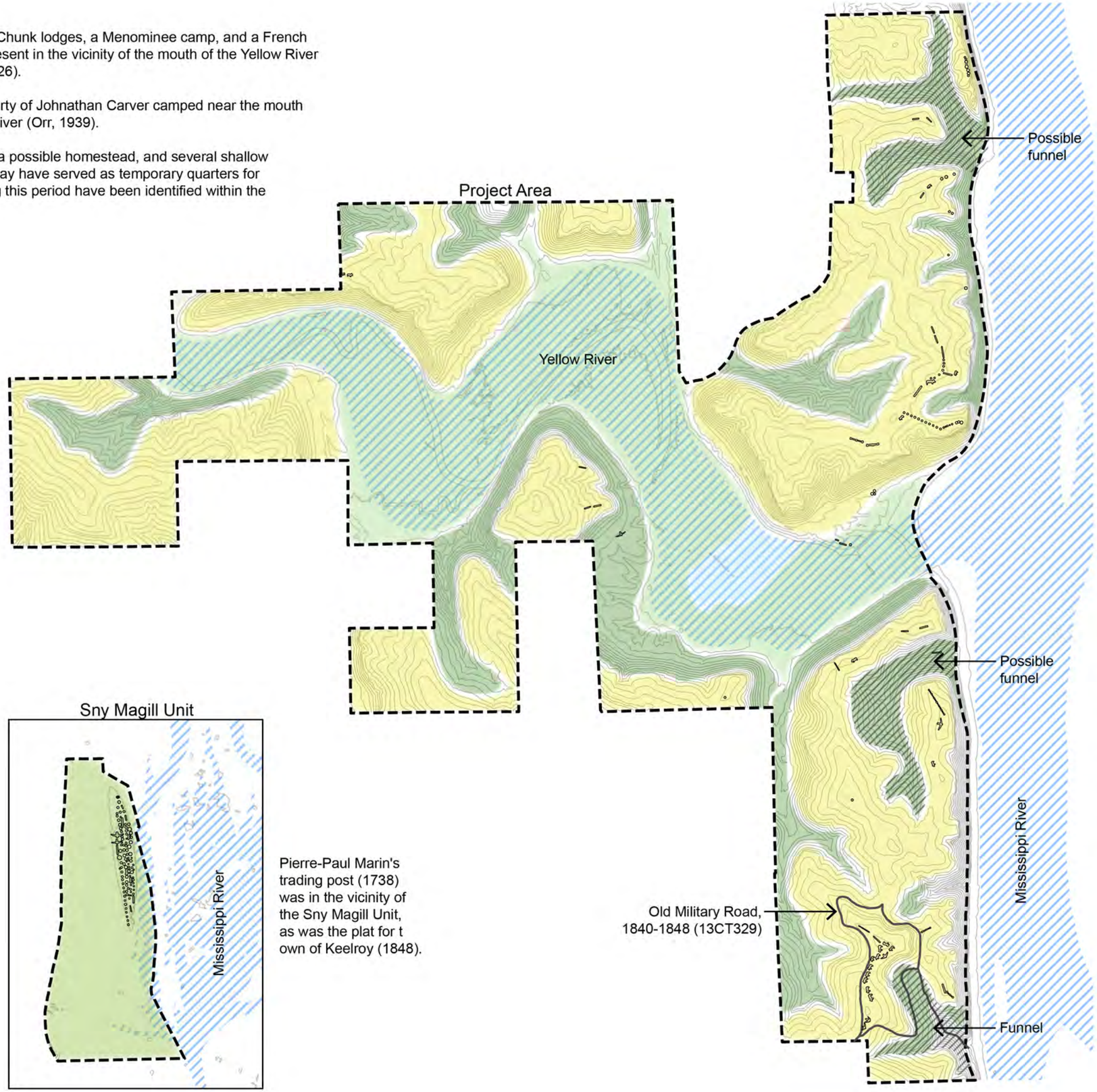
[108] Discrepancies between the digitized vegetation data and other documents lead us to have a lower level of confidence in the vegetation data presented on this drawing, compared to the other period of change drawings.

Next page: POC –-2: Period of Change Diagram, 1673 - 1848

Notes:
In 1826, 3 Ho-Chunk lodges, a Menominee camp, and a French trader were present in the vicinity of the mouth of the Yellow River (U.S. Army, 1826).

In 1766, the party of Johnathan Carver camped near the mouth of the Yellow River (Orr, 1939).

Two sawmills, a possible homestead, and several shallow dugouts that may have served as temporary quarters for trappers during this period have been identified within the project area.



Pierre-Paul Marin's trading post (1738) was in the vicinity of the Sny Magill Unit, as was the plat for t own of Keelroy (1848).

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Period of Change Diagram, AD 1673-1848

Legend

- Project Area
- Mound
- Road or Trail
- Natural funnel
- Approximate location of prairie or oak savanna
- Approximate location of upland forest or oak savanna
- Approximate location of floodplain forest
- Approximate location of marshes and wetlands
- Approximate location of moist cliff and talus environments
- Approximate Location of Rivers
- 20 ft contours (2 ft contours in Sny Magill) based oncurrent topography

Sources

1. Vegetation modified from Denise Boudreau, "Presettlement Vegetation of Effigy Mounds National Monument and Surrounding Townships," 2012, from Effigy Mounds National Monument GIS database, 2012. Boudreau's data is based on Government Land Office Surveys, Clayton and Allamakee Counties, 1832-1849; John Almendinger, "Minnesota's Bearing Tree Database," 1996; and Minnesota Department of Natural Resources, "Field Guide to the Native Communities of Minnesota: the Eastern Broadleaf Province," 2005. Vegetation communities modified based on visual evidence from George Catlin paintings of the Upper Mississippi River, 1835-36; Henry Lewis painting, 1830.
2. "Methode Massacre Hearings," 1826 (possible location of Ho-Chunk lodges, French trader, Menominee lodges)
3. Iowa Office of the State Archaeologist (historical archeological sites)
4. Orr, October 23, 1915, "Map of Prehistoric Earthworks on Bluffs Between Marquette and Yellow River" (Old Military Road)
5. History of Clayton County, 1916, p. 316 (platted early town of Keelroy)
6. Effigy Mounds National Monument GIS Database (project area, topography)

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

N

0 800 1,600 3,200 Feet
1 inch = 1,600 feet

POC-2

Euro-American and European Immigrant Settlement (1849-1900)

POC-3 illustrates features present during this time period.

Iowa was granted statehood on December 28, 1846. In 1848, Ho-Chunk families were forced from the "Neutral Ground" and the land now occupied by the National Monument was opened to pioneers and prospectors. The first white landowners within the future Monument property included prominent speculators from Prairie du Chien as well as settlers, although most early Iowa immigrants passed over the land now comprising the National Monument in search of flatter terrain better suited to agriculture.[109]

According to the 1850 Agricultural Census, only two farms were present in Allamakee County and eleven in Clayton County. These farms were relatively modest in size, ranging from 80 to 400 acres, and approximately half of the total acreage had been improved. Livestock at these farms generally included horses, milk cows, working oxen, cattle, sheep, and swine. Primary crops were wheat, Indian corn, oats, and potatoes, and hay; the farms also produced butter, beeswax and honey, and occasionally maple syrup.[110] It was a common practice for nineteenth century farmers in the region to till blufftops and terraces along the rivers, and graze the steeper slopes of their farmland.[111]

In 1856, two men by the names of Case and Miller, possibly Chester N. Case and V.R. Miller, purchased in partnership property adjacent to the Yellow River near the site of the platted town of Nazekaw. Case was a land speculator from Prairie du Chien and Miller was a tinsmith. Miller constructed a tin shop with lumber hauled from Sny Magill.[112] The names Case and Miller appear on plat maps in the area of the future Monument throughout the second half of the nineteenth century beginning in 1866, but these individuals are not listed on the agricultural census schedules, and may have only held the land for speculation.

By 1860, the number of farms in Fairvew Township (Allamakee County) and Mendon Township (Clayton County) had increased dramatically. Property size remained relatively similar to the average 1850 Agricultural Census acreage at between 80 and 445 acres per farm. However, the proportion of improved land in each farm had decreased during the previous decade: only 418 of the 3,555 acres of farmland had been improved in Fairview Township and 795 of the 2,195 acres of farmland had been improved in Mendon Township. Livestock at these farms continued to include primarily horses, milk cows, working oxen, cattle, and swine, with agricultural products of wheat, Indian corn, oats, butter, and hay. Some farms in Fairview Township also produced maple sugar, beeswax, and honey.[113]

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[109] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 20.
[110] U.S. Bureau of the Census, *Federal Nonpopulation Census of Iowa*, 1850.
[111] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 22.
[112] Curtis Peebles, "Historic Land Use of the North Unit, Effigy Mounds National Monument, Allamakee County, Iowa" 1993, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[113] U.S. Bureau of the Census, *Federal Nonpopulation Census of Iowa*, 1860.

Several landowners identified in the 1872 Fairview Township plat map as located within the current Monument boundaries are listed on the 1870 Agricultural Census schedules (see Figure 2-19). As in the 1850 and 1860 census schedules, these farms are generally of modest size, between 40 and 320 acres, and only a portion of the land has been improved. All other unimproved acres for these farms are identified as woodland.[114]

An exception is Jacob Liebhardt, the owner of 1,280 acres of land, only 10 of which have been improved.[115] Liebhardt, a former mayor of McGregor, Iowa, was one of the first people to purchase land in Iowa from the Federal Government. In an 1875 business directory he is listed as a grape grower and wine distributor; he had attempted to farm the tops of the plateaus, but was apparently unsuccessful.[116]

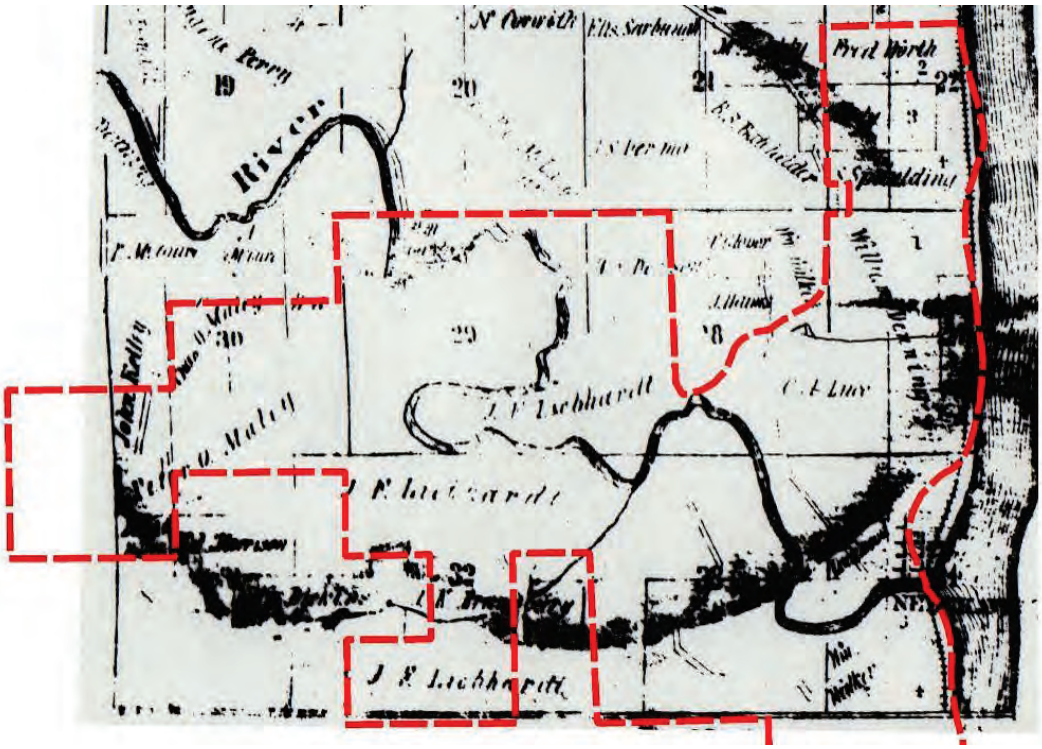

Figure 2- 19: 1872 Fairview township plat map with current Monument boundary indicated in red (source: Effigy Mounds National Monument archives, boundary added by QEA).

Agricultural products within the future boundaries of the Monument in 1870 were relatively consistent with the products found throughout Fairview Township, including livestock of horses, milk cows, working oxen, cattle, swine, and products of spring wheat, Indian corn, oats, butter, and hay. Forest products, which may include timber taken from unimproved areas of the farms, are also documented for all but one property, and most farms also slaughtered or sold animals for slaughter.[117]

[114] U.S. Bureau of the Census, *Federal Nonpopulation Census of Iowa*, 1870.
[115] Ibid.
[116] Peebles, "Historic Land Use of the North Unit, Effigy Mounds National Monument, Allamakee County, Iowa."
[117] U.S. Bureau of the Census, *Federal Nonpopulation Census of Iowa*, 1870.

Only two individuals within the current boundaries of the Monument that are identified on the 1886 Fairview Township Plat map are also listed on the 1880 Agricultural Census schedule: David Worth and Philemon B. Luce (see Figure 2- 20). The map indicates that J. F. Liebhardt had acquired a significant proportion of the future North and Heritage Units. It is not clear what Liebhardt did with this property, as the agricultural census schedules do not indicate if he rented this property out for farming or had it managed by another individual. Worth and Luce improved a very small proportion of their land during this time. Worth cut 600 cords of wood from his land in what is now the North Unit of the Monument during this time, in addition to growing Indian corn. Luce kept milk cows and cattle, and swine. None of the property owners indicated on the 1886 Mendon Township plat map are listed on the 1880 Agricultural Census.

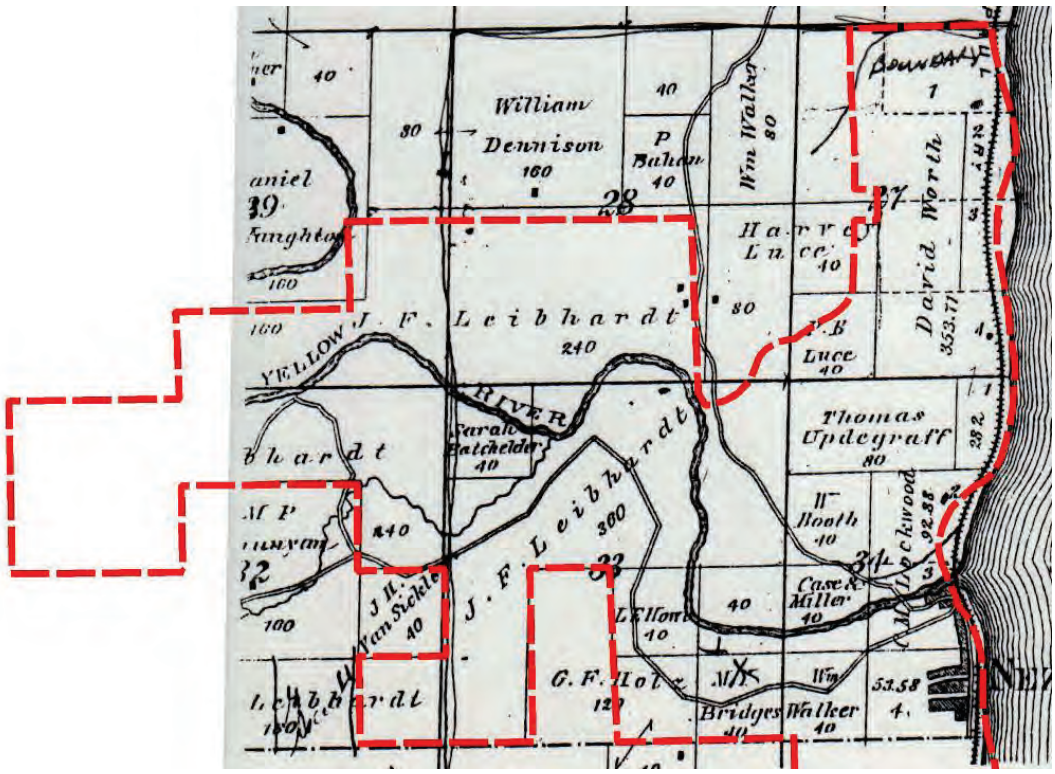

Figure 2- 20: 1886 Fairview Township, Allamakee County plat map with current Monument boundary indicated in red (source: Effigy Mounds National Monument archives, boundary added by QEA).

The land now comprising the Sny Magill Unit was divided into three lots by 1857. No ownership is indicated until 1886, when the property was owned by Ann McGregor. The Sny Magill area was used for cutting timber during the nineteenth and early twentieth century.[118]

[118] Elizabeth R.P. Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, 1988), 13-17.

County roads and bridges

As the population increased along the Iowa shore of the Mississippi River in the second half of the nineteenth century, transportation networks grew. County Road 170, which runs along the south bank of the Yellow River, was constructed in March 1858 (Figure 2-21).[119] Documents regarding the initial construction of the bridge across the Yellow River do not provide a clear establishment date. The bridge was extant by 1859, when it was reported to have been damaged by high water; in 1861, a petition was submitted for its repair. A new bridge was proposed for the site in 1864 by the Allamakee County bridge committee, and the first references of bridge foundation construction were in 1866. A Howe truss was eventually adopted for the bridge, and a timber truss bridge remained in place until the road was re-routed to its present location.[120]

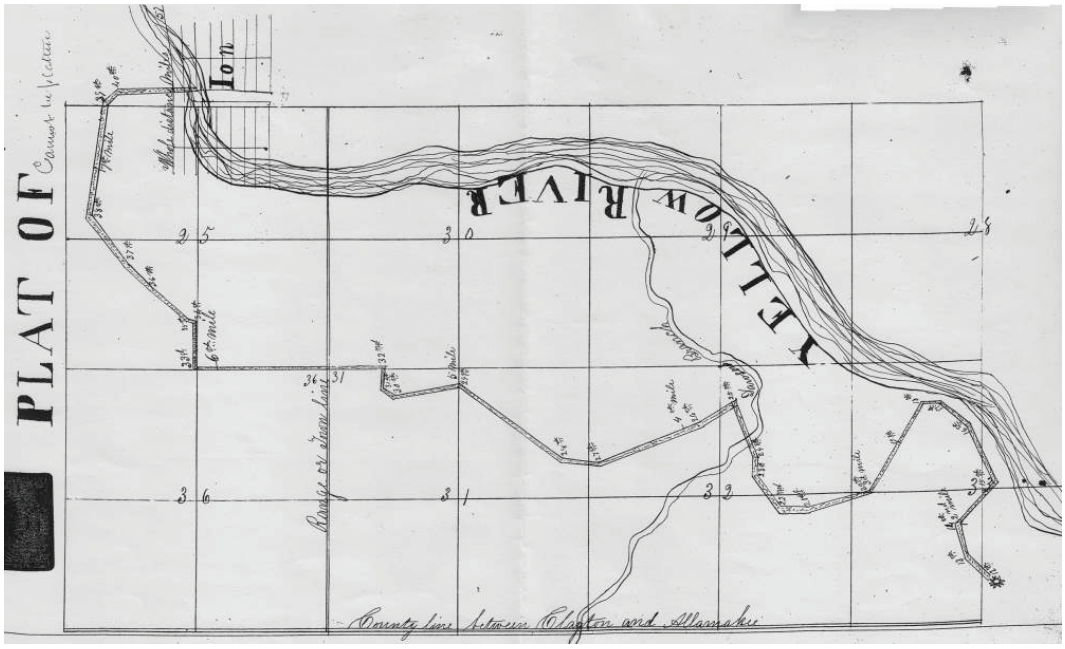

Figure 2- 21: Survey of County Road No. 170, Allamakee City Engineer's Office, 1858 (source: Effigy Mounds National Monument archives).

[119] "County Road 170" [1858], Correspondence between Phyllis Ewing and Allamakee County Engineer's Office, 2006, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[120] David C. Anderson, "The Development of Allamakee County's Road System, 1840-1942," (final project prepared for the Allamakee County Historic Preservation Commission, 1993).

Town of Nazekaw

In 1856, two speculators from Prairie du Chien, Bernard W. Brisbois and Herculus Dousman, purchased property at the mouth of the Yellow River from the federal government. The speculators created the paper town of Nazekaw (also known as Nezeka and Nezekaw) on the south bank of the Yellow River, and sold the surrounding lots to farmers.[121] The town is indicated on plat maps dated to 1872, 1875, 1886, and 1903.[122] The same location is indicated on 1917, 1930, 1941, 1950, and 1962 plat maps as "Yellow River Station."[123] Multiple sources indicate that the town included a post office, stockyard, and gristmill between 1858 and 1862; however, other sources claim this is a "mythical" town that was only laid out on paper.[124] An 1858 plat map of County Road 170 indicates a steam powered mill in Nazekaw (see Figure 2- 22).[125] The town was reportedly accessed by two roads, connecting to the towns of Monona and Marquette. A road led south from the mouth of the Yellow River, turning west at a ravine to connect to the Old Military Road. This is currently the route of the Monument's South Unit Trail. A second road followed Dousman Creek, eventually intersecting with a government road half-way to Monona.[126] Speculation notes that any structures in Nazekaw were obliterated by road construction of Highway 13 and Highway 76, and raised water levels of the Mississippi River due to flood control structures upstream.[127]

[121] Curtis Peebles, "Nazekaw: What Once Was, Effigy Mounds National Monument," 1993, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[122] "Historic Plat Maps of the North Unit, Effigy Mounds National Monument," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[123]Ibid.
[124] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 74; HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*, 39; and Peebles, "Nazekaw: What Once Was, Effigy Mounds National Monument;" W.E. Alexander, "History of Winneshiek and Allamakee Counties, Iowa" (Western Publishing Company, 1882), claims the town was never developed.
[125] Anderson, "The Development of Allamakee County's Road System, 1840-1942."
[126] Peebles, "Nazekaw: What Once Was, Effigy Mounds National Monument."
[127] Ibid.

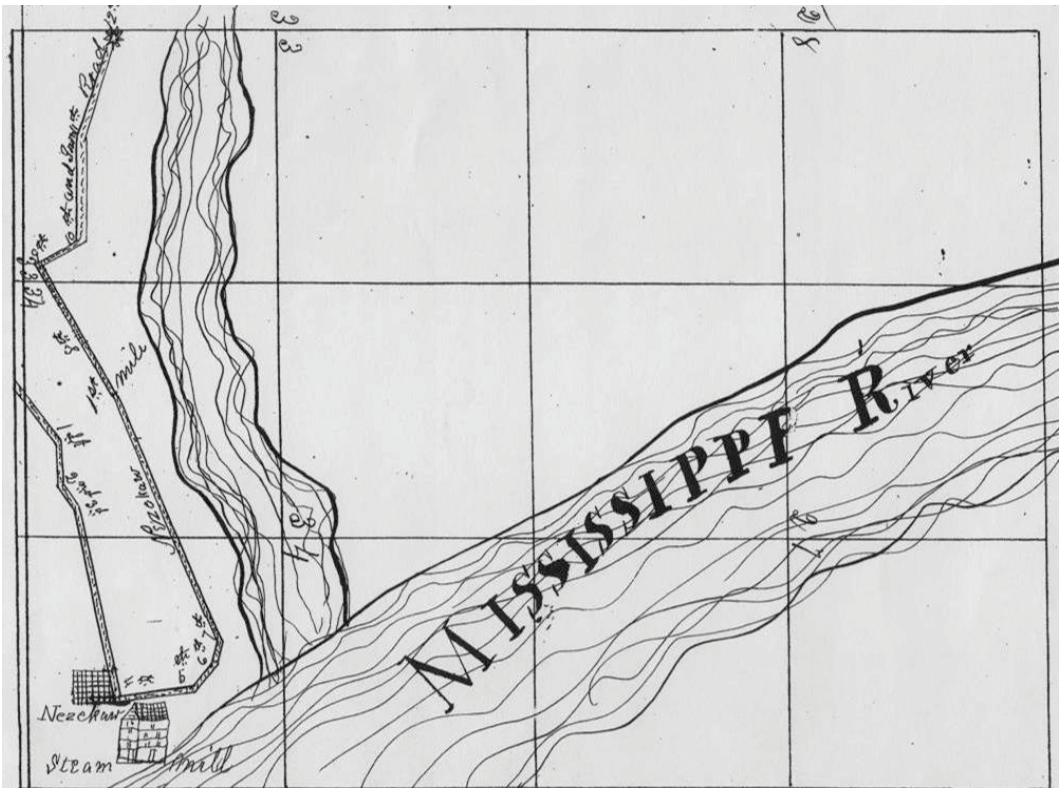

Figure 2- 22: Survey of Allamakee County Road No. 170, indicating location of Nazekaw and steam mill, 1858, Allamakee County Engineer's Office (source: Effigy Mounds National Monument archives).

Steamboats, Ferries and Railroads

Whether or not the town existed, ferry licenses were issued for a route between Prairie du Chien and the site of Nazekaw. In 1856, a ferry license was granted to B.E. Hutchinson and A. Phillips for a route from the mouth of the Yellow River to Prairie du Chien. The license granted exclusive rights for ten years for one mile up and down stream. Their rates ranged from $0.03 to $1.00 for various passengers, livestock, and freight. Another petition was submitted in February 1859 for a similar route between Nazekaw and an upper landing in Prairie du Chien.[128]

Several ferry licenses were granted to Wm. C. Thompson in 1853 for a ferry between Red House Landing, also known as York's Landing, and Prairie du Chien.[129] The landing site is located in a hollow on the west bank of the Mississippi River. Logs were moved along two drainages to the landing then transported across the river to Prairie du Chien. Early 20th century images of the site illustrate a few frame and tent structures.[130]

[128] Anderson, "The Development of Allamakee County's Road System, 1840-1942."
[129] Ibid.
[130] National Register of Historic Places, York's Landing Determination of Eligibility, 1-2.

The steamboat era came to an end with the arrival of the Chicago, Dubuque & Minnesota railway. In 1872, the main line between McGregor and Harpers Ferry opened; this line would eventually connect to St. Paul, Minnesota.[131]

Early archeological exploration

Archeological interest in effigy mounds throughout the region grew during this time period. Relic hunting gained popularity in the years following the Civil War, and local farmers uncovered artifacts while cultivating fields.[132] The first known detailed diagram of an Iowa effigy mound appeared in W.J. McGee's 1878 article in the *American Journal of Science*, and in 1890-1891, the Bureau of American Ethnology's research team studied northeastern Iowa mounds.[133] The first recorded investigations of Effigy Mounds National Monument were made by Theodore H. Lewis in 1885. Lewis, a trained surveyor, partnered with A. J. Hill in an ambitious plan to record as many mounds as possible before they disappeared. Lewis surveyed three mound groups within what is now Effigy Mounds National Monument. In 1885 he mapped the Sny Magill Mounds (13CT18), depicting 94 mounds, and the effigies at the Marching Bear Mounds (13CT26). In 1892 he mapped a portion of the Nazekaw Terrace Mounds (13AM82 and 13AM210). Additional information on the history of archeological activity at Effigy Mounds National Monument is provided earlier in this chapter in the section titled "Summary of Archeological Information."

Mississippi River Commission Survey

In the late 1880s and early 1900s, the Mississippi River Commission conducted an extensive survey of the Mississippi River and the adjoining landscape from Cairo, Illinois to Minneapolis, Minnesota. The resulting map was completed for the project area in 1893-1894 (see Figures 2-23 and 2-24). Vegetation within the project area includes wet forests, meadows, and shrubland within the river floodplains in the North and South Units and the Sny Magill Unit. Small portions of Sny Magill near the south end of the mound group were under cultivation. Oak forest with some clearings and cultivated fields occupy the bluff tops, and vegetation is sparse on the cliffs. The survey also documents the presence of structures at Red House Landing and on the Yellow River Terrace in the future location of the Monument headquarters; however, no structures are indicated at the town site of Nazekaw.[134]

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[131] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*, 39.

[132] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 25; and Garland J. Gordon, "The Rehabilitation and Preservation of Indian Burial Mounds by the National Park Service" *Iowa Academy of Science* (1966), 73.

[133] W.J. McGee, "On the Artificial Mounds of Northeastern Iowa, and the evidence of the employment of a Unit of Measurement in their erection," *American Journal of Science and Arts* (October 1878), 272; and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 137.

[134] Mississippi River Commission, "Survey of the Mississippi River," map, 1893. From Upper Midwest Sciences Center, http://www.umesc.usgs.gov/data_library/land_cover_use/1890s_lcu_mrc.html.

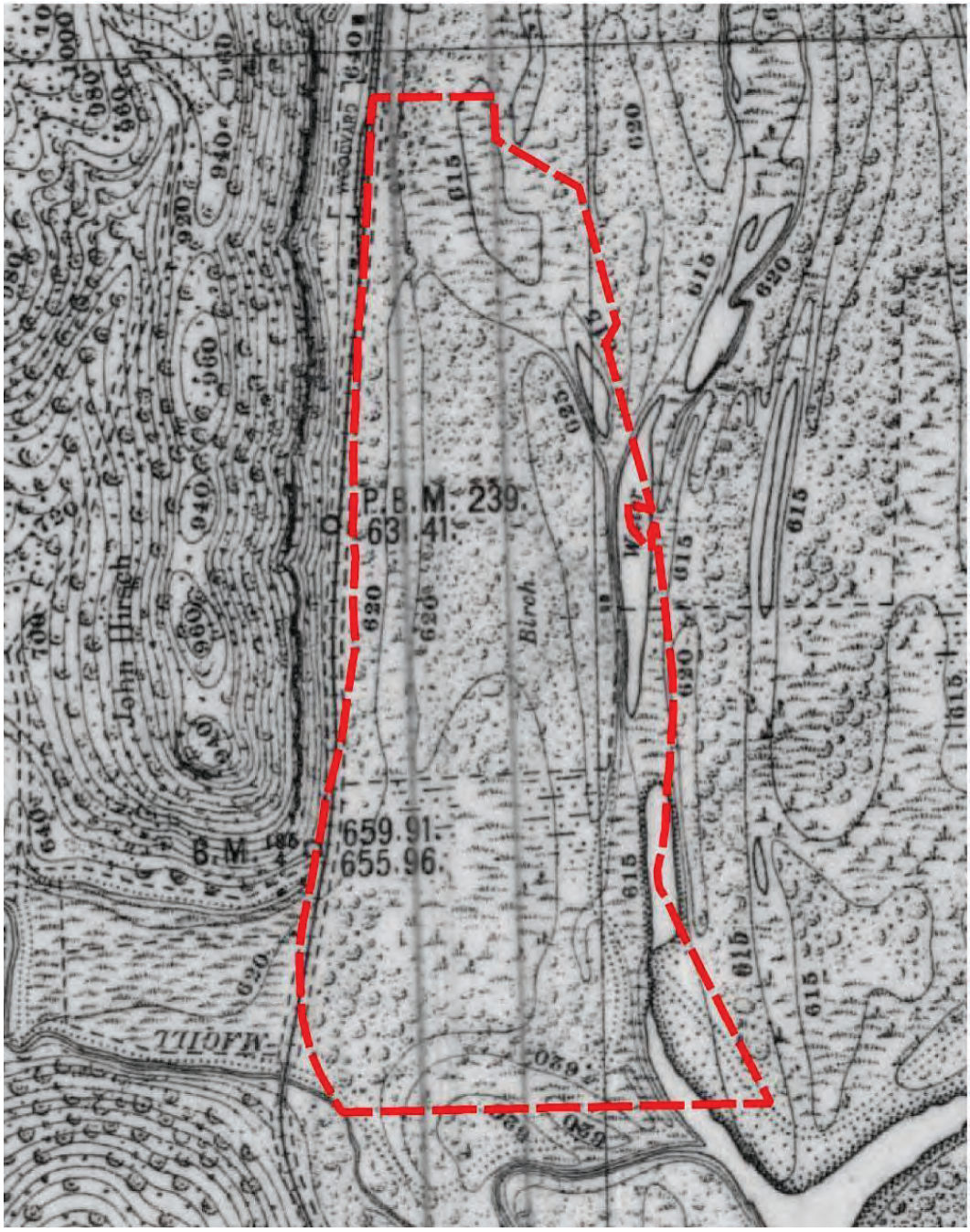


Figure 2- 23: Mississippi River Survey Pool 10, Mississippi River Commission, 1893, with current boundary of EMNM Sny Magill Unit indicated in red (source: USGS Upper Midwest Environmental Sciences Center; boundary added by QEA).

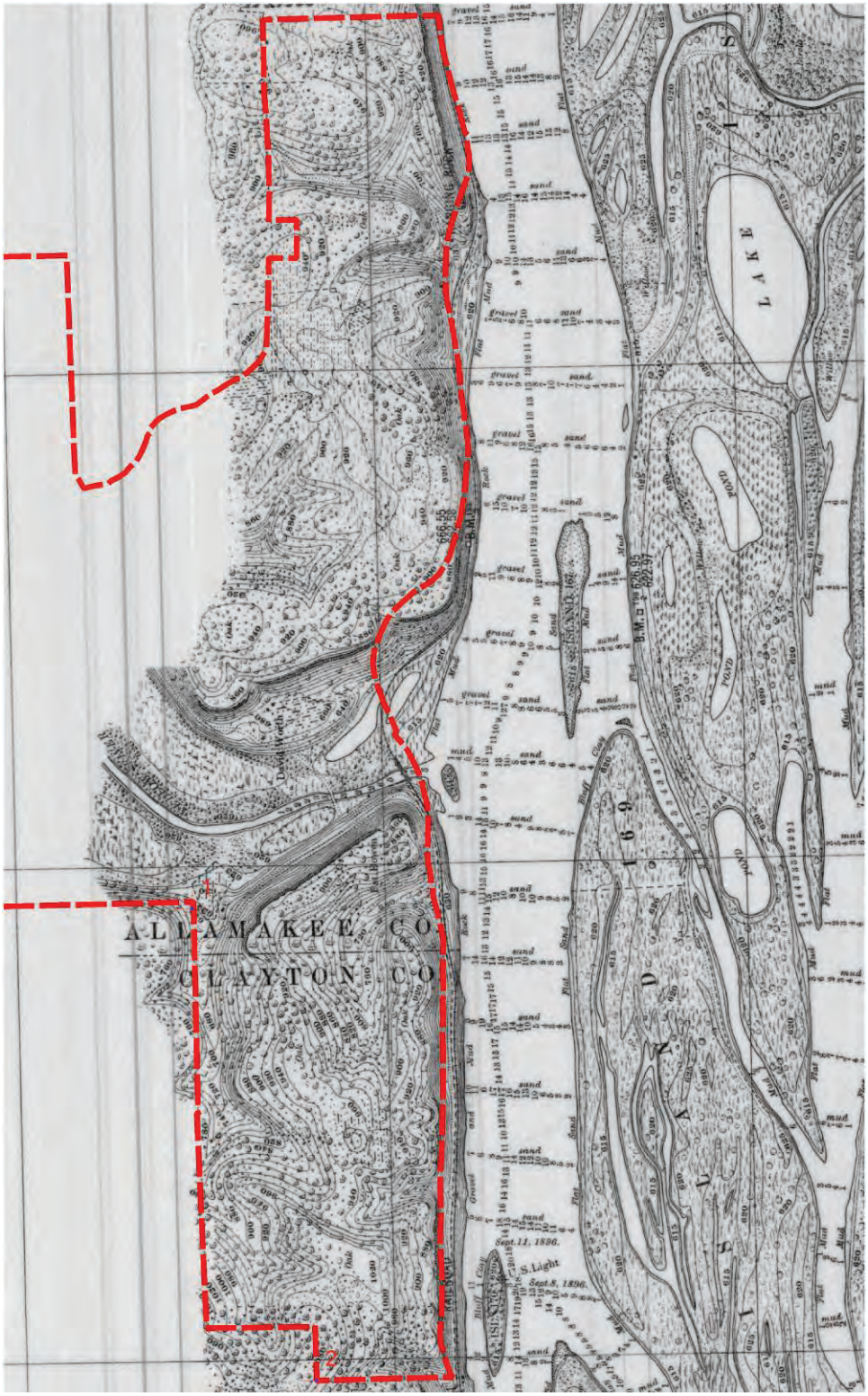


Figure 2- 24: Mississippi River Survey Pool 10, Mississippi River Commission, 1893, with current boundary of EMNM North and South Units indicated in red (source: USGS Upper Midwest Environmental Sciences Center; boundary added by QEA).

A period of landscape change drawing illustrates features present within the project area during the period from 1849 through 1900 (see POC-3). Included are roads, the railroad along the western bank of the Mississippi River, documented building sites, fences, ferry landings, and the location of the platted town of Nazekaw.

Vegetation illustrated is based on the highly detailed Mississippi River Commission survey dated 1893-1894 (Figures 2-23 and 2-24 illustrate the survey map details). The survey does not extend into the current location of the Heritage Unit, so vegetation illustrated on the drawing ends at the edge of the surveyed area. The locations of the Mississippi River and the mouth of the Yellow River are also based on this survey, which corresponds well with the current topographic data. Vegetation communities present during this period include wetland, forested wetland, grasses and forbs (prairie or meadow), shrubland, upland forest and agricultural areas.

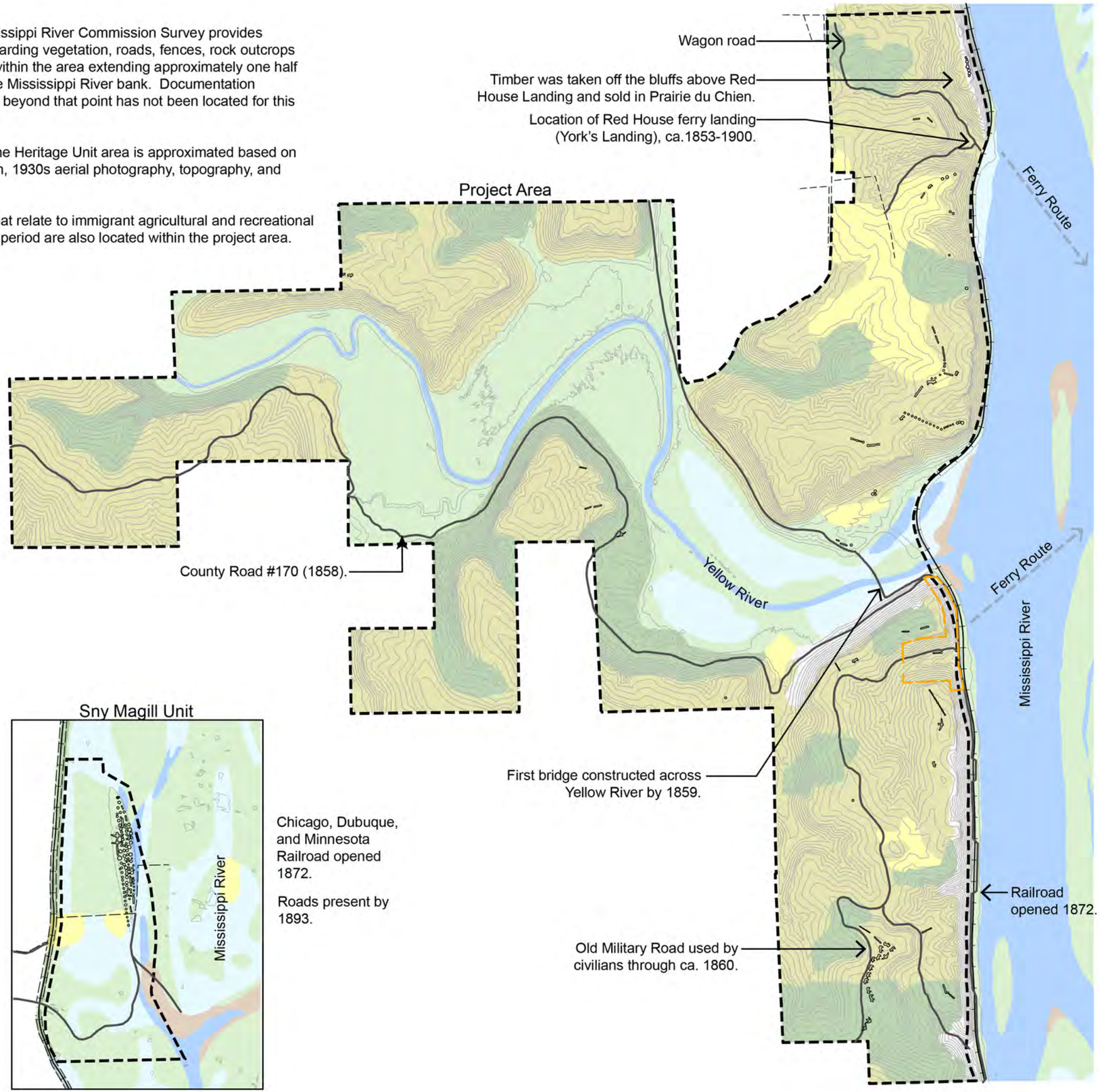
Comparison of this drawing to the previous period of change (POC-2) reveals increased development upon the landscape in the form of roads, railroads, and fences. Also, manipulation of vegetation for agricultural purposes and logging has created openings in previously forested areas and changes to vegetation and soils in locations that were prairie and savanna. Agricultural activities also impacted mounds and may have obliterated other unknown archeological resources.

Next page: POC –-3: Period of Change Diagram, 1849-1900

Notes:
The 1893 Mississippi River Commission Survey provides information regarding vegetation, roads, fences, rock outcrops and buildings within the area extending approximately one half mile west of the Mississippi River bank. Documentation extending west beyond that point has not been located for this time period.

Vegetation in the Heritage Unit area is approximated based on GLO vegetation, 1930s aerial photography, topography, and aspect.

Historic sites that relate to immigrant agricultural and recreational use during this period are also located within the project area.



EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Period of Change Diagram, AD 1849-1900

Legend

- Project Area
- Mound
- Possible Location of town of Nazekaw platted by Brisbois and Dousman near the mouth of the Yellow River (1856).
- Road or Trail
- Railroad
- Fence
- Approximate location of river or stream
- Approximate location of non-forested wetland
- Floodplain forest
- Approximate location of sand/mud
- Approximate location of oak savanna, scattered trees, or successional growth
- Approximate location of forest
- Approximate location of open field or prairie
- Unknown vegetation
- 20 ft contours (2 ft contours in Sny Magill) based on current topography

Sources

1. Mississippi River Commission, Survey of Mississippi, 1893 from USGS Upper Midwest Environmental Sciences Center (vegetation, roads, fences, rock outcrops, buildings)
2. Allamakee County Plat Map, 1886 (property, roads, buildings)
3. Clayton County Plat Map, 1886 (property)
4. Effigy Mounds National Monument GIS Database (project area, topography)
5. Vegetation in the Heritage Unit approximated based on GLO vegetation, 1930s aerial vegetation, topography, and aspect.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 800 1,600 3,200 Feet
1 inch = 1,600 feet

N

POC-3

Iowa Efforts to Preserve Effigy Mounds (1901-1945)

The movement for a park to preserve effigy mounds in northeastern Iowa began around the turn of the 20th century with a number of local groups and individuals. In April 1909, State Representative George H. Schulte of Clayton County addressed the Iowa General Assembly in support of establishing a national site near McGregor.[135] Schulte's proposal was supported by Ellison Orr, then president of the Iowa Park and Forestry Association.[136] In 1915, Senator William S. Kenyon of Fort Dodge, Iowa, introduced a bill (S.4585, 64th Congress) to establish a 1,700 to 2,000 acre park to preserve the mounds. A similar bill was submitted by Representative Gilbert Haugen of Iowa.[137] Following the submittal of these bills, an inspection of the Upper Mississippi River Valley was conducted by M.L. Dorr of the National Park Service, but no proposals or actions resulted from the survey.[138] Between 1917 and 1923, Senator Kenyon and Congressman Haugen introduced a series of bills in Congress for the establishment of a Mississippi National Park in northeast Iowa, all of which died in committee.[139]

Plans for a national park in the Upper Mississippi River Valley were put on hold during the 1920s, but conservation efforts in the area persisted. In 1924, the Upper Mississippi River National Wildlife and Fish Refuge Act established a refuge that now encompasses over 240,000 acres of wildlife habitat, including land adjacent to the future Monument.[140] In 1928, several acres were donated the U.S. Biological Survey for conservation, but were deemed inappropriate for a national park following an appraisal by the National Park Service. The land was later transferred to the State of Iowa and formed the core of Pike's Peak State Park in 1937.[141]

Senator Haugen submitted a new proposal in 1929 for an extensive 220-mile long park along bluffs in Minnesota, Wisconsin, Iowa, and Illinois (H.R. 2040, 71st Congress); the Upper Mississippi National Park study bill was signed by President Herbert Hoover in 1930.[142] However, an investigative survey of the proposal led by Roger Toll in 1931 concluded that the area's scenery was not of national interest and that a park would be too difficult to administer because of ownership and management issues. He suggested

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[135] Wilfred D. Logan, *A History of Effigy Mounds National Monument* (Harpers Ferry, Iowa: National Park Service, 1956), 28-30.
[136] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 34.
[137] Ibid.
[138] Logan and Ingmanson, "Effigy Mounds National Monument," 171; and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 35.
[139] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 35; *Congressional Record* 54:4407-4416; Logan and Ingmanson, "Effigy Mounds National Monument," 171; *Congressional Record* 58:497-98; *History of Legislation Relating to the National Park System Through the 82d Congress*, Edmund B. Rogers, compiler (Washington, D.C.: U.S. Department of the Interior, 1958), p. 2 of Part I, pp. 1-3 of H.R. 262, and pp. 1-3 of S. 680, 67th Congress, 1st Session and pp. 1-3 of H.R. 495, 68th Congress, 1st Session. Memorandum, Merriam to Drury, November 22, 1946.
[140] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*; Lenzendorf, *Effigy Mounds: A Guide to Effigy Mounds National Monument*, 71-72.
[141] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 35.
[142] Ibid., 35-36.

instead that a portion of the mounds be protected as a National Monument.[143] The first land purchase for that purpose was made in 1933. Private citizens purchased the Fish Farm Group, located in New Albin, Iowa. Although the site did not become part of Effigy Mounds National Monument, it is open to the public and owned and managed by the State of Iowa.

In 1936, the Iowa Conservation Commission submitted a comprehensive proposal to the National Park Service for the creation of a National Monument. The proposal included a detailed overview of factors related to establishment of the Monument including regional population, transportation, existing parks, geology, vegetation, climate, agriculture and "problem areas." It then provided descriptions of three proposed units and development plans for them, including the Yellow River Unit, the Jennings-Liebhardt Unit, and the McGregor Unit (see Figures 2-25 through 2-27). The proposal also provided information about the Sny Magill mound areas, Adams and Turkey River mound groups, and a detail of the mounds at Pike's Peak. Finally, the proposal laid out a schedule for acquiring land within each unit.[144]

The proposed Yellow River Unit corresponded roughly with the current North Unit of the Monument, although it did not extend as far to the north (see Figure 2-25). The proposed entry to this unit utilized State Highway 13 at a high elevation travelling west to east between mounds and terminating in a large parking lot adjacent to the Great Bear, Little Bear, and Fire Point Mounds. A second, smaller parking area was indicated near the current Monument visitor center location with a trail providing access from this location to the bluffs. A series of trails were proposed to provide access to the mounds and three picnic areas were indicated near the large parking lot and the Great Bear, Little Bear, and Fire Point Mounds. Mounds that are currently in locations with prairie vegetation (Mounds 19-20 and missing mounds that were impacted by agriculture) are within a forested clearing. Mound 16 is indicated in a large clearing. No access to Mounds 55-57 was included in the proposal.

The proposed Jennings-Liebhardt Unit corresponded to the current South Unit of the Monument, extending from the Yellow River to the south past the Marching Bear Mounds (see Figure 2-26). The proposed entry to the unit was a road extending from the southwest to the location of the two bird mounds (Mounds 82-83) south of the Marching Bear Mounds. The road then continued on the west side of the Marching Bear Mounds to a large parking lot on the north side of Mound 69. The road then curved to the east and extended to an overlook on the bluff near the vicinity of Mounds 65-67 (these mounds are not represented on the plan). From this location, the road curved along the slope to the northwest, turning once more in the vicinity of the current Founders Pond Overlook and traversing the ridge occupied by Mounds 62 through 64 and 150 (not indicated on the plan) and terminating at a circular road in the current location of the Nazekaw Point Overlook.

[143] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 36-38; Report to the Director [Horace M. Albright], National Park Service, from Roger W. Toll, October 8, 1931, pp. 3, 5, and 7; Memorandum to the Secretary, Department of the Interior [Ray Lyman Wilbur], from Albright, February 16, 1932, endorsing the Toll report.
[144] Iowa State Conservation Commission, *Proposal for National Monument, Allamakee and Clayton Counties, Iowa*, October, 1936, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.

The proposal for the McGregor Unit included “McGregor Heights” immediately north of the Town of McGregor (see Figure 2-27). This area was to be developed with a camp ground, shelters, restrooms, trails, and overlooks. Extending to the south of the Town of McGregor, adjacent to the railroad and Mississippi River, the proposal included a road that terminated just north of Pikes Peak. A spur extending toward the west near Point Ann included a large parking lot. Trails, overlooks, and latrines were indicated in this area. A hiking trail provided a connection between the Point Ann area and Pikes Peak and access to several groups of mounds, overlooks, and Bridal Veil Falls near an existing parking lot at Pikes Peak. Latrines and a shelter were indicated in this area.

The extent of development illustrated in these proposals reflects the views of those working to establish the Monument. Efforts to conserve the mounds and associated landscape were motivated by the contemporaneous belief that providing access to resources and recreational opportunities provided the justification for removing land from private ownership. Therefore, extensive development of roads and parking areas was considered appropriate to ensure ample access opportunities. Had the proposals been implemented, extensive damage would have been inflicted on mounds and other significant resources.

Figure 2- 25: 1936 National Monument Proposal, Yellow River Unit Preliminary Development, Maximum Area (source: Effigy Mounds National Monument archives).

Figure 2- 26: 1936 National Monument Proposal, Jennings-Liebhardt Unit Preliminary Development, Maximum Area (source: Effigy Mounds National Monument archives).

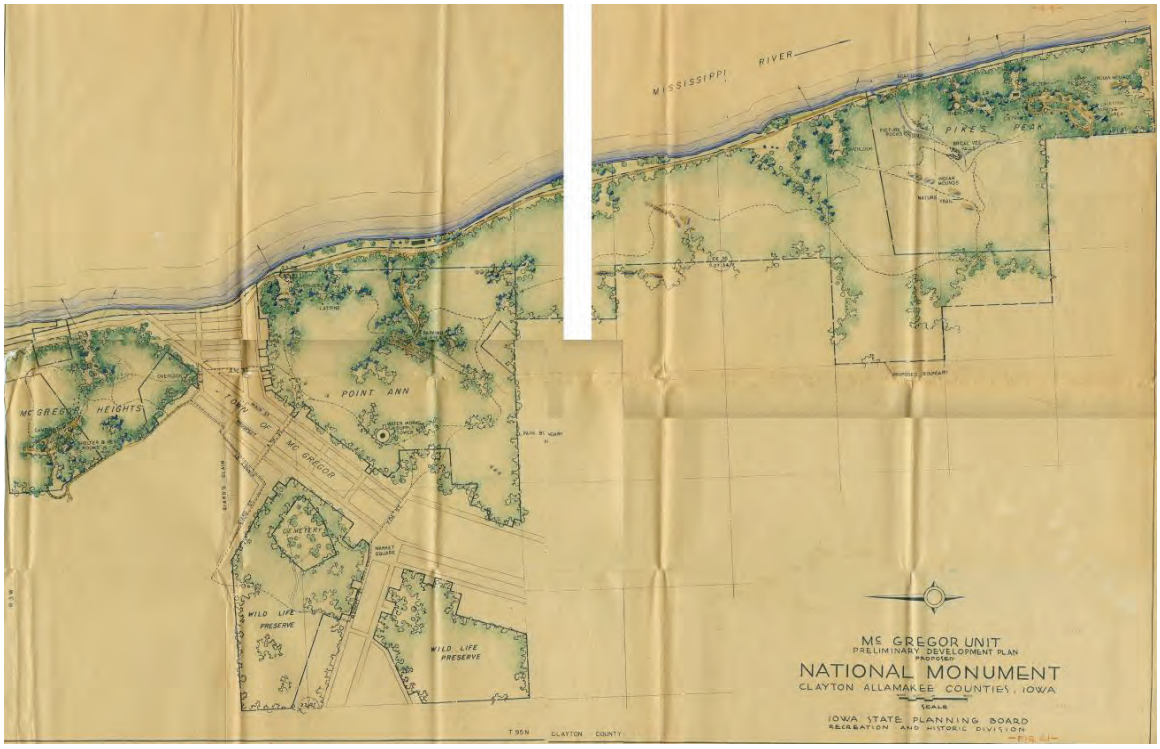

Figure 2- 27: 1936 National Monument Proposal, McGregor Unit Preliminary Development Plan (source: Effigy Mounds National Monument archives).

In 1937, the National Park Service sent Neal Butterfield, Edward Hummel, and Howard Baker to investigate seven mound groups addressed in the proposal.[145] The party's report recommended the inclusion of the Yellow River mound group (Great Bear, Little Bear, and Fire Point Mounds 22-54), the Jennings-Liebhardt mound group (Marching Bear Mounds 69-86), and the Sny Magill Mounds in the proposed National Monument.[146] The land recommended for inclusion in the National Monument included 131 acres that were government owned, 799 acres that were privately owned, and 10 acres of privately owned property in the Town of McGregor for the Monument headquarters.[147] The boundaries proposed by this 1937 report were modified somewhat by Dr. Charles Keyes and approved by the Secretary of the Interior on March 15, 1938.[148]

The enabling legislation required that 1,000 acres be acquired prior to the establishment of the National Monument. The State of Iowa began acquiring lands toward this goal in 1936, and in 1941 the General Assembly of Iowa passed an act authorizing the conveyance of the first 1,000 acres of land to the United States government for the purposes of a National Monument. By the end of 1944, the State of Iowa had acquired the land comprising the future North and South Units of the Monument.[149]

Documentation of the Mounds

Beginning in 1902 and extending for the next 40 years, Ellison James Orr systematically surveyed the vast majority of the mound groups within the boundaries of Effigy Mounds National Monument. He also conducted excavations of several mounds. Orr is considered to be a founding figure in Iowa archeology along with Charles R. Keyes; in addition, he was a local farmer, teacher, businessman, and naturalist. Orr worked with his brother Harry, son Fred, and colleague Fred Pye to map mounds throughout the region. The first group of mounds surveyed by Orr within the National Monument was the Hanging Rock Mound Group (13AM163). Over the next 40 years he mapped most of the mounds now included in the Monument, and compiled his results into extensive notes on archeology now on file at Effigy Mounds National Monument archives.[150]

Orr's surveys indicate the presence of a number of roads and structures on the land that would become the National Monument. A 1910 survey of the Hanging Rock group by Harry Orr notes the location of an old pioneer road and "red house" just to the south of Hanging Rock (see Figure 2-28).[151] A 1915 survey of the bluffs between Marquette and the Yellow River, including much of what would become the South Unit of the Monument, maps the Old Military Road and a road in the location of the South Unit Access road. The survey indicates that two houses were present on the property at the

[145] H. Summerfield. Day, *Report on Investigation of Proposed National Monument Sites in Northeast Iowa* (Washington, D.C.: U.S. Department of the Interior, National Park Service, Investigations Branch, 1937), 1.
[146] Ibid., 4-6.
[147] Ibid., 10.
[148] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 40.
[149] Ibid., 45.
[150] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 25-28; and Orr, "Sundry Archaeological Papers and Memoranda, vol. 4, 1935."
[151] Harry Orr, "Hanging Rock Indian Mounds," 1910, map, in Ellison Orr, "Sundry Archeological Papers and Memoranda, vol. 12, 1942," manuscript, Office of the State Archaeologist, University of Iowa, Iowa City.

time, one near mounds 62-64 and another near a rise in what is now an area of prairie in the South Unit (see Figure 2-29).[152] A 1926 survey of the future Monument headquarters area notes the location of a farmhouse and outbuilding, the Yellow River Flag Station at the base of the bluffs along the Mississippi River, several old roads, and a group of mounds now lost that were platted earlier by T.H. Lewis (see Figure 2-30).[153] By 1903, Smokey Hollow School House had been constructed near the intersection of Smokey Hollow Road and Highway 13 (Figure 2- 31).[154]

[152] Ellison Orr, "Map of Prehistoric Earthworks on Bluffs between Marquette and Yellow River" 1915, map, in Ellison Orr, "Sundry Archeological Papers and Memoranda, vol. 12, 1942," manuscript, Office of the State Archaeologist, University of Iowa, Iowa City.
[153] Ellison Orr, Untitled Map, 1926, in Ellison Orr, 1936:114A.
[154] "Historic Plat Maps of the North Unit," Effigy Mounds National Monument."

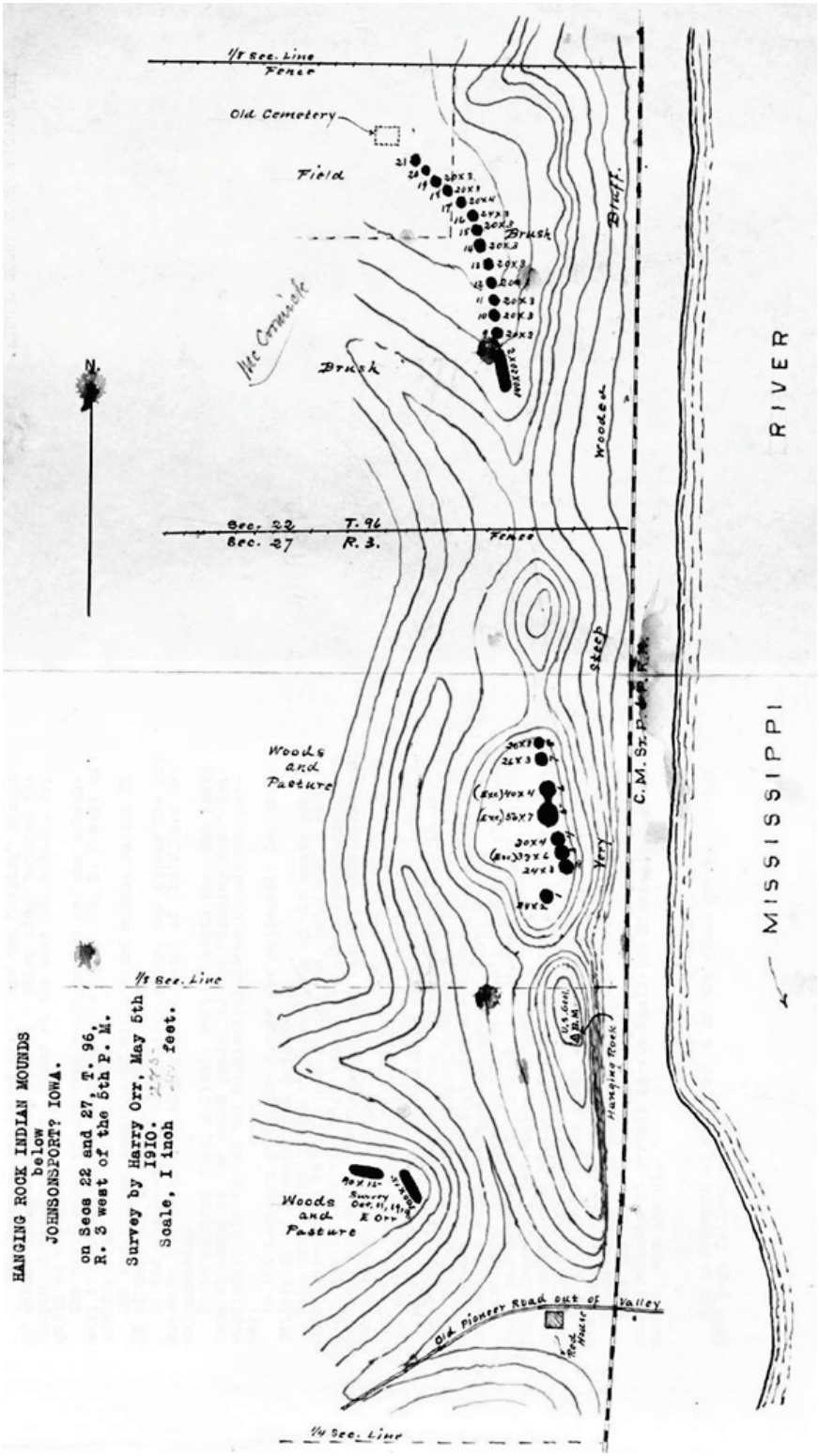

Figure 2- 28: Hanging Rock Mound Group surveyed by Harry Orr, 1910, indicating topography, old roads, building at Red House Landing, and general vegetation conditions (source: Orr, 1942, 78).

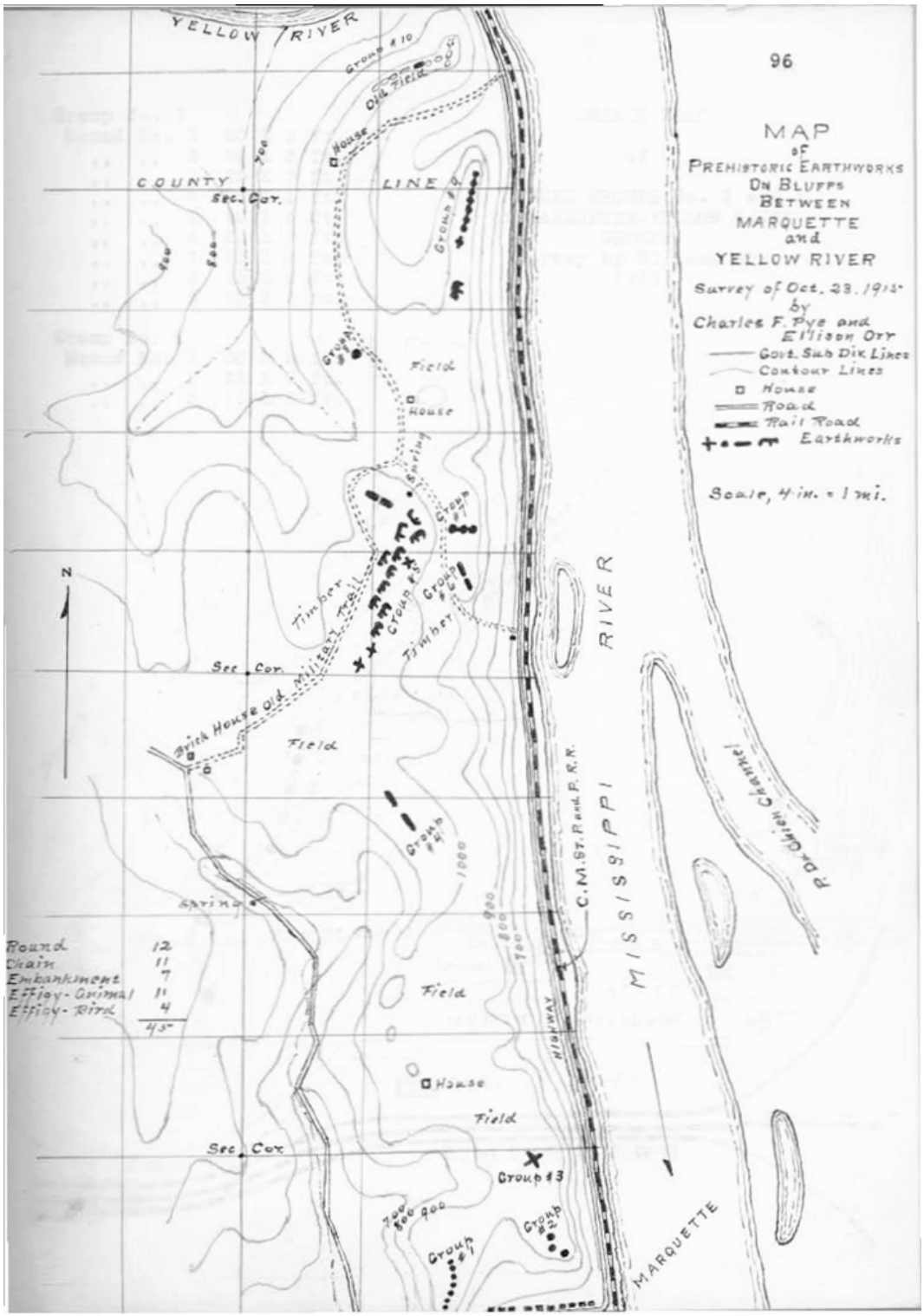

Figure 2- 29: Orr map of mounds in Monument's South Unit, also indicating extant buildings, roads, topography, and general vegetation conditions in 1915 (source: Orr, 1942, 96).

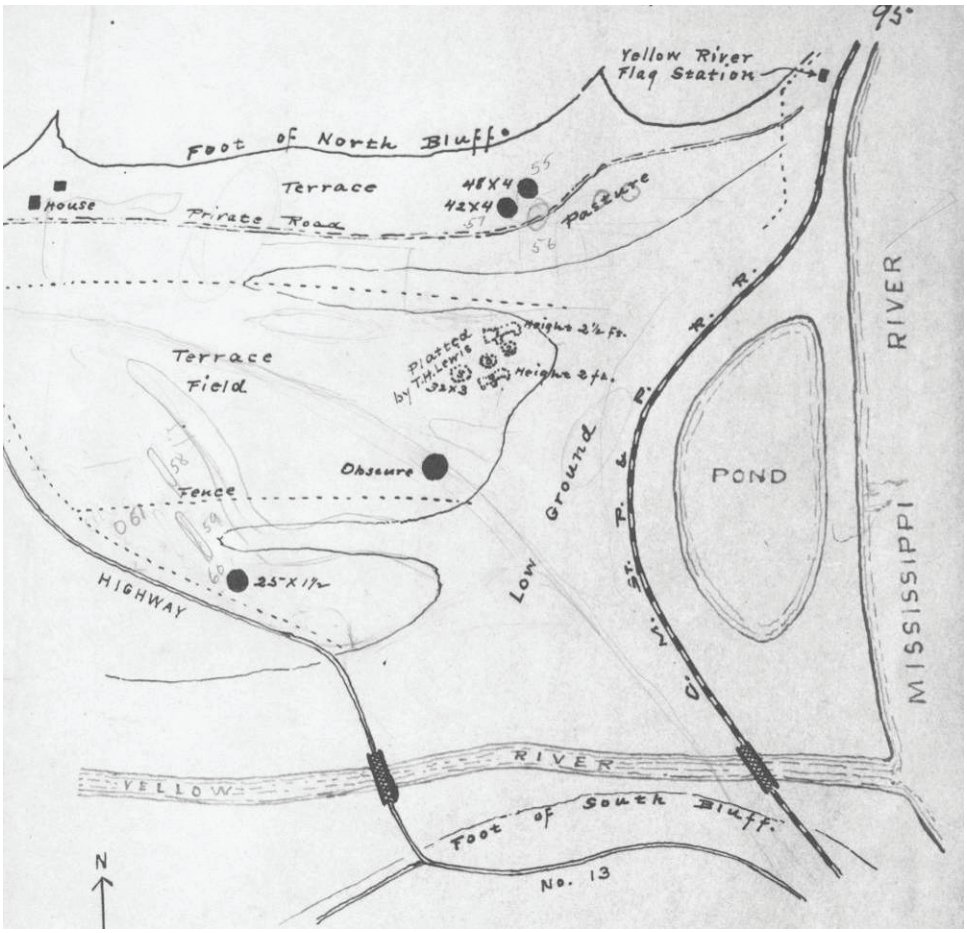

Figure 2- 30: 1926 Orr map of mounds on Yellow River terrace, also including extant roads, bridges, buildings, and general vegetation conditions. The map indicates mounds platted by Lewis that were not located by Orr (source: Orr, 1936, 114A).

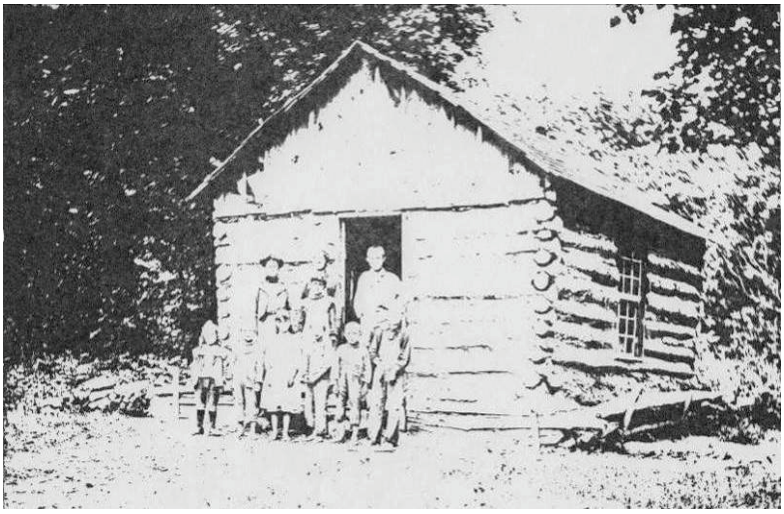

Figure 2- 31: Smokey Hollow School House (source: Effigy Mounds National Monument archives).

Land Use during the Early 20th Century

Aerial photographs taken in the 1930s by the Agricultural Adjustment Administration (AAA) of the U.S. Department of Agriculture show a landscape within the current Monument boundaries characterized by wooded slopes and wetlands (see Figure 2- 32). Relatively even terrain on the bluff tops has been cleared and utilized for agriculture, including locations within the current North and South Units. A road is visible in the current North Unit to the west of the mound groups. This road runs roughly in the current location of the maintenance road to the west of Mounds 20-52; north of Mound 20, the road continues in a straight line running roughly northwest-southeast. Another road was located just to the west of Mounds 8 and 9. A portion of the Old Military Road can also be distinguished in the current South Unit. The site of the Sny Magill unit in the 1930s aerial photograph is characterized by scattered trees to successional forests.[155] A photograph of Paint Rock, likely taken in the late 19th or early 20th century, shows a relatively open landscape with grassland on the south and west facing slopes of the bluff. The floodplain is forested (see Figure 2-13).[156]

Agricultural land use continued in the location of the future National Monument into the 20th century. In 1910, John Laird, a wealthy lumberman, purchased "Bonnie View Farm," encompassing over 1000 acres north of the Yellow River (see Figure 2- 33). John Laird's daughter Catherine and her husband Ralph Brown also farmed on several nearby parcels of property, including a part of section 33 on the Monument's west boundary. During this time, the Liebhardt family continued to own extensive areas of land within the future North and South Units of the Monument (see Figure 2- 34). Little information is available on how the Liebhardt family used their property. In 1913, much of the property owned by Gustavus Liebhardt was rented to James H. Shannon of Marquette.[157] "River View Farm," owned by the Jakes brothers in 1917, included portions of the Monument's South Unit (see Figure 2- 35).[158]

Sometime around 1900, ferry service at Red House Landing ended, and the area became a camp for clammers. The clammers searched for fresh water mussel shells to be used in the pearl-button industry operating out of Prairie du Chien; they also looked for freshwater pearls. In 1903, approximately 100 clammers camped at the site. Old photographs show a variety of structures including tents, wooden shanties, and firepits clustered around the draw and mooring blocks, chains, and clam hooks along the shore. The pearl-button business declined around the time of World War I, and by 1916 fewer than a dozen clammers worked out of Prairie du Chien.[159] The site was used as a stone quarry site around 1925-1926.[160]

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[155] National Agricultural Imagery Program, *NAIP Aerial Photograph, Clayton and Allamakee Counties, Iowa*, 1930s, Iowa DNR NRGIS Library, accessed 2013, http://www.igsb.uiowa.edu/nrgislibx/.
[156] Orr, "Sundry Archaeological Papers and Memoranda, Vol. 6, 1937," 73.
[157] Peebles, "Historic Land Use of the North Unit, Effigy Mounds National Monument, Allamakee County, Iowa."
[158] "Historic Plat Maps of the North Unit, Effigy Mounds National Monument."
[159] Thomas Munson letter to Robert McKay, 1993, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[160] National Register of Historic Places, York's Landing Determination of Eligibility, 2.

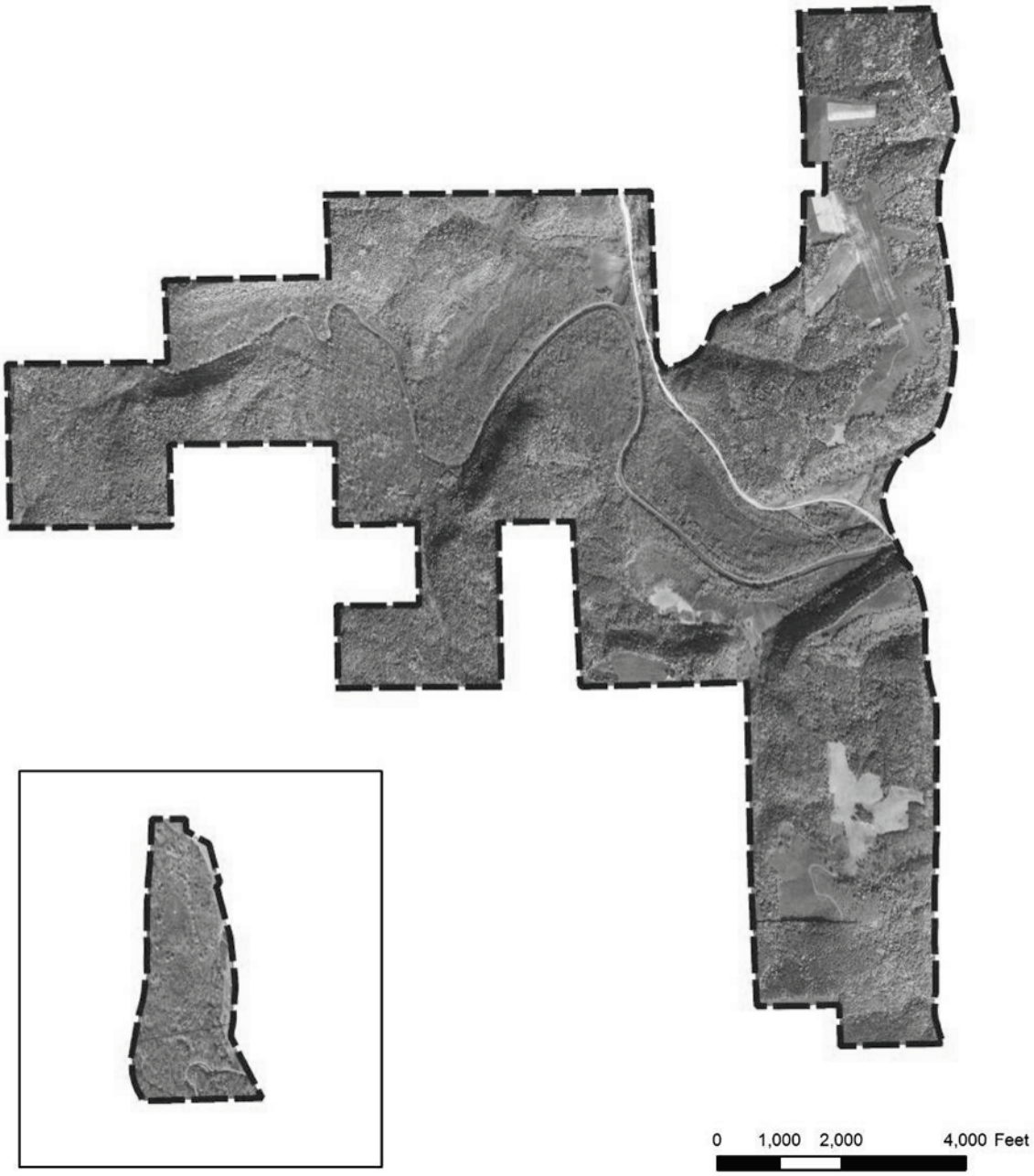


Figure 2- 32: Historic aerial photograph taken by the Agricultural Adjustment Administration (AAA) of the U.S. Department of Agriculture, Clayton County, 1930s (source: Iowa DNR Natural Resources Geographic Information Systems Library).

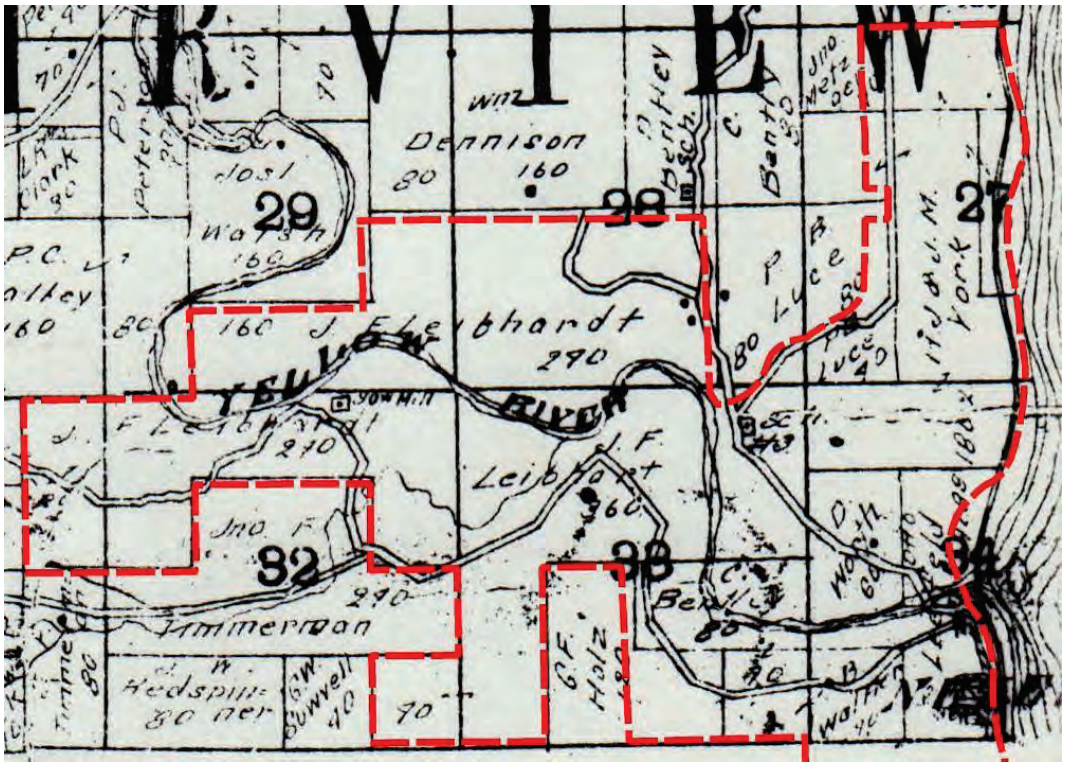


Figure 2- 33: Fairview Township, Allamakee County plat map, 1903 (source: Effigy Mounds National Monument archives).

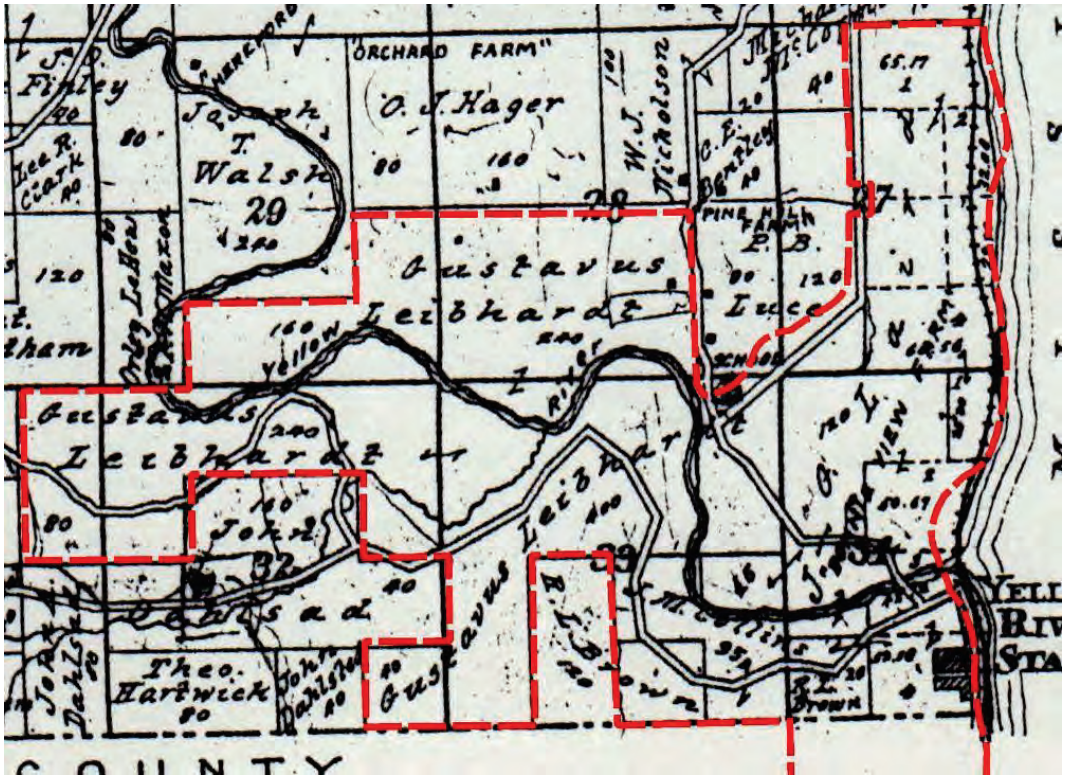


Figure 2- 34: Fairview Township, Allamakee County plat map, 1917 (source: Effigy Mounds National Monument archives).

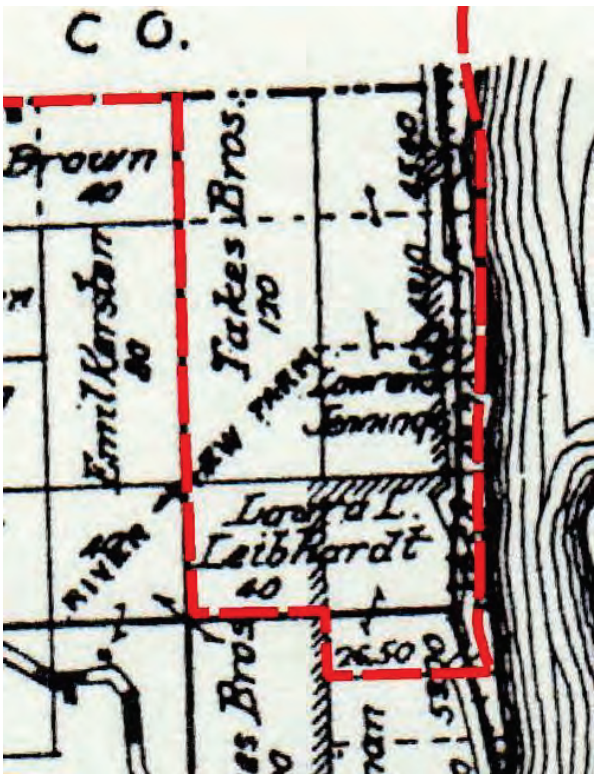


Figure 2- 35: Mendon Township, Clayton County plat map, 1917 (source: Effigy Mounds National Monument archives).

Logging is also likely to have occurred on the Monument during this time period. O'Bright describes logging practices in the area:

> Sometime around the turn of the twentieth century, the National Monument was logged over. It is commonly accepted that this was on a "clear-cut" basis, but accurate information on who did this, exactly when, and how much of the future National Monument was included is scarce. Many believe that most of the North Unit was included, and probably much of the South Unit as well. However, loggers cut trees in the vicinity to furnish cordwood to a packing plant where it was used for smoking some cuts of meat in the 1920s and 1930s. It is doubtful that sizeable trees could have grown following a clear-cut in such a short time; thus, the traditional belief that the area was clear-cut may be incorrect.[161]

The State of Iowa began purchasing land for inclusion in the proposed National Monument during the 1930s. By this time, many of the owners of the properties discussed above had defaulted on their mortgages during the Great Depression. Plat maps from the 1930s illustrate a large amount of property was acquired by banks (see Figures 2-36 and 2-37).[162]

[161] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 23.
[162] "Historic Plat Maps of the North Unit, Effigy Mounds National Monument."

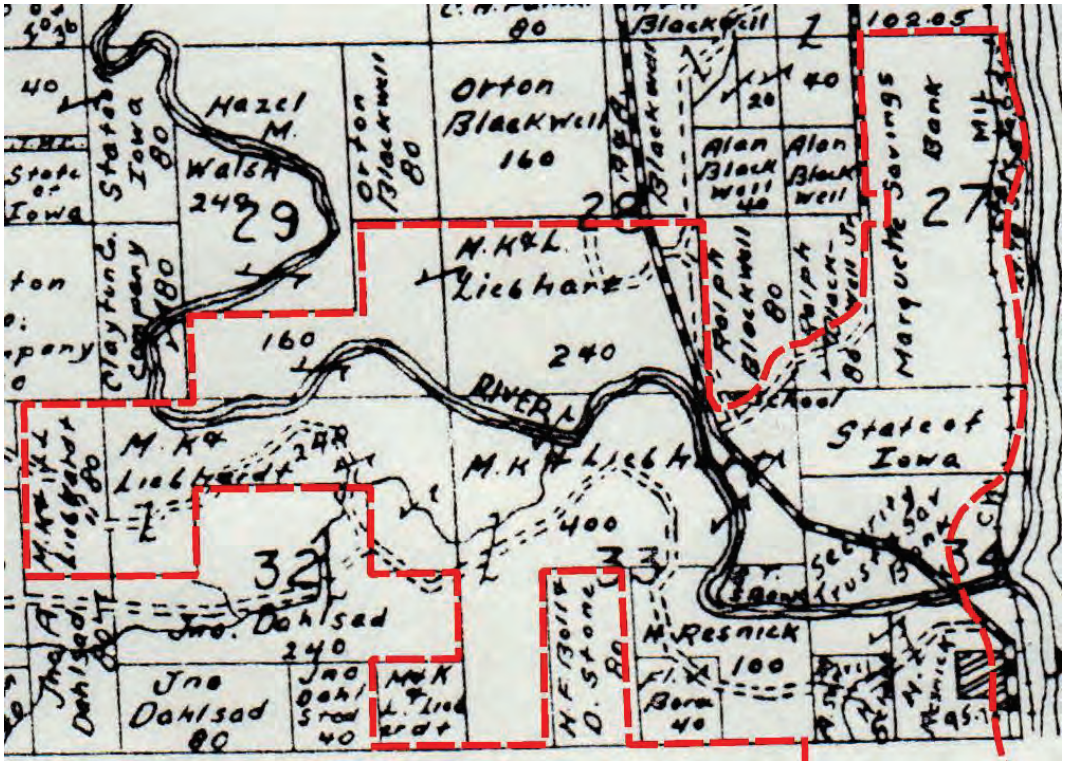


Figure 2- 36: Fairview Township, Allamakee County plat map, 1930 (source: Effigy Mounds National Monument archives).

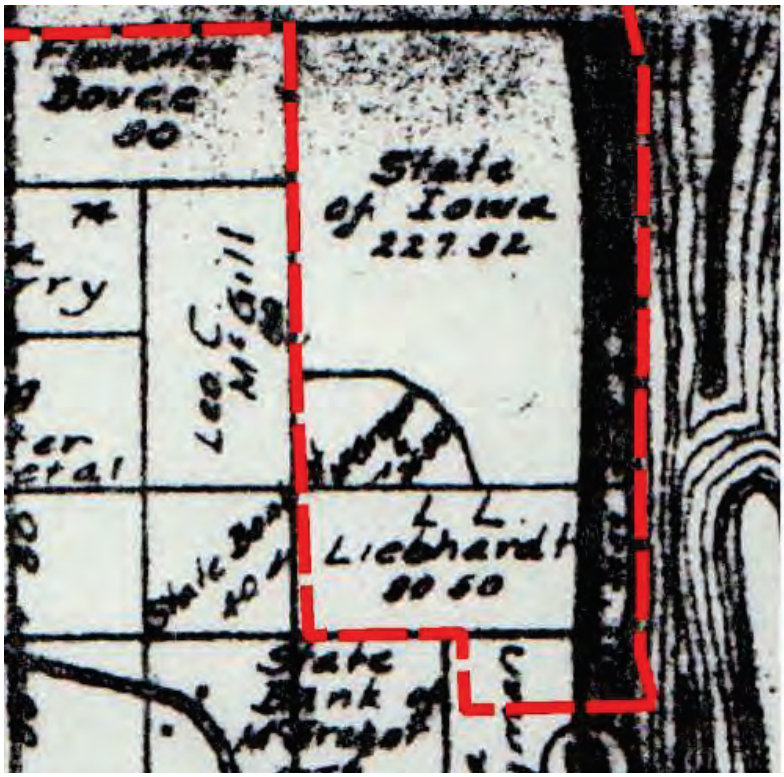


Figure 2- 37: Mendon Township, Clayton County plat map, 1938 (source: Effigy Mounds National Monument archives).

Logging continued at the future site of the Sny Magill Unit during the early 20th century. The three lots at Sny Magill slough were owned by a series of individuals through 1937, when the land was transferred to the State of Iowa, all of whom were residents of other localities. Deeds to the Werges and Killeen properties around the turn of the century gave the owners continued rights to remove timber from the property, and the Werges family is also reported to have made hay at Sny Magill. The Schulte deed, gained in 1904, allowed for continued gravel procurement.[163]

While timber cutting at Sny Magill may have begun as early as the 1680s, gravel procurement likely did not begin until the early 20th century. Gravel pits were located on the southeast corner of the mound group, and impacted mounds 78 and 89.[164] The U.S. Army Corps of Engineers obtained some gravel from the area for construction of the Lock and Dam System, and privately procured gravel was likely used for Portland cement.[165]

The Werges and Bass families, historic owners of property at Sny Magill, reported that a number of squatters had shanties on the site during the early 20th century. Some of these occupations may have been long-term. The shanties had dirt floors without foundations, and were associated with small garden plots, which were recorded by Paul Beaubien in his archeological investigations of the site during the 1950s.[166]

Vegetation communities illustrated in diagram POC-4 are estimated from 1930s aerial photographs of Clayton and Allamakee County by the USDA Agricultural Adjustment Administration.[167] While precise vegetation data is limited for earlier periods, overall vegetation patterns indicate an increase in forest cover due to the reduced presence of fire on the landscape and reforestation following logging operations at the turn of the century. The 1930s aerial image presents the largest known extent of agricultural fields within the future monument boundary.

POC-4 illustrates features present within the project area during the period from 1901 through 1945. The diagram indicates the locations of roads and trails, where precise locations are known. At this time, several roads and trails were located within the project area that would be used at EMNM trail as the Monument developed, including the road to "Bonnie View Farm" in the location of the North Unit, the "Old Road from Military Road to Nazekaw" in the location of the South Unit, and the old highway. Locations of gravel mining sites at Sny Magill are estimated based on Elizabeth Henning's description of land use at the site.[168] Similarly, the location for "Yellow River Station" is estimated

[163] Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa,", 13-17.
[164] Paul L. Beaubien, *Archeological Investigations of the Sny-Magill Mound Group, 1952* (Omaha, Nebraska: National Park Service, U.S. Department of the Interior, 1952_.
[165] Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa,", 17.
[166] Ibid., 17-18.
[167] Agricultural Adjustment Administration, *1930s Aerial Photograph, Clayton and Allamakee Counties*, Iowa DNR, Iowa Geographical and Water Survey, NRGIS Library, accessed March, 2014, http://www.igsb.uiowa.edu/nrgislibx.
[168] Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," 17.

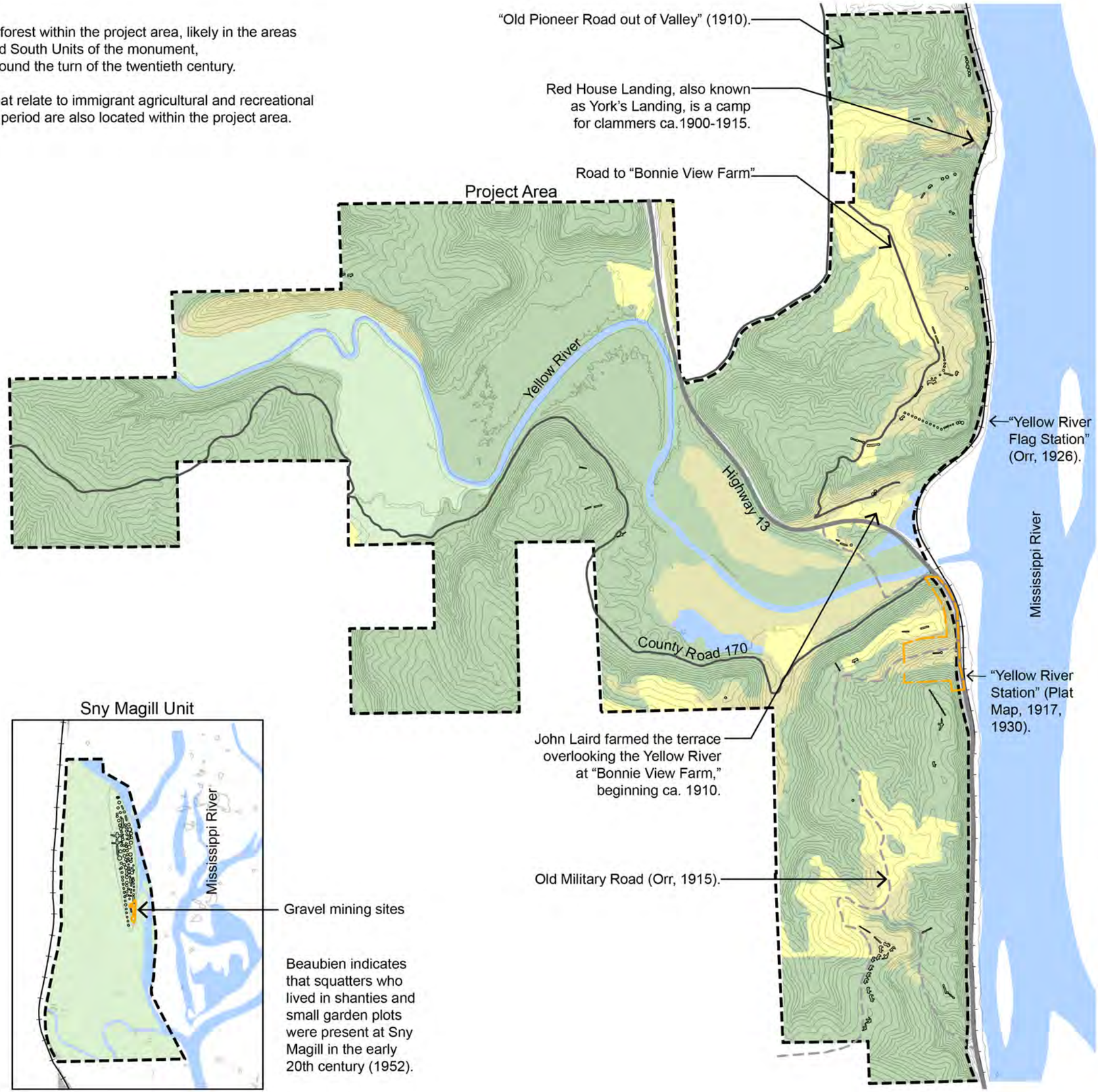
based on the 1917 and 1930 Fairview Township, Allamakee County Plat maps.[169] This location was indicated as the town of Nazekaw on earlier plat maps.[170]

Next page: POC -–4: Period of Change Diagram, 1901 - 1945

[169] 1917 and 1930 Fairview Township, Allamakee County Plat Map in "Historic Plat Maps of the North Unit, Effigy Mounds National Monument," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[170] 1886 Fairview Township, Allamakee County Plat Map in "Historic Plat Maps of the North Unit, Effigy Mounds National Monument," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.

Notes:
Portions of the forest within the project area, likely in the areas of the North and South Units of the monument, were logged around the turn of the twentieth century.

Historic sites that relate to immigrant agricultural and recreational use during this period are also located within the project area.



Beaubien indicates that squatters who lived in shanties and small garden plots were present at Sny Magill in the early 20th century (1952).

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Period of Change Diagram, AD 1901-1945

Legend

- Project Area
- Mound Locations
- Possible Location of town of Nazekaw platted by Brisbois and Dousman near the mouth of the Yellow River (1856).
- Historic Cultural Site
- Highway
- Road
- Abandoned Road
- Railroad
- Scattered Trees, Successional Growth, or Oak Savanna
- Open Field or Prairie
- River, Pond, or Wetland
- Floodplain Forest
- Forest
- 20 ft contours (2 ft contours in Sny Magill) based on current topography

Sources

1. 1930s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa DNR (roads, buildings, vegetation)
2. Ellison Orr, "Map of Prehistoric Earthworks on Bluffs Between North McGregor and Yellow River," October 23, 1915 (roads, buildings, vegetation)
3. Iowa State Planning Board, Recreation and Historic Division, "Yellow River Unit Topographic Map, Proposed National Monument, Clayton--Allamakee Counties, Iowa," 1936 (roads, buildings)
4. Allamakee County, Fairview Township Plat Map, 1903 (roads, property, buildings)
5. Allamakee County, Fairview Township Plat Map, 1917 (roads, property, buildings)
6. Effigy Mounds National Monument GIS Database (project area, topography)

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

N

0 800 1,600 3,200 Feet
1 inch = 1,600 feet

POC-4

United States Government Ownership Initiated (1946-1961)

In October 1946, the draft patent conveying the land that would become Effigy Mounds National Monument was submitted to the U.S. Department of the Interior from the State of Iowa. The Monument boundaries were established based on the 1937 proposal, which was approved in 1938 with two exceptions. The state was unable to acquire a small tract southwest of the Jennings-Liebhardt property, and a farmstead occupied a tract in the northwest corner of the Yellow River Unit (see Figure 2-38). The Sny Magill unit was transferred from the U.S. Army Corps of Engineers to the Department of the Interior for the purpose of creating a wildlife refuge. By the terms of the property transfer agreement, the Corps retained the right to flood the property to keep water from ponding behind Lock and Dam No. 10 of the Mississippi River.[171]

Between 1937 and 1946, planning documents for the National Monument began to shape future land use. Initially, the Jennings-Liebhardt unit, which now makes up much of the South Unit, was intended to be the Monument showpiece. This idea may have originated with NPS Assistant Chief Historian Herbert Kahler during his 1946 visit to the area.[172] The conceptual organization of the park further developed between 1946 and 1948, as NPS officials began considering the possibility of locating the Monument headquarters on the Yellow River Terrace just north of State Highway 13, and operating the Monument as two units north and south of the Yellow River.[173] A 1956 General Development Plan documents this concept, which was never implemented.[174]

On August 31, 1949, Iowa State Patent No. 203 was formally accepted by Acting National Park Service Director Arthur E. Demeray, shifting the first 1000 acres of the Monument into Federal ownership. The patent included the Jennings-Liebhardt Unit and Yellow River Unit proposed by the 1937 Baker, Butterfield, and Hummel report, as well as an additional 68-acre tract that filled in the gap between the two units along the Yellow River (see Figure 2-39). President Harry S. Truman proclaimed the area a National Monument on October 25, 1949.[175] Over the next several decades, a series of subsequent laws resulted in the addition of land and expansion of boundaries to the present condition.

[171] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 45.
[172] Ibid., 46.
[173] Ibid., 55.
[174] National Park Service, *General Development Plan, Part of the Master Plan of Effigy Mounds National Monument*, map (U.S. Department of the Interior, National Park Service, Landscape Architectural Division, 1956).
[175] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 56.

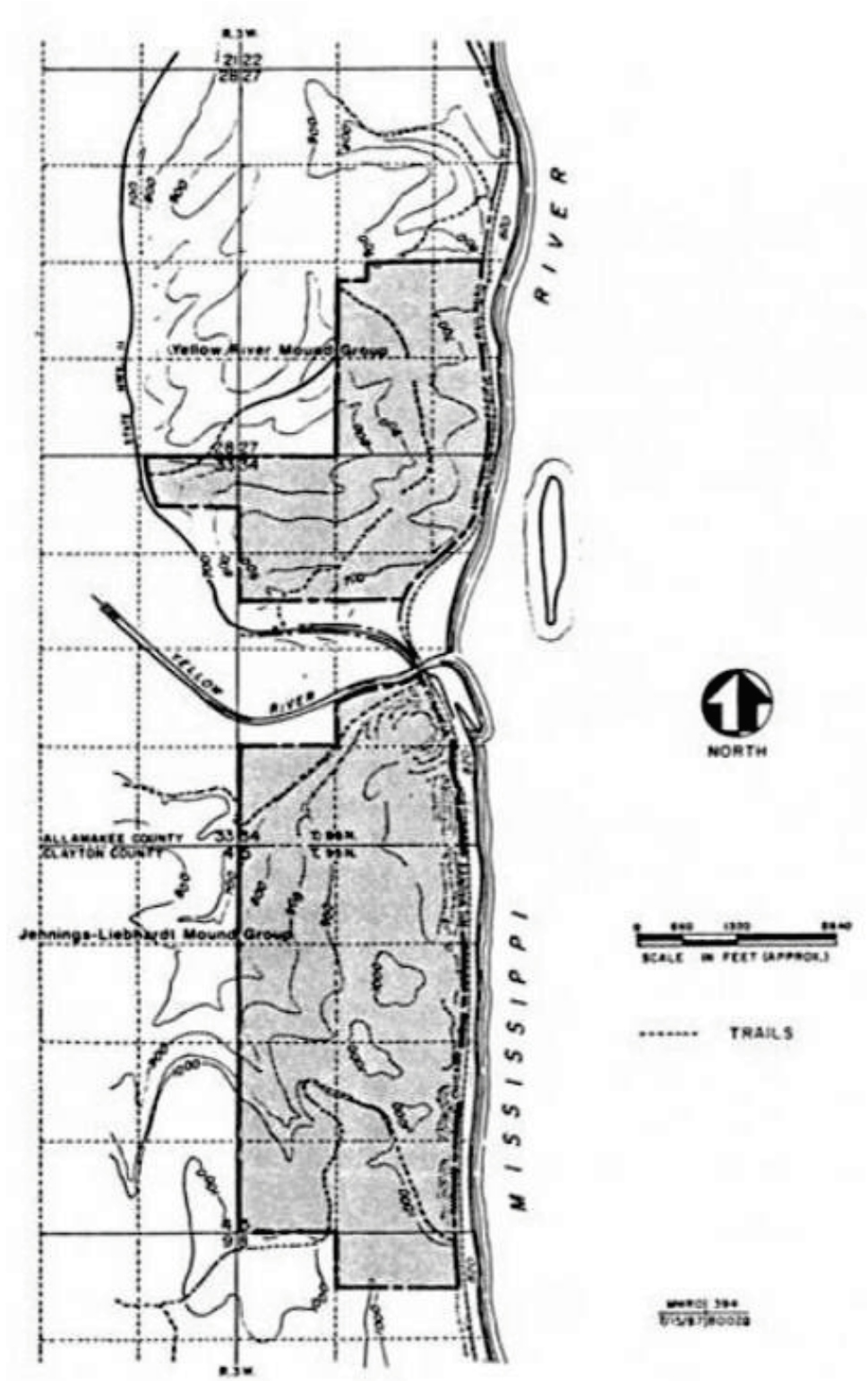


Figure 2- 38: Yellow River and Jennings-Liebhardt mound groups recommended for inclusion in a National Monument by the 1937 Baker, Butterfield, and Hummel report (source: York O'Bright, 1989).

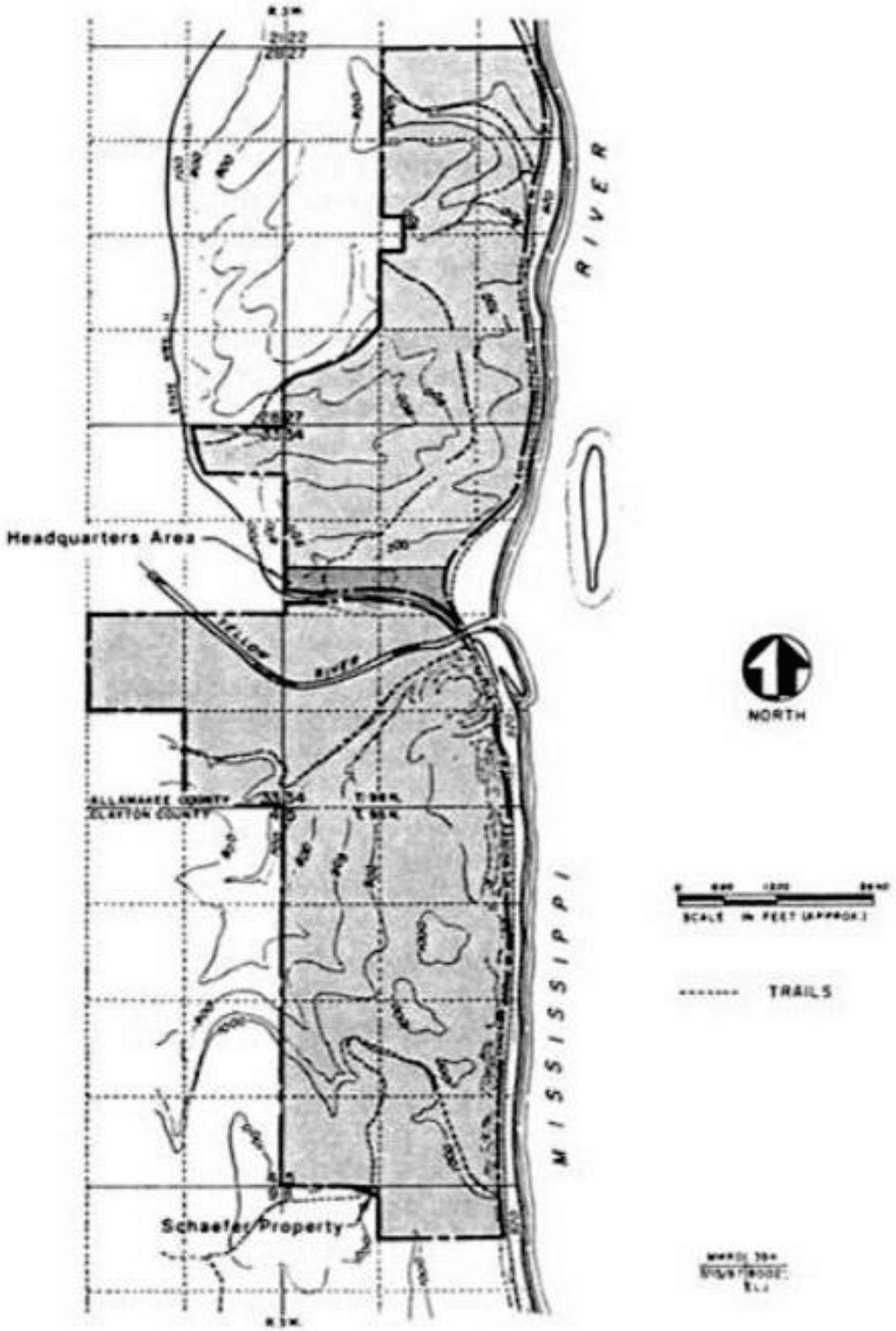


Figure 2- 39: Original boundary of National Monument, October 25, 1949 (source: O'Bright, 1989).

The Monument's first superintendent, William J. Kennedy, reported for duty on November 11, 1949. He was the only employee during the first year and a half, and spent much of his time promoting the presence of the Monument.[176] At the time of the presidential proclamation, structures present at the Monument included an abandoned fifty-year old farmhouse, a chicken coop, a barn, two sheds, a well, and an illegal dump across the Yellow River from the future headquarters (see POC - 5). One shed was immediately dismantled and the other rehabilitated. The next spring, the well was removed, the barn razed, and the chicken coop rehabilitated for use as a tool shed.[177] Poaching was the biggest problem during the first winter at the Monument, as area residents were accustomed to harvesting wildlife on Monument grounds. Superintendent Kennedy posted multiple signs warning against hunting and trapping within the property, but as the only employee he was unable to enforce the ban.[178]

In 1950, the National Park Service began a number of construction projects to facilitate administration and visitation to the new Monument. Although no formal master plan was prepared at this time, aspects of the construction projects—especially trails--resemble parts of the 1936 master plan. Trail construction began in 1950.[179] The first trail implemented roughly followed the path of an old farm road that had been mapped as early as 1902 by Ellison Orr.[180] The trail ran north from the farmhouse to approximately Mound 52, the Little Bear Mound, turning to the southeast to follow along the mounds of the Fire Point Mound Group, and then following the south bluff edge from Fire Point until the trail reconnected with the Main Trail just north of the farmhouse. In 1951 and 1952, this trail was expanded to 1.25 miles and improved with a series of switchbacks to negotiate the steep bluffs north of the headquarters area (Figure 2- 40).[181]

Trail development in the South Unit was limited to removing barbed wire fencing and grading an extant portion of the Old Military Road to allow access to the Marching Bear Mound Group.[182] Prior to the addition of the Sny Magill Unit to the Monument, the Iowa Conservation Commission constructed a 1900 foot long, 100 foot wide gravel road and concrete ramp at the property, utilizing the existing railroad underpass. The access road and boat launch were completed in 1959.[183] A major overhaul of trails in the North Unit began in 1959, and included connecting the Main Trail to the new visitor center,

[176] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 81-82.
[177] Ibid., 92-93.
[178] Ibid., 82.
[179] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 140.
[180] Ellison Orr, *Yellow River Prehistoric Indian Mounds on Bluffs overlooking Mississippi River, Allamakee County, IA*, 1902, unpublished loose map, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa; National Park Service, *Trail to Mounds and View Points, Headquarters Area, Effigy Mounds National Monument* [map] (U.S. Department of the Interior, National Park Service, Engineering Division, 1951); and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 140.
[181] National Park Service, *Trail to Mounds and View Points, Headquarters Area, Effigy Mounds National Monument* [map]; and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 140.
[182] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 94.
[183] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 142.

surfacing both the Main Trail and Fire Point Loop in gravel, installing log barriers at overlooks, and installing interpretive panels along the trail. By 1962, trails in the North Unit had been extended to Hanging Rock.[184] Minor alterations were made to the trail system to eliminate switchbacks on the Main Trail and to navigate around mounds (Figure 2- 43).[185]

Other projects undertaken in the 1950s included constructing a driveway and gravel parking lot off State Highway 13, rehabilitating a farmhouse just off the highway for use as a superintendent's residence, and building an equipment shed/office building at park headquarters just to the northeast of the farmhouse. Directional and other signs were installed, including the Monument entrance sign.[186] The first gravel parking area, completed in 1950, accommodated 20 cars (see Figure 2-41).[187] An interim parking area constructed in 1952 expanded parking capacity by 10 spaces.[188] No development in the South Unit was undertaken, awaiting an updated master plan. By the mid-1950s, temporary headquarters and preliminary development were complete for the North Unit (see Figure 2-42).[189] No facilities or trails had been constructed in the South Unit, though a portion of the Old Military Road had been cleared and smoothed.[190]

Aerial photos of Allamakee and Clayton Counties from the 1950s show a landscape with significantly greater tree cover in the North and South Units of the Monument than the forest cover of the 1930s. By the 1950s, open fields on the bluff tops had been significantly encroached upon by canopy trees at the Third Scenic View Mounds (Mounds 10-21) and the Great Bear, Little Bear and Fire Point Mound Group (Mounds 22-54). Tree removal is apparent around the Great Bear (Mound 31) and Little Bear (Mound 52). In the South Unit, clearings to the west of the Old Military Road also indicate a greater abundance of trees than in the 1930s aerial photos, though the open fields at Mounds 62-64 and to the north of Mounds 69-83 remain intact (see Figure 2-44).[191]

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[184] Ibid., 141.
[185] National Park Service, *Trail Construction, North Area, Effigy Mounds National Monument* [map] (U.S. Department of the Interior, National Park Service, Division of Design and Construction, Eastern Office, 1957); and National Park Service, *Roads and Trails System Plan, Part of the Master Plan of Effigy Mounds National Monument* [map] (U.S. Department of the Interior, National Park Service, Division of Design and Construction, Eastern Office, 1961).
[186] National Park Service, *Topography of the Headquarters area of Effigy Mounds National Monument*, map (U.S. Department of the Interior, National Park Service, Engineering Division, 1951); and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 140.
[187] National Park Service, *Topography of the Headquarters area of Effigy Mounds National Monument* [map]; and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 94.
[188] National Park Service, *Interim Parking Lot, Headquarters Area, Effigy Mounds National Monument*, map (U.S. Department of the Interior, National Park Service, Landscape Architectural Division, 1952).
[189] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 95.
[190] Ibid., 140.
[191] National Agricultural Imagery Program, *NAIP Aerial Photograph, Clayton and Allamakee Counties, Iowa*, 1950s, Iowa DNR NRGIS Database. http://www.igsb.uiowa.edu/nrgislibx/.

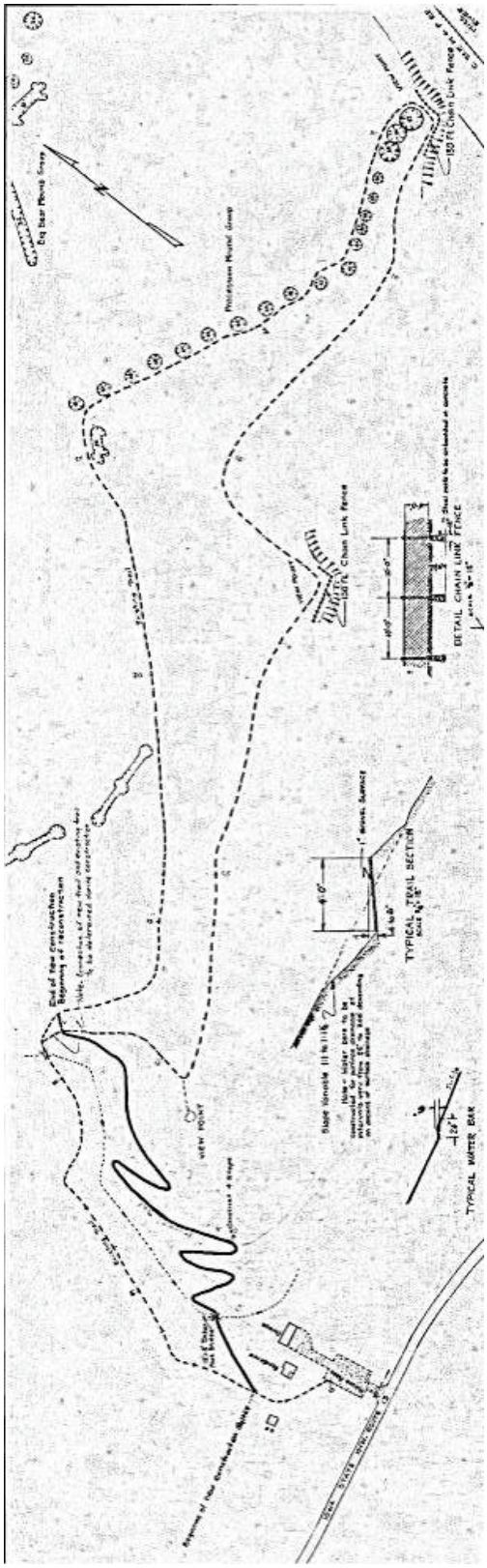

Figure 2- 40: First trail constructed at Effigy Mounds National Monument to Fire Point and Procession Mound Group, 1951 (NPS TIC).

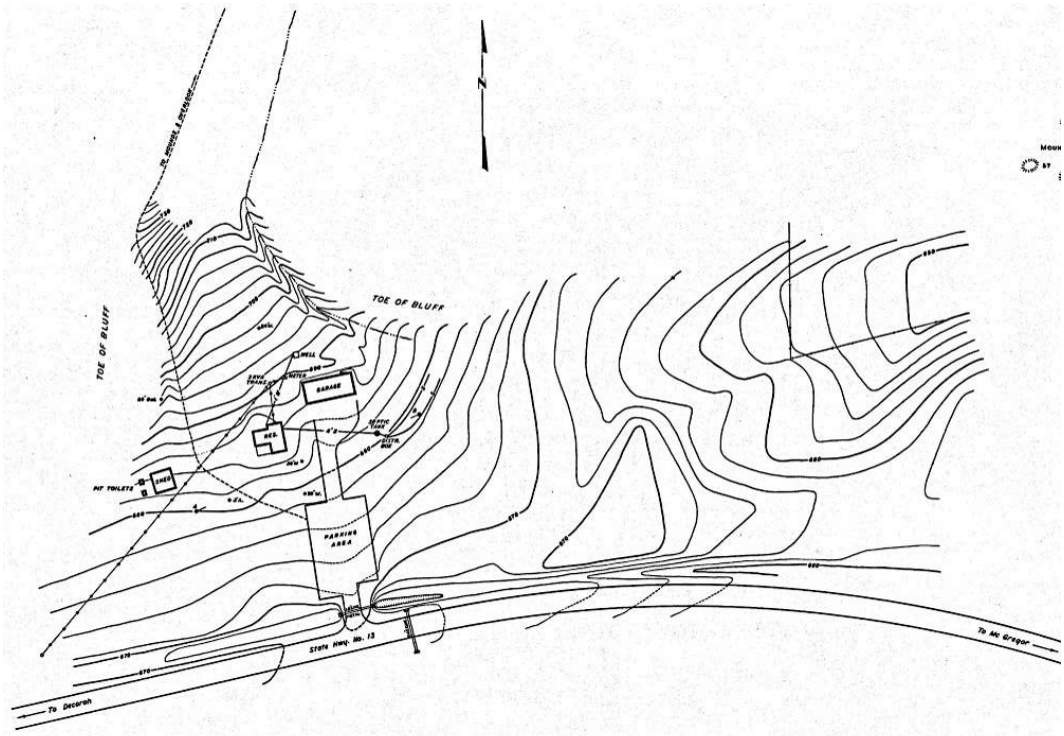

Figure 2- 41: Monument Headquarters area, 1951 (source: NPS TIC).

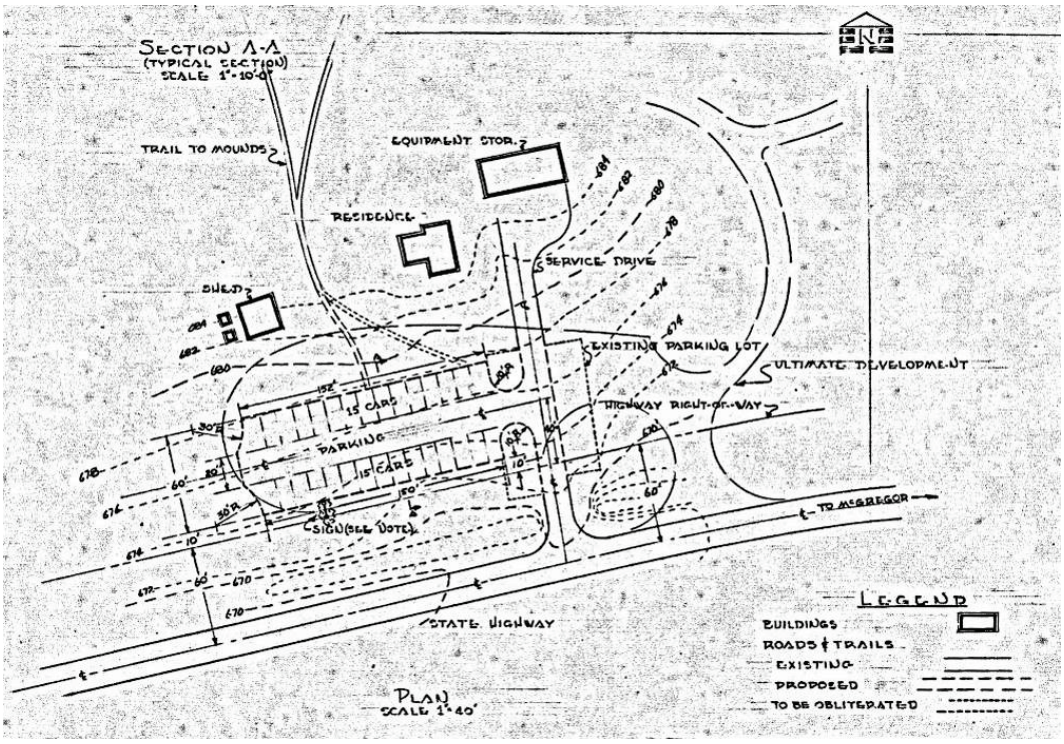

Figure 2- 42: Interim parking lot at headquarters area, 1952 (source: NPS TIC).

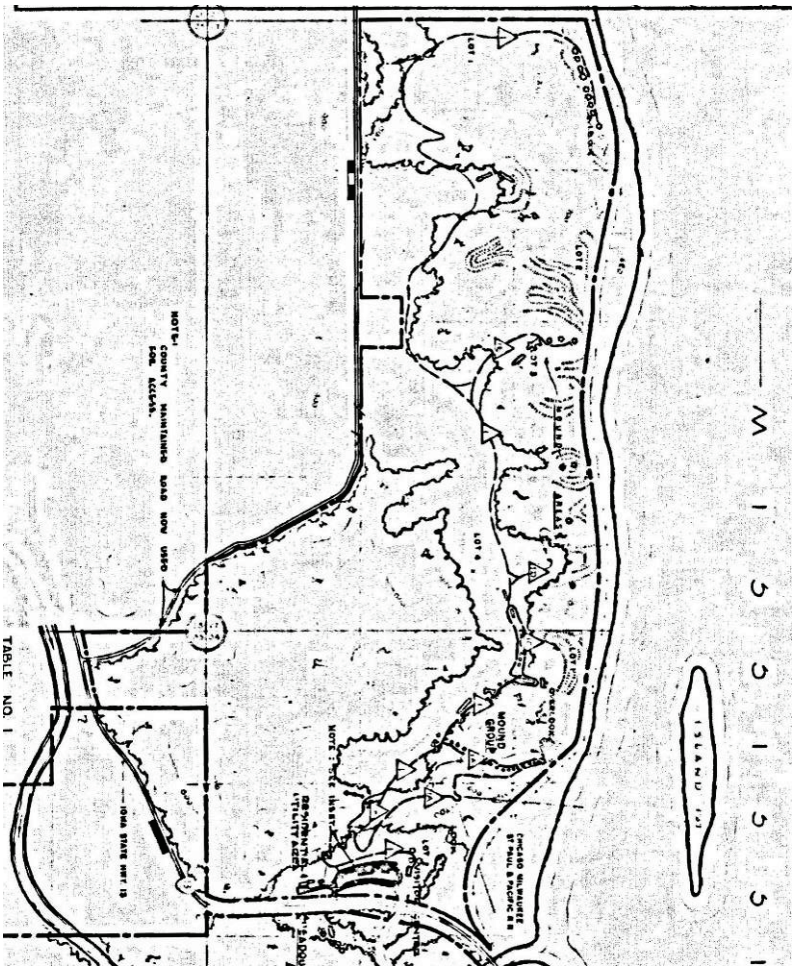

Figure 2- 43: Road and trail system in North Unit, Effigy Mounds National Monument, 1961 (source: NPS TIC 1961).

Mound rehabilitation at the Monument began as early as 1950, when indentations and holes in mounds in the North Unit were filled and planted with seed to stabilize turf.[192] At the time, the belief was that the mounds had been damaged by pot hunters looking for artifacts.[193] Mound rehabilitation projects continued under Park Archeologist John Earl Ingmanson in the 1960s, beginning with the Marching Bear Mound Group in 1960-1962. Tree stumps and undergrowth were removed from mounds and the area immediately surrounding them. Pits were re-excavated to determine the extent of damage, holes were filled and grass cover established.[194] Some of the perceived damage may have been traces

[192] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 140.
[193] Garland J. Gordon, "The Rehabilitation and Preservation of Indian Burial Mounds by the National Park Service," *Iowa Academy of Science* 73 (1966), 120-125; and Wilfred Husted, "Completion Report Narrative, Rehabilitation and Exploration of Mounds, Effigy Mounds National Monument," 1961, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[194] Gordon, "The Rehabilitation and Preservation of Indian Burial Mounds by the National Park Service," 120-125; and Husted, "Completion Report Narrative, Rehabilitation and Exploration of Mounds, Effigy Mounds National Monument."

of long-term use by American Indians for cultural purposes. In such cases, the well-intended repairs may have erased evidence of cultural use.

Alterations to mounds during this period also included the first efforts at the Monument to make mound shapes more visible by outlining the mounds with crushed white stone, beginning with the Little Bear Mound in 1951.[195] Over time, the limestone application resulted in settling of the bases around the mounds, causing compaction and creating areas for water and leaves to collect. The NPS has since concluded that outlining the mounds with limestone is inappropriate as it can cause both physical and chemical damage to the mounds and may adversely impact re-vegetation efforts.[196]

During the 1950s, the Monument entered cooperative agreements with the U.S. Soil Conservation Service, Iowa Conservation Commission and Towns of McGregor and Marquette for mutual fire protection.[197] Long-term fire suppression has resulted in gradual replacement of prairie and savanna openings with forest vegetation communities throughout most of the Monument.

Land acquisition

Land acquisition for the Monument continued after the presidential proclamation. By October, 1949, an additional 204.39 acres were identified by the State of Iowa pending receipt of legislative authority to transfer the land to the Federal government; this property was finally transferred to the Monument in 1951-1952.[198] In 1955, the Des Moines Founders Garden Club donated a 40-acre tract, including Founders Pond, to the Monument (See Figure 2-45). The plot was of particular interest to the Monument superintendent because of law enforcement concerns. A corner of the tract, which included a portion of the pond, was a favorite place for poachers to shoot waterfowl on the Monument with some immunity.[199] The National Park Service initiated negotiations with A.B. Ferguson to purchase a 100-acre parcel adjacent to the National Monument beginning in 1954. Four years later, in 1958, the National Park Service requested congressional action to change the boundary of the Monument to include Sny Magill, the Ferguson tract, and other small parcels of land. Though both the Sny Magill and Ferguson tracts would eventually be added to the Monument, no action was taken until 1961, when Congress passed legislation changing the Monument's boundary and authorizing acquisition of the Ferguson parcel. While $2000 had been appropriated for land acquisition, the Ferguson parcel was not purchased at this time.[200]

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[195] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 94.
[196] Jim Nepstad, personal correspondence with author, August 2014; and Wisconsin Department of Natural Resources, "Burials, Earthworks, and Mounds Preservation Policy and Plan."
[197] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument* .
[198] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 56.
[199] Ibid., 60.
[200] Ibid., 141; and National Park Service, *Proposed Boundary Adjustments*, map (Omaha, Nebraska: U.S. Department of the Interior, National Park Service, Division of Cooperative Activities, 1956).

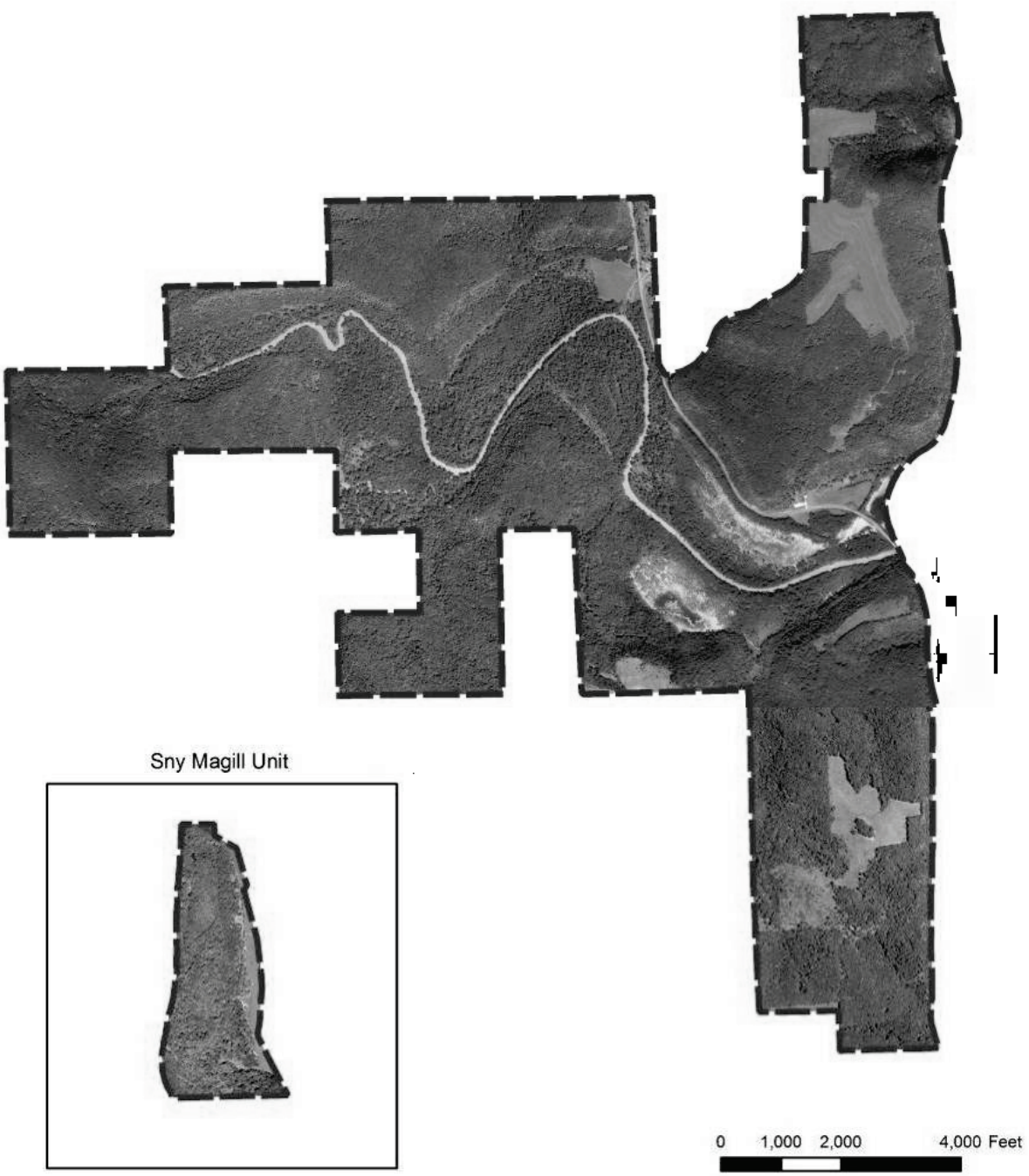

Figure 2- 44: Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture Aerial Photograph, Allamakee and Clayton Counties, 1950s (Source: Iowa DNR Natural Resources Geographic Information Systems Library).

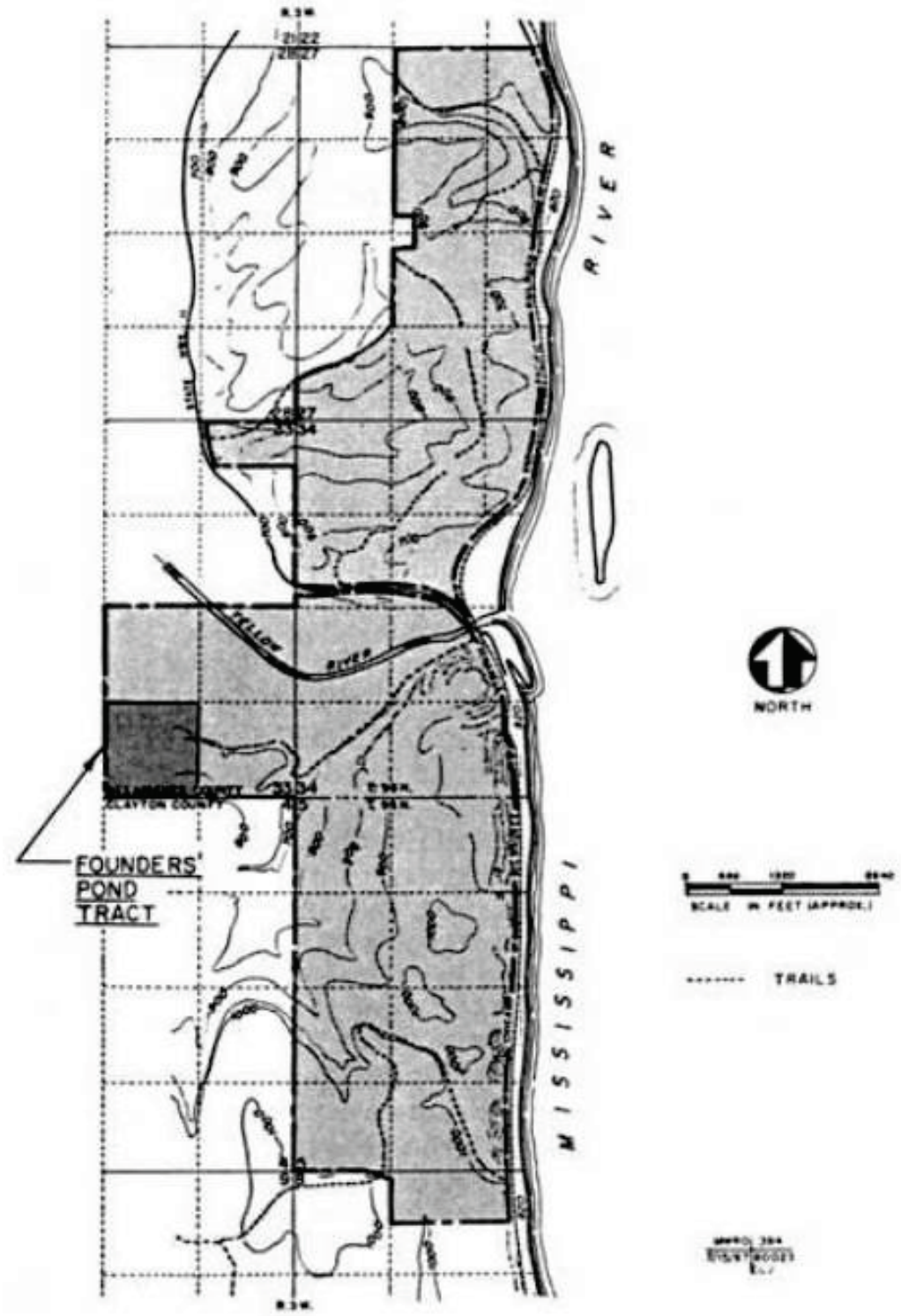

Figure 2- 45: Founders Pond boundary change, 1955 (source: O'Bright, 1989).

Mission 66

In 1956, the NPS initiated Mission 66, a 10-year program to improve park infrastructure and facilities. The service-wide need for these improvements stemmed from an extended period of low budgets combined with a sudden and unprecedented level of visitation to national parks following World War II. The program emphasized capital construction projects including roads, camping and picnic areas, sanitary facilities, visitor accommodations, park housing, maintenance facilities, and visitor centers. Mission 66 also increased park personnel and developed interpretive programs.[201]

Mission 66 plans for Effigy Mounds National Monument built on the Monument's master plan development outline, which was approved in 1952. The 1952 Master Plan Development Outline proposed a number of additions including a museum, an access road to the Marching Bear Mound Group, trailside exhibits, and mound rehabilitation.[202] Mission 66 planning for the Monument also addressed the need for expanded development to accommodate a rapid increase in visitation. Proposed improvements included increased staff, an expanded road and trail system, including more parking at the Monument headquarters, an access road to the South Unit, and an extended trail system in the North and South Units, and improvements to water and sewer facilities. Recommendations to supplement interpretation included new signage and research projects.[203] The Mission 66 plans did not include adding campsites, picnic shelters, picnic tables, benches, or fireplaces within the Monument because those accommodations were available at nearby state parks.[204]

Construction of Mission 66 projects began in 1959 with the installation of a new entrance road, parking lot, and water and sewer systems designed to support the new visitor center, residences, and maintenance facilities planned for construction in 1960 (see Figure 2-46).[205] The new parking lot expanded parking capacity to 53 spaces, and directed cars around a loop accessing the visitor center to the east and separate from residences and maintenance activities to the west.[206] Construction of two park staff residences began in 1959. The superintendent and park archeologist relocated to these residences in the winter of 1959-1960.[207] The old farmhouse was dismantled in the winter of 1960. The new visitor center was constructed in 1960 and opened to the public in September; it was dedicated in May, 1961. The structure included an exterior lobby, exhibit room, curatorial

[201] Ethan Carr, "Mission 66: Modernism and the National Park Dilemma" (University of Massachusetts Press, Amherst, 2007), 3-15.
[202] William J. Kennedy, "Master Plan Development Outline, Effigy Mounds National Monument, Iowa, Introduction" (Harpers Ferry, Iowa: National Park Service, 1952).
[203] "Mission 66 for Effigy Mounds National Monument," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa, 1-4.
[204] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 98.
[205] Ibid., 99; National Park Service, *Water and Sewage System, Visitor Center, Effigy Mounds National Monument* [map] (U.S. Department of the Interior, National Park Service, Division of Design and Construction, Eastern Office, 1953).
[206] National Park Service, *Plan and Profile of Entrance Road, Parking, and Utility Group, Effigy Mounds National Monument*, map (U.S. Department of the Interior, National Park Service, Division of Design and Construction, Eastern Office, 1959); and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 141.
[207] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 101.

work and storage space, an audio-visual room, administrative offices, and restrooms. It featured views out toward the Mississippi River.[208] A planting plan, developed in 1962, was installed in 1965 at the headquarters area.[209] As part of the Mission 66 improvements, the Monument boundaries were also surveyed in 1958 by A.A. Rhomberg and M.A. Moser; a barbed wire fence was constructed along the north, west, and south boundaries in 1958.[210] In 1962, a new sign was constructed for the Monument to comply with the Department of the Interior's standards.[211]

Work done in this area impacted a previously disturbed site with extensive archeological resources. In 1892, T.H. Lewis documented approximately 60 mounds in this general vicinity, noting that the vast majority of mounds had been disturbed by cultivation.[212] Recent magnetometer or resistance studies, ground penetrating radar (GPR), field observations, and historic aerial studies verify that at least 40 to 50 mounds were present on the Yellow River terrace.[213] Over the past 160 years, at least 30 of these mounds were impacted by agriculture (prior to establishment of the Monument) and construction (of Monument facilities).[214]

During the time Mission 66 projects were implemented, conventional archeological understanding indicated that if the above-ground features of the mound were gone, the mound was destroyed. Unfortunately, this resulted in additional impacts to extensive resources in this location. Of the 60 mounds indicated by Lewis, only six remain visible on the surface (including mounds 55-57 near the visitor center and mounds 58, 59, and 61 across the highway to the south). Remnants of most of these mounds are present under the surface of the ground indicating this location warrants a special focus for treatment recommendations.

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[208] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 100.
[209] National Park Service, "*Planting, Visitor Center Residences and Utility Area, Effigy Mounds National Monument*, map (U.S. Department of the Interior, National Park Service, Office of Design and Construction, Eastern Office, 1962); and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 104.
[210] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 103.
[211] Ibid., 102.
[212] Theodore H. Lewis, *Iowa Transit Notes and Sketches: Notebooks 7, 15, 18, 19, 21, 30, 32, 36 (to Accompany Iowa Archaeological Map Collection #12)*, (Vols. 1 and 2), 1885-1894, State Historical Society of Iowa, Iowa City, Notebook 32.
[213] Midwest Archeological Center, *Known, probable, and possible mound locations in developed area*, map (U.S. Department of the Interior, National Park Service, Midwest Archeological Center, June 2012).
[214] "Bonnie View Farm" occupied the Nazekaw Terrace in the early 20th century; Ellison Orr, Untitled Map, 1926, in Ellison Orr, 1936:114A; "Historic Plat Maps of the North Unit," Effigy Mounds National Monument," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa; and National Agricultural Imagery Program, *NAIP Aerial Photograph, Clayton and Allamakee Counties, Iowa*, 1930s, Iowa DNR NRGIS Library, accessed 2013, http://www.igsb.uiowa.edu/nrgislibx/; and Midwest Archeological Center, *Known, probable, and possible mound locations in developed area*, map.

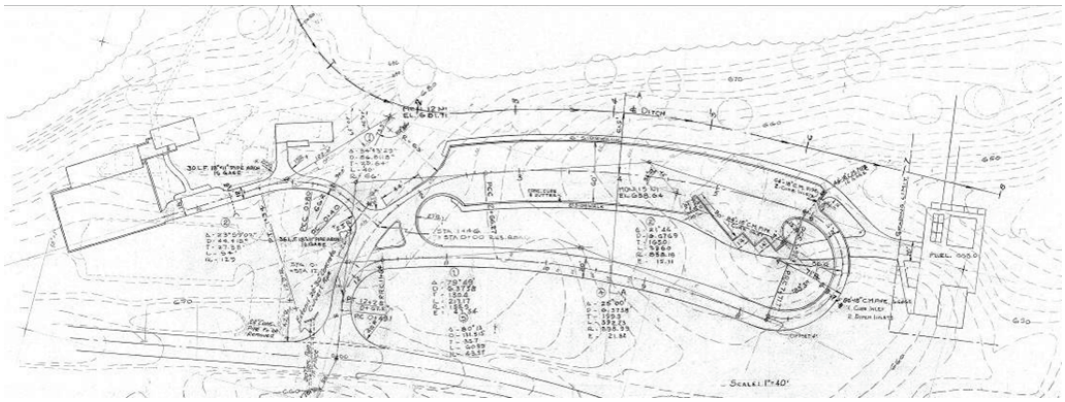


Figure 2- 46: Construction Plan of new Monument headquarters, staff residences, parking lot, and maintenance facilities (source: NPS TIC, 1959).

A period of landscape change drawing illustrates features present within the project area during the period from 1946 through 1961 (see POC-5). The diagram indicates features present in the project area including trail developments in the North Unit of the park and limited building improvements to the headquarters area of the Monument. Buildings which were present before the Monument was established, including the Red House Landing buildings and farmhouses in the South Unit have been removed.

Vegetation communities on the drawing are based on 1950s aerial photographs of Clayton and Allamakee Counties.[215] Open fields in the North and South Units of the Monument have been encroached upon by woody species. Open areas in the western portion of the project area, in what would eventually become the Heritage Unit, retain approximately the same amount of forest cover as in the previous period of landscape change.

Next page: POC -–5: Period of Change Diagram, 1946 - 1961

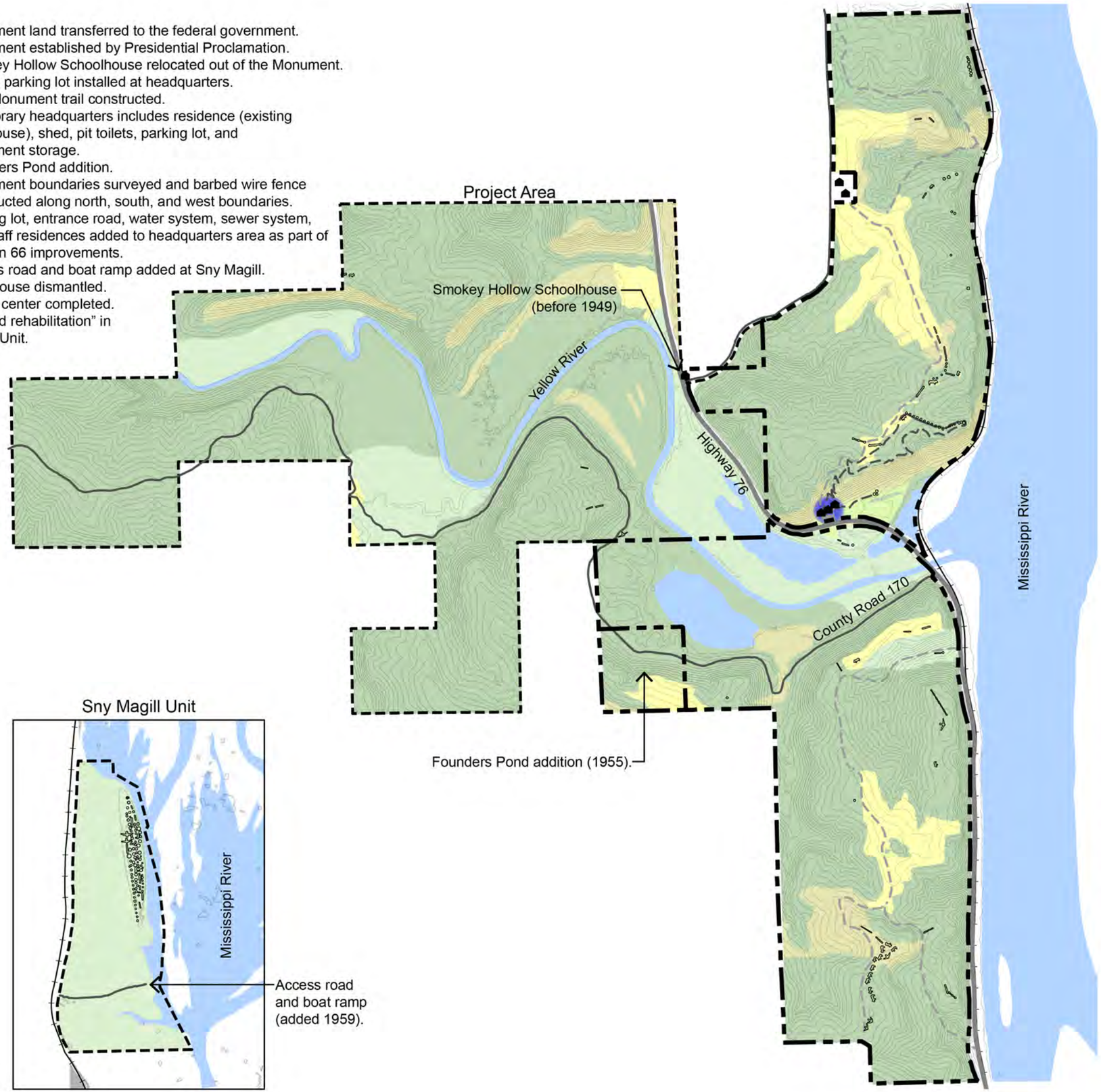
[215] Agricultural Stabilization and Conservation Service, *1950s Aerial Photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014, http://www.igsb.uiowa.edu/nrgislibx/.

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Period of Change Diagram, AD 1946-1961

Notes:

1946: Monument land transferred to the federal government.
1949: Monument established by Presidential Proclamation.
Smokey Hollow Schoolhouse relocated out of the Monument.
1950: Gravel parking lot installed at headquarters.
First Monument trail constructed.
1952: Temporary headquarters includes residence (existing farmhouse), shed, pit toilets, parking lot, and equipment storage.
1955: Founders Pond addition.
1958: Monument boundaries surveyed and barbed wire fence constructed along north, south, and west boundaries.
1959: Parking lot, entrance road, water system, sewer system, and staff residences added to headquarters area as part of Mission 66 improvements.
Access road and boat ramp added at Sny Magill.
1960: Farmhouse dismantled.
Visitor center completed.
"Mound rehabilitation" in South Unit.



Legend

- Monument Boundary
- Project Area
- Mound
- Building
- Temporary Headquarters
- Highway
- Road
- Trail
- Abandoned Road
- Railroad
- Floodplain Forest
- Forest
- Open Field
- River or Stream
- Successional Growth / Scattered Trees
- 20 ft contours (2 ft contours in Sny Magill)

Sources

1. 1950s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa DNR (roads, buildings, vegetation)
2. NPS, "Trails to Mounds and Viewpoints," 1951 (trails)
3. NPS, "Interim Parking Lot, Headquarters Area," 1952 (parking lot, buildings)
4. NPS, "Trail Construction, North Area," 1957 (trails, roads, topography)
5. Jill York O'Bright, 'The Perpetual March: An Administrative History of Effigy Mounds National Monument," 1989 (monument boundary changes)
6. Effigy Mounds National Monument GIS Database (project area, topography)

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

N

0 800 1,600 3,200 Feet
1 inch = 1,600 feet

POC-5

Monument Expansion and Rehabilitation of Mounds by NPS (1962-2012)

Acquisition of Sny Magill Unit

In 1962, the U.S. Corps of Engineers and U.S. Bureau of Sport Fisheries transferred the Sny Magill property to the National Park Service for inclusion in the Monument (see Figure 2-47). The Ferguson tract was finally added to the Monument in 1975 after Congress appropriated $12,000 in 1972 for its purchase, in addition to the $2,000 allocated for land acquisition in 1961.[216] A small boundary adjustment was made to the Monument between 1981 and 1984. The Teaser family, who owned the parcel southeast of Road 561 on the western edge of the Monument, exchanged their property for a similarly sized parcel of land owned by the Monument west of the road (see Figure 2-48). In 2000, the remainder of the Kistler/Ferguson Tract, referred to as the Heritage Addition, was acquired by the National Monument.[217]

A number of mounds and archeological sites were added to the Monument property with the Heritage Addition, including the Twin Bears Mounds (13AM186), the Heritage Bird Group (13AM261, 13AM262, and 13AM107), the Heritage Lone Mound (13AM209), the Jefferson Davis Sawmill, the Cabin 6 Site, and other sites.

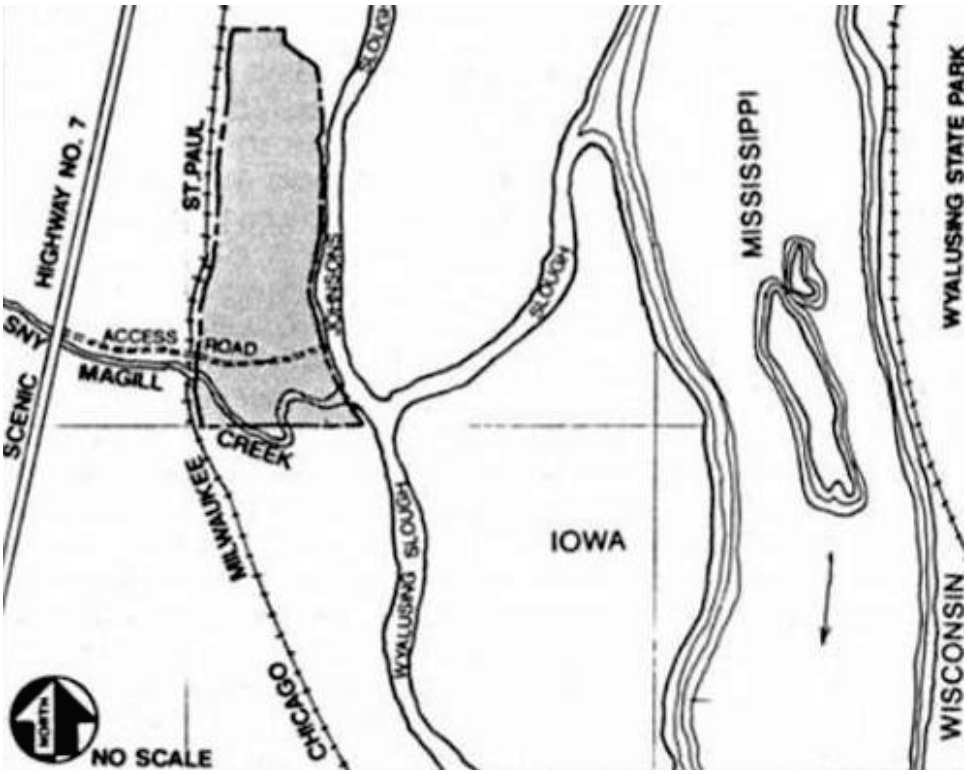


Figure 2- 47: The Sny Magill Unit is located in the Mississippi River floodplain approximately seven miles south of McGregor, Iowa, 1962 (source: O'Bright, 1989).

[216] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 143.
[217] Phyllis Ewing, "Annual Narrative Report of Superintendents and Regional Directors, 2000," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2001), 1.

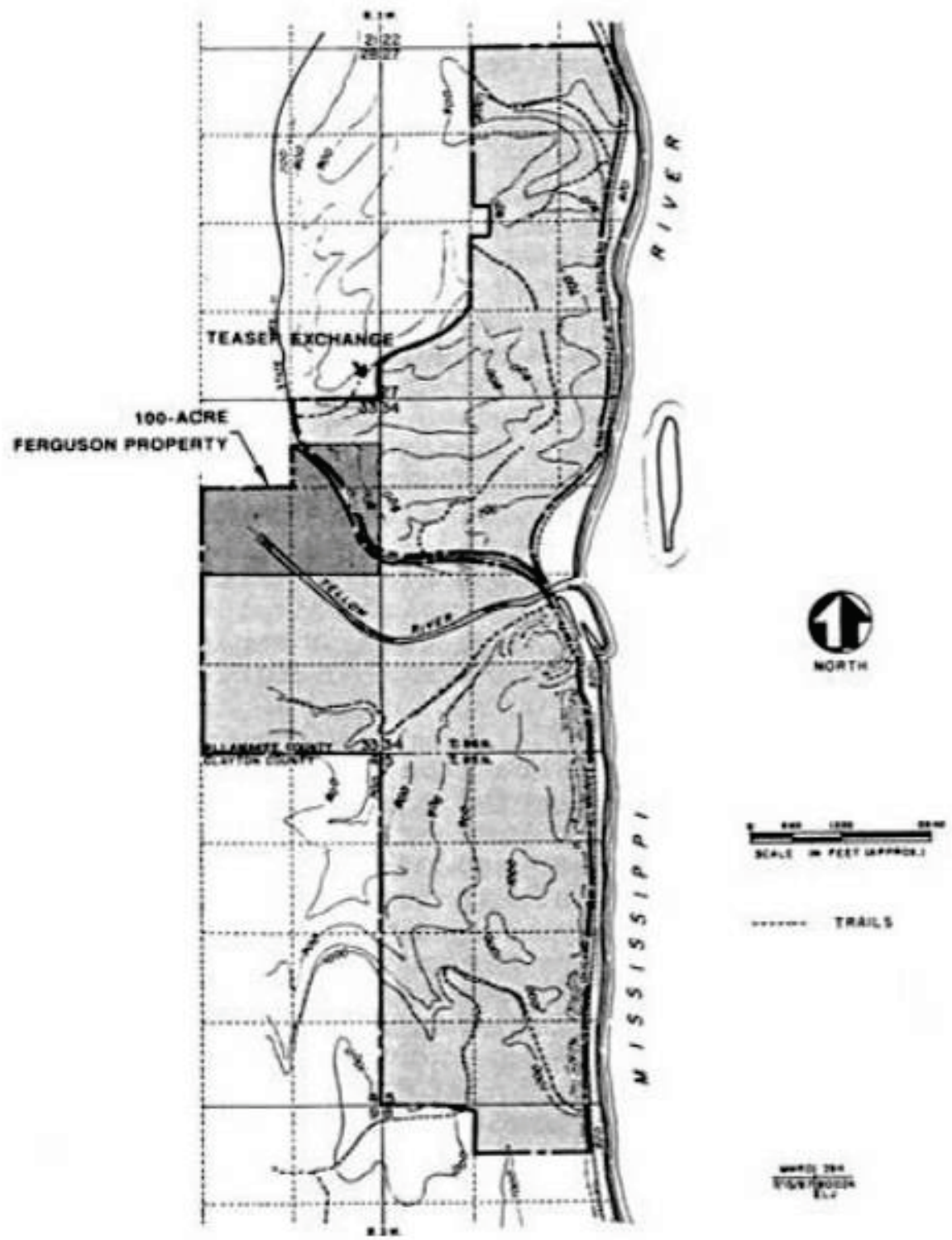


Figure 2- 48: Ferguson property and 1984 Teaser Exchange boundary changes (source: O'Bright, 1989).

North Unit Development

Development of Monument facilities continued following construction of the Mission 66 projects. Mound rehabilitation, which had begun under the direction of Park Archeologist John Earl Ingmanson at the Marching Bear Mound Group in 1960, resumed in the North Unit in 1965.[218]

In 1980, the Monument entrance road was relocated and a turn lane was added on Highway 76 (formerly Highway 13) to improve safety.[219] Safety was also a concern at the steep bluffs in the North Unit. Guard rails were installed at the Hanging Rock and Twin Views Overlooks in 1981, and fencing was added on the switchbacks on the Fire Point Trail in 1985.[220] Facilities upgrades to the headquarters area included a flammable materials storage room added to the west side of the workshop and a basement curatorial work area added to the visitor center in 1983.[221] Staffing shortages during the 1990s led to degraded conditions on the Monument trail system. In 1998, the 1.5-mile Hanging Rock portion of the North Unit Trails system re-opened following extensive repairs.[222] Four years later, the Hanging Rock, Third Scenic View, and South Unit Compound trails were realigned to reduce the negative impact of visitor use on important cultural resources.[223]

South Unit Development

The 1963 Effigy Mounds National Monument Master Plan proposed increased visitor access to the South Unit, including a park tour road, two parking areas, an interpretive contact station with an exhibit-in-place, scenic overlooks, and self-guiding trails with interpretive signs.[224] The idea for a Monument showpiece near the Marching Bear Mound Group had originated before the Monument was established in 1949; however, proposed development within the South Unit was not implemented. The South Unit opened to visitors in 1962, but development was limited to removing barbed wire fences, grading a portion of the Old Military Road, and mound rehabilitation. In fact, the South Unit was removed from the Monument's proposed development requests in 1972 pending completion of a revised master plan.[225]

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[218] Gordon, "The Rehabilitation and Preservation of Indian Burial Mounds by the National Park Service," 120-125.
[219] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 104.
[220] Ibid., 104-105; and National Park Service, "Guard Rail, Effigy Mounds National Monument, Iowa," (Omaha, NE: U.S. Department of the Interior, National Park Service, Planning and Resource Preservation, Midwest Regional Office, 1985).
[221] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 144.
[222] Kathleen Miller, "Annual Narrative Report of Superintendents and Regional Directors," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1999), 6.
[223] Phyllis Ewing, "Annual Narrative Report of Superintendents and Regional Directors," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2003), 9.
[224] National Park Service, *Master Plan for the Preservation and Use of Effigy Mounds National Monument* (Harpers Ferry, Iowa: U.S. Department of the Interior, National Park Service, 1963), 37.
[225] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 98.

Mound rehabilitation was undertaken in the unit beginning in 1961.[226] The South Unit Main Trail, which was constructed in the approximate location of a historic trail connecting the town of Nazekaw to the Old Military Road, was opened by 1989 (see Figure 2-49).[227]

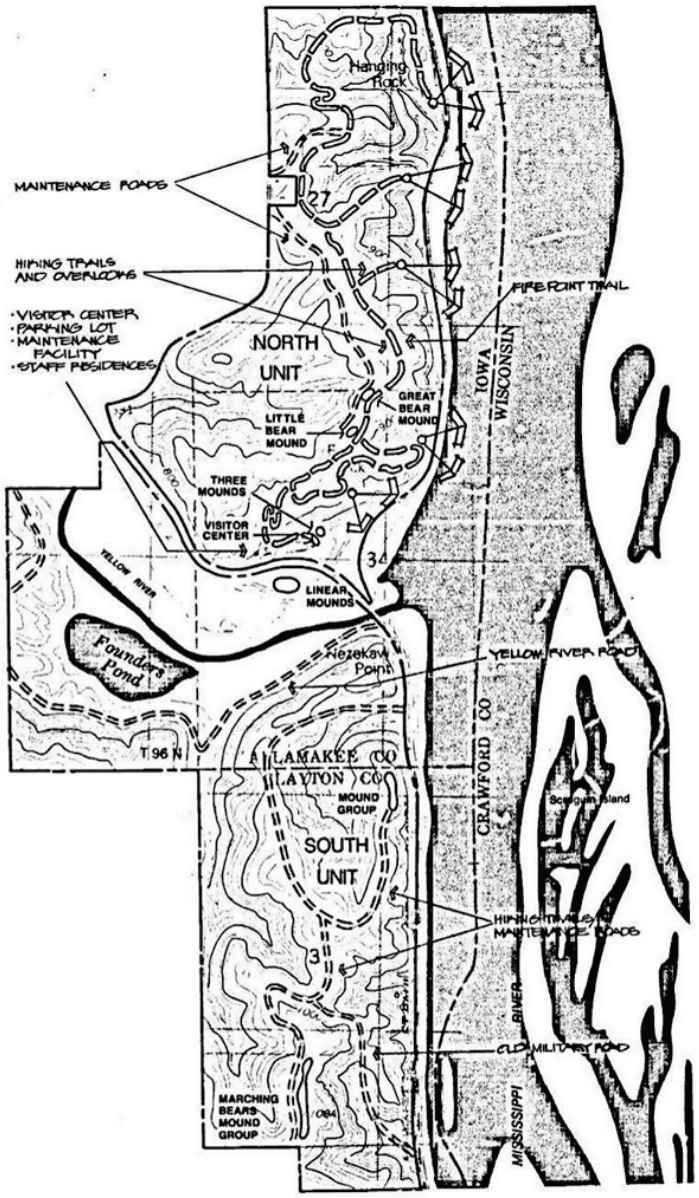

Figure 2- 49: Existing Development in the North and South Units, 1989, indicating hiking trails and maintenance roads in South Unit (source: NPS TIC).

[226] Gordon, "The Rehabilitation and Preservation of Indian Burial Mounds by the National Park Service," 20-125; Husted, "Completion Report Narrative, Rehabilitation and Exploration of Mounds, Effigy Mounds National Monument;" and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 94.
[227] The South Unit Maintenance Road is indicated as a "Hiking Trail/Maintenance Road" on *Existing Development, North/South Units, Effigy Mounds National Monument* map dated April 1989.

Land Use in the Heritage Unit

Information regarding land use at the property that is today known as the Heritage Unit includes plat maps from 1962 and 1978 that indicate the entire area was owned by A.B. Ferguson. The property was briefly owned by Kistler, an absentee owner, until the property was acquired by the federal government and added to the Monument in 2000 (see Figures 2-50 and 2-51). Site investigations by NPS personnel have revealed evidence of logging in portions of the landscape.

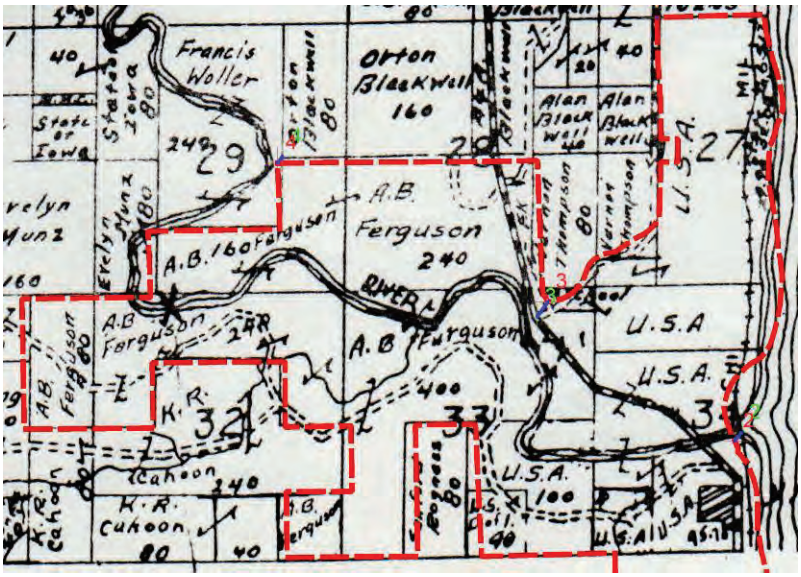

Figure 2- 50: 1962 Fairview Township, Allamakee County plat map (source: Effigy Mounds National Monument archives).

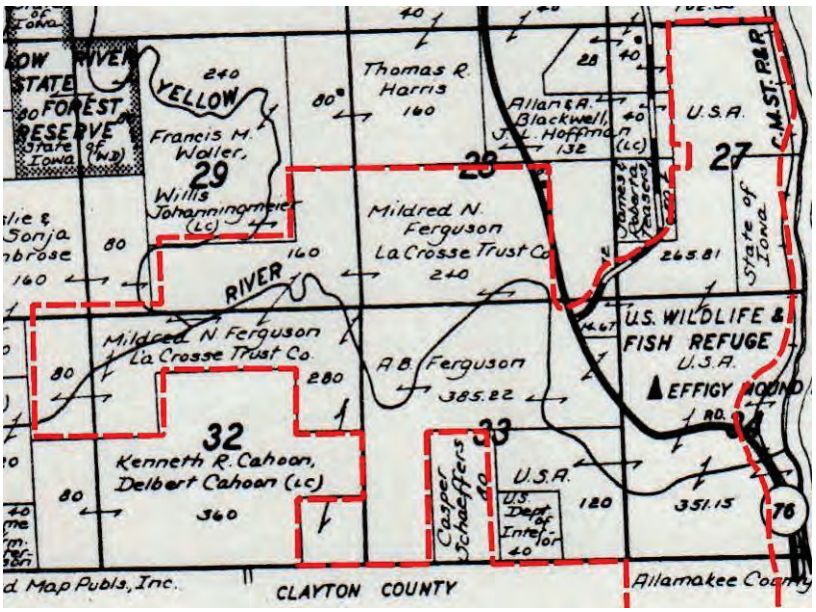

Figure 2- 51: 1978 Fairview Township, Allamakee County plat map (source: Effigy Mounds National Monument archives).

Vegetation Changes

Aerial photographs of the Monument from the 1960s, 1970s, 1980s, and 1990s show an overall gradual increase in canopy cover throughout the North and South Units of the Monument during this time period (see Figures 2-52 through 2-55). An exception to this generalization is along the Yellow River floodplain in the western portion of the future Heritage Unit, where forest cover appeared to decrease between the 1960s aerial photograph and the 1990s aerial photograph. Forest cover increased in the Sny Magill Unit between the 1960s and 1970s aerial photographs. The 1980s and 1990s aerial photographs of the Sny Magill Unit document a clearing in the canopy cover in the area of the mound group.[228]

A significant change in vegetation management at the Monument occurred in the 1980s. From the Monument's inception in 1949, the National Park Service entered into a number of cooperative fire prevention agreements with the towns of McGregor and Marquette; the Monument's 1964 Master Plan indicated that the park had a good fire history during this time period, with only two incidents occurring between 1949 and 1964.[229] In 1987, the Monument produced a Fire Management Plan analyzing "the use of prescribed burns and alternative methods to restore the ecological conditions that existed during the mound building [sic] area." This plan arose in response to the loss of "goat prairies" along the bluff edge and the encroachment by the forest into prairie openings.

A three-year rotating prairie restoration/ prescription burning cycle utilizing prescribed burns in areas with the greatest potential for response to fire, including open, old field areas in the North and South Units, was implemented beginning in 1987 (See Figures 2-56 and 2-57).[230] Native prairie restoration was also undertaken on the State Highway 76 right-of-way at the headquarters beginning in 1988 to address management of a steep slope and provide interpretation of prairie restoration to visitors.[231] Savanna restoration in the North and South Units was initiated in 1998, and included cutting or girdling non-savanna species, dramatically altering the character of the woodlands. This restoration allowed for the reestablishment of a visual connection between the Marching Bear Mound Group and the Mississippi River.[232]

As early as 1990, autumn prairie surveys indicated good responses to native prairie restoration efforts with a statistically good reduction in non-native species and increase in native species. [233] In 1998, surveys of the naturally recovering old field units of the

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[228] Agricultural Stabilization and Conservation Service, *Aerial photographs, 1960s*, NRGIS, Iowa Geographical and Water Survey, Iowa DNR. http://www.igsb.uiowa.edu/nrgislibx/. Accessed March, 2014.
[229] National Park Service, *Master Plan of Effigy Mounds National Monument* (Harpers Ferry, Iowa: National Park Service, Effigy Mounds National Monument, 1964). Accessed from Denver Service Center.
[230] Thomas A. Munson, "Annual Narrative Reports of Superintendents and Regional Directors," 1991, National Park Service Denver Service Center, 2-3; and "Environmental Assessment Fire Management Plan, Savannah and Prairie," August 1987, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa, 1, 5-7, 17-20.
[231] Thomas A. Munson, "Annual Narrative Reports of Superintendents and Regional Directors, 1990," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1991), 2-3.
[232] Kathleen Miller, "Annual Narrative Report of Superintendents and Regional Directors, 1998," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1999), 7-8.
[233] Munson, "Annual Narrative Reports of Superintendents and Regional Directors, 1990," 2-3.

Monument were in good condition with slightly lower diversity due to past agricultural use. Seeded old field areas had diversity indexes similar to other successful restorations in the region, and goat prairies were among the highest quality natural sites monitored in prairie parks.[234] By 2001, approximately 50 acres had been treated for prairie restoration and classified as restored, and 50 acres of savannah had received restoration or management treatments.[235]

[234] Kathleen Miller, "Annual Narrative Report of Superintendents and Regional Directors, 1998," 7-8.
[235] Phyllis Ewing and Florencia M. Wilks, "Annual Narrative Reports of Superintendents and Regional Director, 2001" (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2002), 8-9.

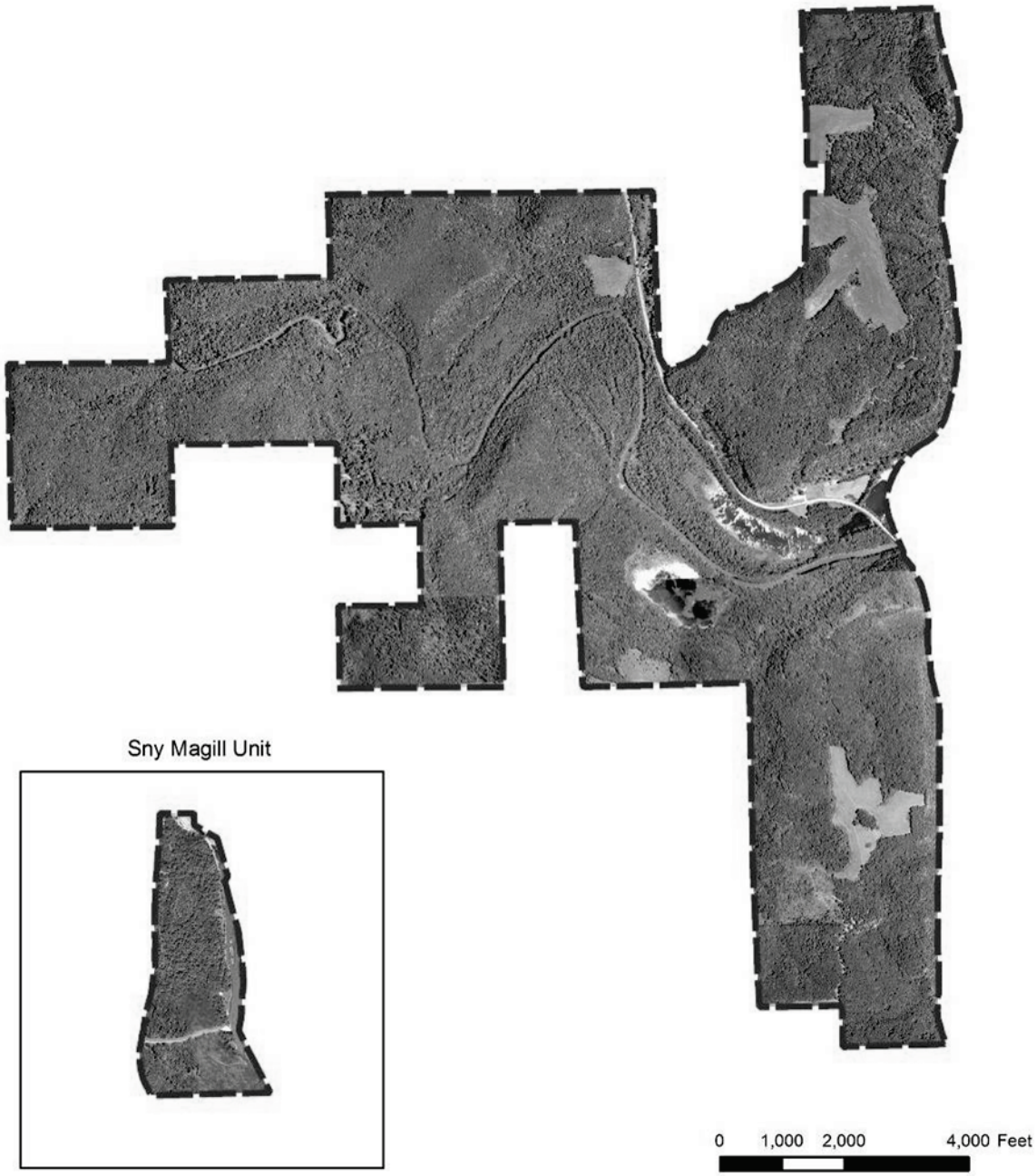

Figure 2- 52: Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture aerial photograph of Monument area. Aerial photograph of North Units is Allamakee County, aerial photograph of Sny Magill is Clayton County, 1960s (source: Iowa DNR Natural Resources Geographic Information Systems Library).

Figure 2- 53: Agricultural Stabilization and Conservation Service, U.S. Department of Agriculture Aerial photograph, Clayton and Allamakee Counties, 1970s (source: Iowa DNR Natural Resources Geographic Information Systems Library).

Figure 2- 54: National High Altitude Photography Program, United States Geological Survey Aerial Photograph, Clayton and Allamakee Counties, 1980s (source: Iowa DNR Natural Resources Geographic Information Systems Library).

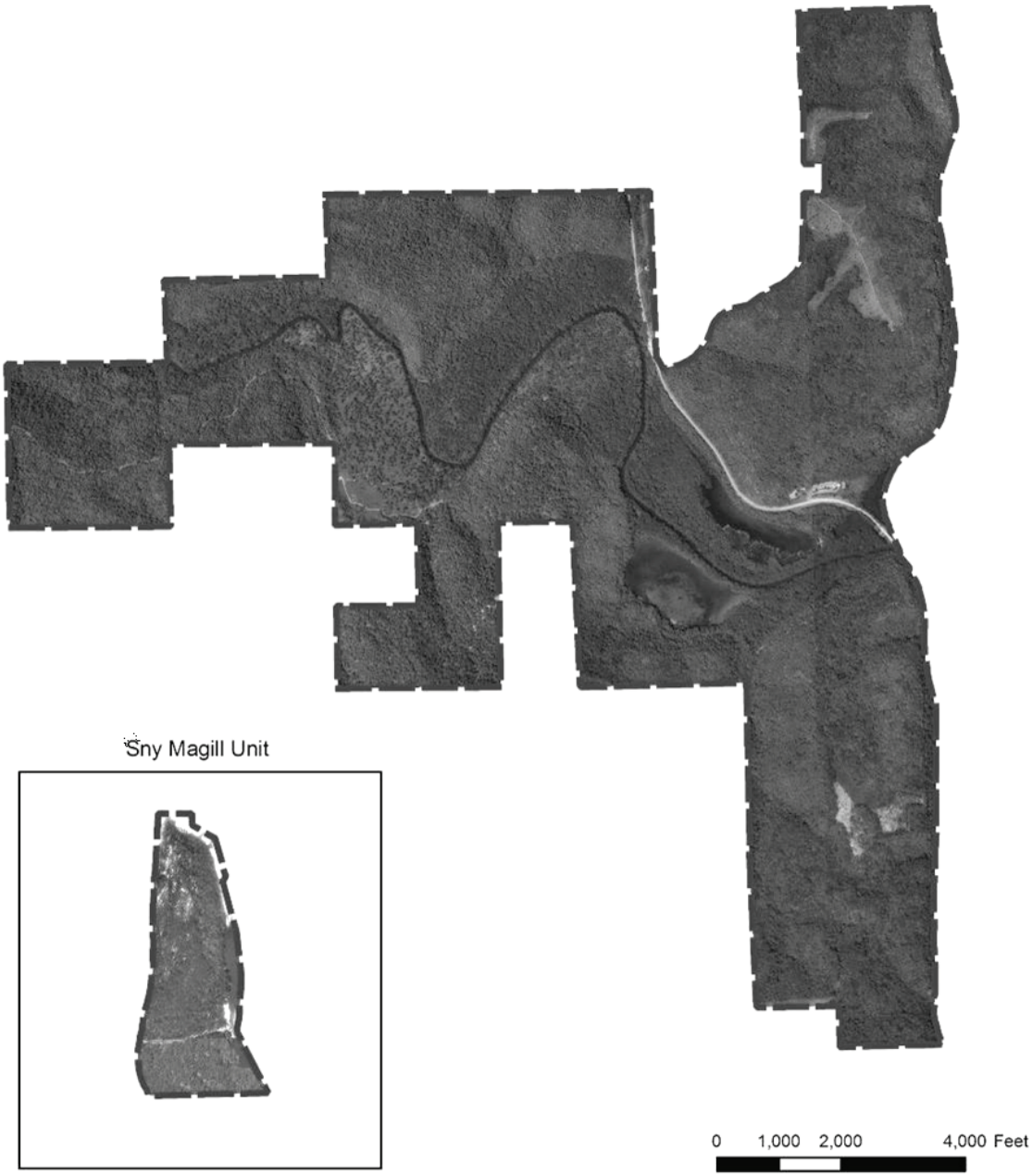

Figure 2- 55: Natural Resources Conservation Service, U.S. Department of Agriculture aerial photograph, Clayton and Allamakee Counties, 1990s (source: Iowa DNR Natural Resources Geographic Information Systems Library).

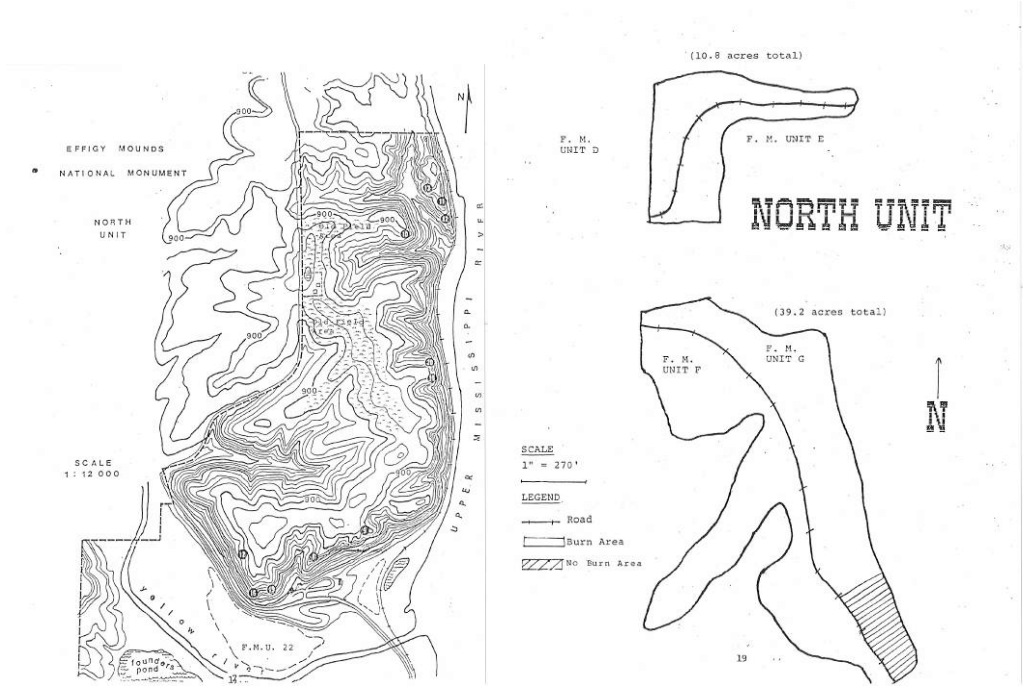

Figure 2- 56: Fire Management Zones in the North Unit (source: Effigy Mounds National Monument 1987 Fire Management Plan).

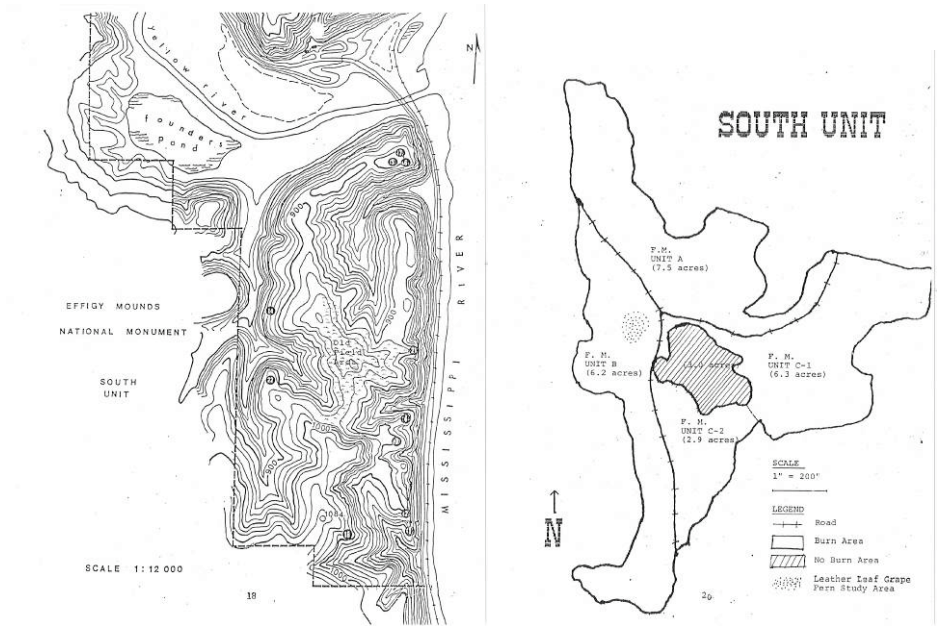

Figure 2- 57: Fire Management Zones in the South Unit (source: Effigy Mounds National Monument 1987 Fire Management Plan).

Invasive plant species control was also undertaken during this time period to control the spread of garlic mustard, purple loosestrife, multiflora rose, barberry, buckthorn, sumac, and sweet clover.[236] In 2000, a two-person exotic plant eradication crew was hired to eradicate invasive species, resulting in a reduction in buckthorn, honeysuckle, multi-flora rose, and barberry.

Sny Magill Unit Sedimentation and Stabilization

The Monument landscape continued to change in response to environmental processes and human activities. The U.S. Fish and Wildlife Service constructed an information kiosk at the Sny Magill boat ramp in 1987.[237] In 1993, Effigy Mounds National Monument began a stream bank stabilization project to protect archeological sites in Sny Magill. The project utilized willow harvested from sites along the Sny Magill drainage and log/earthen fill structures to provide a long term, natural appearing stream bank stabilization structure.[238] Mound stabilization at Sny Magill began in the winter of 1999. This project called for the removal of designated trees on or near mounds in the group, and then removal of all brush and logs.[239] A 2005 sedimentation study of Sny Magill, conducted by M.M. Benedetti, indicates that the mounds continued to be threatened by slow burial by overbank deposition during floods. According to this study, overbank deposits have accumulated since the end of the mound-building period approximately 700 years ago. If floodplain accretion rates are projected forward, burial of the terrace by floodplain sediments could occur within 80-400 years, with burial of the entire mound group occurring within 150-850 years. Benedetti suggested that while few options are available to managers of the Monument to avoid burial by sedimentation, "Some methods might be devised to slow the rate of deposition on the terrace surface, such as reducing the surface roughness of the terrace by removing brush or building a levee to reduce the frequency of terrace inundation during floods. At best, these efforts could temporarily slow the accretion rate around the mounds."[240]

Recent Changes to Trails and Parking

In the 1970s and 1980s, several archeological surveys were conducted in the park in association with planned changes or expansion of facilities.[241] Mainly focused on small sites, these efforts did not result in documentation of significant archeological resources.

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[236] Karen Gustin, "Annual Narrative Report of Superintendents, 1995," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1996), 2; Kathleen Miller, "Annual Narrative Report of Superintendents and Regional Directors, 1998," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1999) 8-9; and Phyllis Ewing, "Annual Narrative Report of Superintendents and Regional Directors, 2000," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2001), 9.

[237] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 103.

[238] Thomas A. Munson, "Annual Narrative Report of Superintedents, 1993," (Harpers Ferry, Iowa: National Park Service, 1994), 3.

[239] Kathleen Miller, "Annual Narrative Report of Superintendents and Regional Directors, 1998," 6.

[240] Benedetti, *Sedimentation Study at Sny Magill Unit, Effigy Mounds National Monument*, 1, 28.

[241] e.g., Richard L. Fishel, *Phase I Archaeological Survey at the Sny Magill Access, Effigy Mounds National Monument, Section 23, T94N-R3W, Clayton County, Iowa, Contract Completion Report #550* (Iowa City, Iowa: Office of the State Archaeologist, University of Iowa, 1997); Mark J. Lynott, *Riverbank Stabilization Plan, Sny Magill Unit, Effigy Mounds National Monument, Northeast Iowa; and Environmental Assessment of the Sny Magill Riverbank Stabilization Project* (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, U.S. Department of

Additional construction projects in the vicinity of the visitor center disturbed this resource-dense location that had been impacted previously, as discussed earlier in this chapter. The parking lot at the Monument visitor center was reconstructed in 1993. The lot was reconfigured to increase parking capacity and improve traffic flow.[242] In 1995, the maintenance building and visitor center were extensively renovated.[243]

The Monument came under intense scrutiny in 2010 when lack of adherence to NPS and federal standards led to damage to significant and sacred resources. Over a period of ten years, beginning in 1999, multiple projects were undertaken without following required protocols. The NPS excavated ground to build three substantial boardwalks and a shed in areas potentially containing archeological resources.[244]

In 2001 a boardwalk was constructed from the north side of the visitor center to a landing overlooking mounds 55 through 57. Although the route was reportedly constructed to provide a universally accessible route to a mound viewing location, the viewing platform is stepped up from the boardwalk, so it does not provide universal access. Also in 2001, the Monument's North Unit service road was surfaced with gravel, and a parking area and trail were added near Mound 52 to connect to the Fire Point Trail.

Between 2001 and 2002, an extensive elevated boardwalk system and pedestrian tunnel were built, south of the visitor center, to provide a universally accessible pedestrian route to the Yellow River. The Yellow River Bridge Trail provides a route for pedestrians to cross under the state highway, and access to a bridge over the Yellow River. The project was intended to provide safe access for visitors to the South Unit, but it ends at the south side of the Yellow River without connecting to South Unit trails, which are located at the top of the bluff high above the river level. A third boardwalk installed at the Nazekaw Terrace was removed by hand to minimize further disruption to resources.

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the Interior, 1992); and William E. Whittaker, *Archaeological Survey of a Proposed Reburial Location at the Marching Bear Mound Group, 13CT26, and the Evaluation of Modifications to the Sny Magill Parking Lot, 13CT18, Effigy Mounds National Monument, Clayton County, Iowa, Contract Completion Report #1230* (Iowa City, Iowa: Office of the State Archaeologist, University of Iowa, 2004); Jerome L. Thompson, "We Do Not Own or Control History, We Are Merely Its Stewards–The Saga of the West Des Moines Burials," *Journal of the Iowa Archeological Society* 52(2005), 55–60; and Schermer, Shirley J., and William Green, Burial Protection and Reburial in Iowa: A Tribute to Maria Pearson. *Journal of the Iowa Archeological Society* 52(2005),43–53.

[242] Munson, "Annual Narrative Report of Superintendents, 1993," 4; and National Park Service, *Effigy Mounds National Monument Road and Parking Rehab*, map (U.S. Department of the Interior, National Park Service, Planning Resource Preservation, Midwest Regional Office, 1992).

[243] National Park Service, "Yellow River Cultural Landscape Inventory" (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2013), 59-60; and Karen Gustin, "Annual Narrative Report of Superintendents, 1995," (Harpers Ferry, Iowa: National Park Service, Effigy Mounds National Monument, 1995), 3.

[244] Orlan Love, "Do Not Disturb, Unauthorized Construction May Have Damaged Effigy Mounds," *The Cedar Rapids Gazette* (Cedar Rapids, Iowa), April 23, 2010, 1A, 12A; and Orlan Love, "Effigy Mounds Getting Fresh Start" *The Cedar Rapids Gazette* (Cedar Rapids, Iowa), December 1, 2010, 1A, 12A.

These construction projects took place in areas with known archeological resources without proper implementation of the Section 106 review process. As a result the NPS is currently engaged in a consultation process to address issues related to this project. Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their actions on historic properties. It requires the National Park Service to consult with the State Historic Preservation Office, local governments, members of the public, and others to identify historic properties, assess adverse effects to these properties, and resolve adverse effects by avoidance, minimization, and mitigation. Effigy Mounds National Monument is considered a historic property because it is included on the National Register of Historic Places. The Section 106 regulations place a strong emphasis on consultation with American Indians.[245]

In relation to these projects, regulations related to Section 106 of the National Historic Preservation Act (NHPA) were not consistently followed. Section 106 is a standard preventative measure that helps to protect significant resources. Lack of adhering to these requirements resulted in tremendous damage to the public trust. Ground that is sacred to American Indians was disturbed without proper consultation or protocol, and the relationship between the NPS and the community was substantially damaged.

A period of landscape change drawing illustrates features present within the project area during the period from 1962 through 2012 (see POC-6). The diagram documents the addition of the Sny Magill Unit, Ferguson Tract, Teaser Boundary Exchange, and Heritage Unit to the Monument, increasing the size of the Monument by approximately 1134 acres. Features present during this period include roads, railroads, buildings including the renovated Mission 66 buildings, and the Monument's expanded trail system. Note that new trails roughly follow the alignment of historic paths shown on earlier period of landscape change drawings. Trails added in the South Unit of the park follow the route of abandoned trails and the Old Military Road, and the Yellow River Bridge Trail is constructed in approximately the location of old Highway 13.

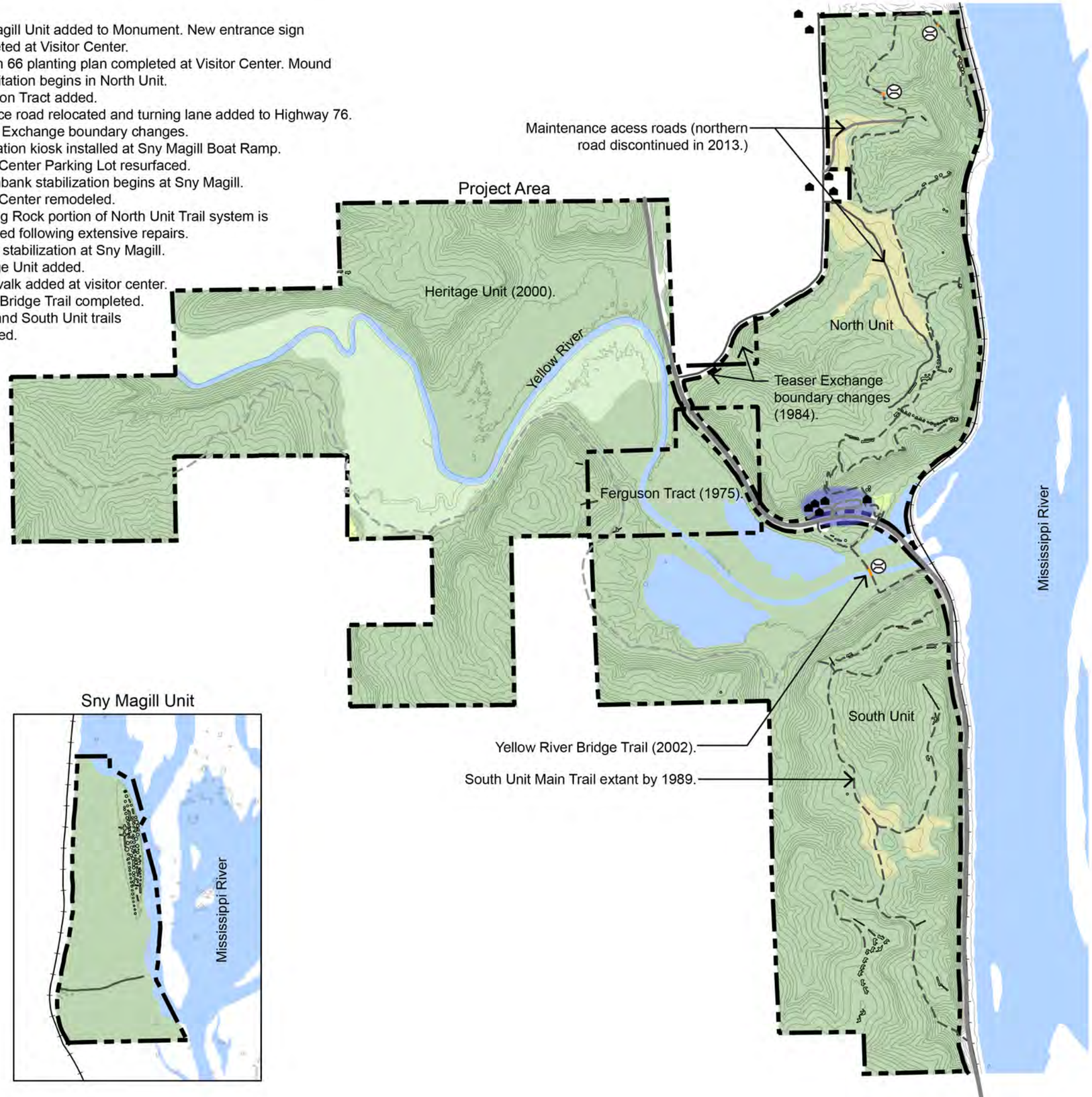
Vegetation communities illustrated are based on 1990s aerial photography of Clayton and Allamakee Counties.[246] Comparison of this drawing to the previous drawing indicates that, while the Monument infrastructure was expanding substantially, woody species were encroaching into open fields throughout the Monument. By the 1990s, early successional forest or scattered trees are present in all of the old field openings in the Monument.

[245] "Section 106 Regulations Summary," last modified April 18, 2013, http://www.achp.gov/106summary.html.
[246] USDA Natural Resources Conservation Service, *1990s aerial photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, Accessed 2014, http://www.igsb.uiowa.edu/nrgislibx/.

Next page: POC -–6: Period of Change Diagram, 1962 - 2012

Notes:

1962: Sny Magill Unit added to Monument. New entrance sign completed at Visitor Center.
1965: Mission 66 planting plan completed at Visitor Center. Mound rehabilitation begins in North Unit.
1975: Ferguson Tract added.
1980: Entrance road relocated and turning lane added to Highway 76.
1984: Teaser Exchange boundary changes.
1987: Information kiosk installed at Sny Magill Boat Ramp.
1993: Visitor Center Parking Lot resurfaced. Streambank stabilization begins at Sny Magill.
1995: Visitor Center remodeled.
1998: Hanging Rock portion of North Unit Trail system is reopened following extensive repairs.
1999: Mound stabilization at Sny Magill.
2000: Heritage Unit added.
2001: Boardwalk added at visitor center.
2002: Yellow Bridge Trail completed. North and South Unit trails realigned.



Sny Magill Unit

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Period of Change Diagram, AD 1962-2012

Legend

- Monument Boundary
- Mound
- Building
- Monument Visitor Center and Headquarters
- Bridge
- Highway
- Road
- Trail
- Abandoned Road
- Railroad
- River or Stream
- Successional Growth, Scattered Trees, or Oak Savanna
- Floodplain Forest
- Forest
- Trimmed Vegetation
- 20 ft contours (2 ft contours in Sny Magill)

Sources

1. 1990s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa DNR (buildings, vegetation)
2. NPS, "Existing Development, North/South Units, Effigy Mounds National Monument," 1989 (trails)
3. NPS, "Existing Development, Sny Magill, Effigy Mounds National Monument," 1989 (trails)
4. Jill York O'Bright, 'The Perpetual March: An Administrative History of Effigy Mounds National Monument," 1989 (monument boundary changes)
5. Phyllis Ewing, Superintendent's Reports, 2000, 2001, 2002 (development at Visitor Center)
6. NPS, "Land Use Plan," 1979 (North Unit fences, vegetation, and trails)
7. Effigy Mounds National Monument GIS Database (project area, topography)

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

N

0 800 1,600 3,200 Feet
1 inch = 1,600 feet

POC-6

Summary of Archeological Information

Early Archeological Investigation of Mounds 1885-1910

The first recorded archeological investigations of Effigy Mounds National Monument (EMNM or the Monument) were made by Theodore H. Lewis in 1885. Lewis was a trained surveyor, and previously mapped mounds in Ohio before moving to St. Paul, Minnesota in 1880. He partnered with A. J. Hill in an ambitious plan to record as many mounds as possible. Lewis traveled more than 54,000 miles, mapping mounds throughout Minnesota, North Dakota, South Dakota, Wisconsin, Iowa, Illinois, Indiana, Nebraska, Missouri, Kansas, Michigan, and Manitoba.[247] He documented more than 17,000 mounds and earthworks at more than 2,000 sites.[248]

Lewis surveyed three mound groups that are now part of EMNM. In 1885 he mapped the Sny Magill (13CT18) group, depicting 94 mounds, and the effigies at the Marching Bear Mounds (13CT26) (See Figures 2-58 and 2-59). In 1892 he mapped a portion of the Nazekaw Terrace Mounds (13AM82 and 13AM210). He mapped 12 mounds at Nazekaw Terrace, noting additional mounds were present for a total of 12 "embankments," six "club-shaped embankments," 39 "round" (conical) mounds and one damaged tailless animal. Lewis appears to have also mapped Mounds 33 through 52 (13AM190), but summaries of Iowa mounds mapped by Lewis do not mention those mounds.[249]

[247] Clark A. Dobbs, *The Northwestern Archaeological Survey: An Appreciation and Guide to the Field Notebooks* (Minneapolis: The Institute for Minnesota Archaeology, 1991); Fred A. Finney, "The Archaeological Legacy of Theodore H. Lewis: Letters, Papers, and Articles," *The Wisconsin Archeologist* 87 (2006), 1-2; Cherie E. Haury, *In the Footsteps of T. H. Lewis: Retracing of the Northwestern Archaeological Survey in North Dakota, Contribution No. 256* (Grand Forks, North Dakota: University of North Dakota, Department of Anthropology, 1990); and Cherie E. Haury, "Profiles in Iowa Archeology: Theodore Hayes Lewis," *Journal of the Iowa Archeological Society* 40 (1993), 82–87. In 1881, Hill and Lewis established the Northwestern Archaeological Survey.
[248] Dobbs, *The Northwestern Archaeological Survey: An Appreciation and Guide to the Field Notebooks.*
[249] Dennis Lenzendorf, *Effigy Mounds: A Guide to Effigy Mounds National Monument* (Fort Washington, Pennsylvania: Eastern National, 2000), 54; and Theodore H. Lewis, *Iowa Transit Notes and Sketches: Notebooks 7, 15, 18, 19, 21, 30, 32, 36 (to Accompany Iowa Archaeological Map Collection #12)*, (Vols. 1 and 2), 1885-1894, State Historical Society of Iowa, Iowa City.

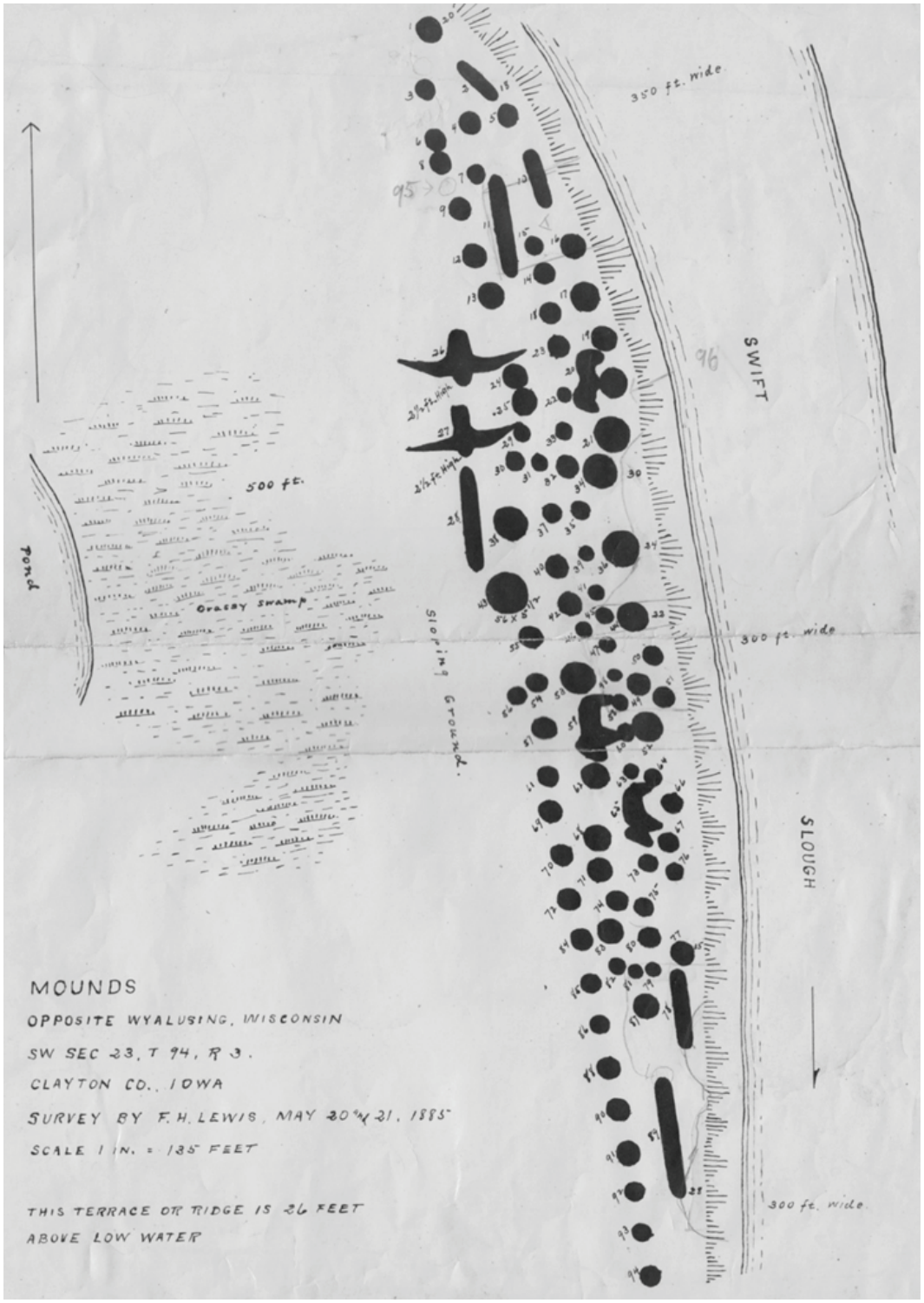


Figure 2- 58: Survey of Sny Magill mounds by T.H. Lewis, 1885 (source: Lewis, 1885, redrawn by Beaubien)

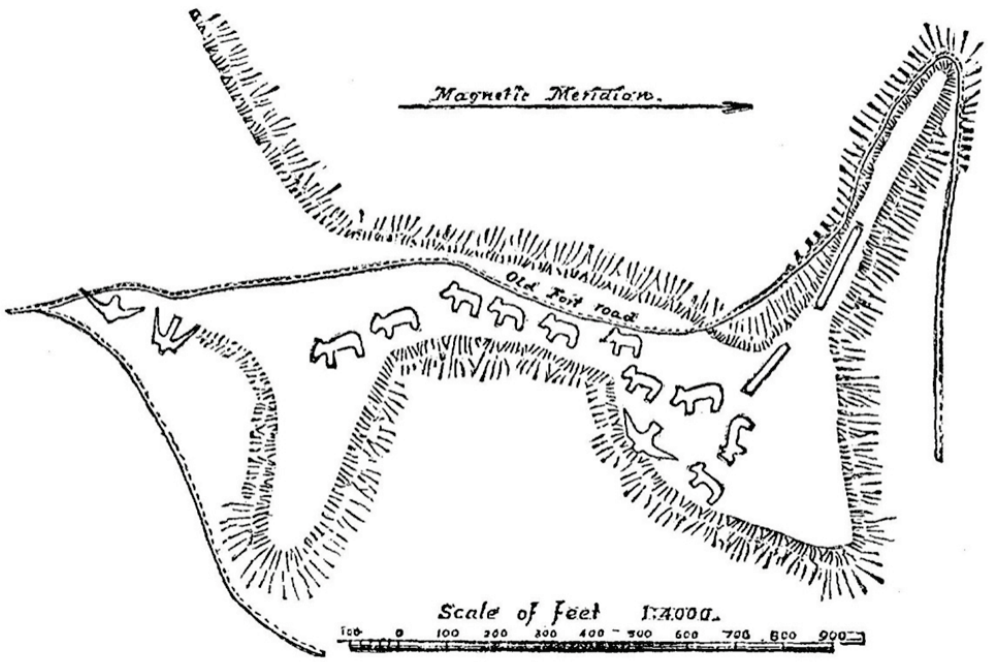


Figure 2- 59: T.H. Lewis map of mounds 69-83 (source: T.H. Lewis, "Effigy Mounds in Iowa," *Science* Vol. 6, No. 146 (1885), 453-454)

Most of the mound groups at the Monument were surveyed by Ellison Orr between 1902 and 1942. Orr was a farmer, teacher, businessman, naturalist, and archeologist. He and Charles R. Keyes are considered the founders of modern Iowa archeology.[250] Orr worked with Fred Pye and Orr's brother Harry and son Fred. In 1902 Orr created a map of the North Unit mounds depicting locations of 33 conical mounds, nine linear or compound mounds, and seven bear or bear-like shaped mounds (see Figure 2-60). Of these, the surface features of five are no longer visible, due to agricultural tilling.[251] Although most of the mounds had been vandalized by looting, Orr was the first person to conduct systematic excavations. He excavated Mound 18 (of 13AM207) in 1930 and Mound 33 (of 13AM190) in 1931; he found little in them to determine their ages.[252]

[250] Lynn M. Alex, *Iowa's Archaeological Past* (Iowa City, Iowa: University of Iowa Press, 2000).
[251] Ellison J. Orr. "Sundry Archaeological Papers and Memoranda, Vol. 4, 1935" manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City; and Ellison J. Orr, "Sundry Archaeological Papers and Memoranda, Vol. 12, 1942," manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City.
[252] Ellison J. Orr "Sundry Archaeological Papers and Memoranda, Vol. 12, 1942."

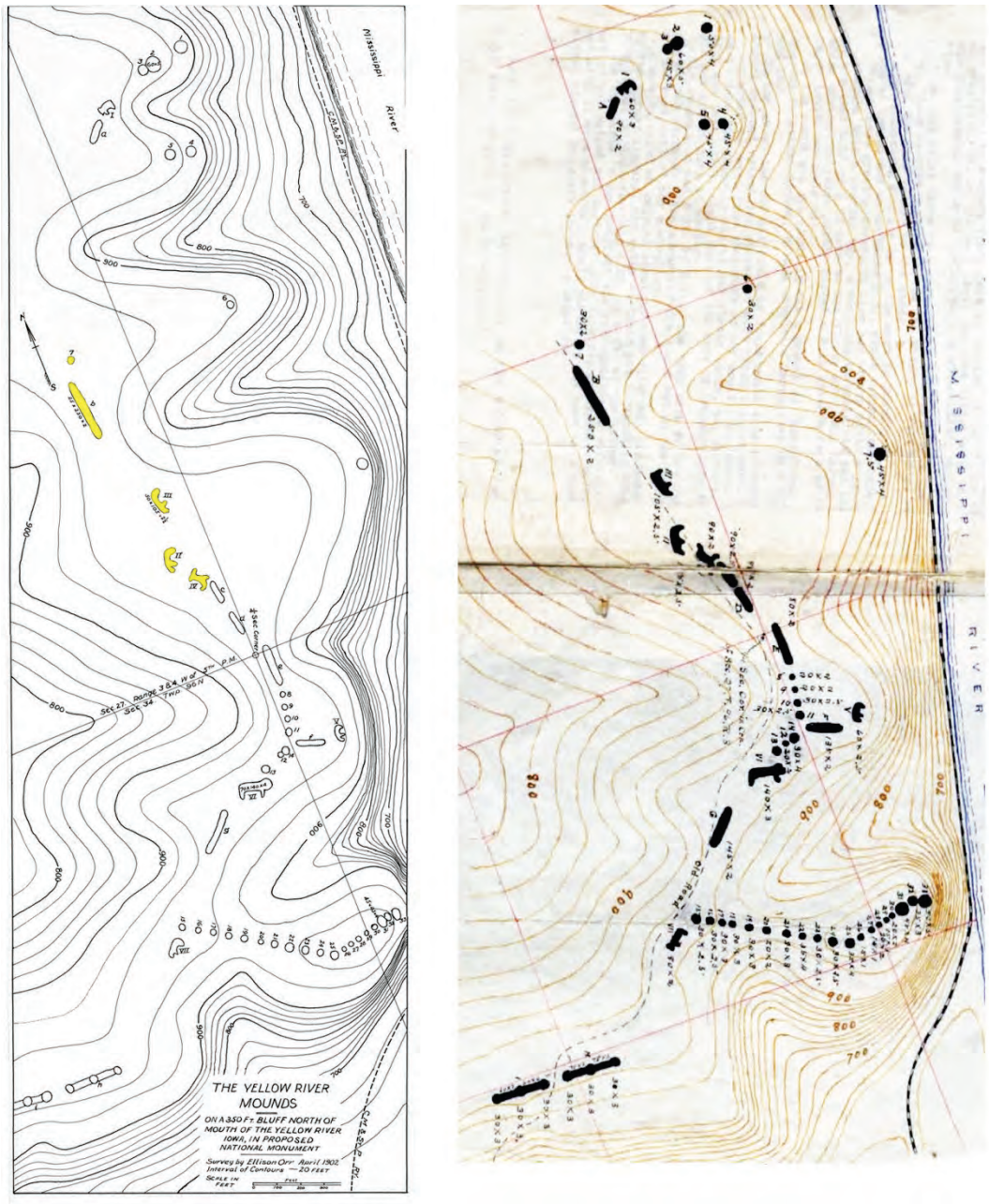


Figure 2- 60: Two versions of a 1902 map of North Unit mounds by Ellison Orr illustrating locations of 49 mounds. Surface features of the five mounds highlighted in yellow (left) are no longer visible. The map on the right illustrates the location of a road that passed over and through the mounds (source: Orr, 1902).

In 1910, W.H. Elwell printed a map of what would become the North Unit of EMNM.[253] Elwell was a long-time resident of McGregor, and a strong supporter of creating a national park to protect the mounds. According to Federal Census records, W.H.C. Elwell was born ca. 1862 in Ohio, had an 8th grade education, and was a fish dealer in McGregor in 1915. Elwell's map shows mounds in their general arrangement, but does not appear to have been drawn to scale or with precision. It shows a few mounds not shown on later maps.

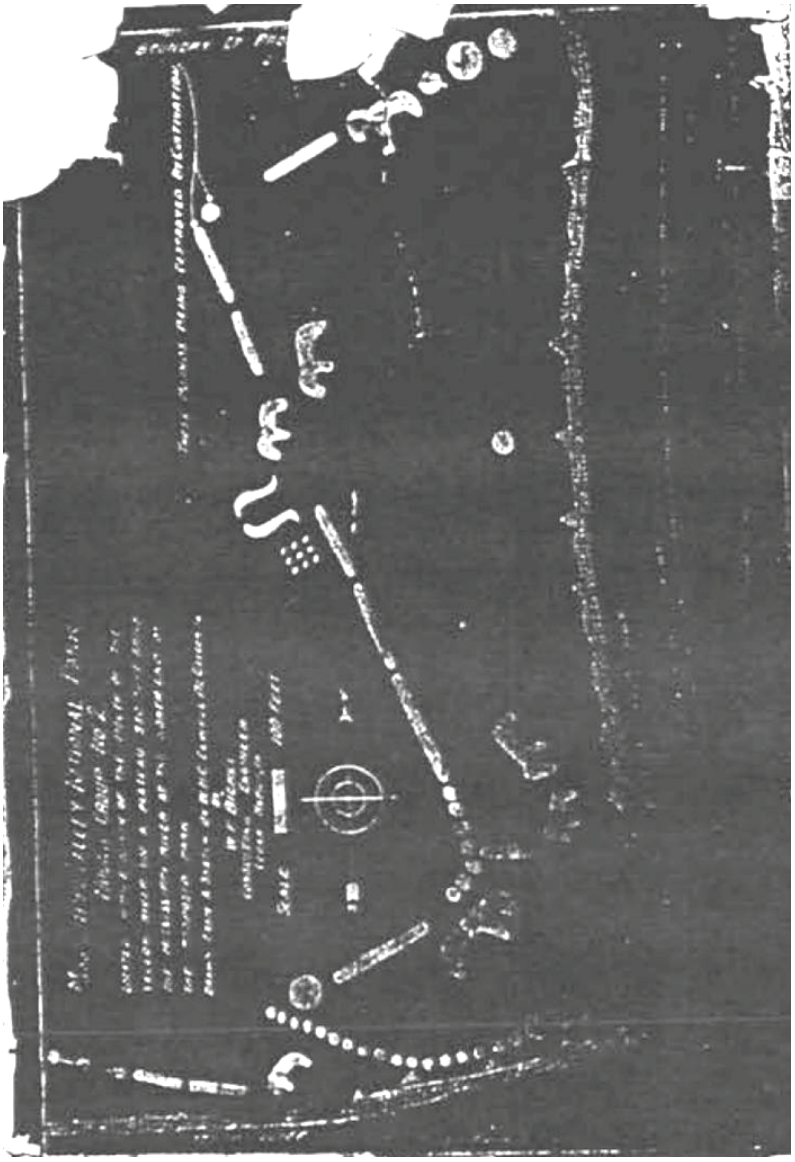


Figure 2- 61: W. H. Elwell's 1910 map of the North Unit, including Mounds 10-14 and 15 or 16 (13AM101), Mound 17 (13AM206) or Mound 18 (13AM207), Mounds without surface features today north of Mound 19 and west of Mound 17 (13AM191—note the unusually shaped mounds south of the two bears), Mounds 19-32 (13AM189), Mounds 33-52 (19AM190), and Mounds 53-54 (13AM106) (source: Ingmanson, 1964).

[253] John Ingmanson, "Burial Complex at Effigy Mounds National Monument," 1964, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City.

Monument Investigations and Research 1950-1971

After the Monument was created in 1949, at least 40 mounds were excavated by the National Park Service between 1950 and 1971. Many of these were in mounds archeologists assumed to have been previously damaged by looting. Paul Beaubien excavated 12 mounds between 1950 and 1952, including Mounds 19 and 30 of 13AM189, Mounds 48 and 49 of 13AM190, Mounds 55-57 of 13AM82, and Mounds 7, 24, 27, 43, and 81 of Sny Magill (13CT18).[254] In 1955, Logan re-excavated Mound 33 of 13AM190.[255] In 1958 Robert T. Bray excavated Mound 2 at 13AM163 and Mound 81 at 13CT26.[256] Around the same time, W. L. Scholtes trenched Mound 13 of 13AM101 and Mound 73 of 13CT26, but produced no report.[257] In 1962 Garland Gordon excavated Mound 61 at 13AM82, and Gordon apparently excavated several other mounds in 1965 without producing a report, including Mounds 42-45 of 13AM190.[258] John Ingmanson and James Anderson excavated Mounds 62 and 64 of 13AM113 and Mounds 72 and 77 of 13CT26; Robert Kile excavated Mound 69 of 13CT26 in 1961.[259] In 1971 Hustead excavated Mound 28 of 13AM189.

Until the 1970s, there was little research at non-mound sites at the Monument. Two large village sites are known to exist in the Monument. There has been limited excavation and survey of these two villages.[260]

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[254] Paul L. Beaubien, *Archeological Investigations of the Sny-Magill Mound Group, 1952* (Omaha, Nebraska: National Park Service, U.S. Department of the Interior, 1952); Paul L. Beaubien, "Preliminary Notes on an Archeological Project in Northeastern Iowa," *Journal of the Iowa Archeological Society* 1 (1952), 3–5; Paul L. Beaubien, "Cultural Variation within Two Woodland Mound Groups of Northeastern Iowa," *American Antiquity* 19 (1953), 56–66; and Paul L. Beaubien, "Some Hopewellian Mounds at the Effigy Mounds National Monument, Iowa," *The Wisconsin Archeologist* 34 (1953), 125–138.

[255] Wilfred D. Logan, "Final Investigation of Mound 33, Effigy Mounds National Monument, Iowa," *Journal of the Iowa Archeological Society* 18 (1971), 29-45.

[256] Robert T. Bray, *Reports of the Excavation of Mound Numbers 2 & 81 [previously 86]* (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1958); and John Ingmanson, "Burial Complex at Effigy Mounds National Monument," 1964, Office of the State Archaeologist, University of Iowa, Iowa City.

[257] James E. Mount, "Mounds and Research: A General Guide for Effigy Mounds National Monument," 1978, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City.

[258] Gordon, "Excavations at Effigy Mounds National Monument," 1; John Ingmanson, "Burial Complex at Effigy Mounds National Monument;" James E. Mount, "Mounds and Research: A General Guide for Effigy Mounds National Monument," 1978, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City.

[259] John Ingmanson, "Burial Complex at Effigy Mounds National Monument."

[260] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*; James W. Lindsay, "Phase I Archaeological Assessment of Portions of the FTD Site (13AM210) and Red House Landing (13AM228), Two Sites at Effigy Mounds National Monument, Allamakee County, Iowa," (master's thesis, University of Nebraska, Lincoln, 2009); Walt Mauer and Tim Mason, *Inventory & Catalog: Archaeological Sites 13AM210 & 13AM228, Allamakee County, Iowa* (Decorah, Iowa: Luther College Archaeological Research Laboratory, 1981); John P. Staeck, *Archaeological Investigations at Red House Landing (13AM228), Allamakee County, Iowa* (Decorah, Iowa: Luther College Archaeological Research Center, 1997); and Richard R. Wahls and Richard Dunning, *Phase I Archaeological and Historical Survey of the Shoreline of Pool No. 10, Upper Mississippi River* (Madison, Wisconsin: Department of Anthropology, University of Wisconsin - Madison, 1988); David Benn and Dean Thompson of Luther College excavated four test units at Yellow River Village Site in 1976.[260] The

Several other mounds were excavated prior to the 1980s. There are artifacts in the Effigy Mounds Repository for these mounds, but no record of excavation. Excavations appear to have occurred on Mounds 36 or 37, 38, 39, and 41 at 13 AM190. No excavation records remain, but human remains were analyzed in 1987.[261] Mound 75 of 13CT26 was also apparently excavated without a report.[262] Mound 38 at Sny Magill (13CT18) was also excavated without a report.[263]

Beginning in the 1980s, technological advances led to the use of remote sensing to study extant mounds and to search for the subsurface features related to mounds no longer visible on the surface. Beginning with Mallam and Mount's aerial analysis, surveys of increasing sophistication emerged.[264]

Bruce Bevan performed early ground-penetrating radar (GPR) surveys at EMNM in 1982, scanning the Little Bear (Mound 52 at 13AM190) and finding anomalies at the neck and a possible tree root system emanating from the shoulder. [265] In the late 1980s Jan Dial Jones and Bob Nichol extensively mapped all of the mounds at Sny Magill.[266] In 1999 a National Park Service course on remote sensing was held at EMNM, taught by Bruce Bevan, Steve DeVore, and Ken Kvamme.[267] This course focused on mounds within the Little Bear and Great Bear Groups, (13AM189 and 13AM190) including Mounds 19, 20, 31, 45, and 52, and Mound 81 of 13CT26. The most substantial results were from Mound 31, the Great Bear, which had several large anomalies seen in GPR. In 2004 and 2005, Whittaker and Storey surveyed most of the mounds at Sny Magill using GPR, and observed stratigraphy in several of them, and possible features in a few.[268]

Red House Landing site was also subjected to limited survey and excavation in the 1980s and 1990s.

[261] Alton K. Fisher and Shirley J. Schermer, *The Analysis of Human Skeletal Remains from the Museum Collection at Effigy Mounds National Monument, Contract Completion Report #245* (Iowa City, Iowa: Office of the State Archaeologist, University of Iowa, Iowa City, 1987).

[262] Robert W. Petersen, "A Summary of the Mounds in Effigy Mounds National Monument," 1983, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City, 25.

[263] Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment, BCA #1087*, 138.

[264] R. Clark Mallam and James E. Mount, "When on High: An Aerial Perspective of Effigy Mounds," *Journal of the Iowa Archeological Society* 27 (1980), 112–131.

[265] Bruce W. Bevan, *Ground-Penetrating Radar Surveys at the Second Hoover House (13CD134) and at Effigy Mounds, Iowa (13AM190) Mound 52* (Pitman, New Jersey: Geosite, 1982).

[266] Anne Vawser, email correspondence, 9 September 2014.

[267] Bruce W. Bevan, *Notes on the 1999 NPS Course on Remote Sensing* (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, 1999); Bruce W. Bevan, *Some Geophysical Experiments at Effigy Mounds* (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, 1999); Steven L. De Vore, *Investigations at Effigy Mounds National Monument during the 1999 "Recent Advances in Archeological Prospection Techniques" Workshop, May 10-14, 1999* (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, U.S. Department of the Interior, 1999); Kenneth L. Kvamme, *Archeo-Geophysical Surveys at Effigy Mounds National Monument, Iowa* (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, 1999).

[268] William E. Whittaker and Glenn R. Storey, "Evaluating Mounds Using Ground-Penetrating Radar: A Test at Effigy Mounds National Monument," *Newsletter of the Iowa Archeological Society* 55, nos. 3-4 (2005), 6–10; William E. Whittaker and Glenn R. Storey, *Ground-Penetrating Radar Survey of the Effigy Mounds National Monument Sny Magill Mound Group (13CT18), Clayton County, Iowa, Contract Completion Report 1233* (Iowa City, Iowa: Office of the State

In 2010, De Vore prospected for several of the lost Nazekaw Terrace mounds (13AM82) using a variety of instruments, including GPR, electrical resistance, and magnetic gradiometer. De Vore found several anomalies which could be mound remnants.[269] After a controversy regarding construction of boardwalks and a maintenance facility, magnometer and other geophysical survey techniques were applied to the area of the shed foundation and a nearby ridge. Magnetic anomalies were not found at the exact location of the facility foundation. Construction of the facility would have badly disturbed any features. Several possible mound remnants were discovered during these investigations.[270]

EMNM was surveyed by Lidar as part of the state-wide survey in 2007, which revealed the accurate location of many mounds. In 2010 EMNM was surveyed with higher-resolution Lidar, which shows many subtle features that may be mound remnants.[271]

Archaeologist, University of Iowa, 2005); William E. Whittaker and Glenn R. Storey, *Ground-Penetrating Radar Survey of the Possible 13AM446 Mound, Effigy Mounds National Monument, Allamakee County, Iowa, Contract Completion Report 1234 (*Iowa City, Iowa: Office of the State Archaeologist, University of Iowa, 2005); William E. Whittaker and Glenn R. Storey, "Ground-Penetrating Radar Survey of the Sny Magill Mound Group, Effigy Mounds National Monument, Iowa," *Geoarchaeology* 23 (2008), 474–499.

[269] Steven L. De Vore, *Geophysical Investigations at the Nezwkaw Terrace Mound Group (Site 13AM82), Effigy Mounds National Monument, Allamakee County, Iowa, Technical Report No. 118* (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, U.S. Department of the Interior, 2009); James Lindsay, "Relocation of 'Destroyed' Effigy Mounds by Ground-Penetrating Radar" (poster paper presented at the 77th Annual Meeting of the Society for American Archaeology, Memphis, Tennessee, 2012).

[270] Anne M. Wolley Vawser and Steven L. De Vore, "The Bear and the Wildcat: Geophysics and the Re-Discovery of Mounds at Effigy Mounds National Monument, Iowa" (poster paper presented at the 77th Annual Meeting of the Society for American Archaeology, Memphis, Tennessee, 2012); and Anne M. Wolley Vawser, Steven L. De Vore, and Melissa Baier, "Archeological Investigations of the Nazekaw Terrace (Site 13AM82) and the Upper Meadow (Sites 13AM189 and 13AM191) along the Hanging Rock Trail, Effigy Mounds National Monument, Allamakee County, Iowa," draft on file, Midwest Archeological Center, National Park Service, 2010.

[271] The Atlantic Group, LLC, *Effigy Mounds National Monument Final Report: LiDAR Data Acquisition*, (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, 2010); Anne M. Wolley Vawser and Steven L. De Vore, "The Bear and the Wildcat: Geophysics and the Re-Discovery of Mounds at Effigy Mounds National Monument, Iowa" (poster paper presented at the 77th Annual Meeting of the Society for American Archaeology, Memphis, Tennessee, 2012); and Anne M. Wolley Vawser, Steven L. De Vore, and Melissa Baier, "Archeological Investigations of the Nazekaw Terrace (Site 13AM82) and the Upper Meadow (Sites 13AM189 and 13AM191) along the Hanging Rock Trail, Effigy Mounds National Monument, Allamakee County, Iowa," draft on file, Midwest Archeological Center, National Park Service.

In 2012, Whittaker and Riley mapped eight mounds in detail including Mound 68 (13CT54), Mound 84 (13CT53), Mounds 85 and 86 of 13CT52, Mound 87 (13AM209), Mounds 97 and 98 of 13AM262, and Mound 99 (13AM107).[272] In 2005, Benedetti studied Sny Magill's soils, providing an update to Bettis' analysis.[273]

Rise of Mound Protection Legislation, 1959-1990

Concerns about the desecration of sacred burial sites became more pronounced with the cultural revolutions of the 1960s, and by the 1970s political action to give American Indian graves the same protection as Euro-American and European immigrant graves intensified. The Iowa Burials Protection Act of 1976 was the first U.S. law that specifically protected American Indian remains and burial sites.[274] Although this law did not have jurisdiction over Federal properties like Effigy Mounds National Monument, it marked a change in attitudes. In the late 1980s EMNM began inventorying its human remains collections.[275] The last mound excavation occurred in 1988 when Dale Henning excavated Mound A at Sny Magill and determined it was noncultural.[276]

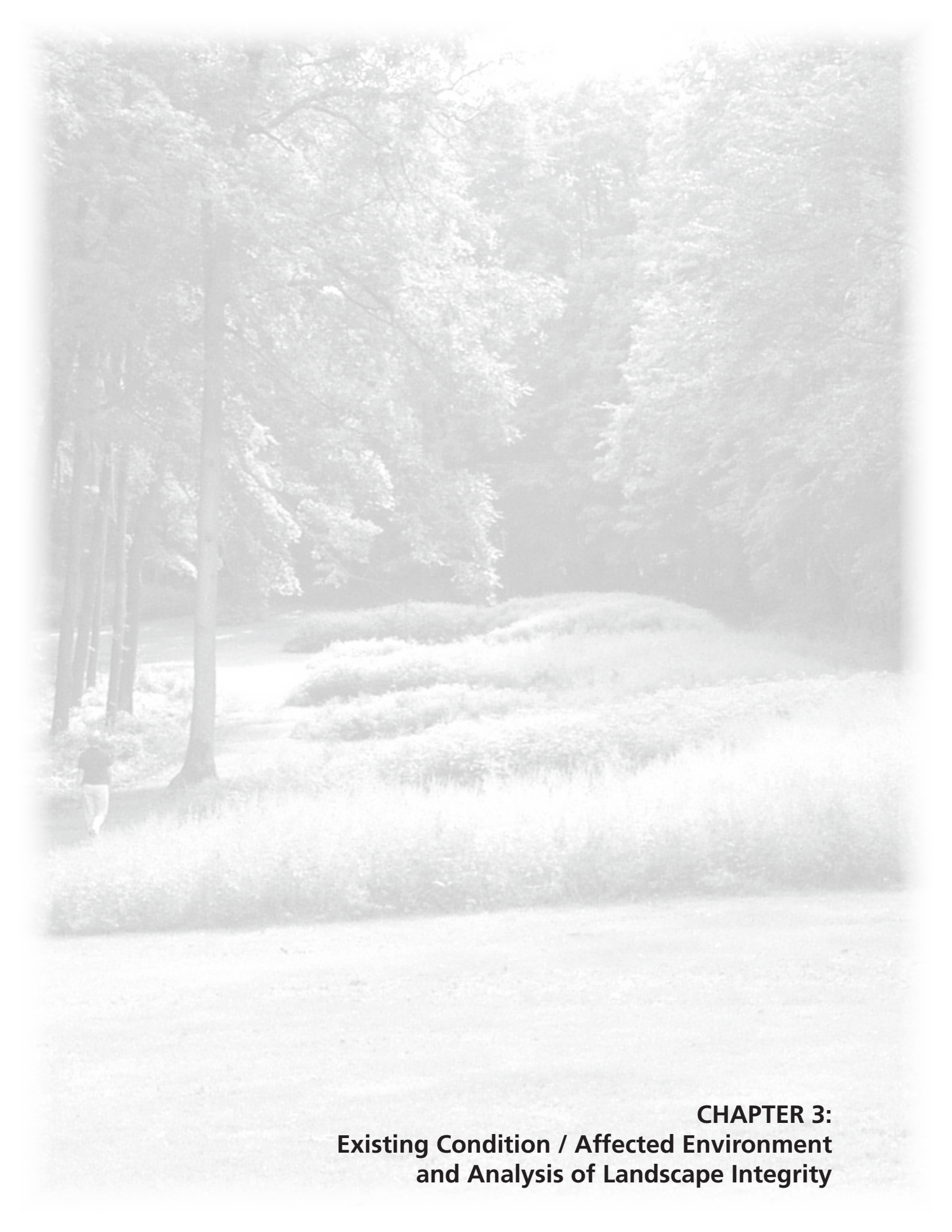
The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) provides guidance when dealing with American Indian human remains. NAGPRA permits excavation of American Indian cultural items from federal or tribal lands for the purposes of discovery, study, or removal only if the items are removed pursuant to a permit issued under section four of the Archaeological Resources Protection Act of 1979, and the items are excavated or removed after consultation with or consent of the appropriate American Indians. The ownership and right of control of disposition of the items will be to the American Indian tribe which has the closest cultural affiliation with the remains or objects and which, upon notice, state a claim for the remains or objects.[277]

[272] William E. Whittaker and Melanie A. Riley, *Human Landscapes in Iowa's Past: Establishing Mapping Protocols for LiDAR Identification and Mapping of Prehistoric Cultural Mounds, Contract Completion Report #1914* (Iowa City, Iowa: Office of the State Archaeologist, University of Iowa, 2012).
[273] Benedetti, *Sedimentation Study at Sny Magill Unit, Effigy Mounds National Monument*; and E. Arthur Bettis III, "Pedogenesis in Late Prehistoric Indian Mounds, Upper Mississippi Valley," *Physical Geography* 9 (1988), 263–279.
[274] Sheryl L. Dowlin, "Maria Pearson: A Warrior and Peacemaker in Two Worlds," *Journal of the Iowa Archeological Society* 52, no. 1 (2005), 71-82.
[275] e.g., Alton K. Fisher and Shirley J. Schermer, *The Analysis of Human Skeletal Remains from the Museum Collection at Effigy Mounds National Monument, Contract Completion Report #245* (Iowa City, Iowa: Office of the State Archaeologist, University of Iowa, Iowa City, 1987).
[276] Dale R. Henning, *Archeological Survey of the Sny Magill Unit and Testing of Four Rock Shelters, Effigy Mounds National Monument, Iowa* (Decorah, Iowa: Luther College Archaeological Research Center, 1989).
[277] Native American Graves Protection and Repatriation Act, HR 5237, 101st Cong., XX session, Public Law 101-601 (November 16, 1990).

Compilations of Archeological Research

There have been numerous summaries of research at Effigy Mounds National Monument since mound excavation ceased. Logan and Ingmanson provided a brief summary of EMNM in 1968, and Mount completed the first report that summarized all previous excavations and mound conditions at the park in 1978. [278] Petersen provided mound-by-mound summaries of current conditions in 1983, and this data informed his regional study of effigy mounds.[279] Petersen also surveyed several of the rock shelters within the Monument, finding little evidence of intensive use.[280] O'Bright provided a detailed history of the park in 1989, and Lenzendorf compiled a general summary of EMNM into a well-designed and useful book for the public.[281] Green et al. again reviewed previous excavations and research, and conducted archival and interview research into affiliation with modern American Indian groups for their 2001 publication.[282] In 2003 Cockrell again summarized the history of Effigy Mounds National Monument for a popular publication, and in 2004 Benn and Stadler again reviewed the archeology and history of the park.[283] Rosebrough's 2010 dissertation reanalyzed the data for the effigy mound manifestation, drawing on data from the park.[284]

[278] Wilfred D. Logan and John E. Ingmanson, "Effigy Mounds National Monument" *The Palimpsest* 50 (1969), 273–304; and James E. Mount, "Mounds and Research: A General Guide for Effigy Mounds National Monument," 1978, Office of the State Archaeologist, University of Iowa, Iowa City.
[279] Robert W. Petersen, "A Summary of the Mounds in Effigy Mounds National Monument," 1983, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City; and Robert W. Petersen, *An Archaeological Reassessment of the Effigy Mound Tradition in Iowa* (Decorah, Iowa: Luther College Archaeological Research Center, 1986).
[280] Robert W. Petersen, "A Survey of the Destruction of Effigy Mounds in Wisconsin and Iowa – A Perspective" *The Wisconsin Archeologist* 65(1984),1-31.
[281] Jill Y. O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*; and Lenzendorf, *Effigy Mounds: A Guide to Effigy Mounds National Monument*.
[282] Green et al., "Effigy Mounds National Monument Cultural Affiliation Report."
[283] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*; and Benn and Stadler, *Effigy Mounds National Monument Archeological Overview and Assessment*, *BCA #1087*.
[284] Amy L. Rosebrough, "Every Family a Nation: A Deconstruction and Reconstruction of the Effigy Mound 'Culture' of the Western Great Lakes of North America" (Ph.D. dissertation, University of Wisconsin-Madison, 2010).



CHAPTER 3:
Existing Condition / Affected Environment and Analysis of Landscape Integrity

CHAPTER 3: EXISTING CONDITION and ANALYSIS / AFFECTED ENVIRONMENT

Introduction

This chapter includes a description of the existing condition, an explanation of the environment potentially affected by treatment alternatives, and an assessment of landscape integrity. According to the National Environmental Policy Act (NEPA), the "affected environment" is the existing biological, physical, and social conditions of an area that are subject to change, both directly and indirectly, as a result of a proposed human action. Any resources that are not likely to be affected by the alternatives are not part of the "affected" environment according to NEPA. For those that will sustain impacts (positive or negative), it is critical to collect accurate and adequate data on the present status in order to undertake useful analysis.[1] Chapter 1 provides clarification for why each environmental assessment impact topic was either selected for analysis, or dismissed from further consideration. The impact topics addressed in this chapter include: visitor experience, operations, ethnographic resources, wildlife, special status species, and cultural resources (including cultural landscapes and archeological resources).

The project area includes the entire landscape encompassed within the boundary of Effigy Mounds National Monument (EMNM) including a total of 2,526 acres in the North, South and Sny Magill units, and the Heritage Unit. See Chapter 1 for a detailed explanation of the project area, Monument units, and Landscape Character Areas. Existing condition drawings EC-0 through EC-9 are provided at the end of this chapter. The Monument protects significant pre-Columbian earth mounds, wildlife, scenic, and other natural values of the area. This includes about 200 mound sites, of which 31 are in the form of bear and bird effigies. Also included are rock shelters and historic resources.[2]

Visitor Experience

Chapter 1 explains that visitors to the Monument are provided interpretation of the park's resources through visitor center visits, self-guided cell phone hiking tours, and seasonal hikes with interpretive rangers. An all-access trail leading from the visitor center to the Yellow River bridge provides visitors with the opportunity to experience the extensive wetland and river habitat of the area.[3]

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[1] National Park Service, *National Park Service, Director's Order 12: Conservation Planning, Environmental Impact Analysis and Decision Making*, accessed 2013. http://www.nature.nps.gov/protectingrestoring/ do12site/02_Ovrvu/028_affected_env.htm.
[2] National Park Service, Scope of Work, Cultural Landscape Report for Effigy Mounds National Monument, 2013, Article II, B.
[3] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument* (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2013), 118.

There are no overnight accommodations at the Monument, so visitors are primarily day users. A 2006 National Park Service study found that 93% of the visitors are day users with the remainder of the visitors lodging at nearby hotels or campgrounds. Most visitors are within a three-to-four hour drive and bring out-of-town guests with them on a regular basis. Approximately 40% of visitation occurs in the summer, although there is an increase in visitation during October. Another "off season" spike is during the winter film festival. Table 3-1 provides a summary of the number of recreation visitors per year to the Monument.[4]

Table 3- 1. Number of Monument Visitors per Year[5]

2003	2004	2005	2006	2007
79,658	93,575	88,546	90,199	88,268
2008	**2009**	**2010**	**2011**	**2012**
68,696	78,177	79,783	82,581	78,540

Special events are held at various times of the year. These include ranger-led walks, nature viewing, living history moonlight hikes, and cultural demonstrations. The Monument is part of the Effigy Mounds-Yellow River Forest Bird Conservation Area and birding is popular. School groups visit for educational opportunities, and the park accepts reservations to provide interpretive staff to serve those groups.[6]

Visitor interpretation is not provided at the Sny Magill Unit but visitors can walk through and view the mounds. Ranger-led walks at the site are held twice monthly when the site is physically accessible. Access to the Sny Magill Unit by personal vehicle is challenging due to occasional high floodwaters and a low railroad bridge underpass that crosses the access road. The park trails can be challenging for persons who are not conditioned for trail walking on uneven terrain. Park visitors need to have a degree of self-sufficiency because some trails are remote. This area is a day use area. Parking is provided at the boat launch. Pedestrian access requires visitors to cross the railroad tracks and SR 76. The crossing presents hazards to visitors as traffic moves at high speeds and sight lines are limited. There are hazards to visitors and motorists at the entrances to the boat launch parking lot and the park visitor center. Many of these hazards are reduced through orientation of visitors at the visitor center and information on the Monument's website and the park brochure. Hunting is not allowed, but fishing is allowed in accordance with state regulations.[7]

In some locations, signage directs visitors away from walking on the mounds. However, mounds are not enclosed by fencing or similar methods. In most locations, mounds are made recognizable to visitors through the clearing of trees and maintaining grass on the

[4] Ibid., 119.
[5] National Park Service, "Effigy Mounds National Monument Annual Park Recreation Visitation," accessed 2013. irma.nps.gov/Stats/SSRSReports/Park%20Specific%20Reports/Annual%20Park%20Recreation %20Visitation%20(1904%20-%20Last%20Calendar%20Year)?Park=EMNM.
[6] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 119.
[7] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 120.

mounds. In contrast, some mounds have native wildflowers on them and the surrounding areas are mown grass.

Monument Operations

A combination of full-time, part-time, and seasonal employees manage the cultural and natural resources. Cooperating association employees and volunteers assist the NPS staff with management of the park. Staff provides interpretation and education programs in the vicinity of the visitor center and along the primary trails of the North Unit. Management of interpretation staff and law enforcement duties are currently the responsibility of one NPS employee.[8]

Base funding was approximately $1.2 million in 2010. The visitor center is open 362 days per year and trails are open during daylight hours only. The visitor center is open throughout the year; however, it is closed on major holidays and during extreme weather events. In addition to the visitor center and office buildings, staff maintains access roads, the maintenance buildings, parking lots, trails, utilities, and site amenities throughout the Monument. The majority of maintenance work is conducted in the vicinity of the visitor center and the North Unit trails. Minimal maintenance occurs at the Sny Magill Unit where a fence and footpath need occasional maintenance. To reduce erosion, a stream bank stabilization project was completed recently. [9]

Prior to 1985, the mounds were mowed on a regular basis. Since that time, the mounds have been mowed on an irregular or as-needed basis. The mounds are in a wide variety of microclimates, so a singular approach to land management of the mounds is not conducted.

Invasive and exotic plants are a threat to the cultural and natural resources of the Monument and can have negative impacts to the landscape through displacement of native species, visual effects, and increased erosion. Invasive multi-flora rose plants were removed in 2013 from some of the mounds to allow native vegetation to become established. Staff controls invasive and exotic plants with the goal of maintaining a landscape nearly free of these species. Plants that are controlled include garlic mustard, buckthorn, sericea lespedeza, multiflora rose, purple loosestrife, reed canary grass, and sweet clover.[10]

[8] Ibid., 125.
[9] Ibid., 118 and 125.
[10] Rodney Rovang, personal interview with Joe DiMisa, October 29, 2013.

Ethnographic Resources

As described in Chapter 1, ethnographic resources are those resources associated with a people's cultural system or way of life. These include technology, sites, structures, material features, and natural resources. 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.[11]

The Monument has a long-standing connection with multiple American Indian groups. In particular, the Ho-Chunk Nation of Wisconsin claims a close affinity to the site. Effigy Mounds represents a point of connection with the spiritual world of their ancestors and a place of great spiritual power. It has been visited continuously by American Indian individuals and groups for hundreds of years. Ethnographic resources are the mounds, pre-European contact archaeological artifacts and the landscape (e.g. plants, animals, water). The National Park Service is coordinating with American Indian groups to more fully determine the nature and importance of these ethnographic resources.[12]

Wildlife

Fish are found in the Mississippi River, the Yellow River, Sny Magill Creek, and other smaller streams in the project area. Common species include gizzard shad, common carp, emerald shiner, river shiner, bullhead minnow, and bluegill. Native trout are reported in Dousman Creek. Sny Magill Creek is a cold water stream dominated by the fantail darter. Recreational fishing is allowed in accordance with state regulations. Freshwater clams and mussels are present in the Yellow River and the Johnson Slough reach of the Mississippi River. The non-native zebra mussel occurs in the Mississippi River.[13]

Nearly 300 birds are known to nest or migrate through the adjacent Mississippi River valley and Effigy Mounds National Monument. The Monument is along the Mississippi Flyway-one of the main migratory routes in North America. Neotropical birds use the location for stopovers along their migration in spring and fall. Raptors such as hawks and eagles soar above the Mississippi River adjacent to the river's bluffs. Wetlands along the Yellow River and elsewhere provide a rich environment for egrets, herons, ducks, Canada geese, and other water-loving birds.[14]

Wetlands provide a diverse habitat for amphibians including bullfrogs, spring peepers, tree frogs, and American toads. Reptiles inhabit a wide range of habitats in the project area with snakes inhabiting the limestone bluffs of the Mississippi River. The largest snake observed is the black rat snake. Timber rattlesnakes were historically located in the area but have not been observed in many years. The five-lined skink is the only lizard that has been observed. Turtles include the painted turtle, snapping turtle, Blanding's turtle, and map turtle.[15]

[11] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 105.
[12] Ibid., 106.
[13] Ibid., 111-112.
[14] Ibid., 112.
[15] Ibid., 112-113.

Mammals at Effigy Mounds National Monument include common woodland mammal species as well as species more adapted to wetland and aquatic habitats. These include beaver, muskrat, river otter, and mink. Whitetail deer, red fox, chipmunks, and squirrels inhabit the floodplains and forests. Gray fox and coyote are occasionally seen and isolated reports of wolves, bear, and mountain lions have increased over the last decade.[16]

Special Status Species

The Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.) requires examination of impacts on all federally-listed threatened, endangered, and candidate species. Section 7 of the ESA requires all federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the NPS *Management Policies 2006* and Director's Order 77 *Natural Resources Management Guidelines* require the NPS to examine the impacts on federally-listed, endangered and candidate species, as well as state-listed threatened, candidate, rare, declining, and sensitive species.

The Higgins eye pearlymussel (*Lampsilis higginsii*, a Federally-listed endangered species) and the Northern long-eared bat (*Myotis septentrionalis*, a Federally-listed threatened species) are known to exist at the Monument.[17] The Higgins eye pearlymussel (*Lampsilis higginsii*) inhabits sand/gravel bottoms of fast moving river channels. There are no areas designated as critical habitat, but rivers in the vicinity have been designated by the Higgins eye pearlymussel recovery team as essential for the recovery of this species. Northern long-eared bats (*Myotis septentrionalis*) have been highly impacted in recent years by the spread of white nose syndrome. These bats spend their winters hibernating in caves and mines. In the summer, the bats roost underneath bark and in cavities or crevices of live or dead trees. Habitat for the Federally-listed endangered Iowa Pleistocene snail (*Discus macclintocki*) has been found at Bixby State Preserve, 20 miles southwest of the Sny Magill Unit. This species has not been observed at the Monument, but its habitat requirements (mouths of caves and talus slopes) may be present in the area.[18]

The bald eagle (*Haliaeetus leucocephalus*) is on the USFWS list of special status species in the vicinity. This species has been delisted from the endangered species list but is still protected by the Migratory Bird Treaty Act (MBTA). Other raptors with special status that occur or have the potential to occur in the vicinity include the red-shouldered hawk (*Buteo lineatus*) and the peregrine falcon (*Falco peregrinus*). Table 3-1 lists the special status species that may occur in the vicinity of the Monument.[19]

The Iowa Department of Natural Resources (IDNR) provided a list of state-listed endangered, threatened, and special concern species in 2014. The state-listed endangered species described by IDNR include the bluntnose darter (*Etheostoma chlorosoma*), Higgins eye pearlymussel (*Lampsilis higginsii)*, yellow sandshell (*Lamsilis teres*), and bluff vertigo snail (*Vertigo meramecensis*).

[16] Ibid., 113.
[17] Rodney Rovang, personal interview with Joe DiMisa, October 29, 2013.
[18] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 114-115.
[19] Ibid., 115.

The USFWS county distribution list of Federally-listed threatened, endangered, proposed, and candidate species was also reviewed to determine the presence of special status species in Allamakee and Clayton counties in Iowa. The list included Northern long-eared bat (threatened-*Myotis septentrionalis*), prairie bush clover (threatened-*Lespedeza leptostachya*), Western prairie fringed orchid (threatened-*Platanthera praeclara*), Northern monkshood (threatened-*Aconitum novaboracense*), Higgins eye pearlymussel (endangered-*Lampsilis higginsii*), and Iowa Pleistocene snail (endangered-*Discus macclintocki*).[20]

The 1986 study, *A Vegetation Survey of Grasslands and Rare Plants of Effigy Mounds National Monument* identified multiple prairie remnants, oak savannas, and other habitats where rare plant species may exist. The report states that the remnant prairies in the North Unit were found to be dominated by non-native grasses such as smooth bromegrass, Kentucky bluegrass, and goldenrod. Other species that were found in the North Unit remnant prairies included blazing star, yellow indiangrass, little bluestem, ferns, and twayblade orchid. South Unit remnant prairies were also vegetated with the plant species found in the North Unit, but exhibited additional plants that provide a habitat more typical of natural prairies. These other plants included yellow gentian, roundhead lespedeza, black-eyed Susan, and stiff goldenrod. The North Unit and South Unit remnant prairies were observed at the time of the report to be transitioning into early successional woodlands.[21]

Bluff prairie remnants were also surveyed as part of the 1986 vegetation survey and were found to be much nearer to virgin prairie condition than the other prairie remnants. These bluff prairies allow views of the river valleys from the ridgetops. Multiple bluff prairies were investigated. However, as a representative example, one of the sites contained twenty plant species including: leadplant (*Amorpha canescens*), big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), candle anemone (*Anemone cylindrical*), whorled milkweed (*Asclepias verticillata*), Pennsylvania sedge (*Carex pensylvanica)*, bastard toadflax (*Comandra* Nutt.), prairie coreopsis (*Coreopsis palmata)*, flowering spurge (*Euphorbia corollata*), Northern bedstraw (*Galium boreale*), prairie alumroot (*Heuchera* L.), juniper (*Juniperus communis*), roundhead lespedeza (*Lespedeza capitata*), beefsteak (*Perilla frutescens*), purple prairie clover (*Dalea purpurea*), Kentucky bluegrass (*Poa pratensis*), prairie cinquefoil (*Potentilla arguta*), black-eyed Susan (*Rudbeckia hirta*), prairie dropseed (*Sporobolus heterolepis*), and speedwell (*Veronica* spp.).[22]

[20] US. Fish and Wildlife Service, "County Distribution of Federally Threatened, Endangered, Proposed, and Candidate Species, Iowa," accessed October, 2015, http://www.fws.gov/midwest/endangered/lists/iowa_cty.html.
[21] Thomas J. Blewett, *A Vegetation Survey of Grasslands and Rare Plants of Effigy Mounds National Monument*, report for the Wyoming Cooperative Fish and Wildlife Research Unit, University of Wyoming, and the National Park Service (Dubuque, Iowa: Clark College, Biology Department, 1986).
[22] Ibid.

Rare species and State of Iowa species of interest observed during the vegetation survey included:

- Goldenseal *(Hydrastis canadensis)*
- Ginseng *(Panax quinquefolium)*
- Sullivantia (*Sullivantia sullivantia*)
- Glandular wood fern (*Dryopteris intermedia*)
- Leather grape fern (*Botrychium multifidum*)
- Golden corydalis (*Corydalis aurea*)
- Jeweled shooting star (*Dodecatheon amethystinum*)
- Summer grape (*Vitis aestivalis*)
- Eastern bobcat (*Felis rufus rufus*)
- Yellow lady's slipper (*Cypripedium calceolus*)
- Twayblade orchid (*Liparis lilifolia*)
- Nodding pogonia (*Triphora trianthophora*)
- Dissected grape fern (*Botrychium dissectum*)
- Shining club moss (*Lycopodium lucidulum*)

Table 3- 2. Effigy Mounds National Monument Federal and State Listed Species[23]

Common Name	Scientific Name	Federal Status/ State Status*
Plants		
Colden corydalis	*Corydalis aurea*	None/T
Creeping juniper	*Juniperus horizontalis*	None/T
Glandular wood fern	*Dryopteris intermedia*	None/T
Leathery grapefern	*Botrychium multifidum*	None/T
Jeweled shooting star	*Dodecatheon amethystinum*	None/T
Purple fringed orchid	*Platanthera psycodes*	None/T
Slender ladies' tresses	*Spiranthes lacera*	None/T
Small white lady's slipper	*Cypripedium candidum*	None/SOC
Summer grape	*Vitis aestivalis*	None/SOC
Animals		
Bluff vertigo	*Vertigo meramecensis*	None/E
Bluntnose darter	*Etheostoma chlorosoma*	None/E
Butterfly	*Ellipsaria lineota*	None/T
Creeper	*Strophitus undulatus*	None/T
Grass pickerel	*Esox americanus*	None/T
Higgins eye pearlymussel	*Lampsilis higginsii*	E/E
Iowa Pleistocene snail	*Discus macclintocki*	E/None
Northern long eared bat	*Myotis septentrionalis*	T/None
Red shouldered hawk	*Buteo lineatus*	None/T
Yellow sandshell	*Lampsilis teres anodontoides*	None/E
*E = Endangered, T = Threatened, and SOC = Iowa State Species of Special Concern		

[23] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*; and letter from the Iowa Department of Natural Resources, April 21, 2014.

Soils

Soils in the Effigy Mounds area originated from erosion of limestone bedrock and were deposited by wind or water in relatively recent geologic times. The dominant soil type in the area is Fayette Silt Loam, which is well drained and occurs on uplands and benches along stream valleys. Other soils in the area of Effigy Mounds include Boone, Caneek, Dubuque, Ion, Lacrescent, Lawson, Medary, Nordness, Paintcreek, Village, Volney, Yellowriver, and Zwingle soils. Soils underlying the mounds are emplaced by humans and are not natural soil landforms. Table 3-3 lists the soils at the Monument.

Table 3-3. Effigy Mounds National Monument Soils[24]

Soil Name	Description
Boone loamy sand	8 to 18% Slopes
Caneek silt loam	Channeled, 0 to 2% slopes, in Yellow River floodplain, prime farmland if drained
Dubuque silt loam	9 to 18% slopes, some moderately eroded, statewide important farmland
Fayette silt loam	5 to 40% slopes, some moderately eroded, statewide important floodplain
Ion silt loam	0 to 2% slopes, in floodplains
Lacrescent silt loam	25 to 70% slopes, bluffs
Lawson silt loam	O to 2% slopes, prime farmland if drained
Medary silt loam	14 to 25% slopes
Nordness silt loam	18 to 40% slopes
Paintcreek silt loam	9 to 30% slopes
Village silt loam	9 to 18% slopes, some moderately eroded
Volney silt loam	5 to 9% slopes
Yellowriver silt loam	14 to 25% slopes
Zwingle silt loam	1 to 9% slopes, statewide important farmland

[24] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument.*

Cultural Resources

Cultural Landscape Approach

Effigy Mounds National Monument contains extensive cultural resources significant for their representation of groups who constructed effigy mounds. In addition, it includes buildings and landscapes related to visitor use, parking, park administration, and maintenance facilities. Information regarding project area cultural landscapes has been organized into nine Landscape Character Areas. Landscape Character Areas are places that contain similar physical characteristics, qualities, attributes and associated cultural landscape resources. The nine Landscape Character Areas within the Monument have been defined to relate to the associated mound groups and other cultural resources. The Landscape Character Areas are illustrated on drawings EC-0 through EC-9 (at the end of this chapter) and include:

Table 3- 3. Landscape Character Area Drawings and Locations

Character Area Name	Drawing Sheet	Location
Project Area	EC-0	Entire Monument
LCA - 1	EC-1	North Unit
LCA - 2	EC-2	North Unit
LCA - 3	EC-3	North Unit
LCA - 4	EC-4	North and South Units – Visitor Center Area
LCA - 5	EC-5	South Unit
LCA - 6	EC-6	South Unit
LCA - 7	EC-7	South Unit
LCA - 8	EC-8	Heritage Unit
LCA - 9	EC-9	Sny Magill Unit

As explained in Chapter 1, Landscape Character Areas are used throughout this report to organize information about the cultural landscape. In the current chapter, descriptions of resources are presented in ten sections including the overall project area and Landscape Character Areas 1 through 9. Each section includes subheadings related to pertinent landscape characteristics followed by descriptions of existing conditions, then analysis of those characteristics. Landscape characteristics are the tangible and intangible aspects of a landscape that individually and collectively give the landscape its historic character and aid in the understanding of its cultural importance. Landscape characteristics that are relevant to the project area are: natural systems and features, archeological resources, land use, spatial organization, vegetation, views, patterns of circulation, topography, buildings and structures, small scale features and cultural traditions. Definitions of landscape characteristics are provided in Chapter 1.

Existing landscape conditions were documented by project team members during October and November of 2013. Some conditions may have changed since then. Existing conditions of buildings and small scale features are recorded as good, fair, or poor based on the following criteria:

> *Good* – Those features of the landscape that do not require intervention. Only minor or routine maintenance is needed at this time.

Fair – Some deterioration, decline, or damage is noticeable; the feature may require immediate intervention. If intervention is deferred, the feature will require extensive attention in a few years.

Poor – Deterioration, decline, or damage is serious; the feature is seriously deteriorated or damaged, or presents a hazardous condition. Due to the level of deterioration, damage or danger, the feature requires extensive and immediate attention.

Landscape analysis includes the comparison of historic site conditions to the current conditions and identifies landscape characteristics that retain integrity and contribute to the significance of the site. Integrity is the ability of a property to convey its historic significance, evidenced by the survival of physical characteristics that existed during the property's historic or pre-Columbian period. The seven qualities of integrity as defined by the National Register of Historic Places are *location*, *setting*, *feeling*, *association*, *design*, *workmanship*, and *materials*.[25]

Location is the place where the cultural landscape was constructed or the landscape where the historic event occurred.

Design is the combination of elements that create the form, plan, space, structure, and style of a cultural landscape.

Setting is the physical environment of the cultural landscape.

Materials are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form the cultural landscape.

Workmanship is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

Feeling is the cultural landscape's expression of the aesthetic or historic sense of a particular period of time.

Association is the direct link between an important historic event or person and a cultural landscape.

Contributing features are those that contribute to the Effigy Mounds National Monument's historic significance. These include individual elements and other characteristics that reflect conditions present during the periods of significance.

[25] National Park Service, *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (U. S. Department of the Interior, National Park Service, Interagency Resources Division), 44-45.

Landscape Significance and Integrity

An overview of significance is provided at the beginning of Chapter 2. Of the six General Management Plan significance statements that apply to the Monument, all relate to management of the cultural landscape except statement 4, which addresses collections related to the documentation of resources within the Monument.[26]

Individual features that contribute to significance include mounds, rock shelters, views, topography, trails and a historic road trace. Non-contributing features are those that have been added to the landscape since the end of the period of significance. Non-contributing features that assist in maintaining the historic character of the cultural landscape may be referred to as compatible features. Table 3-4 provides a summary of broad-scale contributing landscape features associated with each significance statement. More specific information about contributing features is provided in the analysis narrative sections throughout this chapter.

The primary cultural resources associated with the Monument are effigy mounds. Because of the importance of the mounds to the significance of the cultural landscape, and the need to integrate consideration of the mounds into the assessment of landscape conditions, discussions of the mounds are integrated into the cultural landscape narrative and addressed directly in the section titled "Archeological Resources."

The Monument is significant for its association with the early settlement and development of the Upper Mississippi Valley region. Two sites serve as important links to the United States' effort to settle northeastern Iowa. The portion of the presettlement military road in the project area is historically significant for its association with the United States Army's effort to resettle and remove local Indian populations in the Upper Mississippi Valley and open the region to white settlement. The site of a former sawmill built by future Confederate President Jefferson Davis is historically significant for its association with the early settlement and development of the Upper Mississippi Valley. Constructed in 1829, the sawmill was built on the first rapid above the mouth of the Yellow River to cut logs for Fort Crawford in Prairie du Chien, Wisconsin.[27] Other significant sites include a historically known trading post near the mouth of the Yellow River, as well as several possible early historic settlement sites.

[26] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*.
[27] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study, Appendix A: National Register of Historic Place, Continuation Sheet* (Omaha, Nebraska: National Park Service, Midwest Regional Office, 2003), Section 8, 1-2.

Table 3- 4. Contributing Cultural Landscape Features
Contributing landscape features are indicated in bold font.

General Management Plan Significance Statement[28]	Period of Significance	Contributing Landscape Features
Significance Statement 1: The Monument contains nationally significant archeological resources including one of the largest concentrations of burial mounds in the United States, with 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 peoples in this region prior to European contact.	before 1673	**Effigy mounds** **Rock shelters** **All state listed archeological sites pre-dating 1673**
Significance Statement 2: The natural and cultural resources of the Monument are intricately connected—the moundbuilding [sic] cultures were the result of the dynamic interface of people and their environment. The native vegetation communities associated with the moundbuilding [sic] era were 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.	Woodland Period 2,800-1,000 years ago	**Mississippi River** **Yellow River** **Vegetation** **Topography** **Geography** **Views**
Significance Statement 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 during the late 1800s began the period of understanding and preservation of rich American Indian culture.	1673-1900	**Old Military Road** **Cabin Sites** **Sawmill Site** **Camp Sites** **Trading Post Sites** **Views**
Significance Statement 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 [sic] 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.	1800- 1961	No cultural landscape features are directly associated
Significance Statement 5: The Monument is identified as a sacred landscape by present-day members of the Monument's traditionally associated American Indian Nations and Tribes.	1946-present	**Effigy Mounds** **Portal Tree** **Views**
Significance Statement 6: The Monument includes resources associated with the development of recreational facilities by the National Park Service in the late 1940s and early 1950s. The trails and related structures were initially constructed during Mission 66 and many remain today.	1946-1961	**North Unit trails and trail related structures** **Views**

[28] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*.

Overall Project Area – Natural Systems and Features

Existing Condition – Natural Systems and Features

Effigy Mounds National Monument is located in a unique ecological transition zone resulting from the varied topography of the Upper Mississippi River Valley. The landscape of the site is characterized by western prairies, eastern woodlands, floodplain terraces, and a variety of other microclimates defined by deeply furrowed stream channels and river valleys.

Major river systems dominate the landscape. The North Unit, South Unit, and Heritage Unit are located at the confluence of the Mississippi and Yellow Rivers. These units include uplands and bluffs as well as extensive areas of floodplain. The Sny Magill Unit is located near the confluence of the Mississippi and Wisconsin Rivers. The entire unit is within the river floodplain.

Analysis – Natural Systems and Features

American Indians utilized the riverine and forest resources of the Upper Mississippi River Valley. Rivers served both as a resource for food and a transportation network. The varied topography and microclimates of the region provided resources to support early economic systems based on hunting, fishing, gathering, and agriculture beginning in the Woodland period.[29] The patchy mosaic of prairie, savanna, and upland forest that characterized the area's vegetation during the period when the mounds were constructed provided excellent habitat for deer, an important hunting resource (see Chapter 2 Drawing POC-1).[30] In addition, natural funnels located in the North and South Units may have provided opportunities such as transportation routes, water access, and hunting aids for American Indians. The southernmost funnel, located in the area of the Old Military Road, has been identified as a funnel due to topography, the funnel's relationship to the river, and its continued use as a circulation route. Two other possible funnels are identified in the Monument by the presence of a circulation route and topographic similarities; however, less evidence is available to support the use of these areas as funnels (see POC-1).[31] Springs served as an important source of fresh water that was essential for human habitation.

Beginning in the seventeenth century, the Mississippi and Wisconsin Rivers also brought European trade and exploration into the region.[32] The forests of the region provided

[29] William Green, Larry J. Zimmerman, Robin M. Lillie, Dawn Makes Strong Move, and Dawn Sly-Terpstra, "Effigy Mounds National Monument Cultural Affiliation Report," *University of Iowa, Office of the State Archaeologist Research Papers* 26, no. 3 (2001), 36; James A. Brown and Robert K. Vierra, "What Happened in the Middle Archaic? Introduction to an Ecological Approach to Koster Site Archaeology," in *Archaic Hunters and Gatherers in the American Midwest*, ed. James L. Phillips and James A. Brown (New York: Academic Press, 1983), 165-195.
[30] Sarah McGuire Bogen and Sara C. Hotchkiss, *Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument* (National Park Service Great Lakes Northern Forest Cooperative, Ecosystem Study Unit Cost Sharing Grant 144-ND24, 2007), 31.
[31] William Quackenbush, Tribal Historic Preservation Officer, Ho-Chunk Nation of Wisconsin, personal interview, October 29, 2014.
[32] William E. Whittaker, and John F. Doershuk, "Where Were the Chemin des Voyageurs?" *Newsletter of the Iowa Archeological Society* 60, no. 4 (2010), 4–5.

resources for trade, particularly furs.[33] Forests were also logged to provide timber for the forts, settlements, and trading posts that expanded in the area around Prairie du Chien through the 18th and 19th centuries. The timber for Fort Crawford in Prairie du Chien was sawn at the Jefferson Davis Sawmill, within the current boundaries of the Monument (see Chapter 2 Drawing POC -2).[34] Land transportation routes were developed through the areas of least resistance whenever possible. The northern route of the military road between Fort Crawford in Wisconsin and Fort Atkinson in Iowa utilized the topographic funnel at the South Unit. The United States military took advantage of the Mississippi River as a dividing line used to define areas of American Indian removal from the east to the west. Also the river and associated topography were utilized strategically to assist in the annihilation of Ma-ka-tai-me-she-kia-kiak's (Black Hawk's) group as they attempted to retreat to safe ground in Iowa in 1832.

When the project area was opened to pioneers and prospectors in 1848, much of the land now comprising the National Monument was passed over by early farmers in search of flatter terrain more suitable to agriculture.[35] A number of farms were eventually established in the North, South, and Heritage Units of the Monument during the late 19th and early 20th centuries (see Chapter 2 Drawing POC-3).[36] Early farmers commonly tilled the blufftops and river terraces, and grazed the steeper slopes of their farmland.[37] Logging continued throughout the Monument during this time period, including in the Sny Magill Unit.[38] Farmers also made use of natural resources through agricultural products including maple syrup.[39] During this time period, the rivers remained important resources for transportation as well as clamming. Around the turn of the century, clammers for the pearl button industry established temporary camps in the future North and Sny Magill Units of the Monument.[40]

[33] Cynthia L. Peterson, "Historical Tribes and Early Forts," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009), 15.
[34] Jonathan R. Sellars and Leslie A. Ambrosino, *Cultural Resource Investigations at the Yellow River Mission (13AM289), Yellow River State Forest, Allamakee County, Iowa, CAS 314* (Creston, Iowa: Consulting Archaeological Services, 2001).
[35] Jill Y. O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument* (Omaha, Nebraska: Midwest Regional Office, National Park Service, U.S. Department of the Interior, 1989), 20.
[36] U.S. Bureau of the Census, *Federal Nonpopulation Census of Iowa*, 1850.
[37] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 22.
[38] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 23; and Elizabeth R.P. Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," (Lincoln, Nebraska: Midwest Archeological Center, National Park Service, 1988), 13-17.
[39] U.S. Bureau of the Census, *Federal Nonpopulation Census of Iowa*, 1850.
[40] National Register of Historic Places, York's Landing Determination of Eligibility, Effigy Mounds National Monument, Clayton County, Iowa, 2; and Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," 17-18.

Today, several aspects of the natural systems and features associated with the Monument landscape contribute to the significance of the cultural landscape. These include:

1. Mississippi River
2. Yellow River
3. Topography
    a. Steep cliffs along the Mississippi River
    b. Bluffs with mounds and/or long reaching views*
    c. Floodplain area of Sny Magill*
    d. Topographic funnel in the South Unit*
4. Vegetation
    a. Upland mosaic of prairie, savanna, and forest
    b. Plants appropriate for traditional uses*

Note: An * next to the feature indicates it is also addressed/listed in a character area.

The broad-scale Monument landscape retains integrity of location, setting, association, and materials related to natural systems and features. The aspects of feeling and materials are somewhat reduced due to changes in vegetation communities, however this is reversible.

Overall Project Area – Archeological Resources

Existing Condition – Archeological Resources

The project area contains extensive significant archeological resources, especially American Indian effigy mounds, which are concentrated in character areas 1-9. The landscape outside Landscape Character Areas 1-9 does not contain any known mounds. However, it does contain a number of other ephemeral quarry and habitation sites. Chapter 1 includes definitions of mound shapes discussed in this report. Conditions of mounds are described in Appendix D: Mound Conditions.

Mounds

Virtually all mound sites at Effigy Mounds National Monument (EMNM) were visited October 27–31, 2013 by the Office of the State Archaeologist. In addition, many non-mound sites were also revisited. The appearance of mounds was noted, including depressions, pits, trees, erosion, and other signs of disturbance. Mounds were photographed stereoscopically. Detailed information about the mounds, including summaries of past investigation and documentation of current conditions, is presented in the individual mound conditions section included in the Landscape Character Area descriptions. These notes describe the outward appearance of the mounds in 2013, and do not discuss historical damage to the mounds that is not visible.

In general, the mounds are in very good condition; they are well maintained, generally free of trees, and none have evidence of recent disturbance. Paths leading to and going around the mounds are typically surfaced with wood chips, and show no significant erosion. Even though the bluff tops were almost certainly clear of trees in prehistory, the mounds are typically maintained in grassy openings surrounded by tall canopy, which make for a pleasant park-like experience.

Mound Condition Overview

Table 3-5 summarizes mound conditions by group. Of the 230 mounds recorded in the area by Orr and later surveyors, 196 (85 percent) were visible in 2013. The rest are either no longer visible on the surface or questionable as they may be noncultural in origin. Of the 230 recorded mounds, 35 percent appear unblemished and in excellent condition, 17 percent have trees on them, 15 percent have trees along the edge, 27 percent have evidence of old pits or depressions, 5 percent have rodent burrows, and 6 percent have a flattened top surface.

Trees on mounds and on the edges of mounds are a preservation concern since the root systems of these trees can push around the contents of mounds. The trees can fall over, and their root systems lift out of the ground, causing large holes and extensive damage. Even if they do not lift out of the ground, the root systems of dead trees decay, often leaving large holes.

Depressions and pits can be cultural features such as ceremonial fire pits. Others may be caused by impacts from vegetation, wildlife or by previous looting or excavations. As long as the depression has grown back with vegetation, the depression itself poses no real threat to the mound's integrity. Eventually NPS, consulting tribes, and other shareholders may elect to fill in the depressions for aesthetic or cultural reasons. This type of treatment is only acceptable when it is clearly and definitively demonstrated that the depressions are not cultural resources. If undertaken, the holes should be documented carefully before filling in, preferably with total station or equivalent high-resolution mapping. Depressions that are cultural resources will not be filled.

Rodent burrows have been a long-term problem at EMNM and at just about every other mound site. Rodents are attracted to the comparatively softer soil of a mound and the higher vantage point provided by mounds.

Flat top mounds can occur for a number of reasons. It is possible the mound was intentionally constructed with a flat top, or natural settling caused the flat top. Humans walking on the mound can also flatten the top, as does driving machinery on mounds. Flat tops may also be the result of settling after a mound depression was repaired. The flat top by itself is not a preservation concern.

Analysis – Archeological Resources

During the second half of the 19th century, agriculture and logging operations within the boundaries of the future Monument expanded as the area was opened to pioneers and prospectors. Agricultural tilling impacted a number of mounds in the North Unit that were documented in 1902 by Ellison Orr (see Figure 3-1). These mounds are no longer visible on the surface; however, remnants or intaglios have been detected in subsurface magnetic data for some mounds.

Archeological resources near the current Monument headquarters and visitor center (LCA 4) were impacted by agriculture prior to the establishment of the Monument. Construction of buildings and roads for the Monument beginning in the 1950s further disturbed archeological resources in this area. Estimates indicate that remnants of about

30 to 40 mounds are located on the Nazekaw Terrace in the headquarters developed area (see Chapter 2, Figure 2-44).[41]

Logging is reported to have taken place throughout the Monument around the turn of the 20th century. Information on the locations and quantities of logging that occurred within the project area is incomplete, but it is likely that portions of all units, including Sny Magill, were impacted.[42] Logging impacts to mounds include damage inflicted by grading for logging roads, gouges made by the movement of downed trees, and deterioration of stumps left on mounds.[43] Gravel procurement during the early 20th century from pits to the southeast of Sny Magill group has impacted mounds in that location.[44]

Overbank deposition during floods also continues to impact the mounds at Sny Magill. Sediment deposits have accumulated since the end of the mound construction period. Current dam operations at Lock and Dam 10, approximately 12 miles downstream from the site at Guttenburg, Iowa, have negligible effects on flood flows at Sny Magill.[45]

[41] Midwest Archeological Center, *Known, probable, and possible mound locations in developed area*, map (U.S. Department of the Interior, National Park Service, Midwest Archeological Center, June 2012).
[42] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 23; and Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," 13-17.
[43] National Park Service, *Yellow River Cultural Landscape Inventory* (Harpers Ferry, Iowa: Effigy Mounds National Monument, 2013).
[44] Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa,", 17-18.
[45] Michael M. Benedetti, *Sedimentation Study at Sny Magill Unit, Effigy Mounds National Monument* (Wilmington, North Carolina: Department of Earth Science, University of North Carolina, 2005), 1-7.

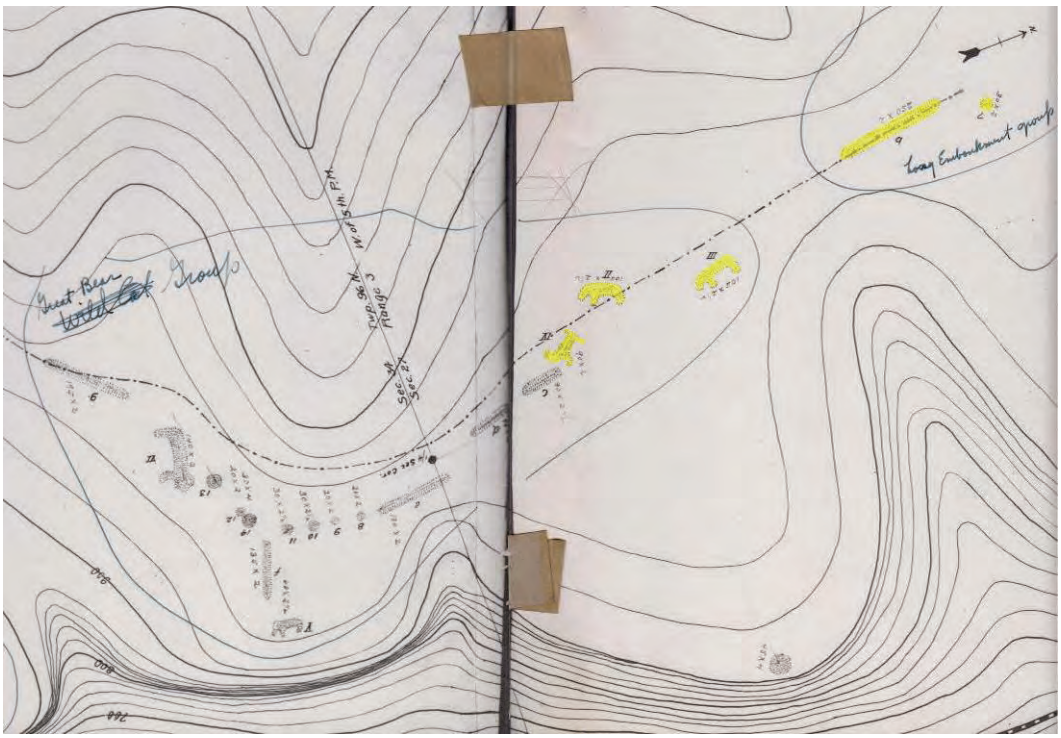

Figure 3- 1: In 1902, Ellison Orr documented a number of mounds in the Third Scenic View Mound Group (mounds 10-21 and 92-96, LCA 2 and LCA 3) that were later disturbed by agricultural tilling and are no longer visible (in yellow) (source: EMNM archives).

Overall, the archeological resources within the project area, especially the mounds, retain a high level of integrity including all seven aspects of integrity (location, setting, association, materials, feeling, design, and workmanship). Contributing features include all of the mounds and state-listed archeological sites within the Monument boundaries. A state-listed archeological site is a site that is listed in the Iowa Site File, maintained by the Office of the State Archaeologist.

Overall Project Area – Land Use

Existing Condition – Land Use

The 2013 General Management Plan (GMP) establishes three management zones within the Monument: backcountry, discovery, and development (see Chapter 1, Figure 1-3). In the backcountry zone, cultural resources are to be protected in a natural setting, with minimal development. Natural resources are to be preserved or restored to the approximate appearance of the landscape associated with the mound construction period, in addition to preserving rare habitat. In the discovery zone, visitor access and understanding of the mounds is emphasized, while maintaining a natural setting and management practices that approximate the appearance of the landscape associated with the mound construction era. In the development zone, the emphasis is placed on providing facilities and amenities for visitor services and Monument operations while striving to protect natural and cultural resources.[46]

[46] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 51.

Agricultural land surrounds the Monument to the west, north, and south. A visual buffer is generally present between visitors and adjacent properties at mound groups, although agricultural fields are visible from mounds 82 and 83 in the South Unit. While little residential development is currently visible from within the Monument, the 2013 GMP also assumes that agricultural land use surrounding the Monument will continue to be replaced with residential development based on current land development trends in the area. If realized, this development could affect views and the remote character of the landscape at the Monument in the future.[47]

Adjacent roads and railroads also affect visitor experiences within the Monument. Highway 76, a two-lane state highway, passes between the North and South Units of the Monument near the visitor center entrance. An active railroad passes immediately to the east of the North and South Units, between the Monument and the Mississippi River. Railroad tracks are visible from the visitor center, the Yellow River Bridge Trail, and from overlooks in the North and South Units. Trains can also be heard from trails within these units. A railroad track also passes near the Sny Magill Unit, on the west side of the mound group. A low underpass provides road access to the area, avoiding grade level crossing of the track.

Analysis – Land Use

Drawing LA-1: Land Use Analysis, illustrates land use which occurred in the project area at key periods of time.

Archeological documentation indicates that humans have lived in Iowa for 12,000 to 14,000 years. While there is no evidence of Paleo-Indian occupation of the project area, Late Archaic deposits were documented near Red House Landing, just outside the EMNM boundary. The deposits dated to approximately 3,000 years ago.[48] Paleo-Indian and Early Archaic cultures present in the area were likely highly mobile groups, utilizing the landscape through small-scale, short-term occupations dispersed throughout the region.[49] The Middle and Late Archaic cultures became more sedentary with groups staying in or returning to the same areas on a seasonal basis. They utilized the deciduous forest and rivers as key resource bases for hunting, fishing and gathering.

Construction of mounds began during the Late Archaic period and continued throughout the Woodland traditions. Woodland groups established larger village sites and some continued to move on a seasonal basis. Fishing, hunting and gathering continued to be important and early agricultural pursuits included manipulation of domesticated crops. Construction of the mounds is likely to have occurred seasonally. Groups gathered for the specific purpose of building the mounds and for ceremonial activities. Within the project area, landscape resources associated with the period when the mounds were constructed include the mounds and other archeological sites (see LA-1, upper left diagram illustrating land use from 6,000 through 700 years ago). Information regarding the archeological sites and their locations is protected and not presented in the CLR.

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[47] Ibid., 131.
[48] David F. Overstreet, Michael F. Kolb, James A. Clark, Lawrence Mier, and Paige Luft, *Phase II Cultural Resource Investigation at the Red House Landing Site, 13AM228, Within Pool 10 of the Upper Mississippi River, Allamakee County, Iowa* (Milwaukee, Wisconsin: Great Lakes Archaeological Research Center, Inc. Report of Investigations No. 430, prepared for US Army Corps of Engineers, Saint Paul District, St. Paul, Minnesota, 2005).
[49] Ibid.

As European explorers and traders entered into the region in the 17th century, the vicinity of Prairie du Chien became a major trading area, especially for furs, which were shipped from the Mississippi River System and interior Iowa up the Wisconsin River.[50] The mouth of the Yellow River reportedly was used by both American Indians and French traders as a camp site and trading post (see LA-2 and Chapter 2 Drawing POC-2 for conjectural locations). At least one sawmill was operating and multiple temporary trapper shelters and possibly homestead sites have been identified. A trading post and early town were located near Sny Magill.[51] Because of its proximity to the mouth of the Wisconsin River, numerous tribes inhabited the project area, and several settlements may have been located on the Monument.[52] The region also became a tension point between competing American Indian, French, English, Spanish, and American interests.[53]

Military operations, forced American Indian relocation, and trapping were major activities through the 1840s. Fort Crawford, built in 1816 on the Prairie du Chien floodplain formerly occupied by Fort Shelby, was part of a chain of forts built along the Mississippi River after the war of 1812.[54] A new Fort Crawford was constructed in 1829, utilizing timber from the vicinity of the project area and milled at the Jefferson Davis Sawmill.[55] Following the Black Hawk War, Fort Atkinson was built in 1840 on the Turkey River approximately 50 miles from the west bank of the Mississippi River across from Prairie du Chien.[56] The Old Military Road, constructed in 1838 in what is now the South Unit of the Monument, is part of the 50 mile route that was used to haul materials and troops to Fort Atkinson until the fort was abandoned in 1849.[57]

Pioneer settlement began in earnest in the area of the Monument following the removal of the Ho-Chunk in 1848. From 1848 through 1900, two ferry routes provided access from the project area across the Mississippi River to Wisconsin. Roads were developed (see circulation analysis) providing increased access and leading to the establishment of larger farms. A town was platted near the mouth of the Yellow River, and numerous buildings were constructed for use within the project area. Agricultural activities included cultivation of fields and livestock grazing. Many mounds were impacted by these

[50] Cynthia L. Peterson, "Historical Tribes and Early Forts," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009), 15.
[51] Ibid.; and Ellison J. Orr, "Miscellaneous Letters Pertaining to Archeology, 1939–1949," manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City, 105.
[52] Peterson, "Historical Tribes and Early Forts," 15; and U.S. Army, "Methode Massacre Hearings," 1827, manuscript on file, Office of the State Archaeologist, University of Iowa, Iowa City.
[53] Vicki L. Twinde-Javner, "Fort Shelby, Fort McKay, and the First Crawford, 1814–1831," in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009), 75-84.
[54] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 14.
[55] Ibid., 17.
[56] Ellison Orr, "The Story of the Half-Way House," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[57] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 18.

activities.[58] The addition of a railroad along the western bank of the Mississippi brought industrial traffic to the site.

The project area experienced major logging operations in the 19th and early 20th centuries. The forests at the site are now progressing through successional growth stages following the logging, and forest composition currently consists of oak/hickory and maple basswood stands.[59] Logging impacts to mounds from this period within the Monument include stumps, logging roads, and gouges from the movement of downed trees.[60] It is likely that hunting was an on-going use of the land throughout all of the occupation periods until the establishment of the Monument. Since the establishment of the Monument, land use within its boundary has been restricted to preservation of the resources and use for interpretation and recreation. The boundary of the Monument changed several times between 1949 and today (see Chapter 2 Drawings POC-5 and POC-6). The land added between 1970 and 2000 was used for logging and some agricultural activities. Beginning in 1946, trails constructed to provide visitor access to the mounds reflected the contemporaneous National Park Service rustic design style and philosophy of providing public access to nationally significant resources. A National Park Service effort to make trails accessible for motorized vehicles during the 1990s and 2000s has diminished the rustic style of trails in the North Unit of the Monument.[61]

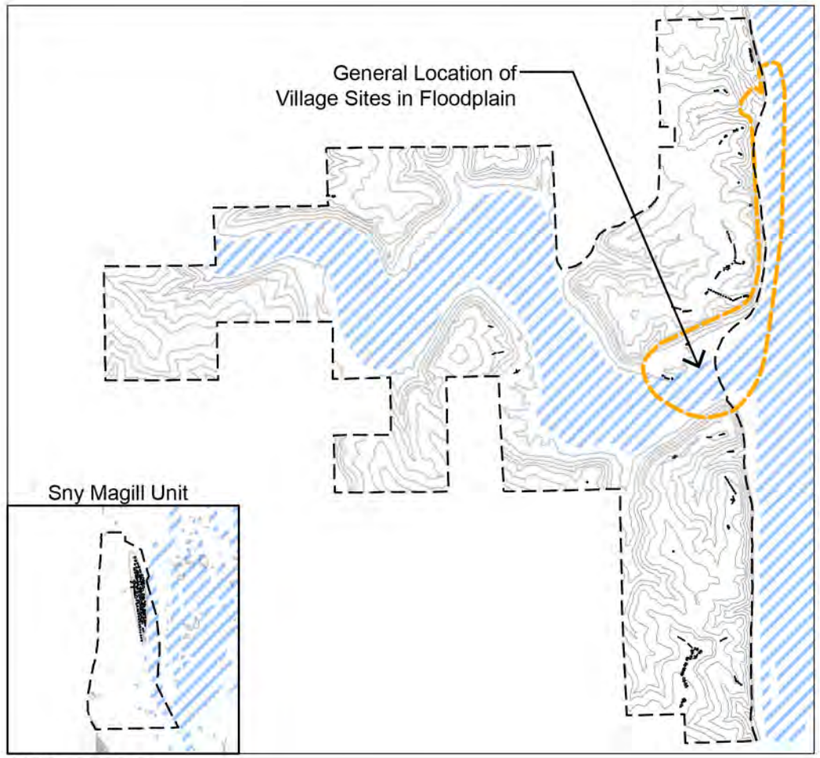
Land use at the Monument does not retain integrity related to the period when the mounds were constructed, or the period associated with European-American settlement (significance statements 1-3), but the efforts to preserve and interpret the resources are certainly compatible uses. Related to significance statement 5, the Monument does not currently host American Indian traditional activities, but opportunities may exist to establish these practices.

[58] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*.
[59] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 1999, unpublished draft, Effigy Mounds National Monument, Harpers Ferry, Iowa, 5-8.
[60] National Park Service, *Yellow River Cultural Landscape Inventory*.
[61] Jim Nepstad, correspondence with author, August, 2014.

Next page: Drawing LA-1: Landscape Analysis, Land Use

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Analysis - Land Use



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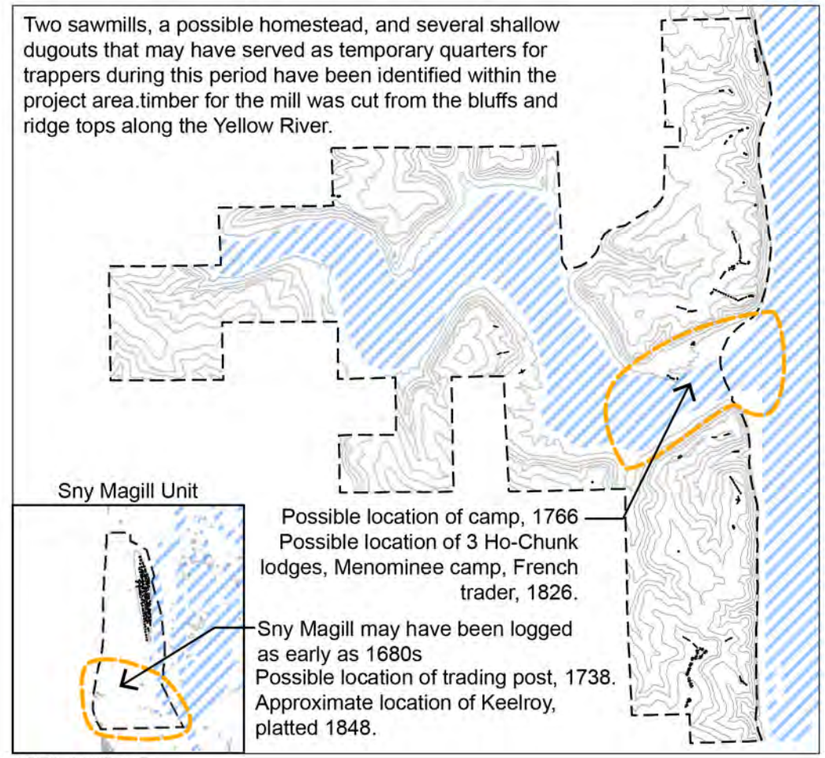
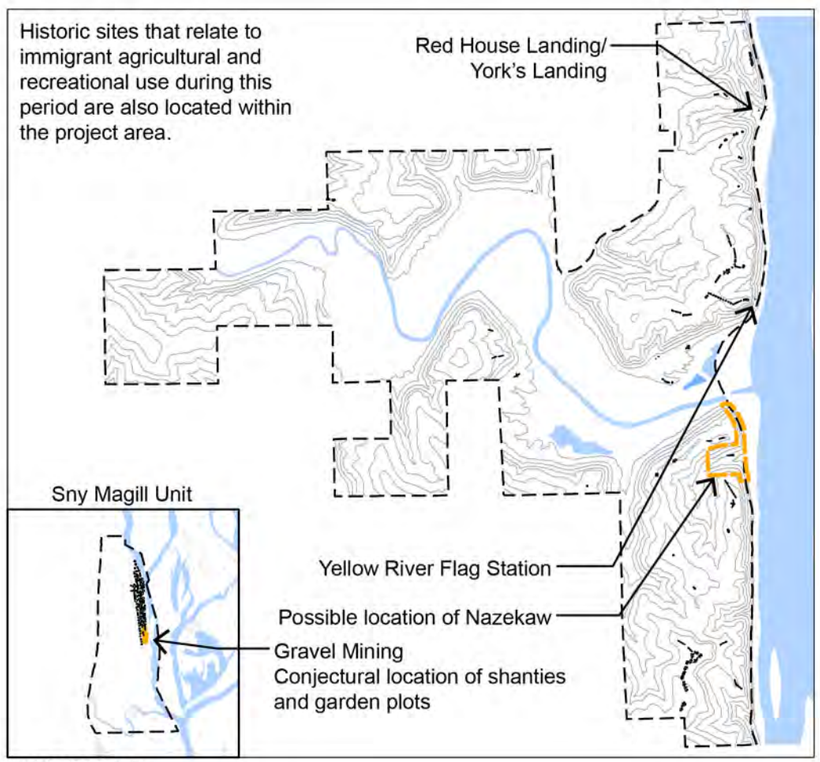
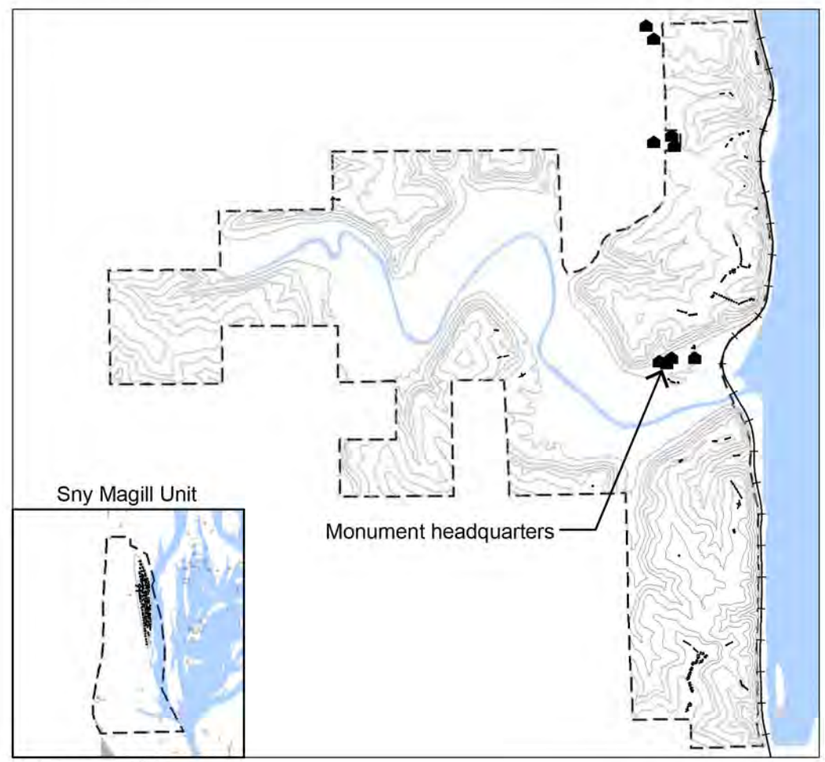


1673-1848 A.D.



1849-1945 A.D.



Existing Conditions

Legend

- Project Area
- Mound Locations
- Conjectural Location of Historic Site
- Historic Cultural Site
- Building
- River
- Conjectural Location of River
- 50 ft Contours (2 ft Contours in Sny Magill)

Sources

1. Effigy Mounds National Monument GIS Database (project area, topography, 2009 aerial photograph)
2. "Methode Massacre Hearings," 1826 (possible location of Ho-Chunk lodges, French trader, Menominee lodges)
3. Iowa Office of the State Archaeologist (historical archeological sites)
4. Orr, October 23, 1915, "Map of Prehistoric Earthworks on Bluffs Between marquette and Yellow River" (Old Military Road)
5. History of Clayton County, 1916, p. 316 (platted early town of Keelroy)
6. Mississippi River Commission, Survey of Mississippi, 1893 (vegetation, buildings)
7. Allamakee County Plat Map, 1886 (buildings)
8. Allamakee County, Fairview Township Plat Map, 1903 (buildings)
9. Allamakee County, Fairview Township Plat Map, 1917 (buildings)
10. 1930s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa, Iowa DNR.
11. 1950s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa, Iowa DNR.
12. 1990s Aerial Photographs, Clayton and Allamakee Counties, Iowa, Iowa DNR.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 1,800 3,600 7,200 Feet
1 inch = 3,600 feet

N

LA-1

Overall Project Area – Spatial Organization

Existing Condition - Spatial Organization

The North Unit, South Unit, and Heritage Unit include a combined 2,406 acres and contain 97 mounds visible in 2013. These units are located at the intersection of the Mississippi and Yellow Rivers. The South Unit is separated from the North and Heritage Units by State Highway 76.

Mound placement within the North Unit, South Unit, and Heritage Unit is strongly oriented to topography and adjacent bodies of water. Sun and celestial aspects may also have relationships to the mound placements. Mounds are frequently clustered in roughly linear groupings along ridges or bluffs that overlook the Mississippi or Yellow Rivers. Most mound groups accessed by visitors are maintained within small woodland openings enclosed by forest canopy, creating a corridor-like character strongly defined by areas of cleared vegetation and trails. Vegetation in wooded areas frequently encloses the spaces and obscures views (see Figure 3-2). A small number of mounds are located within areas of prairie. Tallgrass prairie restoration areas are present in both the North and South Units. Mounds located within prairie are obscured by prairie species unless they have been mown, trimmed, or burned to make the topography distinguishable (see Figure 3-3).

Figure 3- 2: In wooded areas as at mounds 8 and 9, vegetation encloses the space around mounds and obscures views (LCA 1) (source: QEA, 2013).

The spatial organization of prairie spaces, which have a much more open, expansive character than the wooded areas, are defined by woodland edges and mowed space around the mounds (refer to Figure 3-3).

Figure 3- 3: Mounds 19 and 20 are maintained with prairie vegetation (LCA 2) (source: QEA, 2013).

The Sny-Magill Unit is located approximately 10.5 miles south of the Yellow River Unit near the intersection of the Mississippi and Wisconsin Rivers. The Sny Magill Unit totals 120 acres and contains 99 designated mounds (mounds 1-99) and 12 mound-like features (identified as AA-AI). The mounds are clustered in an area of approximately 36 acres. In contrast to the steep bluffs of the Yellow River Unit, the Sny-Magill Unit is located entirely within the Mississippi River floodplain on a terrace approximately 10 feet above normal stage water level. The mounds are clustered closely together in roughly linear arrangements parallel to the Mississippi River.

Within both the Yellow River and Sny-Magill cultural landscapes, many of the effigy mounds appear to be oriented to adjacent rivers. Bear/wildcat effigies face downstream approximately parallel to the river along the ridge or floodplain, with their feet arranged toward the body of water. Exceptions to this observation include the Great Bear Mound (mound 31), which faces east, perpendicular to the Mississippi River, mound 64, which faces southwest, and mound 71, which faces southeast. Bird effigies are oriented to face downstream on the Mississippi and Yellow Rivers or across the Mississippi River to the east. This orientation may correspond to the sunrise at certain times of year when the mounds were in use.

Analysis - Spatial Organization

The relationships of the mounds to the topography, river, sun and celestial aspects are not comprehensively understood but it is clear that the extant mounds retain a high level of integrity related to spatial organization. The aspects of location, setting, association, materials, feeling, design, and workmanship related to the mounds all remain intact and they contribute to the significance of spatial organization within the landscape.

Overall Project Area – Vegetation

Existing Condition – Vegetation

Located in a transition zone between several vegetation communities, the Monument contains a large diversity of community types in a relatively small acreage. Vegetation within the project area includes representatives of nineteen communities (see below). The upland areas correspond to the western edge of the eastern hardwood forest, which shifts into grassland, and includes representatives of multiple stages of plant succession; from prairie, to pioneer woody species, to climax forest. The north facing slopes create a microclimate that provides habitat for plants generally found further north while the amelioration of the river valley fosters typically southern species.[62]

Vegetation Communities found within the Monument

North-central Maple-Basswood Forest,
Midwestern White Oak-Red Oak Forest,
Chinquapin Oak Bluff Woodland,
Ash-Elm-Walnut-Hackberry Semi-Natural Forest,
Silver Maple-Elm-Cottonwood Forest,
Eastern Cottonwood-Black Willow Forest,
Central Mesic Tallgrass Prairie,
Goat Prairie Remnant,
Upland Herbaceous Mix,
Upland Scrub Mix,
Buttonbush Shrubland,
Sandbar Willow Shrubland,
Reed Canary Grass Eastern Marsh,
Arrowhead-Rice Cutgrass Marsh,
Bottomland Herbaceous Mix,
Bulrush-Cattail-Burreed Shallow Marsh,
River Bulrush Marsh,
Midwest Pondweed Submerged Wetland, and
Water Lily Aquatic Wetland.[63]

The majority of the uplands and bluffs are forested and contain mesic species. Following logging operations that occurred in the early 1900s, forest communities are progressing through mid to late successional stages toward sugar maple/basswood forest if not disturbed. [64] The composition of forest species, including under story species such as sugar maple, indicate that mesic forest conditions are likely to continue in the future. Old field areas are found in both the North and South units with varying percentages of native prairie species present. Twenty-one bluff prairie remnants have been identified; eleven are in the North Unit and ten in the South Unit. All of these sites are being invaded by woody species.[65]

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[62] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 5-8.
[63] Kevin Hop, Sara Lubinski, and Shannon Menard, *U.S. Geological Survey- National Park Service Vegetation Mapping Program Effigy Mounds National Monument, Iowa* (LaCrosse, Wisconsin: U.S. Department of the Interior, U.S. Geological Survey, Upper Midwest Environmental Sciences Center, 2005).
[64] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*,5-7.
[65] Ibid.

The north portion of the North Unit including LCA-1, LCA-2, and LCA-3 (see drawings EC-0 through EC-3) includes several communities with dominant species including white oak (*Quercus alba*), shagbark hickory (*Carya ovata*), red oak (*Quercus rubra*), big tooth aspen (*Populus grandidentata*) and basswood (*Tilia americana*). Interspersed throughout the area are a variety of species including ironwood (*Ostrya virginiana*), blue beech (*Carpinus caroliniana*), eastern red cedar (*Juniperus virginiana*), and chinquapin oak (*Quercus muhlenbergii*). Openings in the wooded areas include sections of restored prairie in former agricultural fields and remnant goat prairies at bluff edges.

The southern part of the North Unit including LCA-3 and LCA-4 (see drawings EC-0, EC-3 and EC-4) is dominated by sugar maple (*Acer saccharum*), red oak (*Quercus rubra*), and shagbark hickory (*Carya ovata*). A stand of mature big tooth aspen (*Populus grandidentata*) is present at the interface between forest and old pastures. The South Unit includes LCA-5 through LCA-7 (see drawings EC-0 and EC-5 through EC-7) is mainly forest dominated by sugar maple (*Acer saccharum*) and red oak (*Quercus rubra*); large white oak (*Quercus alba*) and shagbark hickory (*Carya ovata*) are also common. The steep west- facing slope on the west side of the unit is dominated by sugar maple (*Acer saccharum*). The river floodplain environment at the Sny Magill Unit (see EC-0 and EC-9) supports vegetation dominated by silver maple (*Acer saccharinum*), elm (*Ulmus* spp.), and green ash (*Fraxinus pennsylvanica*). Swamp white oak (*Quercus bicolor*) is also common.[66]

In the Sny Magill Unit, mounds are located primarily within floodplain forests characterized by ash-elm-walnut-hackberry semi-natural forest and silver maple-elm-cottonwood forest, with some mounds closest to the Mississippi River located in bottomland herbaceous mix vegetation.[67] These communities are typical of the floodplain, including wetland forests of silver maple (*Acer saccharinum*), cottonwood (*Populus deltoides*), green ash (*Fraxinus pennsylvanica*), and elm (*Ulmus* spp.), with willow (*Salix* spp.) and buttonbush (*Cephalanthus occidentalis*) shrub growth. Floodplain wetland species have been influenced by navigation water management of the Mississippi River controlled by the U.S. Army Corps of Engineers with locks and dams, which create vegetation communities more typical of slower flowing waters than a large river system.[68]

Throughout the Monument, vegetative cover on mounds varies (see Figures 3-2 through 3-5). In woodland areas mound cover includes grasses, sedges, herbaceous perennials, shrubs, leaf cover and (minimal) bare patches. In most interpreted areas vegetation on mounds is maintained as trimmed herbaceous species. A buffer ranging from 1 to 50 feet is cleared from around mounds to facilitate maintenance and visibility; a buffer strip between 5 and 20 feet wide from the base of the mounds is most common. The effect of the cleared forest undergrowth and tree canopy reinforces the corridor-like character associated with many of the mound groups.

Invasive species of vegetation including multiflora rose (*Rosa multiflora*), Canada thistle (*Cirsium arvense*), reed canary grass (*Phalaris arundinacea*), mullein (*Verbascum thapsus*), honeysuckle (*Lonicera* spp.), bull thistle (*Cirsium vulgare*), and garlic mustard

[66] Ibid., 5-6.
[67] Hop et al., *U.S. Geological Survey- National Park Service Vegetation Mapping Program Effigy Mounds National Monument, Iowa*.
[68] Ibid.

(*Alliaria petiolata*) are present throughout the Monument. The Monument is actively working to control invasive species using a variety of treatments including burning seed heads, application of herbicide, and pulling invasive species. Throughout the 2013 growing season, staff at the Monument undertook widespread herbicide treatment of garlic mustard and other invasive species in the Heritage and North units of the Monument. Within the Heritage Unit, herbicide treatment was performed on vegetation outside the mounds only. In August, 2013, multiflora rose treatment including cutting and application of herbicide was undertaken at mounds throughout the Monument.

Figure 3- 4: Woody and herbaceous species on mounds in the Fire Point Mound Group (LCA 3) (source: QEA, 2013).

Figure 3- 5: Trimmed lawn on and around mounds at the Sny Magill Unit (LCA 9) (source: QEA, 2013).

Analysis – Vegetation

Drawing LA-2: Vegetation Analysis, illustrates vegetation present at the project area at key periods of time.

Paleoclimatic data from the study area indicate that the Middle Archaic period (approximately 7,500 to 5,000 years ago) was the warmest and driest on record. During this time, the prairies expanded into the area. The charcoal record indicates that frequent and sometimes large or intense fires were present on the landscape. Major river valleys offered more abundant wetland and forest resources, possibly drawing people to these landscapes. Pockets of mesic forest and oak savanna likely remained on the landscape.[69] About 2000 years ago, temperatures cooled and the extent of the prairies began to decrease as the vegetation transitioned to oak savanna with a mosaic of prairie, upland forest, and floodplain forest. Regular fires on the landscape decreased approximately 1,700 years ago during the Middle Woodland period, and the regional landscape transitioned to greater tree cover, although prairie and savanna were still prevalent in the region. [70]

To understand the likely distribution of vegetation on the landscape during the time when mounds were constructed at the Monument, inferences from current and historical distributions of vegetation indicate a mosaic of prairie openings, oak savanna, and upland forest were likely to have occurred on the bluff tops and south-facing slopes where drier conditions are present. North-facing slopes with cooler conditions are more likely to have been characterized by upland forests with reduced frequency of oak savanna or prairie (see LA-2, upper left diagram). Floodplain forests and wetland species would likely have occupied the floodplains along the Mississippi, Wisconsin, and Yellow Rivers.

In the 19th century, explorers and artists documented a landscape of steep vegetated bluffs with bald bluff tops dotted with scattered trees and floodplain forests in valleys between the bluffs.[71] Ecosystem types interpreted from Government Land Office surveys of the area between 1838 and 1849 describe a landscape characterized by a mix of mesic hardwood forests and oak savanna on the bluffs and blufftops, with local variations based on topography, aspect, slope, and soils. Floodplain forests and wet meadows were located along the rivers (see LA-2, upper right diagram).[72]

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[69] Green et al., "Effigy Mounds National Monument Cultural Affiliation Report," 37-38.
[70] Bogen and Hotchkiss, *Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument*, i; and Betsie Blumberg, "Reconstruction prehistoric ecology to restore the paleo-environment at Effigy Mounds" *Park Science* 26, no. 2 (2009): 12-13.
[71] George Catlin, V*iew on the Wisconsin River, Winnebago Shooting Ducks*, Smithsonian American Art Museum, Luce Foundation Center for American Art, 1836-1837; George Catlin, *View on the Upper Mississippi, Beautiful Prairie Bluffs*, Smithsonian American Art Museum, Luce Foundation Center for American Art, 1835-1836; Lewis, 1830, in *Frontier Forts of Iowa: Indians, Traders, and Soldiers, 1682–1862*, ed. William E. Whittaker (Iowa City, Iowa: University of Iowa Press, 2009); T.H. Macbride, "Forest Trees of Allamakee County, Iowa," in *Geology of Allamakee County*, Samuel Calvin (Iowa Geological Survey Annual Report, Vol. 4, 1894), 112-120; David Dale Owen, *Report of a Geological Exploration of part of Iowa, Wisconsin, and Illinois: Made Under Instructions from the Secretary of the Treasury of the United States, in the Autumn of the Year 1839; with Charts and Illustrations* (Washington, D.C.: U.S. Government Printing Office, 1845).
[72] Theodore A. Sickley and David J. Mladenoff, "Ecosystem Type from Historic Land Survey Records," University of Wisconsin-Madison, Department of Forest Ecology and Management,

Figure 3- 6: View of the bluff line currently located within the South Unit of Effigy Mounds National Monument in painting by George Catlin, *Ball-play of the Women, Prairie du Chien,* 1835-1836 (source: Smithsonian American Art Museum Luce Foundation Center for American Art).

Figure 3- 7: Present-day view of the Effigy Mounds National Monument bluff line as seen in *Ball-play of the Women, Prairie du Chien.* Forest cover is significantly denser on the bluffs today compared to Catlin's 1835-1836 depiction. Islands within the river were forested in the historic period and remain so in the modern photograph (source: Effigy Mounds National Monument).

The Nature Conservancy Wisconsin, 2014; John Almendinger, "Minnesota's Bearing Tree Database," 1996; and Minnesota Department of Natural Resources, "Field Guide to the Native Communities of Minnesota: the Eastern Broadleaf Forest Province," 2005.

As pioneers moved into Clayton and Allamakee Counties, agricultural fields were planted on broad ridges that were likely prairie openings.[73] Logging operations decreased the forest cover throughout the Monument during this period (see LA-2 lower left diagram).[74] Aerial photographs of the study area indicate that canopy cover increased throughout the Monument during the 20th century (see Chapter 2). By the 1990s, woody species had significantly encroached on open fields in both the North and South units of the Monument (see LA-2 lower right diagram).[75]

Though the species composition of the forest prior to 1987 closely resembles the early 19th century conditions, the higher percentage of bur oak (a fire tolerant species) and the lower percentage of sugar maple (a fire intolerant species) in the presettlement era suggest that fire was a significant ecological modifying force.[76] In 1987, the Monument implemented a 3-year rotating prairie restoration/ prescription burning cycle utilizing prescribed burns in areas with the greatest potential for response to fire in the North and South units.[77] Savanna restoration in the North and South units was initiated in 1998, and included cutting or girdling non-savanna species.[78] Subsequent surveys have revealed the restorations represent good diversity of local ecotype species, and low frequency of non-native cool season grasses.[79]

Currently, the majority of the mounds are located within deciduous forest and mixed forest along ridges in the North Unit, South, Unit, and Heritage Unit, with two mounds located within prairie species (see drawings EC-0 through EC-9).[80] Prairie and savanna

[73] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*.
[74] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 23.
[75] Agricultural Adjustment Administration (AAA), *1930s historic aerial photograph, Clayton County, Iowa*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014. http://www.igsb.uiowa.edu/nrgislibx/; Agricultural Stabilization and Conservation Service, *1950s Aerial Photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014, http://www.igsb.uiowa.edu/nrgislibx/; Agricultural Stabilization and Conservation Service, *1960s Aerial Photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014. http://www.igsb.uiowa.edu/nrgislibx/; Agricultural Stabilization and Conservation Service, *1970s Aerial Photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014. http://www.igsb.uiowa.edu/nrgislibx/; National High Altitude Photography Program, *1980s Aerial Photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014. http://www.igsb.uiowa.edu/nrgislibx/; and Natural Resources Conservation Service, *1990s aerial photograph, Clayton and Allamakee Counties*, Iowa DNR Natural Resources Geographic Information Systems Library, accessed 2014. http://www.igsb.uiowa.edu/nrgislibx/.
[76] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 5-7.
[77] Thomas A. Munson, "Annual Narrative Reports of Superintendents and Regional Directors," 1991," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1992), 2-3; and "Environmental Assessment Fire Management Plan, Savannah and Prairie," August 1987, Effigy Mounds National Monument Archives, Harpers Ferry, Iowa, 1, 5-7, 17-20.
[78] Kathleen Miller, "Annual Narrative Report of Superintendents and Regional Directors, 1998," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1999), 7-8.
[79] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 16-17.
[80] Hop et al., *U.S. Geological Survey- National Park Service Vegetation Mapping Program Effigy Mounds National Monument, Iowa*.

restoration efforts have successfully increased diversity indexes for these areas.[81] A comparative view indicating changes in the vegetative communities on the bluffs near the Monument between the mid-19th century and today is presented in Figures 3-6 and 3-7.

Traditionally, plants were utilized for a wide range of applications. During field investigations in October and November 2013, 94 plants with traditional uses known to the Ho-Chunk Nation of Wisconsin were identified within the project area (see Chapter 2 for a list of the species identified). In addition, a Portal Tree was identified near mounds 85 and 86 in the South Unit, LCA-7 (see drawing EC-7).

Three categories of vegetation within the Monument contribute to the significance of the cultural landscape:

a. Native plant communities including upland mosaic of prairie, savanna, and forest
b. Plants appropriate for traditional uses
c. Plants used for wayfinding—Portal Tree (see LCA-7)*

On a broad scale, native vegetation plant communities appear to reflect plant communities present during the period of mound construction, retaining integrity of association. The relative balance of prairie/savanna to forest has shifted with more forest and less prairie/savanna present today then during the mound construction period. This shift has resulted in a reduction of integrity related to location, setting, feeling, and materials. The aspects of design and workmanship are difficult to apply to native plant communities as their conditions are directly related to natural systems.

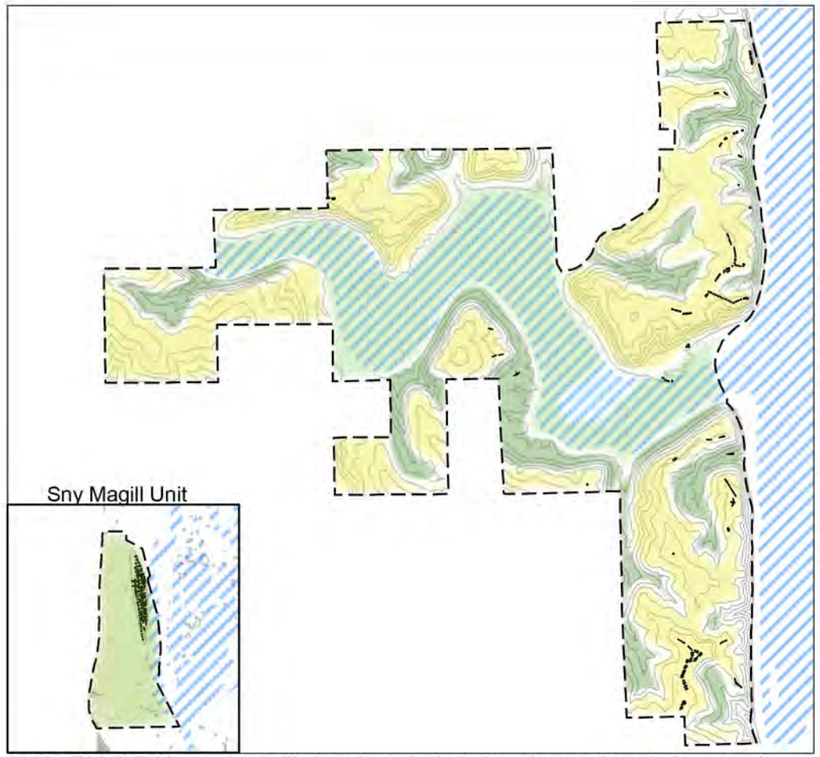
Note: An * next to the feature indicates it is also addressed/listed in a character area.

[81] Miller, “Annual Narrative Report of Superintendents and Regional Directors, 1998,” 7-8.

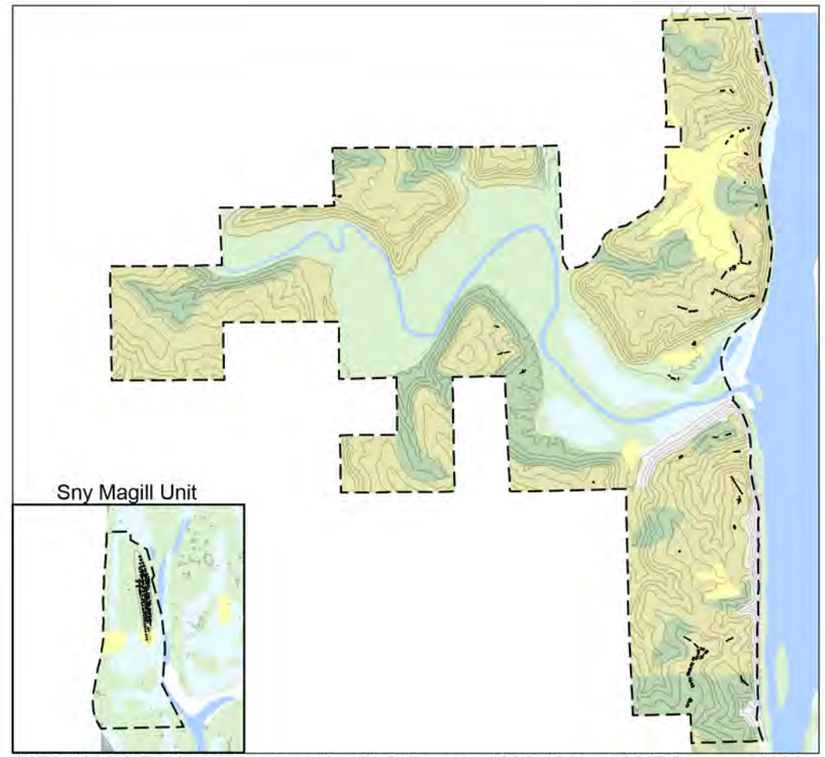
Next page: Drawing LA-2: Vegetation Analysis

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

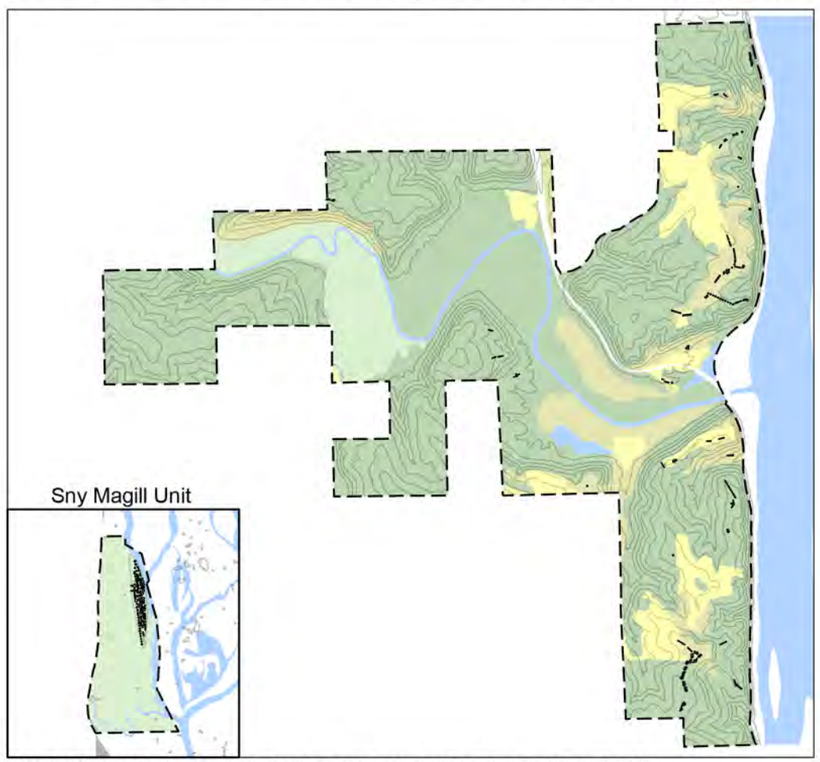
Landscape Analysis -- Vegetation



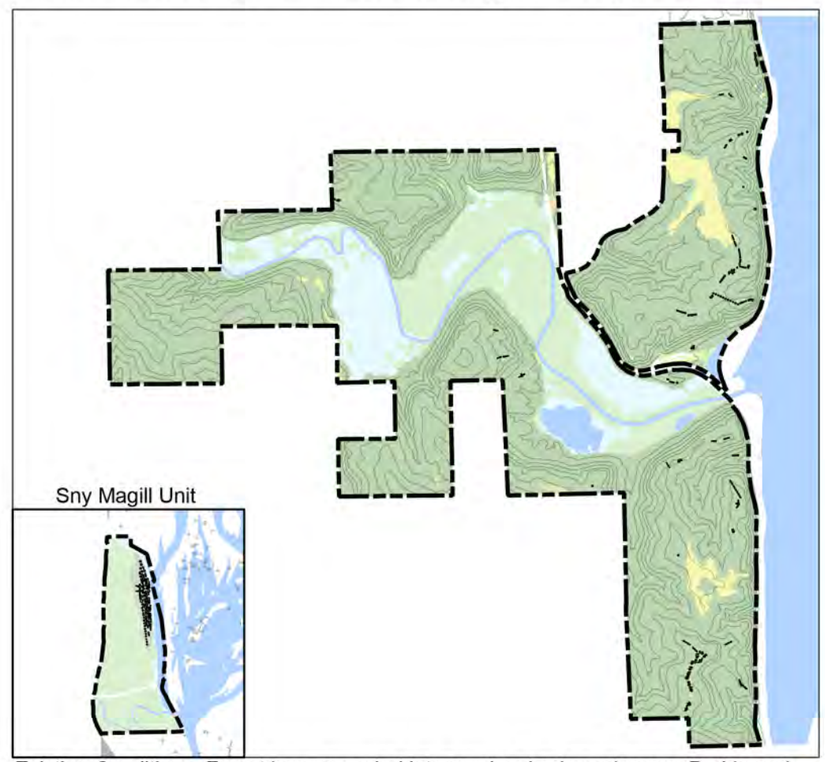
6000 - 700 B.P. Vegetation is likely to have included a mixture of mesic forest, oak woodland, and savanna. Significant landscape fires also occurred during this period.



1673-1900 A.D. Vegetation from the GLO Surveys 1838-1849 and MRC survey 1893 includes forested blufftops with forested or bare slopes and floodplain forests.



1849-1945 A.D. Agriculture and logging take place throughout EMNM.



Existing Conditions. Forest has expanded into previously cleared areas. Prairie and savannah restoration efforts have reestablished native grassland species.

Legend

- Monument Boundary
- Project Area
- Mound Locations
- Lawn
- Open Field, Including Prairie or Oak Savanna
- Range of Upland Vegetation Types Distributed by Topography and Moisture Conditions Including Maple Forest, Oak Woodland, Oak-Hickory Forest, Oak Savanna, and Prairie
- Forest
- Forested Wetland
- Nonforested Wetland
- Cliff/Talus
- Rivers and Ponds
- Conjectural Location of Rivers
- 50 ft Contours (2 ft in Sny Magill)

Sources

1. Effigy Mounds National Monument GIS Database (project area, monument boundary, topography)
2.6000-700 BP vegetation communities estimated based on Sarah McGuire Bogen and Sara C. Hotchkiss. 2007. Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument. National Park Service Great Lakes Northern Forest Cooperative, Ecosystem Study Unit Cost Sharing Grant 144-ND24.
3. 1673-1848 Mississippi River Commission, Survey of Mississippi, 1893from USGS Upper Midwest Environmental Sciences Centervegetation modified from Denise Boudreau, 2012; and modified from Government Land Office Surveys, Clayton and Allamakee Counties, 1832-1849; John Almendinger, "Minnesota's Bearing Tree Database," 1996; and Minnesota Department of NaturalResources, "Field Guide to the Native Communities of Minnesota: the Eastern Broadleaf Province," 2005.
3. 1848-1945 vegetation estimated from 1930s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa DNR.
4. Existing conditions vegetation from Effigy Mounds National Monument Vegetation Mapping Project, 2005.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 1,800 3,600 7,200 Feet
1 inch = 3,500 feet

N

LA-2

Overall Project Area – Views

Existing Condition – Views

Views play an important role in establishing the feeling and character of historic landscapes. Visual continuity within a viewshed can reinforce understanding; alternatively, insertion of incongruous elements within a view can greatly impair the ability of a landscape to clearly represent the conditions present during the period of significance.

The high relief topography of the North Unit, South Unit, and Heritage Unit affords dramatic panoramic views of the Mississippi and Yellow River valleys. A number of these views are presented to visitors at overlooks throughout the North and South units including: Hanging Rock Overlook (see Figure 3-8 and drawing EC-1), Third Scenic Overlook (see Figure 3-9 and EC-2), Twin Views (see Figures 3-10 and 3-11 and EC-2), Fire Point Overlook (see Figures 3-12 through 3-13 and EC-3), Eagle Rock Overlook (see Figure 3-14 and EC-3), Nazekaw Point Overlook (see Figure 3-15 and EC-5), and Founders Pond Overlook (see Figure 3-16 and EC-5). Constructed overlooks throughout the North and South units frequently include wooden railings, stone or wood retaining walls, benches, and trash receptacles.

Views between mounds and mound groups are also primarily defined by the topography and vegetation of the site. During the summer, views from some ridges to the river are entirely blocked by dense vegetation. As the seasons change, so do the views. Intermittent views of the river valleys appear when deciduous trees drop their leaves. When the river valley views are screened by vegetation, visitors become more focused toward mound groups, and a sense of partial enclosure is created. While the enclosure of vegetation frequently defines a view within a mound group, visually uniting the space, views between mounds are also visually separated from nearby groups due to variations in the topography. This effect separates large mound groups into smaller clusters that are enhanced by the undulating topography (see Figure 3-17).

Figure 3- 8: View from Hanging Rock Overlook (LCA 1) (source: QEA, 2013).

Figure 3- 9: View from Third Scenic Overlook (LCA 2). Hanging Rock is partially visible from the overlook, but obscured by vegetation (source: QEA, 2013).

Figure 3- 10: View from North Overlook, Twin Views Overlook (LCA 2). Vegetation partially obscures the view (source: QEA, 2013).

Figure 3- 11: View from South Overlook, Twin Views Overlooks (LCA 2) (source: QEA, 2013).

Figure 3- 12: View from Fire Point Overlook, looking North (LCA 3) (source: QEA, 2013).

Figure 3- 13: View from Fire Point Overlook, looking south (LCA 3) (source: QEA, 2013).

Figure 3- 14: View from Eagle Rock Overlook (LCA 3) (source : QEA, 2013).

Figure 3- 15: View from Nazekaw Point Overlook (LCA 5). (source, QEA, 2013).

Figure 3- 16: View from Founders Pond Overlook (LCA 5) (source: QEA, 2013).

Figure 3- 17: View looking south from mound 78 (LCA 7). Undulating topography visually separates mounds 69-81 from mounds 82 and 83 in the Marching Bear Mound Group. Mounds 82 and 83 are located on the other side of the rise—the topography screens views of these mounds (source: QEA, 2013).

Analysis - Views

It is believed that visual relationships to the broader landscape influenced site selection for mound construction and other associated American Indian activities. Consultation with tribes of interest will help to determine if current views are significant according to Significance Statements 1, 2 and 5.

Overlooks established between 1946 and 1961 reflect the NPS rustic style and contribute to the significance of the Monument landscape according to Significance Statement 6. These are summarized in the following sections addressing Landscape Character Areas 1-9.

Figure 3- 18: Twin Views South Overlook, 1961 (LCA 2) (source: EMNM negative 218, 069.82).

Figure 3- 19: Twin Views Overlook, South Viewpoint, 1962 (LCA 2) (source: EMNM negative 44, 06282).

Figure 3- 20: Twin Views Overlook, North Viewpoint, 1962 (LCA 2) (source: EMNM negative 45, 069.82).

Figure 3- 21: Visitors at Fire Point Overlook, 1984 (LCA 3) (source: EMNM negative 2221, 069.671).

Figure 3- 22: Fire Point Overlook, 2013 (LCA 3) (source: QEA).

Overall Project Area – Patterns of Circulation

Existing Condition – Patterns of Circulation

Vehicular Circulation

Primary access to Effigy Mounds National Monument is by automobile. Highway 76 provides road access to the North Unit, South Unit, visitor center, maintenance facility, and the primary visitor amenities. Vehicular access points include a large parking lot at the visitor center adjacent to Highway 76 and a small gravel parking lot on the east side of Highway 76 near LCA 5. The gravel parking area on the east side of Highway 76 is located on property owned by the Iowa DNR. From this location, visitors must cross railroad tracks and Highway 76 in order to access the South Unit trail head. The crossing is unexpected by motorists and poses a danger to pedestrians. Other vehicular access in the North Unit, South Unit, and Heritage Unit is restricted to NPS maintenance vehicles or access for visitors with disabilities. These routes include gravel and unpaved maintenance roads in the North and South units. The Great River Road (Highway X56) is the route used to reach the unpaved access road in the Sny Magill Unit that terminates in a boat ramp on the west bank of the Mississippi River.

A railroad line extends along the eastern edge of the North Unit and South Unit, adjacent to the western bank of the Mississippi River. It is actively used for freight traffic. The line continues to the south along the river bank past McGregor and Pikes Peak State Park. Just above the Sny Magill Unit, the track veers southwest, leaving the river bank and avoiding the wide river floodplain by hugging the base of the slope. The track is elevated on a constructed berm on the west side of the Sny Magill Unit, necessitating an underpass for the unpaved access road. The underpass floods frequently, disrupting access to the boat ramp and mounds.

Pedestrian Circulation

A total of 10 miles of trails currently exist at the Monument. The trails are primarily used to provide visitor access to mounds and viewpoints located throughout the park. There are approximately 5 miles of trails in the North Unit of the Monument and 4 miles of trails in the South Unit. A one-mile long trail is located at the Sny Magill Unit.

Trail surfaces in the North Unit include wood chips, dirt, and bridges. The trails are in good condition with the exception of some eroded areas near the north boundary of the Monument. In the South Unit, trails and maintenance access share a gravel road established along the route of a 19th century logging road. Additional hiking trails provide access to mound groups. Some trails within the unit make use of the Old Military Road for access to mounds, and historic retaining walls can be seen along this route.

Throughout the North and South Units, mowed buffers provide additional opportunities for visitors to walk amongst the mounds. Since many mounds are low relief and vegetation on the mounds is trimmed, this buffer may not adequately discourage visitors from walking on mounds. According to Ho-Chunk Nation of Wisconsin cultural tradition, the most respectful way to approach effigy mounds is to pass by the “foot” side of the effigy. Existing trails throughout the Monument generally conform to this tradition with the exception of the trail at mound 66, which passes to the east side of a bird effigy. At the Marching Bear Group, no preferred pathway is indicated for visitors utilizing mulch or gravel trail surfaces. Similarly, no pattern of circulation is defined amongst the mounds at the Sny Magill Unit.

No formal trail access is available to reach the mounds in the Heritage Unit, and visitors are not encouraged to hike to these mound groups. In order to access mounds in the Heritage Unit, Monument staff pass through private property adjacent to the Monument and hike to the mounds. Informal trails in the Heritage Unit are not maintained by EMNM staff.

A boardwalk provides access to mounds 55-57 near the visitor center. Unfortunately, the viewing platform at this site is one step up from the boardwalk, eliminating wheelchair access to the platform and the wayside is mounted too high for viewing by those in wheelchairs (see Figure 3-23). An accessible boardwalk trail, the Yellow River Bridge trail, runs south from the visitor center area across the Yellow River. No mounds are visible from this boardwalk.

Figure 3- 23: A raised viewing platform is located at the boardwalk at mounds 55-57 (LCA 4) (source: QEA, 2013).

Traces of the Old Military Road that provided a 19th century connection between Fort Crawford, Wisconsin, and Fort Atkinson, Iowa, are located within the South Unit. Remnants of the Old Military Road are in poor condition. The surface of the road varies from stone subbase to native soil, and is frequently difficult to discern due to encroaching vegetation and erosion. Portions of the road have been surfaced with gravel and used as an access road to the South Unit. The gravel road is in poor condition, with extensive damage due to erosion. Other portions of the road have been surfaced with woodchips and are utilized as trails. The wood chip trails are in good condition. More information about the route is provided in the narrative section addressing Landscape Character Area 7.

Analysis – Patterns of Circulation

It is likely that the Mississippi and Yellow Rivers were the primary circulation routes used in the area during the mound construction period. A natural funnel created by the topography of the site, particularly as seen in the South Unit near the Old Military Road, may have created an easy path, game trails, and opportunities for hunting that would have been used by inhabitants.

Transportation routes along the Mississippi and Yellow Rivers played a significant role in early European exploration of the Upper Mississippi River Valley during the seventeenth and eighteenth centuries. Explorers followed trade routes such as the *Chemin des Voyageurs*, which connected the mouth of the Wisconsin River with the middle of the Missouri River, to make their way into Iowa.[82] The area around Prairie du Chien was established as a major trading area. Two trading posts may have been established within the project area at the confluence of the Yellow River and the Mississippi, and at the head of Sny Magill slough.[83]

The Old Military Road was constructed in 1840 to connect Fort Crawford, in Prairie du Chien, Wisconsin, Fort Atkinson, Iowa, 50 miles to the west. Between 1840 and 1848, military detachments from both forts traveled the route "as they conducted their order to remove squatters from the Neutral ground, return American Indians to the appointed reservations, and attempt to prevent hostilities."[84] Military use of the road ceased in 1849 following the abandonment of Fort Atkinson and Fort Crawford, though civilian use of the road continued until about 1860. The road separated into an upper and lower route to allow travelers on horseback and wheeled vehicles to traverse the steep topography separately. [85]

Transportation networks expanded following the removal of the Ho-Chunk from the Neutral Ground in 1848, drawing prospectors and pioneers. During the 1850s, several ferry licenses were granted for ferries between Prairie du Chien and the west bank of the Mississippi River. Two ferry landings were established adjacent to the project area: a landing at the town site of Nazekaw on the south bank of the Yellow River, and Red House Landing or York's Landing, just to the south of Hanging Rock.[86]

Road and rail networks soon surpassed the river as the primary forms of access to the site. During the second half of the 19th century, the first bridge across the Yellow River was constructed. County Road 170, which runs along the south bank of the Yellow River, was built in March 1858.[87] Another road possibly constructed during this time period is indicated by Orr on a later map; the road may have connected a portion of the Old

[82] Whittaker, and Doershuk, "Where Were the Chemin des Voyageurs?" 4–5.
[83] Peterson, "Historical Tribes and Early Forts," 12-29; and Ellison J. Orr, "Miscellaneous Letters Pertaining to Archeology, 1939–1949," 105.
[84] National Register of Historic Places, Old Military Road Determination of Eligibility, Effigy Mounds National Monument, Clayton County, Iowa, 3.
[85] Ibid., 3-4.
[86] David C. Anderson, "The Development of Allamakee County's Road System, 1840-1942," (final project prepared for the Allamakee County Historic Preservation Commission, 1993).
[87] Ibid.

Military Road to the townsite of Nazekaw.[88] The Chicago, Dubuque, and Minnesota railway opened the section of track between Harpers Ferry and McGregor, Iowa, in 1872.[89] A number of logging roads throughout the Monument were also constructed during this time period.[90]

Trails at the Monument were later developed from the routes of old roads. In the South Unit, trails follow the path of portions of the Old Military Road and road to Nazekaw. In the North Unit, some trails followed old farm roads (see drawing LA-3).

Figure 3- 24: Stone trail steps at Fire Point Trail loop junction, 1954 (LCA 4) (source: EMNM negative 296, 069.671).

[88] Ellison Orr, "Map of Prehistoric Earthworks on Bluffs between Marquette and Yellow River" 1915, map, in Ellison Orr, "Sundry Archeological Papers and Memoranda, vol. 12, 1942," manuscript, Office of the State Archaeologist, University of Iowa, Iowa City.
[89] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study*, 39.
[90] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 23; and Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," 13-17.

Figure 3- 25: Fire Point Trail at mound 33, 1952 (LCA 3) (source: EMNM negative 68, 069.671).

Figure 3- 26: Fire Point Trail at mound 33, 1952 (LCA 3) (source: EMNM negative 70, 069.671).

Figure 3- 27: Fire Point Trail Bridge, 1951 (LCA 3) (source: EMNM negative 95, 069.671).

Figure 3- 28: Fire Point Trail steps, bridge and sign, 1952 (LCA 3) (source: EMNM negative 147, 069.671).

Figure 3- 29: Trail loop at Eagle Rock, 1952 (LCA 3) (source: EMNM negative 100, 069.671).

Figure 3- 30: Fire Point Trail switchback on bluff-side, 1951 (LCA 3) (source: EMNM negative 131, 069.671).

Figure 3- 31: Trail to Great Bear Mound, 1951(LCA 3) (source: EMNM negative 156, 069.671).

Figure 3- 32: Trail between Little Bear and Fire Point, ca. 1961 (LCA 3) (source: EMNM negative 217, 069.671).

Figure 3- 33: Construction of new trail near Fire Point Mound Group, August 1952 (LCA 3) (source: EMNM negative 232, 069.671c).

Figure 3- 34: Trail to Great Bear Mound, Spring 1954 (LCA 3) (source: EMNM negative 259, 069.671).

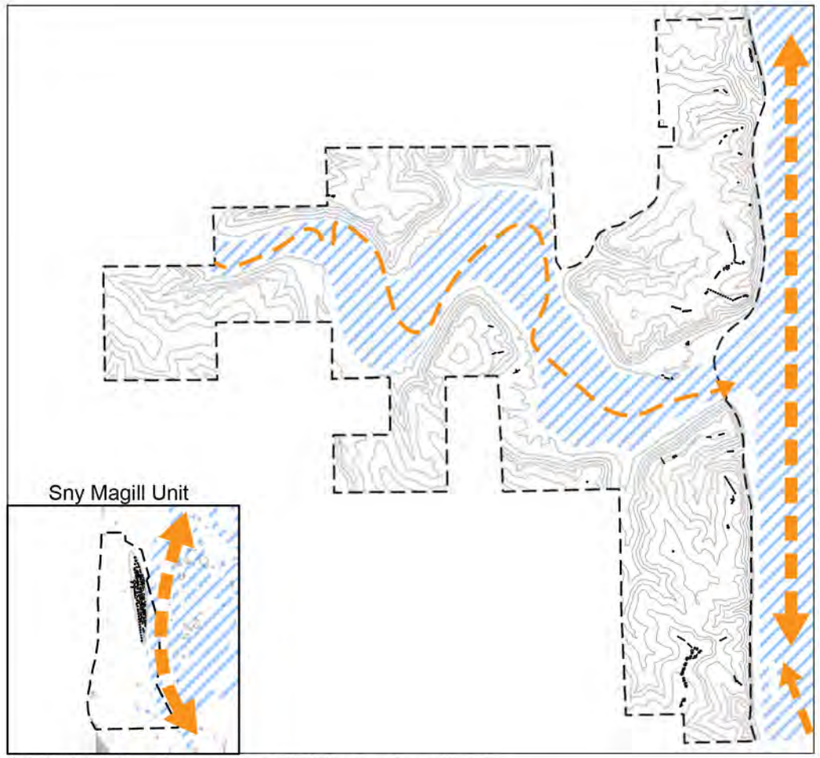
Figure 3- 35: Fire Point Trail switchbacks, prickly ash planted along trail to prevent shortcutting, 1970 (LCA 3) (source: EMNM negative 1548, 069.671).

Next page: Drawing LA-3: Circulation Analysis

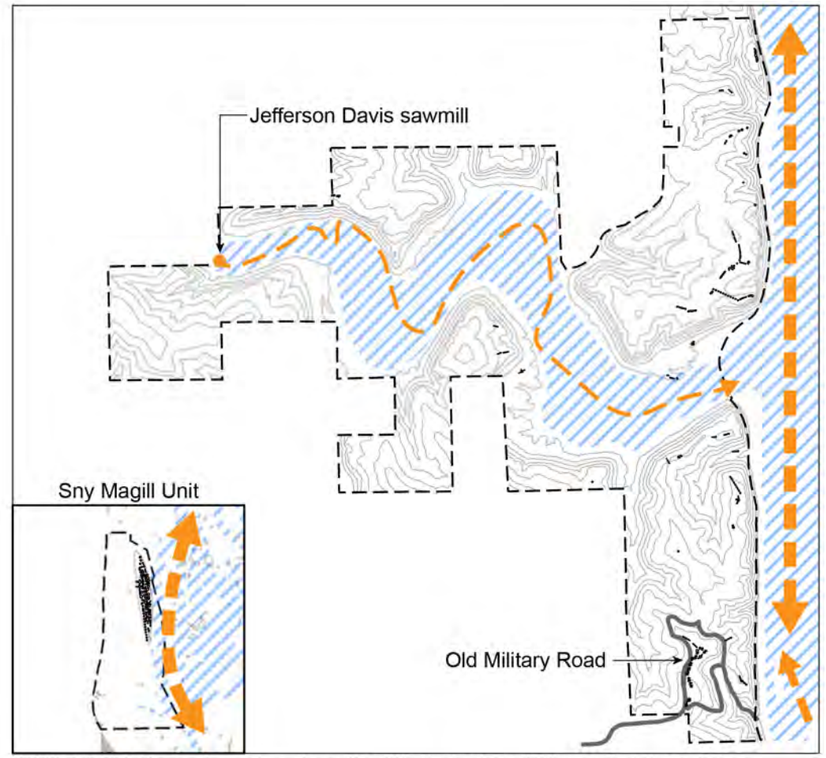
EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

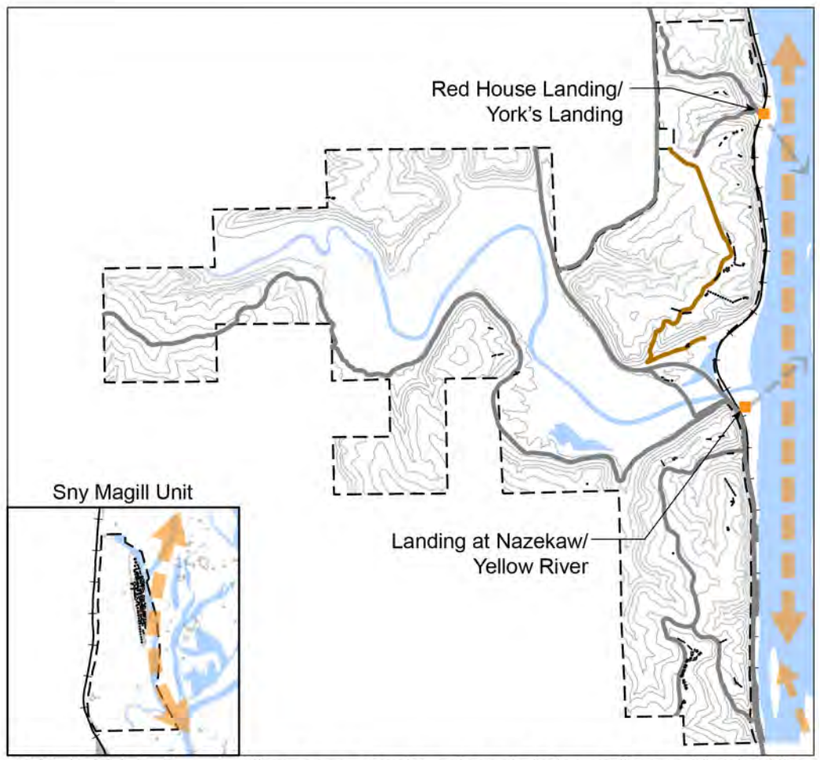
Landscape Analysis -- Circulation



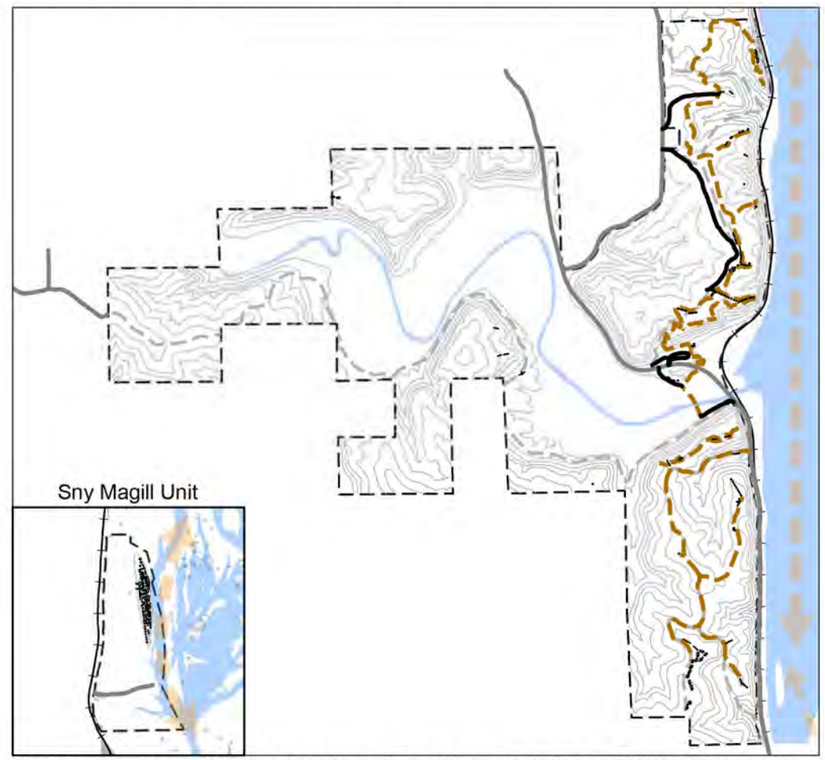
6000-700 B.P. Rivers are conduit for travel and trade.



1673-1848 A.D. Trade routes along the Mississippi and Wisconsin Rivers bring Eurpoean traders and explorers to the region. Old Military Road constructed 1840.



1849-1945 A.D. Ferry landings move people and goods between the west bank of the Mississippi and Prairie du Chien. Roads and railroads expand.



Existing Conditions. Roads are primary form of transportation to EMNM. Monument trails follow the path of old roads in some locations.

Legend

- Project Area
- Mound Locations
- Public Road
- Farm Road
- Monument Road
- Monument Trail
- Abandoned Road
- Railroad
- River Traffic
- Ferry Route
- Approximate Location of Ferry Landing
- Jefferson Davis Sawmill
- Conjectural Location of Rivers
- River or Pond
- 50 ft Contours (2 ft Contours in Sny Magill)

Sources

1. Effigy Mounds National Monument GIS Database (project area, topography, existing trails)
2. Orr, October 23, 1915, "Map of Prehistoric Earthworks on Bluffs Between marquette and Yellow River" (Old Military Road)
3. Mississippi River Commission, Survey of Mississippi, 1893 roads, buildings)
4. Allamakee County Plat Map, 1886 (roads, buildings)
5. 1930s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa DNR (roads, buildings, vegetation)
6. Iowa State Planning Board, Recreation and Historic Division, "Yellow River Unit Topographic Map, Proposed National Monument, Clayton--Allamakee Counties, Iowa," 1936 (roads, buildings)
7. 1. 1950s NAIP Aerial Photographs, Clayton and Allamakee Counties, Iowa DNR (roads, buildings, vegetation)
8. NPS, "Trails to Mounds and Viewpoints," 1951 (trails)
9. NPS, "Trail Construction, North Area," 1957 (trails, roads, topography)
10. Iowa Office of the State Archaeologist (historical archeological sites)

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 1,800 3,600 7,200 Feet
1 inch = 3,600 feet

N

LA-3

Overall Project Area – Topography

Existing Condition – Topography

The Monument topography is a mixture of steep bluffs, rolling upland terrain and low-lying floodplain terraces along the Mississippi and Yellow rivers. The Mississippi River floodplain elevation of 600 feet above sea level contrasts in character with the bluffs and upland areas situated at elevations reaching almost 1,100 feet above sea level.[91]

The majority of the uplands are characterized by ridges terminating at bluff edges overlooking the Mississippi River. The bluffs frequently display exposed limestone outcrops.[92] The raised position of many mound groups along the bluffs provides dramatic views overlooking the Mississippi and surrounding landscape.

Low lying portions of the Monument include the entire Sny Magill Unit and the eastern edge of the North Unit and South Unit, which is adjacent to the Mississippi River. In addition, the Yellow River floodplain extends from the Mississippi River to the west, providing a natural division between the North and South Units.

Analysis - Topography

Topography is a significant aspect of the cultural landscape. During the period when the mounds were constructed, the varied topography of the region afforded numerous opportunities and constraints to local inhabitants. The topography provides for a biologically diverse ecological transition zone between western prairies and eastern woodlands resulting in abundant resources that may have drawn people to the area. Natural funnels within the steep topography create opportunities for circulation and hunting, but the challenging topography may also have impeded travel throughout the area (see Chapter 2, POC-1).

Alterations to the topography since the mound construction period are primarily linked to the erosive forces of the Mississippi, Wisconsin, and Yellow rivers, and agricultural and logging activities. In 1946, the upper portion of Hanging Rock was removed by the railroad company. Sediment deposits associated with flooding have accumulated at Sny Magill since the end of the mound construction period, and continue to impact the mounds.[93] In 1993, the Monument initiated a stream bank stabilization project to protect archeological sites in Sny Magill.[94]

The mounds demonstrate associations to topographic features. Several mound groups extend along the tops of ridges. Other concentrations of mounds are in low areas that are closely associated with the Mississippi River. Extant mounds are located on relatively flat terrain and rarely found on side slopes. The topography provided a contextual setting for the mounds as they were being constructed that remains intact.

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[91] HRA Gray & Pape, LLC, *Figures on the Landscape: Effigy Mounds National Monument Historic Resource Study* .
[92] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 4.
[93] Benedetti, *Sedimentation Study at Sny Magill Unit, Effigy Mounds National Monument*, 1-7.
[94] Thomas A. Munson, "Annual Narrative Report of Superintendents, 1993," (Harpers Ferry, Iowa: Effigy Mounds National Monument, 1994), 3.

Overall Project Area – Buildings and Structures

Existing Condition – Buildings and Structures

The majority of buildings and structures within the Monument were added by the National Park Service. The largest concentration of buildings within the Monument is a cluster on the north side of Highway 76 including the visitor center, administrative and maintenance buildings.

Remnants of historic buildings and structures are scattered in remote locations in the North, South, and Heritage units.

Analysis – Buildings and Structures

Within the boundaries of the Monument, 19th century historic settlement sites were used by trappers or early pioneers. As pioneers settled in the location of the Monument beginning in the second half of the 19th century, farmhouses and agricultural buildings were constructed throughout the North, South, and Heritage units.[95] A remaining farmhouse foundation was removed in 1950.[96] A farmhouse and related structures on the Yellow River terrace were utilized by Monument staff as a residence and park headquarters until the Mission 66 visitor center and staff residences were constructed beginning in 1959.[97] The farmhouse was finally dismantled in 1960.[98] The Smokey Hollow Schoolhouse was relocated from Monument property in 1948.[99]

Two buildings were also constructed during the late 19th century at the steam boat landing at Red House Landing in the North Unit. Two foundations in poor condition remain at the site.[100] Temporary structures were constructed at clammer's camps in the North Unit and Sny Magill Unit during the early 20th century, but the structures did not include foundations and no visible traces remain on the site.[101]

Changes to the buildings and landscape at the Monument in the 1980s and 1990s altered the original Mission 66- related features resulting in a low level of integrity and loss of significance related to this theme.

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[95] "Historic Plat Maps of the North Unit," Effigy Mounds National Monument," Effigy Mounds National Monument Archives, Harpers Ferry, Iowa.
[96] National Register of Historic Places, Farmhouse Foundation Determination of Eligibility, Effigy Mounds National Monument, Clayton County, Iowa, 1.
[97] National Park Service, *Topography of the Headquarters area of Effigy Mounds National Monument*, map (U.S. Department of the Interior, National Park Service, Engineering Division, 1951); and O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 99 and 140.
[98] O'Bright, *The Perpetual March: An Administrative History of Effigy Mounds National Monument*, 100.
[99] V.W. Flickinger letter to Howard W. Baker dated October 13, 1948, Effigy Monument National Archives, Harpers Ferry, Iowa.
[100] National Register of Historic Places, York's Landing Determination of Eligibility, 1-2.
[101] National Register of Historic Places, York's Landing Determination of Eligibility,1-2; and Henning, "Historic Land Use of the Sny Magill Unit, Effigy Mounds National Monument, Clayton County, Iowa," 17-18.

Overall Project Area – Small Scale Features

Existing Condition – Small Scale Features

Small scale features within the Monument include signage, benches, trash receptacles, fences, and retaining walls. Most of the overlooks along trails in the North and South units include retaining walls, fences, benches, and trash receptacles. Types of small scale features include:

1. Wood railings along trails and overlooks (see Figure 3-36)
2. Metal railings along overlooks
3. Trail signs (see Figure 3-37)
4. Interpretive signs (see Figure 3-38)
5. Traffic signs (see Figure 3-39)
6. Property boundary signs (see Figure 3-40)
7. Benches (see Figure 3-41)
8. Stone retaining walls (see Figure 3-42)
9. Wood retaining walls (see Figure 3-43)
10. Raised stone planting beds (see Figure 3-44)
11. Stone trail edges (see Figure 3-45)
12. Wood trail bridges (see Figure 3-46)
13. Boardwalks (see Figure 3-47)
14. Trash and recycling receptacles (see Figure 3-41)
15. Chain-link fences (see Figure 3-48)
16. Barbed wire fences (see Figure 3-49)
17. Gates, including stone-based gates in the parking area and metal gates (see Figures 3-49 and 3-50)

The Old Military Trail marker plaque, originally erected by the Daughters of the American Revolution in 1927, was rededicated in 1992.[102] The plaque was removed in 1973 after it was found separated from its base; it was stored at the Monument visitor center from 1974 until 1989.[103] It is currently located on Iowa Department of Natural Resources Land, east of the southern end of the Old Military Road on the opposite side of Highway 76.

Analysis – Small Scale Features

Most small scale features in the project area were added after 1961 and do not contribute to the significance of the cultural landscape. Detailed lists of contributing and non-contributing small scale features are included in the sections addressing Landscape Character Areas 1-9.

[102] Shawn Thomas, "Trail marker is rededicated," *Courier Press*, Wednesday, November 11, 1992.
[103] "History—Military Road Marker" card, no date, from Effigy Mounds National Monument archives, Harpers Ferry, Iowa.

Figure 3- 36: Wood railing along trail (LCA 3) (source: QEA, 2013).

Figure 3- 37: Trail signs in LCA 3 (source: QEA, 2013).

Figure 3- 38: Interpretive wayside in LCA 3 (source: QEA, 2013).

Figure 3- 39: Traffic signs in LCA 2 (source: QEA, 2013).

Figure 3- 40: Property boundary sign at Sny Magill (LCA 9) (source: QEA, 2013).

Figure 3- 41: Bench and trash receptacles at Third Scenic View Overlook (LCA 2) (source: QEA, 2013).

Figure 3- 42: Stone retaining wall along Hanging Rock Trail (source: (LCA 1) QEA, 2013).

Figure 3- 43: Wood retaining wall along Hanging Rock Trail (LCA 1) (source: QEA, 2013).

Figure 3- 44: Raised stone planting beds at the visitor center (LCA 4) (source: QEA, 2013).

Figure 3- 45: Low stone trail edge at Fire Point Mounds 32-33 (LCA 3) (source: QEA, 2013).

Figure 3- 46: Wood trail bridge along Hanging Rock Trail (LCA 1) (source: QEA, 2013).

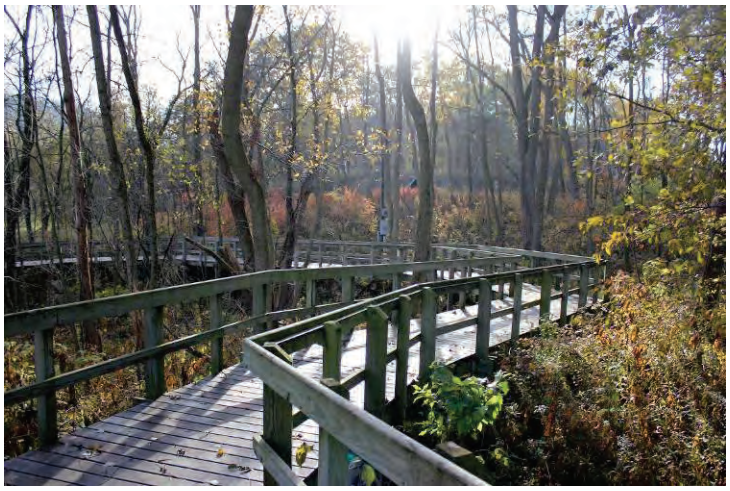

Figure 3- 47: Boardwalk at Yellow River Bridge Trail (LCA 4) (source: QEA, 2013).

Figure 3- 48: Chain link fence at Eagle Rock (LCA 3) (source: QEA, 2013).

Figure 3- 49: Wooden gate and barbed wire fence at Marching Bear Group (LCA 7) (source: QEA, 2013).

Figure 3- 50: Gate at visitor center parking lot (LCA 4) (source: QEA, 2013).

Overall Project Area – Cultural Traditions

Existing Condition – Cultural Traditions

Research conducted for a Cultural Affiliation Report "to assess the level of traditional knowledge about the mounds available to outside investigators and to consider how it might have an impact on future management of Effigy Mounds National Monument" revealed helpful information about cultural traditions. Researchers spoke with a range of tribal members and other individuals. According to Winnebago historian David Smith, effigy mounds are sacred to Siouan speakers, who consider the mounds to be both burial sites and ritual areas. Certain mound groups and shapes have been linked to certain clan groups. Smith draws a link between Siouan migration and contact with Mesoamerican peoples and Mesoamerican sacred objects that are similar to effigy mounds. Multiple interviews highlight concern from tribal members that connections to mounds and the people who constructed them are part of a cultural knowledge that has been lost. Most of the Ho-Chunk Nation of Wisconsin individuals interviewed regarded all mounds as monuments to spirits, whether or not the mound contained a burial.[104]

The interviewers also spoke with park rangers about their experiences with visitor use at the Monument. Ranger interviews highlight the personal and sacred nature of many visitor experiences at the mounds, and stories that have been told to rangers by American Indian visitors are frequently considered very privileged and kept confidential. Ranger interviews also indicated overall that individuals with tribal or family connections to the mounds were unlikely to share such information with Monument staff.[105]

Some visitors (tribal members) have requested permission or inquired about leaving offerings of tobacco and/or cloth at the Monument, particularly in the South Unit. Cloth offerings have been found tied to branches and trees, and tobacco offerings have been sprinkled at the ends of mounds. The Monument issued a special use permit (approximately 2001) to a man who wanted to build a sweat lodge and use it over several days. The Marching Bear Mound Group is important to many American Indian visitors. Ceremonies were performed at the mound group in the 1990s.[106] Plants that are prominent in American Indian stories include aspen, columbine, cottonwood, cedar, and sumac. Clay was also an important material within the stories. Clay was used to pack people into burials, as evidenced in burials at the Monument.[107]

Two non-traditional groups consider themselves to have some level of affiliation with the mounds. Several members of the Church of Jesus Christ of the Latter Day Saints consider themselves to be associated with the mounds, and link the construction of mounds to the Lost Tribes of Israel and pyramids of Mexico and South America. This belief does not appear to be widespread.

New Age belief systems have also linked the mounds to a personal or group spiritual quest. According to Zimmerman et al., "To the chagrin of many Indian people [personal or group spiritual quests] often involve cultural 'borrowing' of American Indian practices, usually out of any Native cultural context. Many see the world as underlain by

[104] Green et al., "Effigy Mounds National Monument Cultural Affiliation Report."
[105] Ibid.
[106] Ibid.
[107] Ibid.

connected lines of power, and where they intersect, there may be a power point or vortex." New Agers have requested to leave offerings at the mounds, and often walk on top of the mounds. New Age groups have also put stakes into some mounds. Other interpretations of the mounds have linked their spatial arrangement to certain constellations. Tribal groups have expressed concern that New Age practitioners have used the Monument in ways that are disrespectful to Indian communities and may be damaging to the mounds.[108]

Analysis – Cultural Traditions

A Traditional Cultural Properties study has been completed identifying the Monument as a TCP. Information related to the study was not available for use by the CLR team.

[108] Ibid.

North Unit Character Areas

LCA 1 - Existing Condition

Spatial Organization

Landscape Character Area 1 (LCA-1) is located at the northeast corner of the Monument. The area is defined on the north and east by the Monument boundary, on the south by LCA-2, denoted by a straight line that runs east-west slightly north of the Third Scenic Overlook, and on the west by the curvilinear Hanging Rock Trail. The primary features in this area include two mound groups, hiking trails, and the Hanging Rock Overlook. The area is organized to provide access to the mounds and overlook. The trail's circuitous route is necessary to navigate the steep slopes and avoid erosion. The Hanging Rock Overlook consists of rock outcrops surrounded by craggy trees and juniper with a steel rail that is anchored in the rock.

Archeological Resources

The northernmost Landscape Character Area includes the Hanging Rock Mound Group, comprisingmounds 1-7 (13AM163 a line of 7 conicals), and mounds 8-9 (13AM162, two linear mounds). All mounds in Landscape Character Area 1 are in good condition. Mounds 2, 5, 7, and 8 have minor old depressions. Mound 3 had a flat top and mound 4 has a downward slope that may signify old erosion.

Vegetation

The vegetation within this character area is dominated by red oak-white oak-hickory-maple forest. Groupings of eastern red cedar (*Juniperus virginiana*) are present at the eastern ends of the bluffs where they drop off toward the Mississippi River. Vegetation at the mounds includes native grasses, sedges and forbs that are trimmed intermittently. The mounds are enclosed within a forested area. Woody vegetation is cleared approximately 30 feet from mounds 1-7 (13AM163) and 5-10 feet from mounds 8 and 9 (13AM162). Individual trees are present on the mounds.

The northern field area of the North Unit was abandoned when the Monument was established. Blewett's 1986 study found that this area retained many of the characteristics of a hay field, dominated by Eurasian grasses. Prairie species were not common, but some were present including blazing star (*Liatris aspera*), Indian grass (*Sorghastrum nutans*) and little bluegrass (*Andropogon scoparius*). Prairie species were found at a higher frequency in the north field than in the south field.[109]

Views

Mounds 1-7 (13AM163) are arranged along a high bluff parallel to the Mississippi River. The terrain drops off directly east of the mound group offering views of the river and landscape to the east. The compelling views that visitors glimpse along the trail on the west side of these mounds may inspire some visitors to walk on the mounds to view the river. The Hanging Rock Overlook provides panoramic views of the Mississippi River and rolling landscape of Wisconsin to the east.

Patterns of Circulation

Pedestrian circulation in this area is provided by the Hanging Rock Trail, which extends north from the Great Bear, Little Bear and Fire Point Mounds and terminates at the

[109] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 5-7.

Hanging Rock Overlook. The trail is surfaced with wood chips and in good condition with the exception of two areas with erosion near the north boundary of the Monument. Recent improvements have been made to the trail, including the application of mulch to the trail surface and a low retaining wall in a steep ravine.

Vehicular access is provided by a gravel maintenance road that enters the Monument south of the boundary between LCAs 1 and 2 and travels north and east through a stand of prairie vegetation terminating slightly southwest of mound 9 (13AM162).

Topography

This area is dominated by steep slopes defined by a series of low drainage channels and high, relatively level bluff tops. The primary features in this area include the Hanging Rock Mound Group, mounds 1-9 (13AM163 and 13AM 162) and the Hanging Rock Overlook. Each of these features is oriented upon a high bluff. Trails through the area are oriented to provide a practical route of access to these high points and navigation of the intermittent drainages in deep ravines.

Buildings and Structures

Two trail bridges are present. The trail bridges span areas of deep erosion along the Hanging Rock Trail. Both bridges are constructed with wooden decks and handrails supported by concrete and stone abutments. The bridges are approximately 20 feet long, and are in good condition.

Small Scale Features

Small scale features documented in LCA-1 were all added after 1961 and do not contribute to the significance of the cultural landscape. They include:

1. metal railing at the overlook (fair condition),
2. wood railing along the trail north of mounds 1-7, 13AM163 (poor condition),
3. four trail signs (good condition),
4. bench at mounds 1-7, 13AM163 (good condition),
5. stone retaining walls and steps near the Hanging Rock Overlook (poor condition),
6. stone trail edge (poor condition), and
7. wood retaining wall on Hanging Rock Trail (poor condition). See EC-1 for locations of features.

Table 3- 5. LCA 1 – Contributing Landscape Characteristics and Features

Features within LCA-1 that contribute to the significance of the Monument's cultural landscape include:
*significance statement is abbreviated as SS
*bulleted items in bold font contribute

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• **Arrangement of mounds and other archeological sites** are related to geological features. (SS1 and 2)
Archeological Resources	Contributing	• **Mounds 1-9 and other archeological sites** (SS 1, 2 and 5) • **Culturally significant to present day tribes.** (SS 5)
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-1 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) • **Two small remnant prairies** reflect conditions during the period of significance and also contribute. (SS 2) • **Vegetation species culturally significant to the Ho-Chunk Nation of Wisconsin** have been identified in this location. (SS 5)
Views	Contributing	• **Views between the archeological sites within LCA-1 and the Mississippi River valley** contribute. It is believed that visual relationships to the broader landscape influenced site selection for mound construction and other associated American Indian activities. (SS 1 and 2) SS 5: American Indian Nations have not identified culturally significant views in this location.
Patterns of Circulation	Contributing The routes are contributing, but trail surfaces are non-contributing.	• **Red House Landing/York's Landing ferry landing** ca. 1853-1900 (SS 3); • **traces of historic wagon roads** leading to the landing. (SS 3)
Topography	Contributing	• Many mounds were constructed on high bluffs. The **topography** in LCA-1 remains intact and represents the construction period. (SS 2)
Structures	No contributing structures	The trails and bridges located in LCA-1 area were constructed after 1961.
Small Scale Features	No contributing small scale features	The small scale features in LCA-1 were all added after 1961.

Figure 3- 51: View of Hanging Rock mounds 1-7, looking north from mound 3. The Mississippi River is visible beyond this mound group (right of image, east of mound group). The trail is on the west of the mound group. Glimpses of the view may compel visitors to walk on the mounds. Due to openings in the oak-hickory forest along the blufftop, prairie species are present on mounds 1-7 (LCA 1) (source: QEA, 2013).

Figure 3- 52: View of Hanging Rock Mound Group, mound 8 (LCA 1) (source: QEA, 2013).

Figure 3- 53: The Hanging Rock Overlook is situated upon a rock outcrop perched above the Mississippi River. A metal railing is anchored into the rock (LCA 1)(source: QEA, 2013).

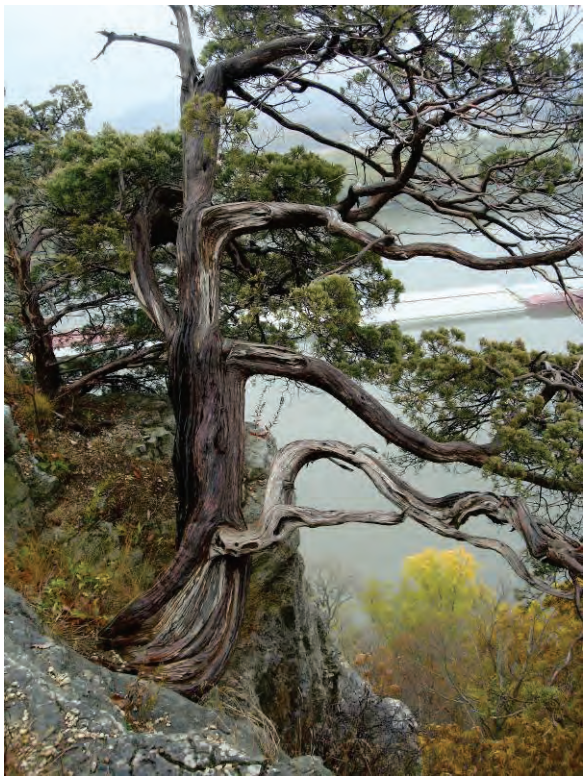

Figure 3- 54: This cedar perched on the Hanging Rock Overlook has a distinctive form (LCA 1) (source: QEA 2013).

LCA 2 – Existing Condition

Spatial Organization

Landscape Character Area 2 (LCA-2) is located in the North Unit of the Monument, directly south of LCA-1. The area is defined on the north by LCA-1, denoted by a straight line that runs east-west slightly north of the Third Scenic Overlook. The eastern side is demarked by the Monument boundary. The south edge is defined by a straight line running roughly northeast/ southwest that lies between mounds 20 and 21; and the western side is indicated by a line that runs parallel to the maintenance access road and Hanging Rock Trail, and is located on the west side of those routes. The primary features in this area are four mound groups, three of which are accessible by trail (13AM101, 13AM189, 13AM207, and 13AM206), the Third Scenic Overlook, the Twin Views North Overlook and the Twin Views South Overlook. Trails in the area are organized to provide access to the mounds and overlooks.

Archeological Resources

Landscape Character Area 2 includes mounds 10 through 20, below-ground remnants of mounds 95 and 96, the Third Scenic View trail and overlook, Twin Views trail and overlooks, and a section of the Hanging Rock trail. The mounds are clustered as follows: five mounds at the Third Scenic View Overlook (10-14), two conical mounds on a ridge (15-16), one conical mound on another ridge (17), a conical mound at Twin Views (18), mounds impacted by agriculture (95 and 96), and two linear mounds (19-20).

No evidence of mounds 92-96 was observed during the 2013 site visit, and these mounds are not evident from the Lidar data. Though the mounds have been impacted by agriculture, subsurface remnants of mounds 92 and 93 were discovered using magnetometer and other geophysical survey techniques in 2010.[110] All mounds are in good condition. Mounds 15 and 17 have flat tops and mound 16 and mound 19 have been impacted by tree growth within the mound.

Vegetation

This Landscape Character Area includes both upland oak-hickory-maple forests as well as a tallgrass prairie. Mounds maintained within forested areas are periodically trimmed with weed whips to maintain a cleared buffer of approximately 25 feet at mounds 10-14 (13 AM101) and approximately 20 feet at mound 18 (13AM207). Mounds 15 and 16 (13AM101) and mound 17 (13A206) are located within a maple-basswood forest; no vegetation is trimmed on the mounds. Mounds 19 and 20 are maintained in a prairie setting. The vegetation on these two linear mounds consists of primarily prairie species, and the tallgrass prairie is mowed around the mounds for visibility.

The south field area of the North Unit is dominated by exotic cool season grasses including smooth brome (*Bromus inermis*), Kentucky bluegrass (*Poa pretensis*) and

[110] Anne M. Wolley Vawser and Steven L. De Vore, "The Bear and the Wildcat: Geophysics and the Re-Discovery of Mounds at Effigy Mounds National Monument, Iowa" (poster paper presented at the 77th Annual Meeting of the Society for American Archaeology, Memphis, Tennessee, 2012); and Anne M. Wolley Vawser, Steven L. De Vore, and Melissa Baier, "Archeological Investigations of the Nazekaw Terrace (Site 13AM82) and the Upper Meadow (Sites 13AM189 and 13AM191) along the Hanging Rock Trail, Effigy Mounds National Monument, Allamakee County, Iowa," draft on file, Midwest Archeological Center, National Park Service.

Canada goldenrod (*Solidago Canadensis*). Surveys have found that prairie flora are virtually nonexistent in this field. The area is an abandoned hay field that has been left idle since 1949. The character of the field has changed little, maintaining the qualities of a hay field with some invasion of pioneer tree species.[111]

Views

Mounds 10-14 (13AM101) are situated on a ridge running roughly northeast-southwest. The Third Scenic View is located at the end of the trail. Hanging Rock is visible from this viewpoint, though the view from the overlook is obscured by vegetation. Mound 18, a tall conical, is also located at the end of a trail offshoot. This mound is associated with the Twin Views Overlooks, both of which also are partially obscured by vegetation. At the time of the survey, a fallen tree partially blocked the trail to Twin Views.

Conical mounds 15 and 16 (13AM101) and mound 17 (13AM206) are not publicized to visitors. These mounds are not visible from established trails and are not mowed or cleared as trail-accessible mounds are maintained.

Mounds 21-25 (13AM189), which are located within Landscape Character Area 3, are visible from mounds 19-20 (13AM189).

Patterns of Circulation

The trails in this Landscape Character Area are a continuation of the Hanging Rock Trail in Landscape Character Area 1. Trails are primarily surfaced with wood chips, and the trail includes retaining walls and a short bridge where the trail crosses steep ravines. Erosion is evident on steep slopes within the character area. Along the prairie, the trail is surfaced in mowed grass. Vehicular access is provided by a gravel maintenance road that extends along the west side of the character area through the prairie.

Topography

Similar to Landscape Character Area 1, this area is characterized by steep slopes deeply cut by drainage channels and high, relatively level bluff tops. Mounds 10-14 (13 AM101), the Third Scenic Overlook, mound 18 (13AM207) and the Twin Views Overlooks are each oriented on high bluffs that overlook the Mississippi River. Mounds 19 and 20 (13AM189) are part of a larger mound group that runs parallel to the river along another bluff top. Trails in the Landscape Character Area provide a relatively level route along the bluff top with trail offshoots along ridges to provide access to mound groups.

Buildings and Structures

A raised platform is located near mound 20 (13AM189) just to the west of the maintenance access road. The platform was intended to provide the foundation for a maintenance shed. It is oriented to face northeast toward the maintenance access road. The platform is constructed of wood retaining walls approximately three to four feet high with gravel fill. The structure is approximately 30 feet long by 20 feet wide. Construction of the platform impacted an unnumbered mound remnant. The platform does not contribute to the significance of the historic landscape.

[111] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 5-7.

Small Scale Features

Small scale features documented in LCA-2 were all added after 1961 and do not contribute to the significance of the cultural landscape. They include:

1. 3-4 foot tall stone retaining wall on Hanging Rock Trail (good condition),
2. 3-4 foot tall stone retaining wall with culvert on Hanging Rock Trail (good condition),
3. wood footbridge on Hanging Rock Trail (good condition),
4. wood railing at the Third Scenic Overlook (poor condition),
5. wood bench at the Third Scenic Overlook (good condition),
6. two trash receptacles at the Third Scenic Overlook (good condition),
7. two signs at the Third Scenic Overlook (good condition),
8. wood retaining wall at the Third Scenic Overlook (poor condition),
9. five trail signs (good condition)
10. wood railing at Twin Views Overlooks (poor condition),
11. two wood benches at Twin Views Overlooks (good condition),
12. two trash receptacles at Twin Views Overlooks (good condition),
13. short stone block retaining wall at Twin Views Overlooks (good condition),
14. three signs at Twin Views Overlooks (two in good condition, and one sign, which discusses the topic of geology, in poor condition),
15. two speed limit signs along the maintenance access road (good condition),
16. wood bench at mounds 19-20, 13AM189 (good condition), and
17. trash receptacle at mounds 19-20, 13AM189 (good condition). See EC-2 for locations of features.

Table 3- 6. LCA 2 – Contributing Landscape Characteristics and Features

Features within LCA-2 that contribute to the significance of the Monument's cultural landscape include:
*significance statement is abbreviated as SS
*bulleted items in bold font contribute

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• **Arrangement of mounds, other archeological sites** are related to geological features (SS 1 and 2)
Archeological Resources	Contributing	• **Mounds 10-16, mound 17, mound 18, mounds 19-20, and other archeological sites** (SS 1, 2, and 5). No evidence of mounds 95-96 is apparent, though **subsurface remnants of mounds 92 and 93** were discovered in 2010.[112] (SS 1, 2 and 5)

[112] Vawser and Vore, "The Bear and the Wildcat: Geophysics and the Re-Discovery of Mounds at Effigy Mounds National Monument, Iowa"; and Vawser et al., "Archeological Investigations of the Nazekaw Terrace (Site 13AM82) and the Upper Meadow (Sites 13AM189 and 13AM191) along the Hanging Rock Trail, Effigy Mounds National Monument, Allamakee County, Iowa."

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-2 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) • Portions of the LCA have been restored to **prairie vegetation** which is reflective of conditions present during the period of significance, and therefore contributes. (SS 2) • **Vegetation species culturally significant to the Ho-Chunk Nation of Wisconsin** have been identified in this location. (SS 5)
Views	Contributing	• **Views between the archeological sites within LCA-2 and the Mississippi River valley** contribute. It is believed that visual relationships to the broader landscape influenced site selection for mound construction and other associated American Indian activities. (SS 1 and 2) • SS 5: American Indian Nations have not identified culturally significant views in this location. • SS 6: Overlooks in LCA-2 were constructed after 1961 and do not contribute to this period.
Patterns of Circulation	Contributing Note the routes are contributing, but trail surfaces are non-contributing.	• **Red House Landing / York's Landing ferry landing** ca. 1853-1900 (SS 3) • **Traces of a historic route** leading to the landing (SS 3) • **Remnant road route associated with a farm** present prior to 1900. (SS 3) • SS 6: Trails in LCA-2 were constructed after 1961 and do not contribute to this period.
Topography	Contributing	• Mounds were constructed on high bluffs. The **topography** in LCA-2 remains intact and represents the construction period. (SS 2)
Structures	Non-contributing	The structure in LCA-2 was built after 1961.
Small Scale Features	No contributing small scale features	The small scale features in LCA-2 were all added after 1961.

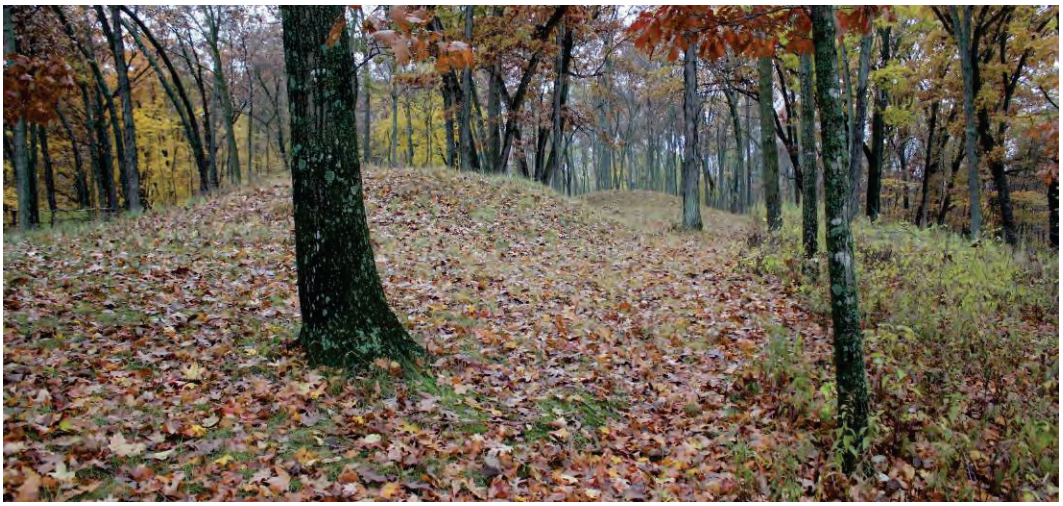

Figure 3- 55: View of mounds 12 and 13 at Third Scenic View Overlook (LCA 2) (source: QEA, 2013)

Figure 3- 56: Mounds 15 and 16 are not accessible to visitors. Vegetation on the mounds is not maintained by the Monument except for treatment of invasive plant species (LCA 2) (source: QEA, 2013)

Figure 3- 57: LCA 2 includes both woodlands and prairie/savanna openings (source: QEA, 2013)

LCA 3 – Existing Condition

Spatial Organization

Landscape Character Area 3 (LCA-3) is located in the North Unit of the Monument between LCA-2 and LCA-4. The area is defined on the north by LCA-2, denoted by a straight line that runs roughly northeast/southwest between mounds 20 and 21. The eastern side is defined by the Monument boundary. The south edge is defined by a line that runs from the eastern Monument boundary to the southwest along the base of a steep ridge, then takes a sharp turn to the northwest extending to the western area boundary. The west edge of the character area is defined by an irregular line that extends to the southwestern corner of LCA-2. The primary features in this area include three mound groups, hiking trails, the Fire Point Overlook and Eagle Rock Overlook. The area is organized to provide access to the mounds and the overlooks, and includes a loop trail that leads back to the visitor center.

Archeological Resources

LCA 3 includes mounds 21 through 54 (the Great Bear, Little Bear, and Fire Point mounds) and the Fire Point and Eagle Rock overlooks. Mounds 21 through 28 extend along a ridge line in a roughly linear arrangement from north to south. Mound 29 is a linear mound that extends to the east from between mounds 25 and 26. Mound 30 is a bear shaped effigy with head pointing south and legs pointing east located to the east of mound 29. Mound 31 is located to the south of mounds 27 and 28 and is identified as the Great Bear Mound. Mound 32 is a compound/linear mound located to the south of mound 31 and between the Monument maintenance road and the main trail. Mounds 33 through 51 are conical mounds (referred to as the Little Bear and Procession mounds) that extend from an eastern extent at a high point on a bluff above the river (known as Eagle Rock Overlook), in a roughly westerly alignment that follows the undulating contours to the main trail. Mound 52, also known as the Little Bear Mound, is located to the south of mound 51 and oriented with its head to the south and feet to the east. Mounds 53 and 54 are compound mounds aligned along a high point separate from and south of mound 52.

Landscape Character Area 3 includes the following archeological sites: 13AM189 (mounds 21-31), including three linear mounds, 7 conical mounds, and two bear effigies, 13AM190 (mounds 33-52), a series of 19 conical mounds and one bear effigy, and 13AM106, two compound mounds. The area also includes an archeological site. Information regarding this site and its location is protected and not presented in the CLR.

All mounds are in good condition in 2013. A number of mounds in the character area have minor old depressions, including mounds 24, 28, 33, 34, 35, 40, 42, 51, and 52. Tree growth impacts mounds 29, 35, 39, 43, 44, 45, 46, 47, 48, 49, and 50. Mound 30, a bear effigy, is missing its rear leg but it otherwise in good condition. Mound 32 is poorly defined and is impacted by the adjacent ditch and maintenance road. Mound 33 is ringed by the pedestrian trail and has rock slabs placed on its base. Mound 52, the Little Bear, has concentric depressions around feet, probably caused by lawn mowing.

Vegetation

The vegetation within LCA-3 is primarily red oak-white oak-hickory-maple forest. Groupings of eastern red cedar (*Juniperus virginiana*) are present at the eastern end of Eagle Rock, where the bluffs drop off toward the river. Vegetation at the mounds includes native grasses, sedges and forbs that are trimmed intermittently. The mounds are enclosed within a forested area with cleared buffers of approximately 20-30 feet at

mounds 21-31 (13AM189), approximately 10-30 feet at mounds 33-52 (13AM190), and approximately 30-40 feet at mounds 53 and 54 (13AM106). At mounds 21-31 (13AM189), prairie is visible to the north of the group toward mounds 19-20 (13AM189). Individual trees are present on mounds throughout the character area. Unlike mounds access by the pedestrian trail, mound 32 (13AM189) is not maintained through mowing.

Views

Landscape Character Area 3 includes developed overlooks at Fire Point Overlook and Eagle Rock. Mounds 33-51 (13AM190) are arranged along a high bluff perpendicular to the Mississippi River. Fire Point Overlook is located at the end of the bluff at mound 33, where the terrain drops off sharply. The overlook provides panoramic views of the Mississippi River and Wisconsin to the east. Eagle Rock Overlook is located on a rock formation at the end of a steep bluff. The overlook provides views of the Mississippi and Yellow rivers. The visitor center, Bluegill Pond, and Buffalo Pond are also visible from the overlook. While not designated as a trail overlook, the Mississippi River is also visible from mound 30 (13AM189), which is situated at the end of a bluff. Vegetation partially obscures the view of the river at this location.

Patterns of Circulation

Pedestrian circulation in Landscape Character Area 3 is provided by the Fire Point Trail and the Hanging Rock Trail. The Fire Point Trail loops from the main trail from the visitor center up a ridge to mounds 53-54 (13AM106) and the Little Bear and Fire Point Mounds (13AM190, mounds 33-52), turning to the south at Fire Point and then continuing along the bluff along the Mississippi River to Eagle Rock Overlook before connecting back to the main trail. The Hanging Rock Trail extends north from the Main Trail near mounds 49 and 50. Trails throughout the area are surfaced with wood chips and are in good condition.

Vehicular access is provided by a gravel maintenance road that runs to the west of mounds 21-31 (13AM189) and mounds 33-52 (13AM190). A small gravel parking area is located to the west of mound 51 and is visible from the Little Bear and Fire Point Mounds (13AM190).A short dirt trail connects the Main Trail to this parking area. The maintenance road is immediately adjacent to mound 32 (13AM189). A two to three foot deep erosion channel cuts between the mound and the maintenance road.

Topography

The primary features in the area, including the Great Bear, Little Bear, and Fire PointmMounds (13AM189, 13AM190, and 13AM106), and the Fire Point and Eagle Rock Overlooks, are situated on high bluffs overlooking the Mississippi River. Trails through the area traverse the undulating topography of the ridge tops and provide a practical access route between mound groups and overlooks.

Small Scale Features

Most of the small scale features documented in LCA-3 were all added after 1961 and **do not contribute** to the significance of the cultural landscape. They include:

1. wood railing at mound 30 (13AM189) (poor condition),
2. stone trail edge between the Great Bear Mound Group (13AM189) and the Little Bear and Fire Point mounds (13AM190) (poor condition),
3. wood bench near mound 49 (13AM190) (good condition),

4. two trash receptacles near mound 49 (13AM190) (good condition),
5. four interpretive signs (fair condition),
6. 18 trail signs (good condition),
7. two trash receptacles at Fire Point Overlook (good condition),
8. 2-3 wood retaining wall at Fire Point Overlook (good condition),
9. wood railing wall at Fire Point Overlook (poor condition),
10. chain link fence at Fire Point Overlook (good condition),
11. stone retaining wall at mound 33 (13AM190) (good condition),
12. chain link fence at Eagle Rock Overlook (good condition),
13. wood bench at Eagle Rock Overlook (good condition),
14. two trash receptacles at Eagle Rock Overlook (good condition),
15. wood railing along Fire Point Loop Trail (poor condition), and
16. wood railing along the Main Trail (poor condition)

The following small scale features **contribute** to the significance of the historic landscape:

1. short stone retaining wall at Fire Point Overlook (poor condition),
2. stone trail edge at Fire Point Overlook (poor condition),
3. stone retaining wall along Fire Point Loop Trail (poor condition),
4. stone trail edge along Fire Point Loop Trail (poor condition).

Table 3- 7. LCA 3 – Contributing Landscape Characteristics and Features

Features within LCA-3 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• **Arrangement of mounds** is related to geological features. (SS 1 and 2) • **Trails and overlooks** developed by the NPS between 1946 and 1961 are organized to highlight mounds and scenic views. (SS 6)
Archeological Resources	Contributing	• **Mounds 21-31, mounds 33-52, two compound mounds, and an archeological site.** (SS 1, 2 and 5)
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-3 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) SS5: It has not been determined if present day American Indian Nations consider vegetation in this location to be culturally significant.
Views	Contributing	• **Views between the archeological sites within LCA-3 and the Mississippi River valley** contribute. It is believed that visual relationships to the broader landscape influenced site selection for mound construction and other associated American Indian activities. (SS 1 and 2) • **The Eagle Rock and Fire Point overlooks** were constructed between 1946 and 1961 to reflect the NPS rustic style approach to facility development. (SS 6) SS 5: American Indian Nations have not identified culturally significant views in this location.
Patterns of Circulation	Contributing Note the routes are contributing, but trail surfaces are non-contributing.	• Trails and overlooks in LCA-3 constructed between 1946 and 1961 reflect the NPS rustic style approach to facility development. These include **Eagle Rock Overlook, Fire Point Overlook, and trails** connecting these overlooks and mound groups. (SS 6)
Topography	Contributing	• Mounds were constructed on high bluffs. The **topography** in LCA-3 remains intact and represents the construction period. (SS 2)
Small Scale Features	Contributing	• **Stone retaining walls and stone trail edges** contribute. (SS 6)

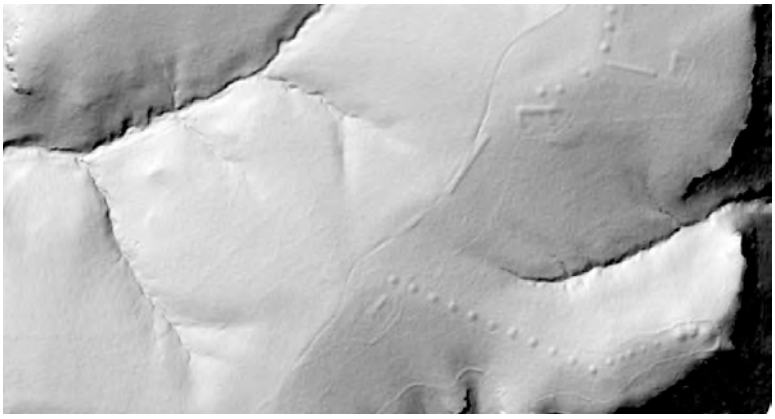

Figure 3- 58: Hillshade image of Great Bear, Little Bear, and Fire Point Mounds (mounds 19-54) from LiDAR data. The high-resolution data produced by the Lidar allows low relief features to be readily visible (LCA 3) (source: EMNM GIS Database).

Figure 3- 59: A series of conical mounds at the Fire Point Mound Group (mounds 33-51) (LCA 3) (source: QEA, 2013).

LCA 4 – Existing Condition

Spatial Organization

Landscape Character Area 4 (LCA-4) is the southernmost character area in the North Unit. The area is defined on the north by LCA-3, denoted by a line that runs from the eastern Monument boundary to the southwest along the base of a steep ridge, then takes a sharp turn to the northwest extending to the western boundary of the character area. The eastern side is defined by the Monument boundary. The southern side is defined by a line that runs approximately southwest along the Yellow River. The west side is defined by an irregular line that extends to the northwest toward Highway 76. At Highway 76 the boundary turns to and extends in a northeasterly direction past the maintenance area to intersect with the southwest corner of LCA- 3.

LCA-4 includes the Monument visitor center, parking lot, administrative and maintenance offices, mounds 55 through 61, remnants of 30 to 40 disturbed mounds, trail heads leading to the north and south, and Founders Pond. Highway 76 bisects LCA 4. The low area is part of the Yellow River floodplain, and referred to as the Nazekaw Terrace.

On the north side of the highway the character area contains three mounds (55-57, which are part of 13AM82), portions of the Main Trail and Yellow River Trail, the Monument visitor center, parking lot, administrative offices and maintenance facilities. These features are clustered between the highway on the south and the steep slope that extends to the north. The Yellow River Trail is a boardwalk that initiates at the visitor center and extends to the south crossing under the highway via a tunnel. South of the highway LCA-4 contains mounds 58 through 61 (part of 13AM82), the remainder of the Yellow River Trail, a maintenance access route, a portion of the Yellow River, and two wetland/pond areas. A bridge provides access across the Yellow River as part of the Yellow River Trail.

Archeological Resources

Landscape Character Area 4 includes the following archeological sites: The Nazekaw Terrace Mound Group, mounds 55-61 (13AM82) including 4 conical, a linear, and a compound mound, and an archeological site. Information regarding the archeological site and its location is protected and not presented in the CLR. Mounds 55, 56, 57, 58, 59, and 61 are in good condition. All identified mounds had minor depressions or old pits. Mound 60 is not visible.

Studies conducted by the Midwest Archeological Center have identified remnants of at least 30-40 mounds in the Nazekaw Terrace area. Agricultural plowing and construction of the Monument parking lot, visitor center, and residences disturbed these resources. Below-grade archeological resources remain under the parking lot.[113]

Vegetation

Landscape Character Area 4 encompasses a transitional zone between upland vegetation on the high bluffs and ridges and lowland vegetation along the Mississippi and Yellow Rivers. The site also includes the landscape surrounding the visitor center and Monument administration buildings. The northern portion of LCA-4, characterized by bluffs and

[113] Midwest Archeological Center, *Known, probable, and possible mound locations in developed area*, map (U.S. Department of the Interior, National Park Service, Midwest Archeological Center, June 2012).

steep slopes, is dominated by north-central maple-basswood forest. Along the Yellow and Mississippi Rivers, the vegetation community transitions to a mix of marshes and forested wetlands including silver maple (*Acer saccharinum*), elm (*Ulmus* spp.), and cottonwood (*Populus deltoides*). The landscape surrounding the visitor center and Monument administration buildings includes expanses of mown lawn, with ornamental plantings near the parking lot, maintenance garage, and visitor center entrance. Mounds within the character area are located on a forested terrace just above the confluence of the rivers. Vegetation on the mounds includes native grasses, sedges and forbs, and mounds are maintained through trimming to a cleared buffer of approximately 15 feet at mounds 55-57 and approximately 5-10 feet at mounds 58, 59, and 61.

Views

LCA-4 contains no trail overlooks; however, the character area includes a number of interesting views from the visitor center and trails. To the east of the visitor center, a lawn slopes downhill toward the Mississippi River, revealing views of Bluegill Pond and the railroad from within the building. The Yellow River Bridge Trail also offers a number of expansive views over the Yellow River, Buffalo Pond, and Bluegill Pond from the raised position of the boardwalk and bridge.

Patterns of Circulation

LCA-4 is easily accessed by vehicle from Highway 76. The Monument visitor center and administration buildings are located on opposite ends of the paved parking lot, immediately to the north of the highway. The parking lot is oriented east/west and provides for parking on the north and south sides of a large central island. The Monument administration parking lot is accessed by a secondary paved driveway to the west of the main parking lot. The Monument driveways and parking areas are in good condition. A gravel maintenance access road runs southeast from Highway 76 to the Yellow River Bridge Trail. The road passes to the south of mounds 58, 59, and 61 (13AM82), which are not accessible to Monument visitors. A second gravel maintenance access road connects Highway 76 to the Yellow River Bridge Trail to the south of the Yellow River.

Pedestrian access to LCA-4 is provided by two trails. This area includes the only universally accessible trails within the Monument. The Yellow River Bridge trail runs south from the visitor center area across the Yellow River. The trail is in good condition and is primarily boardwalk, except when it passes beneath Highway 76 in a short tunnel and above the Yellow River on a bridge. The trail includes interpretive signage relating to the American Indian traditions, but no mounds are visible from the boardwalk. The trail passes into the wetlands on the south side of the highway. Immediately north of the visitor center, a short bridge connects to a boardwalk and viewing platform overlooking mounds 55-57 (13AM82). The boardwalk is in good condition; however, the raised viewing platform is not universally accessible. The Main Trail to access mounds in the North Unit continues to the north from the boardwalk. The Main Trail is surfaced with wood chips and is in good condition. Concrete sidewalks provide pedestrian access between the parking lot, the visitor center, and the Yellow River Bridge Trail. The sidewalks are in good condition.

Topography

The topography within LCA-4 transitions between steep bluffs on the north side of the character area to lowlands at the Yellow River on the south side of the character area. Much of LCA-4 is situated on a low terrace above the confluence of the Mississippi and

Yellow rivers, referred to as the Nazekaw Terrace. The primary features in this area, including the Nazekaw Terrace Mound Group, mounds 55-61 (13AM82), and the Yellow River Bridge Trail, are situated on the terrace.

Buildings and Structures

The visitor center building is a one-story structure with gabled roof of approximately 9,000 square feet. The primary entrance to the building faces west and is connected to the parking lot through a concrete sidewalk. The front entrance of the visitor center is flanked by raised planting beds. The building has basement access to the lawn from the east side of the building. A short concrete pedestrian bridge connects the building to the boardwalk to the north. The visitor center building and bridge are in good condition.

Monument offices occupy two ranch-style residences on the north side of the administrative area located on the west end of LCA-4. The offices are located uphill of the Monument administration drive. There are sheds associated with both of these buildings and a garage adjacent to the westernmost building. The office buildings and sheds are in good condition.

A single-story brick maintenance garage located on the south side of the drive houses maintenance vehicles. The three garage doors face north. Additional space for storage of vehicles, equipment, and materials is on an asphalt parking area west of the Monument offices. The maintenance garage building is in good condition.

The Monument entry sign is located on the north side of Highway 76 at the entrance to the parking lot. The sign base is constructed of stone with two wood panels indicating the name of the Monument and the location of the headquarters, museum, and visitor center. The structure is approximately 10 feet long, 2.5 feet wide and 6 feet tall.

Two structures are located along the Yellow River Bridge Trail. A concrete tunnel with stone retaining walls on its north and south ends passes beneath Highway 76, creating a safe pedestrian walkway underneath the road. The interior of the tunnel is approximately 8 feet tall, and it is approximately 40 feet long. The tunnel is in good condition. A metal bridge crosses the Yellow River along the Yellow River Bridge Trail. The bridge has a wood deck with metal railings. It is approximately 80 feet long and in good condition.

Small Scale Features

Most of the small scale features documented in LCA-4 were all added after 1961 and **do not contribute** to the significance of the cultural landscape. They include:

1. two wood railings along the Main Trail (poor condition),
2. two 5-7 foot tall stone retaining walls along the Main Trail (good condition),
3. three 2-4 foot tall stone retaining walls along the Main Trail (two in poor condition, one recently constructed in good condition),
4. wood bench at a switchback on the Main Trail (good condition),
5. trash receptacle at a switchback on the Main Trail (good condition),
6. boardwalk at mounds 55-57 (13AM82) with wood railings (good condition),
7. two trash receptacles near mounds 55-57 (13AM82) (good condition),
8. short stone retaining wall near mounds 55-57 (13AM82) (fair condition),
9. three raised stone planting beds at the visitor center (good condition),
10. three trash receptacles near the parking lot (good condition),
11. 6 wood benches near the parking lot (good condition),
12. 10 trail signs (good condition),

13. 5 wayfinding signs in the parking area (good condition),
14. four stone gates in the parking area (good condition),
15. 2-3 foot wood retaining wall surrounding a fire hydrant near the Monument administration buildings (good condition),
16. stone retaining wall on the north side of the parking area near the western office building (good condition),
17. wood retaining wall behind the western office building (poor condition),
18. stone retaining wall on the east and south sides of the maintenance garage (good condition),
19. 5 interpretive signs (poor condition),
20. boardwalk at the Yellow River Trail with wood railings (good condition),
21. metal and wood alternative composite bench along the Yellow River Trail (good condition),
22. wood bench along the Yellow River Trail (good condition),
23. wood railing at the end of the maintenance access road (good condition),
24. metal gate at the end of the maintenance access road (good condition),
25. wood retaining wall at the north-east corner of the visitor center (good condition), and
26. stone retaining wall near the north-east corner of the visitor center (good condition).

The following small scale feature **contributes** to the significance of the historic landscape:

1. stone trail edge along the Main Trail (poor condition).

Table 3- 8. LCA 4 – Contributing Landscape Characteristics and Features

Features within LCA-4 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Non-contributing	Extensive disturbance in LCA-4 has made it difficult to discern the spatial organization associated with historical significance.
Archeological Resources	Contributing	• **Mounds 55-61 and an archeological site** (SS 1, 2 and 5) • **Below ground features associated with the Nazekaw Terrace Mound Group** are extensive and represent remnants of 30-40 mounds that also contribute to the significance of this location. (SS 1, 2 and 5)
Vegetation	Non-contributing	Lawn and ornamental plantings do not represent the period of significance.
Views	Non-contributing	Views have been disturbed by development and do not clearly represent the periods of significance.
Patterns of Circulation	Contributing Note the routes are contributing, but trail surfaces are non-contributing.	• **A portion of the Main Trail** constructed between 1946 and 1961 reflects the NPS rustic style approach to facility development. (SS 6)
Topography	Contributing	• Although there has been extensive disturbance of **topography** in this area, the broad scale relationships are apparent, especially the Nazekaw Terrace in the floodplain of the Yellow River. The topography provided opportunities for occupation and mound building, remnants of which remain. (SS 1 and 5)
Structures	No contributing structures	The visitor center and administrative offices were developed as part of a Mission 66 initiative, but have been previously determined in-eligible.
Small Scale Features	Contributing	• **Stone edge** along the Main Trail that extends from the visitor center to the mound groups contributes. (SS 6)

Figure 3- 60: EMNM Entrance Sign, 2013 (LCA 4) (source: QEA, 2013).

Figure 3- 61: EMNM Visitor Center, 2013 (LCA 4) (source: QEA, 2013).

Figure 3- 62: Interpretive wayside near EMNM Visitor Center, 2013 (LCA 4) (source: QEA, 2013).

Figure 3- 63: Administrative buildings, 2013 (LCA 4) (source: QEA, 2013).

Figure 3- 64: Maintenance garage, 2013 (LCA 4) (source: QEA, 2013).

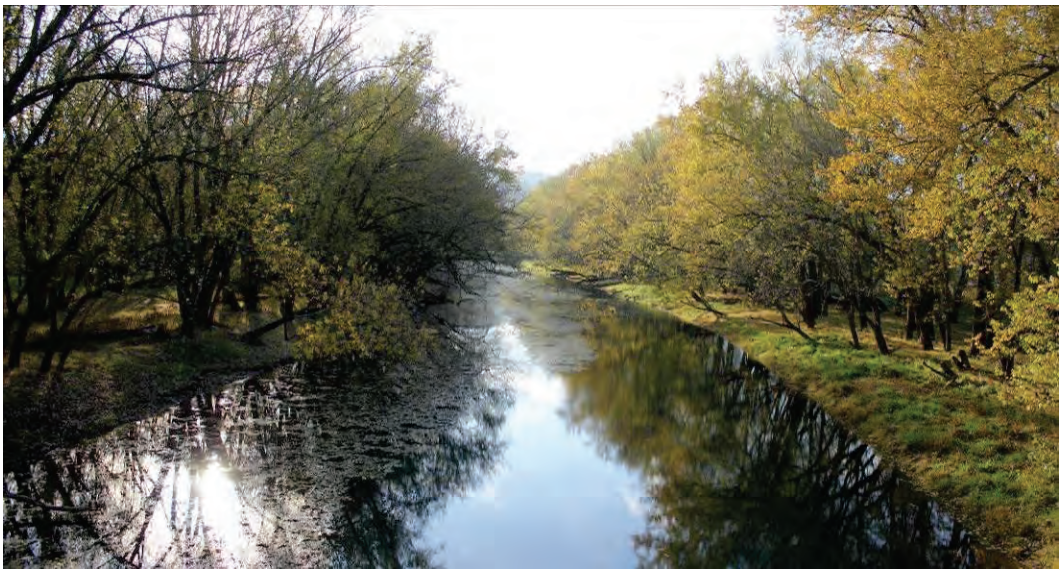

Figure 3- 65: View of Yellow River from Yellow River Trail Bridge (LCA 4) (source: QEA, 2013).

Figure 3- 66: Mounds 55-57 are located 70 feet north of the visitor center. Visitors may observe the mounds from a boardwalk (LCA 4) (source: QEA, 2013).

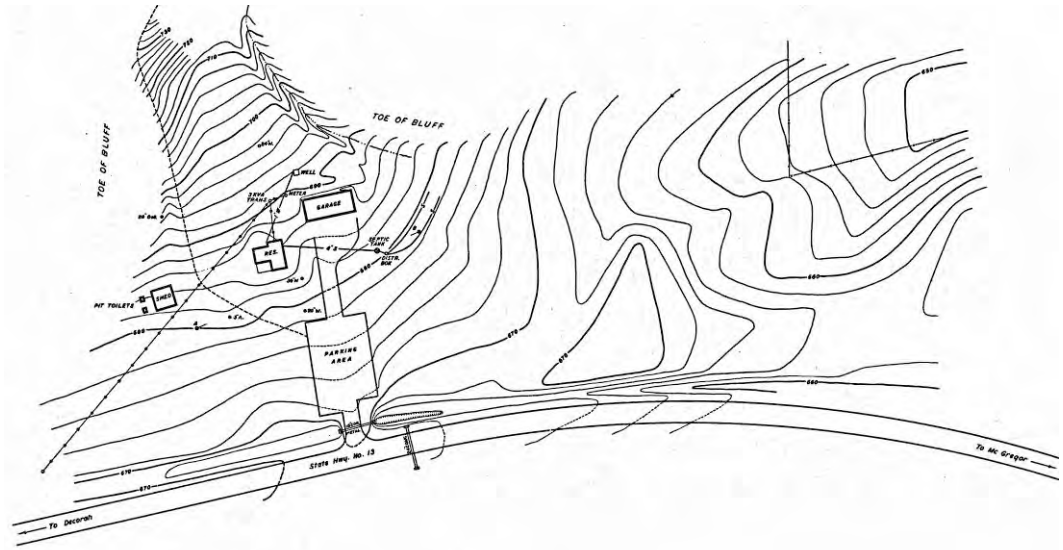

Figure 3- 67: Headquarters area configuration, 1951 (LCA 4) (source: NPS, Topography of Headquarters Area, Effigy Mounds National Monument, 1951).

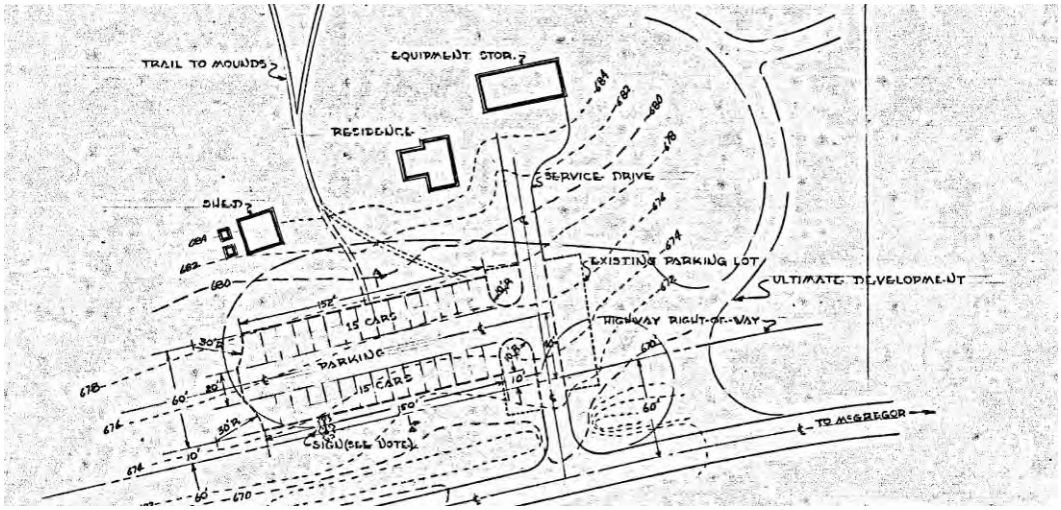

Figure 3- 68: Headquarters area configuration, 1952 (LCA 4) (source: NPS, Interim Parking Lot, Headquarters Area, Effigy Mounds National Monument, 1952).

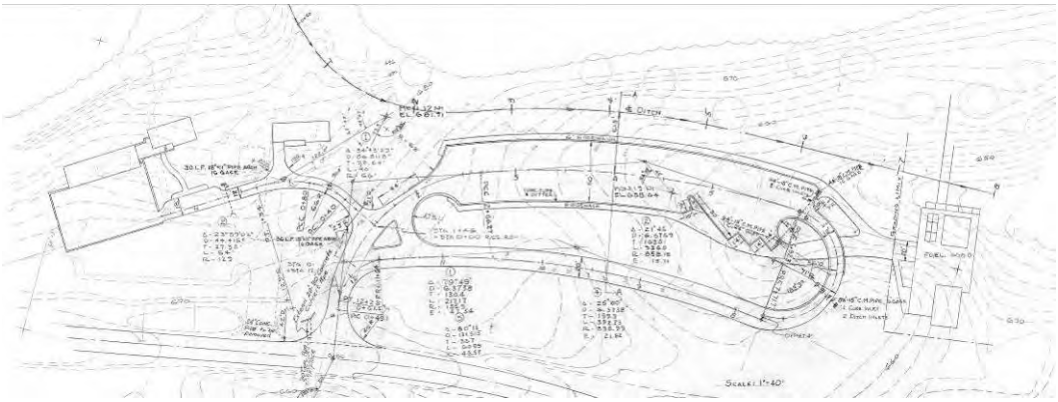

Figure 3- 69: Headquarters area configuration, 1959 (LCA 4) (source: NPS, Entrance Road, Parking, and Utility Group, 1959).

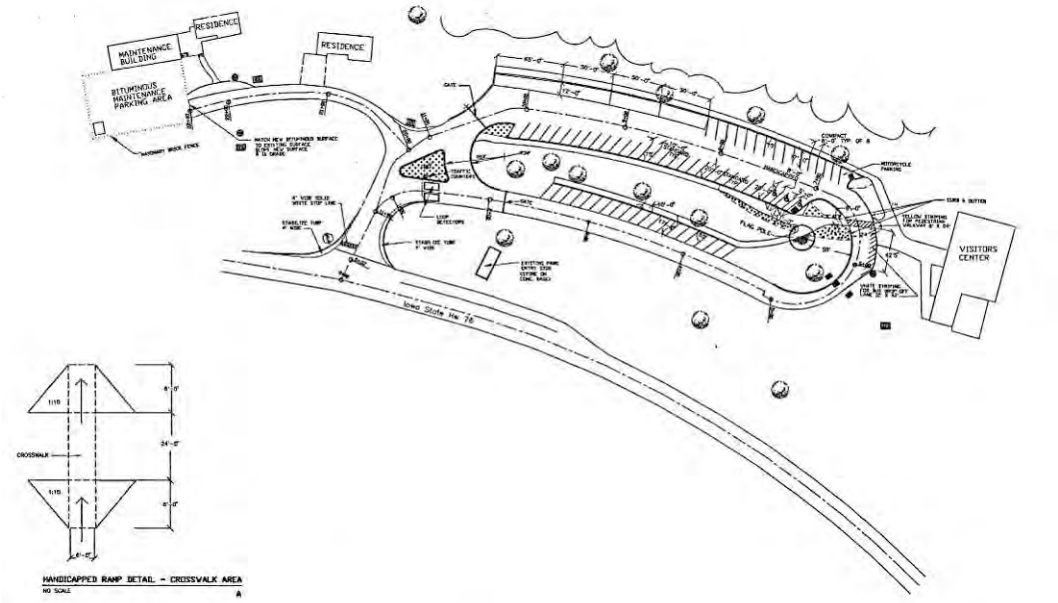

Figure 3- 70: Headquarters are configuration, 1992 (LCA 4) (source: NPS, Effigy Mounds National Monument Road and Parking Rehab, 1992).

South Unit Character Areas

LCA 5 - Existing Condition

Spatial Organization

Landscape Character Area 5 (LCA-5) is located in the South Unit of the Monument. The area is defined on the north by a line running roughly northeast/southwest along the top of the bluffs on the south side of the Yellow River. Its eastern boundary is the Monument boundary. The area is defined on the south by a curved line running roughly east/west just to the north of mound 65 (13CT55). On the west, the area is defined by a line that follows the top of the bluff above Founders Pond, connecting the northern and southern boundaries. The primary features in this area include three mounds, hiking trails, and the Founders Pond and Nazekaw Point Overlooks. A dual-use trail provides access to the South Unit, navigating the steep slopes on an abandoned logging route.

Archeological Resources

Landscape Character Area 5 includes mounds 62 through 64, two un-numbered mounds at site 13AM446, the Founders Pond overlook, Nazekaw Point trail and Nazekaw Point overlook. The South Unit Trail provides a rugged pedestrian route and limited access for maintenance vehicles into the South Unit from Highway 76.

Mounds 62 and 63 are linear mounds oriented east/west along the top of a bluff near Nazekaw Point overlook. Mound 64 is a bear shaped effigy oriented roughly east/west with its head pointing southwest and its feet pointing southeast. The two mounds at site 13AM446 are located on the south side of the South Unit access road relatively close to Highway 76.

Landscape Character Area 5 includes archeological sites: the Yellow River Mound Group mounds 62-64 (13AM113), which includes two linear mounds and a bear effigy; two mounds at site 13AM446 (a conical mound to the east and a linear mound to the west); and two archeological sites. Information regarding these archeological sites and their locations is protected and not presented in the CLR. All mounds in Landscape Character Area 5 are in good condition. Mound 64 had old depressions at its center and northeast of center. The two mounds at site 13AM446 have many trees within the mounds and some exposed soil.

Vegetation

The vegetation within this character area is dominated by white oak- red oak forest. Maple and basswood forests are also present on the north-facing bluffs. Vegetation at mounds 62-64 (13AM113) includes native grasses, sedges and forbs that are trimmed intermittently. The mounds are enclosed within a forested area with cleared buffers of approximately 20-40 feet, creating a corridor-like effect. Both newly discovered mounds at 13AM446 are low rises with woodland perennials and understory tree species. Vegetation on these mounds has not been trimmed or maintained by the Monument. Individual trees are present on the mounds.

Views

Mounds 62-64 (13AM113) are arranged along a high bluff above the Yellow River. The terrain drops off to the east, north, and west, offering views of both the Mississippi and Yellow Rivers. On the western side of the bluff, the view from the Founders Pond

Overlook encompasses the pond, the Yellow River, and Highway 76 in the distance. The view is relatively unobstructed by vegetation. The Nazekaw Point Overlook on the east side of the bluff looks out over the confluence of the Yellow and Mississippi Rivers. Vegetation close to the overlook obstructs the panoramic view. Small scale features at both overlooks include simple wood railings and wood benches.

Patterns of Circulation

Pedestrian and vehicle access to Landscape Character Area 5 share the South Unit Trail, a gravel road that travels west along steep slopes from Highway 76 to the top of the bluffs. The road is in poor condition due to extensive erosion. Monument visitors accessing the South Unit park on the east side of Highway 76 at a small parking area adjacent to the railroad tracks and cross the highway to reach the trailhead. At the top of the bluffs, the road turns south to provide access to other portions of the South Unit. Pedestrian trails along the top of the bluff provide access to mounds 62-64 (13AM113) and the two overlooks. These trails have recently been surfaced with wood chips and are in good condition.

Topography

Landscape Character Area 5 is dominated by steep slopes and high, relatively level bluff tops. The primary features in the area, mounds 62-64 (13AM113) and the two overlooks, are oriented in a roughly northeast/southwest line along a high bluff top. Trails through the area are oriented to provide a practical route of access to these high points. The two newly discovered mounds at 13AM446 are low rises along a deep ravine on the south side of the primary access road into the South Unit.

Small Scale Features

The small scale features documented in LCA-5 were all added after 1961 and **do not contribute** to the significance of the cultural landscape. They include:

1. four trail signs (good condition),
2. wood railing at Nazekaw Point Overlook (fair condition),
3. wood bench at Nazekaw Point Overlook (good condition),
4. wood railing at Founders Pond Overlook (fair condition), and
5. wood bench at Founders Pond Overlook (good condition).

Table 3- 9. LCA 5 – Contributing Landscape Characteristics and Features

Features within LCA-5 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• **Arrangement of mounds** is related to geological features. (SS 1 and 2)
Archeological Resources	Contributing	• **Mounds 62-64, two newly discovered mounds at 13AM446, and an archeological site** (SS 1, 2 and 5) • **Archeological sites** (SS 3)
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-5 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) SS 5: It has not been determined if present day American Indian Nations consider vegetation in this location to be culturally significant.
Views	Contributing	• **Views between the archeological sites within LCA-5 and the Mississippi and Yellow Rivers** contribute. It is believed that visual relationships to the broader landscape influenced site selection for mound construction and other associated American Indian activities. (SS 1 and 2) SS 5: American Indian Nations have not identified culturally significant views in this location.
Patterns of Circulation	Non-contributing	No circulation routes in LCA-5 are known to be associated with the periods of significance.
Topography	Contributing	• Mounds were constructed on high bluffs. The **topography** in LCA-5 remains intact and represents the construction period. (SS 2)
Small Scale Features	Non-contributing	Built after 1961.

Figure 3- 71: Mound 62 is a linear mound oriented along a blufftop perched above the Yellow River. Understory vegetation on the mound has been cleared and the area surrounding the mound is mown, creating an enclosed space within an oak-hickory forest. This corridor-like effect is similar to the spatial character of other blufftop mounds in the North and South units. (LCA 5) (source: QEA, 2013).

LCA 6 - Existing Condition

Spatial Organization

Landscape Character Area 6 (LCA-6) is located at the northeast corner of the Monument. The area is defined by LCA-5 to the north, denoted by a curved line running roughly east-west just north of mound 65. On the east, the area is defined by the Monument boundary. On the south, the area is bounded by LCA-7, denoted by a straight line that runs east-west north of the Old Military Road. On the west, the area is defined by a straight line running approximately north-south just to the west of the South Unit Trail. The primary features in this area include four mounds and hiking trails through forests and prairie. Trails in the area provide access to the mounds while avoiding deep drainage ravines.

Archeological Resources

Area 6 includes mounds 65 through 68 (the South Prairie Mound Group). Mound 65 is a large compound mound comprising seven conical mounds aligned roughly northwest/southeast along a ridge that slopes up in a southeast direction. Mound 66 is a bird effigy located on a high point south of mound 65. Mound 67 is an isolated bear effigy with its head oriented to the south and feet to the east. Mound 68 is an isolated conical mound on a high point.

LCA-6 includes archeological sites 13CT55 (mounds 65-67), including a compound mound, a bird effigy, and a bear effigy; 13CT54 (mound 68), an isolated conical; and three archeological sites. Information regarding these archeological sites and their locations is protected and not presented in the CLR. All mounds in Landscape Character Area 6 are in good condition. Mound 68 had a minor old depression. Individual trees are located on the mounds.

Vegetation

Vegetation within the area includes both upland oak-hickory-maple forests and an open field characterized by forbs and grasses as well as small shrubs and trees. The four mounds in this area are relatively isolated from each other and all are within upland forests.

A number of dead and downed trees are within the clearing at mound 65 (13CT55). As this mound receives more sunlight than the other three mounds in LCA-6, an abundance of grasses grow on and around the mound. The mound and the surrounding vegetation are trimmed to a buffer of approximately 15-25 feet. Mounds 66 and 67 (13CT55) and mound 68 (13CT54) are located under relatively dense canopy cover with vegetation on the mounds consisting of predominantly woodland herbaceous species with sparse grasses. Vegetation on the mounds is intermittently trimmed with an approximately 5-10 foot buffer around mound 66, an approximately 15 foot buffer around mound 67, and an approximately 25 foot buffer around mound 68.

Vegetation present in the open field area of the South Unit is a mixture of forbs and grasses with scattered, widely spaced shrubs and small trees. Prairie species include: Indian grass (*Sorghastrum nutans*), cream gentian (*Gentian flavida*), blazing star (*Liatris* spp.), black-eyed Susan (*Rudbeckia hirta*), and stiff golden rod (*Solidago rigida*). [114]

[114] National Park Service, *Resource Management Plan, Effigy Mounds National Monument*, 5-7.

Views

The Mississippi River is partially visible through the forest from the trail at the top of the bluff near mounds 65-67 (13CT55). Rolling topography and vegetation along the bluffs visually separate mounds 65-67 (13CT55).

Patterns of Circulation

Pedestrian and vehicle access to the South Unit of the Monument share the South Unit Trail. The portion of this road in LCA-6 is in fair condition, though along steep slopes in other areas of the South Unit the road is in poor condition due to erosion. The road runs north-south along the western side of the character area. A pedestrian trail connects to the South Unit Trail along the top of the bluff and provides access to mounds 65-67 (13CT55). A short trail spur provides accesses mound 68 (13CT54). These trails have recently been surfaced with wood chips and are in good condition.

Topography

This area is dominated by high bluff tops punctuated by deep drainage channels. Mounds 65-67 (13CT55) are oriented on a narrow ridge parallel to the Mississippi River. The rolling topography of the ridge visually separates the mounds. Mound 68 (13CT54) is located on a high point on the bluff. Trails traverse the relatively flat topography of the bluffs and tallgrass prairie, avoiding intermittent ravines, to access the mound groups.

Figure 3- 72: Mound 65 is a long compound mound oriented roughly parallel to the Mississippi River along a blufftop. The mound is constructed as a series of low, connected conicals (LCA 6) (source: QEA, 2013).

Table 3- 10. LCA 6 – Contributing Landscape Characteristics and Features

Features within LCA-6 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• **Arrangement of mounds** is related to geological features. (SS 1 and 2)
Archeological Resources	Contributing	• **Mounds 65-67, mound 68, and other archeological sites** (SS 1, 2 and 5) • **An archeological site** (SS 3)
Vegetation	Aspects Contribute	Comparison of POC-1 to EC-6 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) • **Portions of the LCA have been restored to prairie vegetation** which is reflective of conditions present during the period of significance, and therefore contributes. (SS 2) • **Vegetation species culturally significant to the Ho-Chunk Nation of Wisconsin** have been identified in this location. (SS 5)
Views	Non-contributing	SS 1 and 2: Views between Mounds 65-67 and the Mississippi River valley may have been dramatic during the construction period. Today, vegetation screens these views and they do not retain integrity. SS 5: American Indian Nations have not identified culturally significant views in this location.
Patterns of Circulation	Non-contributing	No circulation routes in LCA-6 are known to be associated with the periods of significance.
Topography	Contributing	• Mounds were constructed on high bluffs. The **topography** in LCA-6 remains intact and represents the construction period. (SS 2)

LCA 7 – Existing Condition

Spatial Organization

Landscape Character Area 7 (LCA-7) is located at the southeast corner of the Monument's South Unit. The area is defined on the north by LCA-6, denoted by a straight line that runs east-west north of the Old Military Road. It is defined on the east and south by the Monument boundary, and on the west by the curvilinear Old South Unit Trail. Trails in this area provide access to the mound groups, incorporating portions of the Old Military Road into the Monument's trail routes. The trail's circuitous route is necessary to navigate the steep slopes and avoid erosion.

Archeological Resources

The southern portion of the South Unit contains Landscape Character Area 7 which includes mounds 69 through 86, a portion of the Old Military Road, the South Unit Trail, and a spur trail that provides pedestrian access to mounds. A Portal Tree significant to the Ho-Chunk Nation of Wisconsin is located near the south end of mound 86.[115]

Mounds 69 through 83 are referred to as the Marching Bear Mound Group, including three bird effigies, ten bear effigies, and two linear mounds. The Old Military Road extends through the bottom of a ravine that is a natural funnel. Mound 84 is a compound mound adjacent to the road, and mounds 85 and 86 are a linear and a compound mound at the end of a trail spur off the road. It is possible that mounds 84 through 86 are part of the Marching Bear Mound Group.

LCA-7 includes archeological sites 13CT26 (mounds 69-83), composed of two linear mounds, three bird effigies, and ten bear effigies, 13CT53 (mound 84), a compound mound, 13CT52 (mounds 85 and 86), a linear and a compound mound, 13CT329 (Old Military Road), and four archeological sites. Information regarding these archeological sites and their locations is protected and not presented in the CLR. All mounds in Landscape Character Area 7 are in good condition. Mounds 69 and 75 have rodent holes, mounds 75 and 78 have been impacted by deer trails and markings, mounds 74, 79, and 85 have minor old depressions, and mounds 70 and 75 have minor bare spots.

The portion of the Old Military Road that is within the Monument has been determined eligible for the National Register of Historic Places. The road is both locally and nationally significant for its association with mid-19th century military occupation and initial settlement of the Iowa and Wisconsin areas of the Michigan Territory.[116] The majority of the original surface of the road has been disturbed by erosion, but the grade of the roadbed and its unmortared cut stone embankments are still visible in several areas along the alignment. The road is in poor condition but retains integrity as a circulation route associated with military and settlement in the area. It contributes to the significance of the South Unit. This feature is described in detail in Appendix D.

Vegetation

The vegetation within this character area is dominated by red oak-white oak–hickory-maple forest. The northern portion of LCA-7 also includes a small area of tallgrass

[115] William Quackenbush, Tribal Historic Preservation Officer, Ho-Chunk Nation of Wisconsin, personal interview, October 29, 2014.
[116] National Register of Historic Places, Old Military Road Determination of Eligibility.

prairie. Vegetation at the mounds includes native and invasive grasses, sedges and forbs that are trimmed intermittently. Throughout the character area, mounds are enclosed within a forested area with cleared buffers of approximately 15-30 feet at mounds 69-83 (13CT26), 20 feet at mound 84 (13CT53), and approximately 15-20 feet at mounds 85-86 (13CT52). Trees are interspersed among the mounds, and individual trees are present on the mounds.

Near the southern end of mound 86 is a Portal Tree that has a distinct horizontal branching pattern that would have been visible from long distances. Undergrowth currently obscures the lower branches of this tree.

Views

There are no trail overlooks in LCA-7. However, the Mississippi River is partially visible from the Marching Bear Group at mounds 69-83 (13CT26) and mounds 85 and 86 (13CT52), though vegetation may obscure this view for much of the year. Mounds 82-83 (13CT26) are immediately adjacent to a cultivated field with little visual buffer.

The rolling topography of the ridge on which mounds 69-83 (13CT26) are situated lends visibility to the low forms of the mounds. The topography also separates the large mound group into smaller groupings. A rise in the topography between mounds 81 and 82 visually separates mounds 82 and 83, two bird effigies, from the Marching Bear. Mounds 69 and 70 are also visually separated from the group to the south by the topography.

Patterns of Circulation

Landscape Character Area 7 is accessed both by pedestrians and vehicles through the South Unit Trail, which extends south from LCA-5. The portion of this road in LCA-7 is in fair condition, though along steep slopes in other areas of the South Unit the road is in poor condition due to erosion. In LCA-7, the western section of this gravel access road follows the route of the Old Military Road, beginning at the South Unit Road's junction with the Old Military Road trail and ending near mound 76 in the Marching Bear Group (13CT26). From this point, the roadbed for the Old Military road continues along the west side of the Marching Bear Group, and is surfaced with natural soil and vegetation. The gravel road is visible from mounds 69, 76 and 77.

A gate located just to the south of mounds 82 and 83 (13CT26) controls vehicular access to the Monument from the agricultural property immediately to the south.

An additional pedestrian trail is located to the east of mounds 69-83 (13CT26) to provide access to mounds 84-86 (13CT53 and 13CT52). This trail follows a portion of the route of the Old Military Trail southeast from its junction with the South Unit Trail to a point just south of mound 84 (13CT53). This trail has been surfaced with wood chips and is in good condition. At mounds 69-83, pedestrian circulation is allowed on the trimmed grass around the mounds, rather than on a designated trail.

Topography

This area is dominated by high bluffs defined by steep slopes and deep drainage channels. The primary features in this area include the Marching Bear Mound Group, mounds 69-83 (13CT26), mound 84 (13CT53) and mounds 85 and 86 (13CT52). Each of these features is oriented upon a high bluff overlooking the Mississippi River.

The Marching Bear Mound Group (mounds 69-83), includes three bird effigies, ten bear effigies, and two linear mounds. The mounds are arranged in a roughly north-south orientation along a bluff parallel to the Mississippi. This bluff overlooks the sites of mound 84 and mounds 85-86, though the mounds at a lower elevation were not visible during the site visit due to vegetation. All bear effigies in the Marching Bear Mound Group face south or slightly southwest as if walking downstream with the exception of mound 71, which is upside down relative to the other bears and faces southeast. All three of the bird effigies face southeast toward the river.

Small Scale Features

The small scale features documented in LCA-7 were all added after 1961 and do not contribute to the significance of the cultural landscape. They include:

1. barbed wire fence at the southern border of the Monument (fair condition), and
2. metal gate near the south end of mound 83 (13CT26) at the Monument's southern boundary (good condition).

Table 3- 11. LCA 7 – Contributing Landscape Characteristics and Features

Features within LCA-7 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• **Arrangement of mounds** is related to geological features. (SS 1 and 2)
Archeological Resources	Contributing	• **Mounds 69-83, mound 84, mounds 85 and 86, and five archeological sites** (SS 1, 2 and 5) • **Old Military Road** (SS 3)
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-7 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) • **Vegetation species culturally significant to the Ho-Chunk Nation of Wisconsin** have been identified in this location. (SS 5) • **A Portal Tree** near mound 86 has been identified as a significant cultural feature by the Ho-Chunk Nation of Wisconsin. (SS 5)
Views	Pending determination	SS 1 and 2: Views between mound groups in LCA-7 and the Mississippi River valley may have been dramatic during the construction period. Today, vegetation screens these views and they do not retain integrity. • **The visual relationship between the Portal Tree and the surrounding landscape, sky and river is culturally important to the Ho-Chunk Nation of Wisconsin**. (SS 5)
Patterns of Circulation	Contributing	• Old Military Road (SS 3)
Topography	Contributing	• Mounds were constructed on high bluffs. **Topography** in LCA-7 remains intact and represents the construction period. (SS 2)
Small Scale Features	Non-contributing	Constructed after 1961.
Cultural Traditions	Contributing	• **Portal tree** near mound 86 (SS 1 and 2)

Figure 3- 73: Hillshade image of Marching Bear Mounds (mounds 69-86) from Lidar data (LCA 7) (source: EMNM GIS Database).

Figure 3- 74: The Marching Bear Mound Group includes ten bear effigies, three bird effigies, and two linear mounds. This striking mound group is a significant feature of the South Unit of the Monument (LCA 7) (source: QEA, 2013).

Figure 3- 75: Branches on a Portal Tree have a distinct horizontal alignment. This tree is located near Mound 86, overlooking the Mississippi River (LCA 7) (source: QEA, 2013).

Heritage Unit Character Area

LCA 8 – Existing Condition

Spatial Organization

Landscape Character Area 8 (LCA-8) includes three separate locations that include mounds within the Heritage Unit. Area 8A is located in the northeast portion of the Heritage Unit and includes the Twin Bear Mounds (13AM186). The Heritage Bird Group, Area 8B, is located on the south side of the Heritage Unit overlooking the Yellow River. It includes two linear mounds (97 and 98, site 13AM262) that are adjacent to each other, one isolated bird mound (99, site 13AM107), and one isolated linear mound (site 13AM261). Area 8C is located in the southeast portion of the Heritage Unit, just to the west of LCA-5. The area includes one isolated conical mound (87, site 13AM209).

Archeological Resources

Portions of LCA 8 lie within the Heritage and South Units in remote locations that are difficult to access. A network of abandoned logging routes provides limited access to some portions of the area.

LCA 8, Area A

LCA 8A includes two bear-shaped effigy mounds (the Twin Bear Mounds, no numbers; located at site 13AM186). Of these, only the Twin Bear Mound Group was inspected by the project archeologist in 2013. The two bear effigies were in good condition with a number of trees growing on the mounds.

LCA 8, Area B

LCA 8B includes the Heritage Bird Group, comprising two linear mounds (97 and 98) that are adjacent to each other, one isolated bird mound (99), and one isolated linear mound (no number; located at site 13AM209). Mound 99, mounds 97-98, and mound 87 were visited by Whittaker and Riley in 2012. At that time, mounds 97-99 were in fair condition, but appear to have been driven on historically, with visible damage from vehicle ruts, old trails, and natural steep slopes.

LCA 8, Area C

LCA 8C includes one isolated conical mound (mound 87, the Heritage Lone Mound). Mound 87 was inspected by Whittaker and Riley in 2012 and was in good condition with some level spots and steps in the mound.

Vegetation

All mounds within Landscape Character Area 8 are located in wooded sites dominated by red oak-white oak-hickory-maple forest. Vegetation on the mounds includes native and invasive woodland grasses, sedges and forbs as well as individual trees and shrubs. Vegetation on mounds within the Heritage Unit is not maintained except for invasive vegetation treatment, which is limited to burning seed heads of invasive species on the mounds.

Views

No trail overlooks are located in LCA-8. In area 8A, two bear effigies (13AM186) are arranged on a high bluff at a turn in the Yellow River. While not visible due to foggy

conditions on the day of the site visit, according to Monument staff the river can generally be seen from the site.

Patterns of Circulation

Mounds within the Heritage Unit are not advertised to visitors, and the mounds in LCA-8 are not accessed by maintained pedestrian trails. Trails to the mound sites are most readily accessible from privately owned agricultural properties adjacent to the national Monument, and permission and/or notice must be given to access these trails.

Topography

All three of the mound groups in LCA-8 (sites 13AM186, 13AM107, 13AM262, and 13AM209) are oriented on high bluff tops overlooking the Yellow River defined by steep slopes and deep drainage channels.

Figure 3- 76: The Twin Bear Mounds are not accessible to Monument visitors. Vegetation on the mounds is not maintained, though the area is treated for invasive plant species (LCA 8A) (source: Bill Whittaker, 2013).

Table 3- 12. LCA 8 – Contributing Landscape Characteristics and Features

Features within LCA-8 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Pending determination	More information is needed to determine if the LCA-8 area is contributing related to spatial organization.
Archeological Resources	Contributing	• Area 8A includes **two mounds**, Area 8B includes **mounds 97, 98 and 99 and the Heritage Linear mound, and archeological sites**. Area 8C includes **mound 87** (SS 1, 2 and 5)
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-8 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance. The open grassland has been replaced by forest which does not contribute to the significance of vegetation. • **The existing forest vegetation in the ravines** reflects general conditions during the period of significance, and therefore contributes. (SS 2) • **Vegetation species culturally significant to the Ho-Chunk Nation of Wisconsin** have been identified in this location. (SS 5)
Views	Non-contributing	No culturally significant views have been identified in this area.
Patterns of Circulation	Contributing	• **A road was developed through the Yellow River valley** prior to 1900. Remnants of the road remain. (SS 3)
Topography	Contributing	• Mounds were constructed on high bluffs. The **topography** in LCA-8 remains intact and represents the construction period. (SS 2)
Small Scale Features	No small scale features	No documented small scale features.

Sny Magill Unit Character Area

LCA 9 – Existing Condition

Spatial Organization

Landscape Character Area 9 (LCA-9) is located in the northeast section of the Sny Magill Unit, approximately 10.5 miles south of the visitor center. LCA-9 is defined on the north and east by the Monument boundary, on the south by a straight line that runs east-west approximately 400 feet to the south of the mound group, and on the west by a line that runs roughly north-south along the west side of the Sny Magill Access Trail. The primary features in this area include approximately 100 mounds, 99 of which were visible in 2013. The area is organized to provide access to the mounds with a trail along the west side of the mound group.

Archeological Resources

The Sny Magill Unit contains ninety-nine designated mounds (Mounds 1-99) and twelve mound-like features (identified as A-O) and seven low rises (identified as AA-AG) located within a one-hundred and twenty acre site.[117] The mounds are clustered closely together in a low-lying area on the western bank of the Mississippi River. The majority are conical, with six linear, two bear, and two bird effigies included. The Sny Magill Access Trail provides pedestrian access through the site.

The Sny Magill Unit includes archeological site 13CT18, which contains ninety-nine designated mounds and twelve mound-like features located within a one-hundred and twenty acre site. As a whole, the mound group is in excellent condition. Twenty-two mounds are currently impacted by trees growing within the mound, thirteen mounds have trees on their edges, and ten mounds have rodent burrows. Two mounds are in danger of shoreline erosion. Thirty-six mounds have old depressions, and nine are flat-topped.

Vegetation

The Sny Magill Unit is located within the Mississippi River floodplain in a lowland forest dominated by elm (*Ulmus* spp.), walnut (*Juglans* spp.), hackberry (*Celtis occidentalis*), and oak (*Quercus* spp.). Slight natural rises in the topography correspond to concentrations of bur oak (*Quercus macrocarpa*). Mound vegetation includes native and invasive grasses, sedges, and herbaceous perennials. The mounds and a large buffer area extending from the Sny Magill Access Trail to the river banks are periodically trimmed. Toward the south end of the mound group, this mowed buffer narrows to approximately 40-60 feet of cleared space at mounds 92-94 that does not extend to the river edge. Trees are interspersed amongst the mounds. The mound site is enclosed on the west and south by the forest and shrub undergrowth. To the east and north, wetland herbaceous species grow on the river banks of the Mississippi.

Views

Expansive views are open from the cleared space around the mounds to the north, south, and east along the Mississippi River.

[117] More information about the mounds is provided in Appendix D: Mound Conditions.

Patterns of Circulation

A gravel road from Highway 76 is used by Monument staff to access the area; this road also services a public landing and gravel parking area on the Mississippi River operated by the State of Iowa. The entrance to the unit is gated and a wood chip trail extends from the access road along the west side of the mound group. Circulation amongst the mounds is on the trimmed grass buffer that extends from the maintenance road approximately 20-60 feet west of the mounds to the Mississippi.

Topography

Landscape Character Area 9 is relatively level along the west bank of the Mississippi River with an average elevation of 620 feet above sea level. The mounds are clustered closely together in a low-lying area on the western bank of the Mississippi River. The majority are conical, with six linear, two bear, and two bird effigies included. The mounds are clustered closely together in roughly linear arrangements parallel to the Mississippi River. The two bear effigies face south with their feet toward the river, as if walking downriver. The two bird effigies also face south. Most of the mounds within the unit are conical mounds with low relief, ranging from one foot to less than three feet high.

Small Scale Features

Small scale features include:

1. eight metal signs identifying the federal property along the river edge (good condition).
2. fence and gate at entrance trail to the mound group (adjacent to LCA 9)
3. informational sign at boat launch (adjacent to LCA 9)

Table 3- 13. LCA 9 – Contributing Landscape Characteristics and Features

Features within LCA-9 that contribute to the significance of the Monument's cultural landscape include (*significance statement is abbreviated as SS, *bulleted items in bold font contribute):

Landscape Characteristic or Feature	Contributing or Non-Contributing	Rationale / Associated Significance Statement
Spatial Organization	Contributing	• The dense **arrangement of mounds** in this location is associated with the river terrace. (SS 1 and 2)
Archeological Resources	Contributing	• **99 designated mounds and 12 mound-like features** (SS 1, 2 and 5)
Vegetation	Aspects Contribute	Comparison of POC -1 to EC-9 illustrates that vegetation immediately surrounding the mounds does not represent conditions present during the period of significance (POS). The forested wetland has been replaced by lawn, which does not contribute to the period of significance. • The surrounding **forested wetland** throughout the LCA reflects general conditions during the period of significance, and therefore contributes. (SS 2) • **Vegetation species culturally significant to the Ho-Chunk Nation of Wisconsin** have been identified in this location. (SS 5)
Views	Contributing	• **Views between LCA-9 mounds and the Mississippi River** contribute. It is believed that visual relationships to the broader landscape influenced site selection for mound construction and other associated American Indian activities. (SS 1, 2 and 5)
Patterns of Circulation	Non-contributing	No circulation routes in LCA-9 are known to be associated with the periods of significance.
Topography	Contributing	• Mounds were purposefully constructed in this low, level, **floodplain area**. It is likely that other mounds in the floodplain have been buried by sediment or washed away by river currents.
Small Scale Features	Non-contributing	Constructed after 1961.

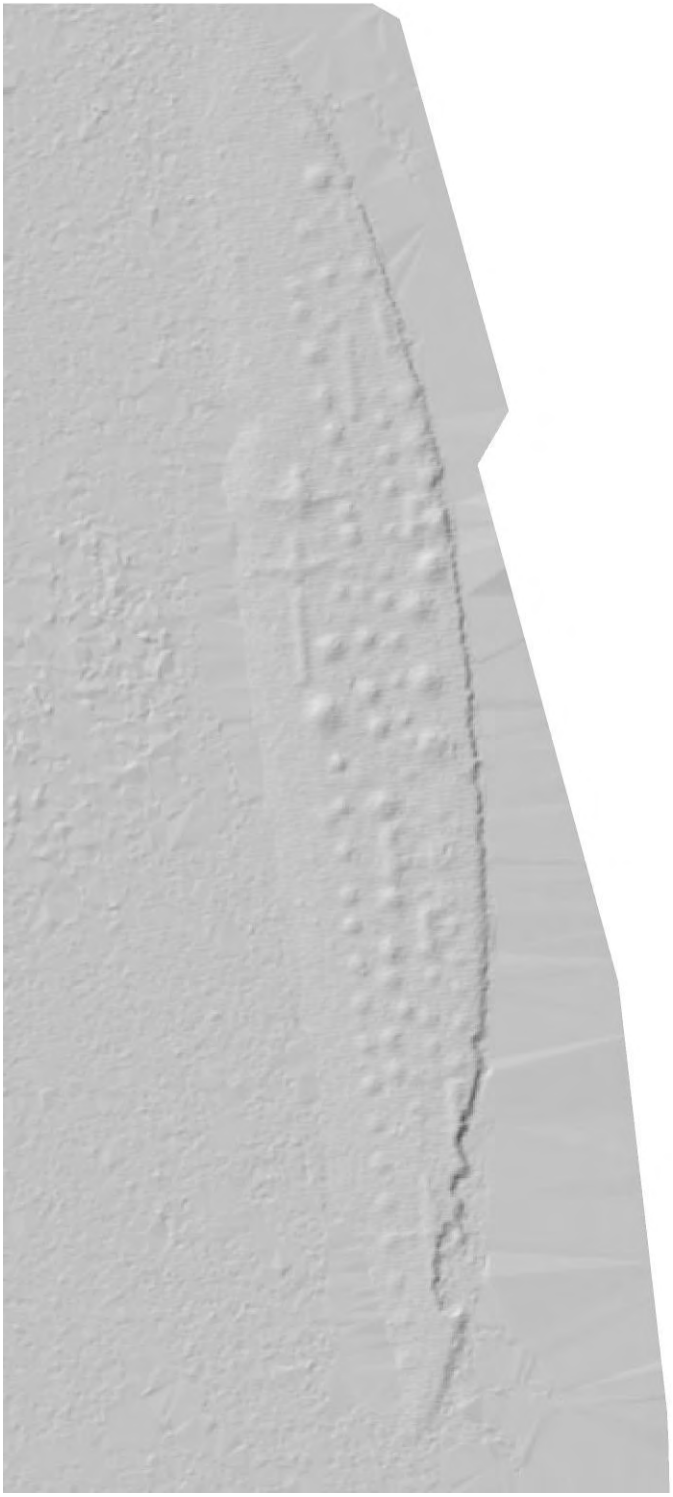

Figure 3- 77: Hillshade image of mounds at Sny Magill Unit (mounds 1-99) from Lidar data (LCA 9) (source: Iowa Geological and Water Survey).

Figure 3- 78: Densely grouped mounds at the Sny Magill Unit are located in a floodplain forest. Understory vegetation has been removed from the area of the mound group, and the mound group and surrounding buffer are periodically mowed (LCA 9) (source: QEA, 2013).

Figure 3- 79: The elevation of the mound group at the Sny Magill Unit is only a few feet above Sny Magill Slough. Due to the proximity of the mounds to the river, deposits of sediment have accumulated at Sny Magill since the end of the mound construction period (LCA 9) (source: QEA, 2013).

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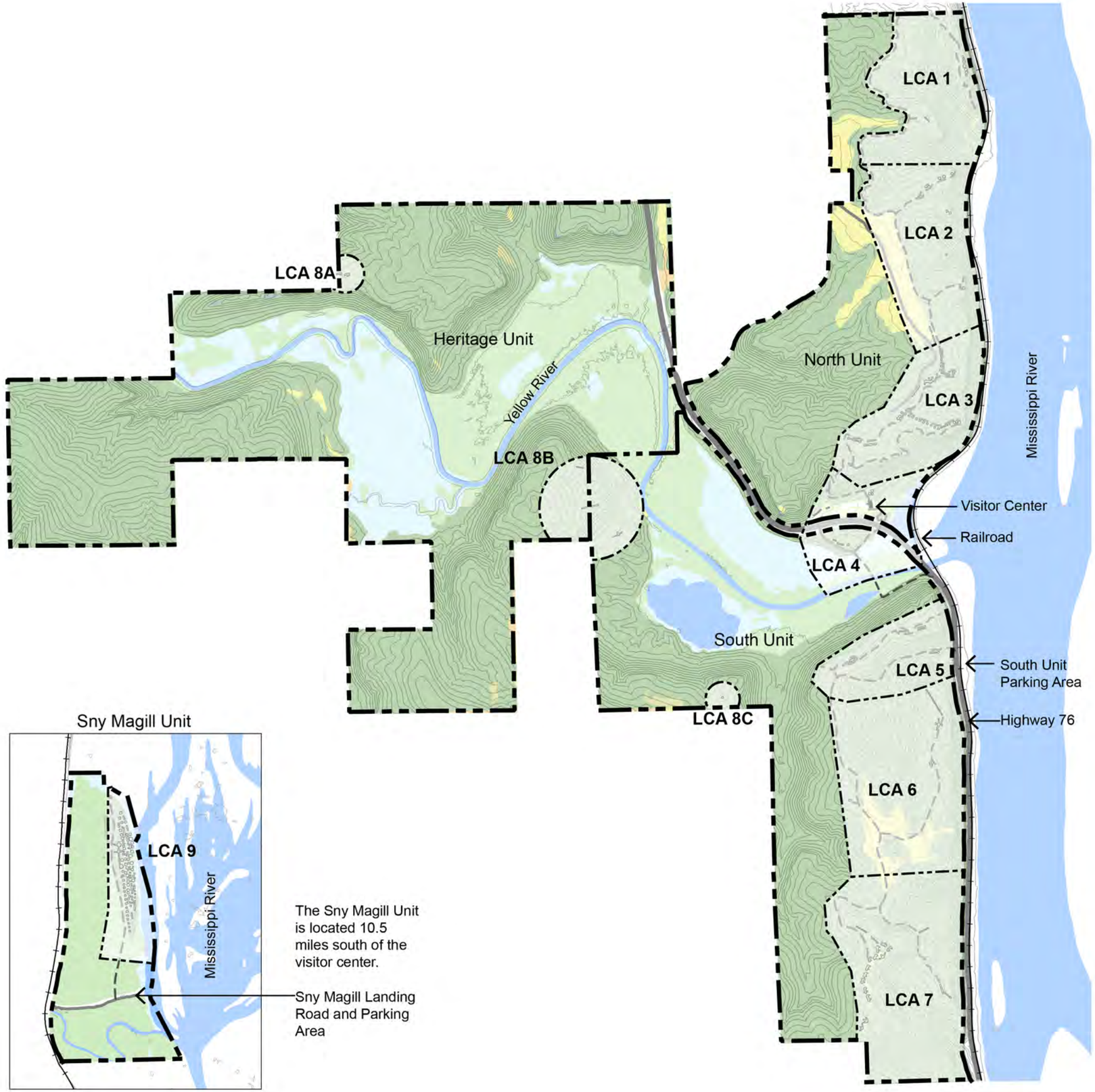
EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Overall Project Area Existing Conditions



Sny Magill Unit

The Sny Magill Unit is located 10.5 miles south of the visitor center.

Sny Magill Landing Road and Parking Area

Legend

- Monument Boundary
- Landscape Character Area Boundary
- Mound
- Existing Building
- Trail
- Highway 76
- Maintenance Access
- Railroad
- Prairie Species
- Shrubland
- Deciduous Forest
- River or Stream
- Forested Wetland
- Nonforested Wetland
- 20 ft contours (2 ft contours in Sny Magill)

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

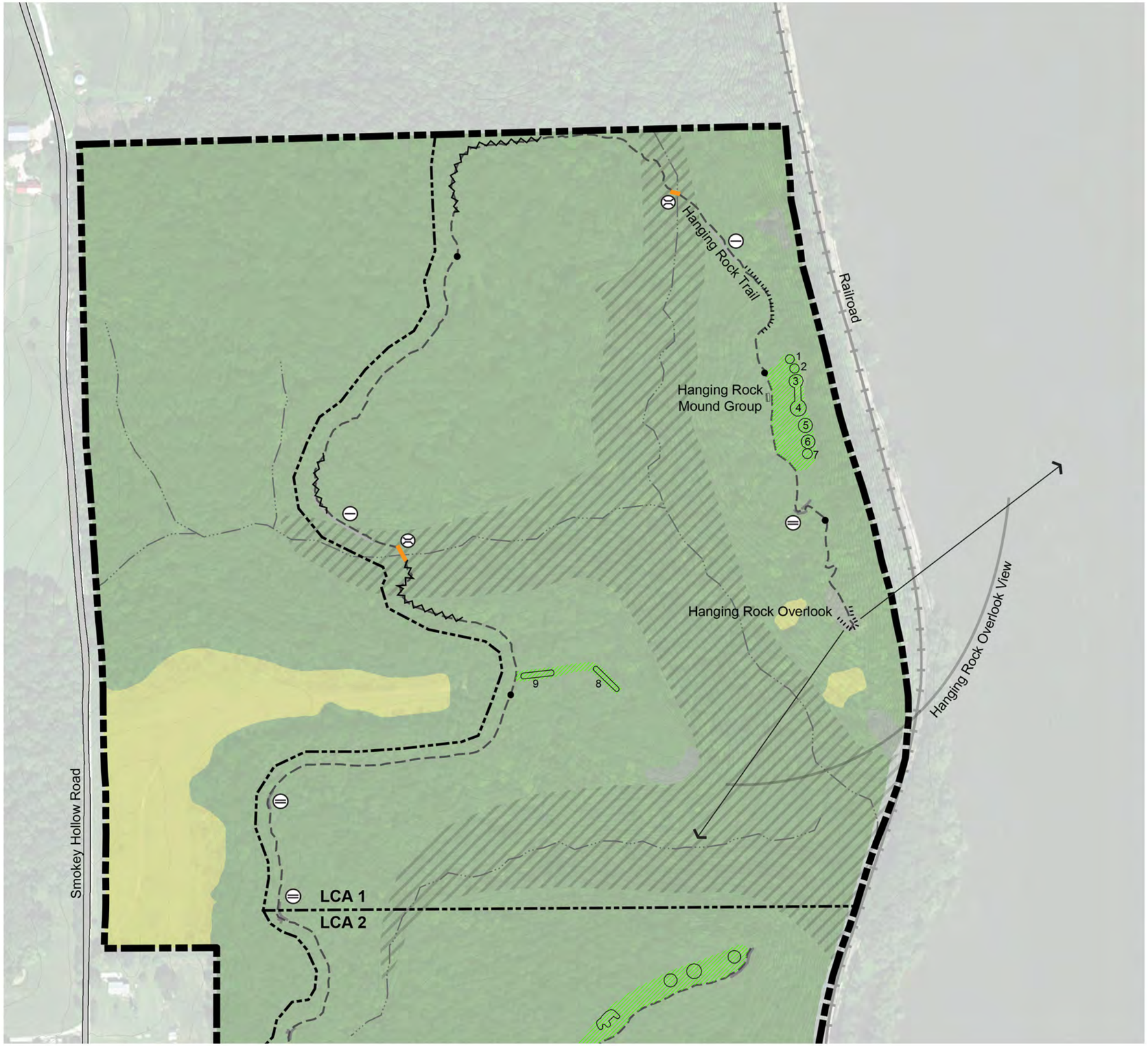
0 150 300 600 Feet
1 inch = 300 feet

N

EC-0

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 1
Existing Conditions



Legend

- Monument Boundary
- Landscape Character Area Boundary
- Bench
- Trail Sign
- Trash or Recycling Receptacle
- Mound
- Guardrail / Fence
- Bridge
- Trail
- Trail Erosion
- Short Retaining Wall
- Stone Edge
- Drainage / Intermittent Stream
- Trimmed Vegetation in Deciduous Forest
- Prairie Species
- Deciduous Forest
- Mixed Forest
- 10-foot Contours
- Natural Funnel
- Viewshed

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3.Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 150 300 600 Feet
1 inch = 300 feet

N

EC-1

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 2
Existing Condition

Legend

- Monument Boundary
- Landscape Character Area Boundary
- Bench
- Trail Sign
- Trash or Recycling Receptacle
- Mound
- Guardrail
- Bridge
- Maintenance Access Route
- Trail
- Abandoned Road
- Short Retaining Wall
- Stone Edge
- Drainage / Intermittent Stream
- Trimmed Vegetation in Prairie Species
- Trimmed Vegetation in Deciduous Forest
- Prairie Species
- Deciduous Forest
- 10 ft Contours
- Viewshed

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 150 300 600 Feet
1 inch = 300 feet

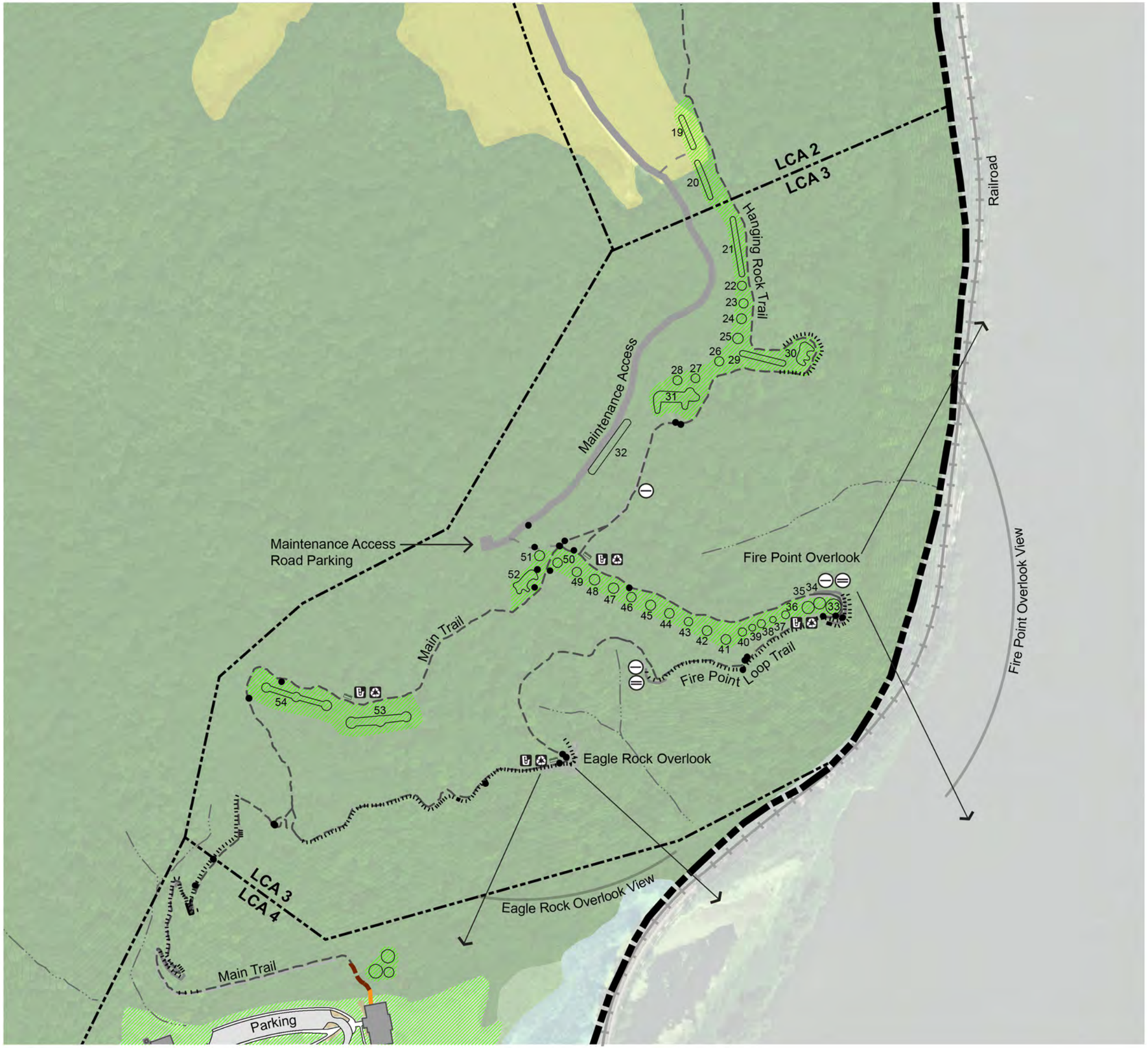
N

EC-2

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 3
Existing Condition



Legend

- Monument Boundary
- Landscape Character Area Boundary
- Bench
- Trail Sign
- Trash or Recycling Receptacle
- Mound
- Guardrail / Fence
- Maintenance Access Route
- Trail
- Abandoned Road
- Short Retaining Wall
- Stone Edge
- Drainage / Intermittent Stream
- Trimmed Vegetation in Deciduous Forest
- Deciduous Forest
- Mixed Forest
- 10-foot Contours
- Viewshed

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 150 300 600 Feet
1 inch = 300 feet

N

EC-3

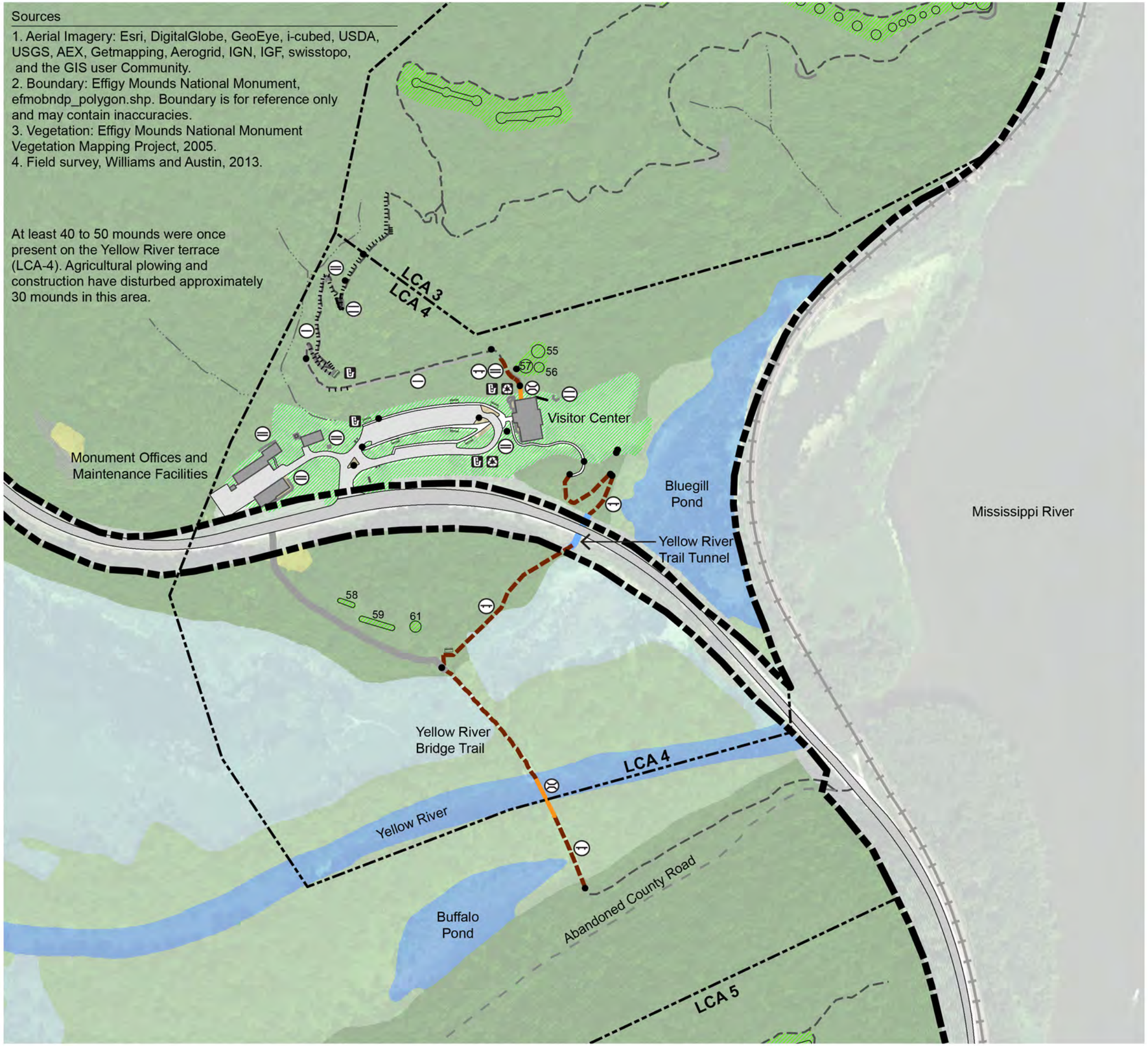
EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 4
Existing Condition

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

At least 40 to 50 mounds were once present on the Yellow River terrace (LCA-4). Agricultural plowing and construction have disturbed approximately 30 mounds in this area.



Legend

- Monument Boundary
- Landscape Character Area Boundary
- Bench
- Sign
- Trash or Recycling Receptacle
- Mound
- Existing Building
- Guardrail
- Boardwalk
- Bridge
- Tunnel
- Maintenance Access Route
- Trail
- Abandoned Road
- Tall Retaining Wall
- Short Retaining Wall
- Stone Edge
- Drainage / Intermittent Stream
- Trimmed Vegetation
- Trimmed Vegetation in Deciduous Forest
- Prairie Species
- Deciduous Forest
- Forested Wetland
- Nonforested Wetland
- River or Pond
- 10-foot Contours
- Maintain View

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

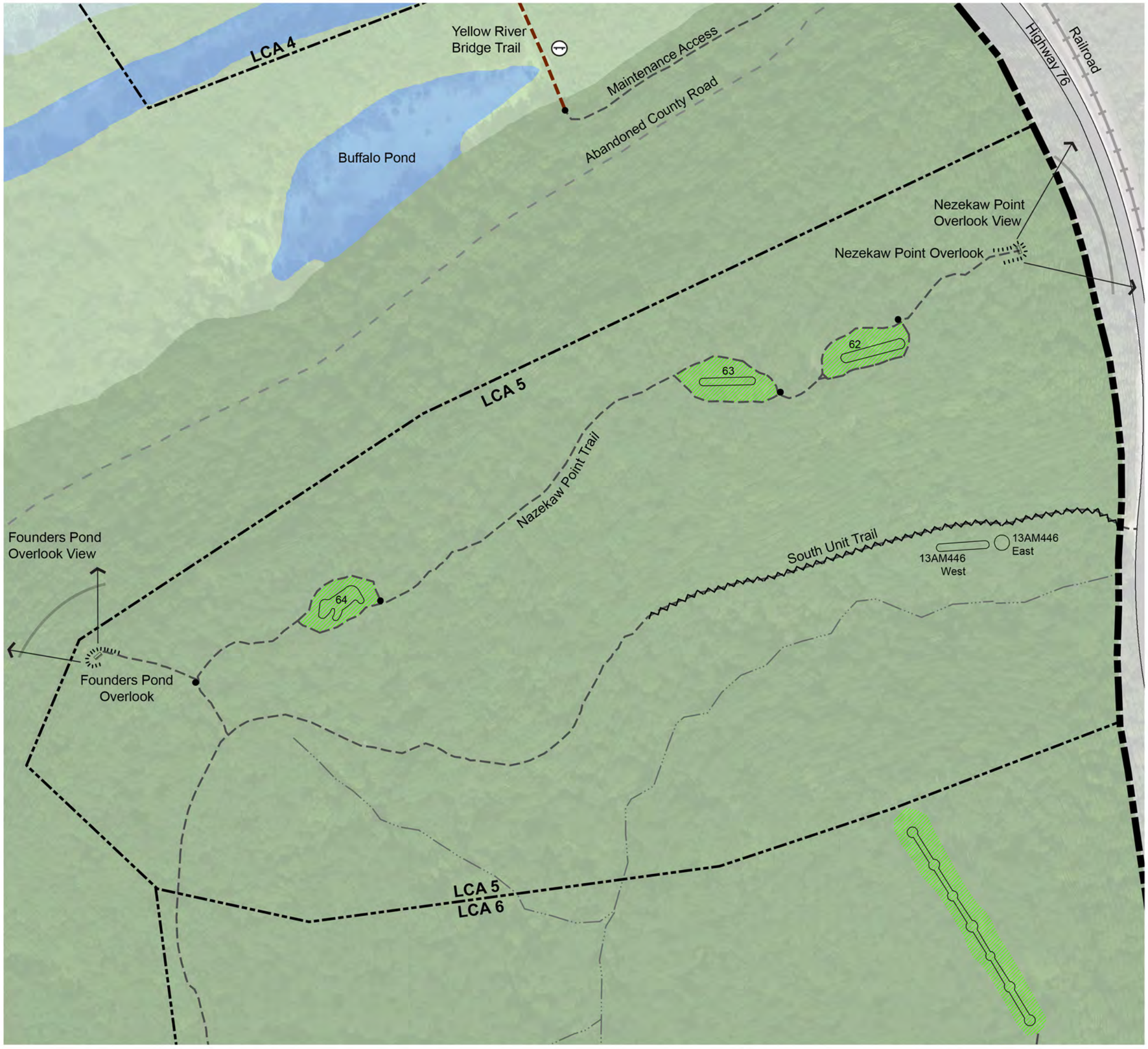
0 150 300 600 Feet
1 inch = 300 feet

N

EC-4

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 5
Existing Condition



Legend

- Monument Boundary
- Landscape Character Area Boundary
- Bench
- Sign
- Mound
- Guardrail
- Boardwalk
- Trail
- Trail Erosion
- Abandoned Road
- Drainage / Intermittent Stream
- Trimmed Vegetation
- Deciduous Forest
- Forested Wetland
- River or Pond
- Interpret Natural Funnel
- 10 ft contours
- Viewshed

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 100 200 400 Feet
1 inch = 200 feet

N

EC-5

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 6
Existing Condition

Legend

- Monument Boundary
- Landscape Character Area Boundary
- Mound
- Trail
- Drainage / Intermittent Stream
- Trimmed Vegetation in Deciduous Forest
- Prairie Species
- Shrubland
- Deciduous Forest
- Interpret Natural Funnel
- 10 ft contours

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
2. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 150 300 600 Feet
1 inch = 300 feet

N

EC-6

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 7
Existing Condition

Legend

- Monument Boundary
- Landscape Character Area Boundary
- Mound
- Trail
- Abandoned Road
- Drainage / Intermittent Stream
- Trimmed Vegetation in Prairie Species
- Trimmed Vegetation in Deciduous Forest
- Prairie Species
- Deciduous Forest
- Natural Funnel
- 10 ft contours

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3.Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

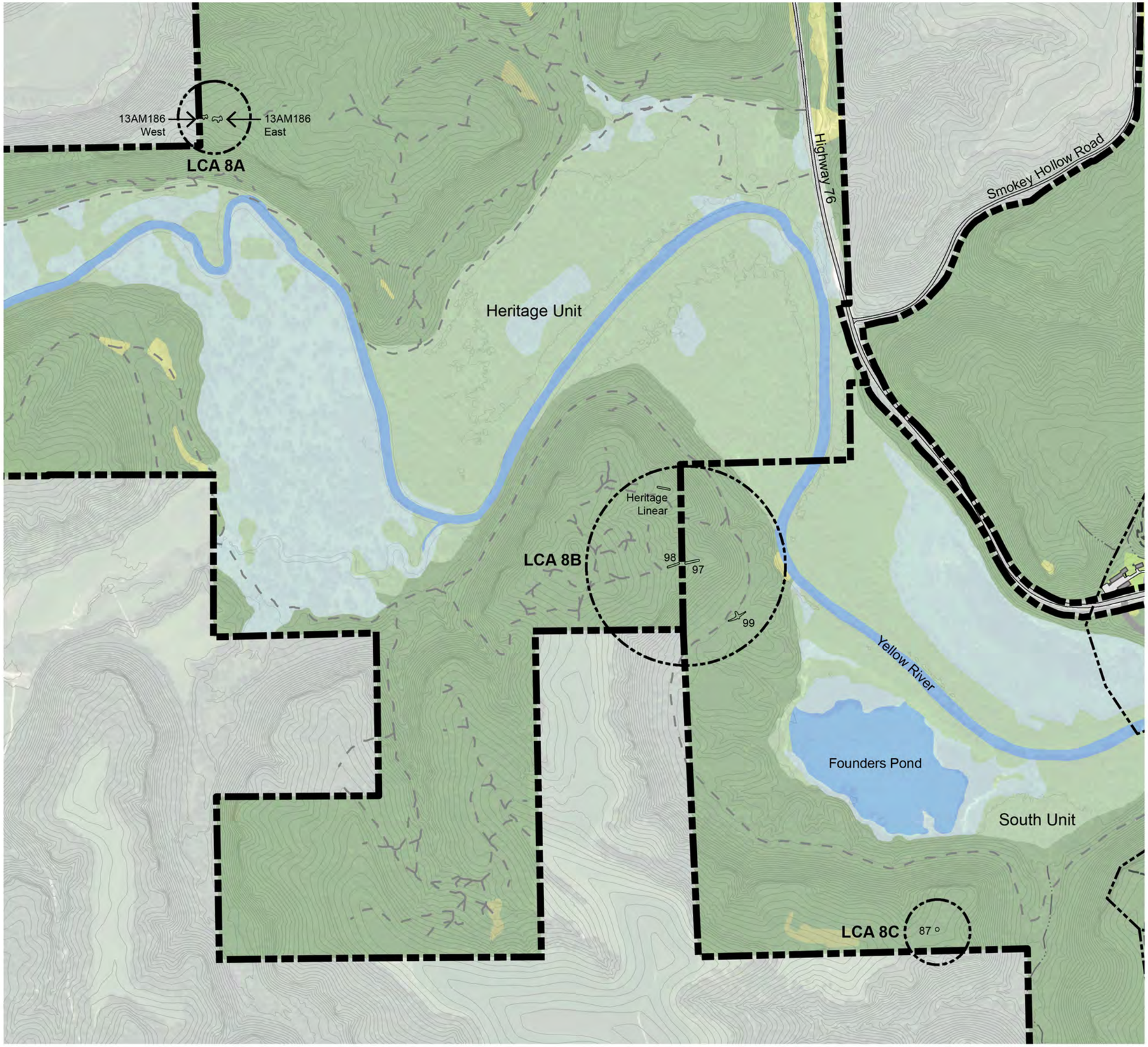
0 200 400 800 Feet
1 inch = 400 feet

N

EC-7

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 8
Existing Condition



Legend

- Monument Boundary
- Landscape Character Area Boundary
- Mound
- Abandoned Road
- Prairie Species
- Shrubland
- Deciduous Forest
- Forested Wetland
- Nonforested Wetland
- River or Pond
- 10-foot Contours

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3. Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005.
4. Field survey, Williams and Austin, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 400 800 1,600 Feet
1 inch = 800 feet

N

EC-8

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 9
Existing Condition

Legend

- Monument Boundary
- Landscape Character Area Boundary
- Sign
- Mound
- Trail
- Trimmed Vegetation
- Deciduous Forest
- Forested Wetland
- Nonforested Wetland
- River or Pond
- 2-foot Contours

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.
2. Boundary: Effigy Mounds National Monument, efmobndp_polygon.shp. Boundary is for reference only and may contain inaccuracies.
3.Vegetation: Effigy Mounds National Monument Vegetation Mapping Project, 2005
4. Field survey, Austin and Williams, 2013.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126319

0 150 300 600 Feet
1 inch = 300 feet

N

EC-9

CHAPTER 4:
Recommended Landscape Treatment

CHAPTER 4: RECOMMENDED LANDSCAPE TREATMENT

Introduction

This chapter presents the recommended treatment for the repair, protection, and stewardship of the cultural landscape of Effigy Mounds National Monument (EMNM). The recommended treatment has been developed through collaboration with formal representatives of American Indian Nations associated with the Monument landscape and strives to honor and respect culturally significant aspects of the Monument while encouraging appropriate use, education and interpretation.

The landscape treatment emphasizes rehabilitating landscape context by preserving mounds and other extant above- and below- grade archeological features and restoring native plant communities to provide a broad landscape context for interpretation and education of the significance of the landscape. Restoration of large areas of prairie and oak savanna plant communities in selected areas, to represent landscape conditions during the era of mound construction, will reveal relationships between mounds and the river, sky, and surrounding topography.

Preservation of mounds and other significant resources is guided by recommendations for specific treatments and supported by the phasing plan provided in Chapter 5.

This chapter presents recommendations that apply to the entire project area first. These are followed by recommendations for each landscape character area (LCA 1-9).

Recommended Treatment

Action Alternative B, Rehabilitating Landscape Context is the recommended treatment alternative for the Monument. The treatment focuses on preserving mounds and other extant above- and below- grade archeological features, providing a broad landscape context appropriate for interpretation of the mounds from both American Indian and archeological perspectives, and education about American Indian traditions and practices. It also recommends restoration of large areas of prairie and oak savanna plant communities in selected areas to provide a contextual setting for the mounds by representing landscape conditions during the era of mound construction.

Future management of the Monument is guided by a rehabilitation approach with an emphasis on preservation of mounds and other archeological resources, restoration of native plant communities, and education of visitors to enhance understanding of the mounds as part of American Indian culture (past and present). The Monument will seek to provide opportunities for visitors to learn about American Indian culture related to the landscape, through the perspective of American Indian Nations. Management of the landscape will seek to provide an environment and/or opportunities for American Indian youth to spend time in the landscape according to tribal protocols.

To assist in development of the landscape treatment recommendations for Effigy Mounds National Monument, mound management approaches used at other sites and

organizations were reviewed. Mound management recommendations appropriate for the Monument are included in the treatment tasks for the project area and recommendations for each landscape character area (LCA). A full list of the sites and strategies reviewed is included in Appendix F. Application of the recommendations for mounds will provide an opportunity for the Monument landscape to serve as an example to educate people about appropriate treatment of mounds and other culturally significant features in the landscape. In the long run, it is anticipated that this will help to improve treatment of mounds and other culturally significant features in other locations.

In the long term, vegetation within the broad landscape of the Monument will be managed to preserve native plant community remnants and restore selected areas to reflect prairie or oak savanna present during the period when the mounds were constructed.[1] This will enhance educational and interpretive opportunities for American Indians and all visitors. Based on guidance from American Indian tribes, specific plants with cultural uses may be used by tribes. In other locations existing plant communities will be maintained and their healthy growth and development will be supported through appropriate management practices.

Areas to be restored to prairie or oak savanna will be determined based on comprehensive restoration management planning. General recommendations for plant community locations are illustrated on drawing RT-0: Preferred Treatment Concept. Areas within LCA 1-7 on bluff tops, upland bluffs and south and west facing slopes are recommended for prairie or oak savanna restoration, except in cases where erosion control or other limiting factors are present. The native plant community restoration treatment focuses mainly on the landscape within the LCAs, to support visitor experience while setting achievable goals.

Existing trails and overlooks (including views) will be preserved in most locations. Alterations will mitigate impacts to resources and reflect guidance from American Indian Nations regarding appropriate protocols and approaches to preservation and interpretation. Existing administrative and visitor facilities will remain in their current locations. An agreement for use of the landscape by American Indian Nations for cultural activities may be implemented. Interpretive programs will educate visitors about the significance of the landscape, ways to care for culturally significant sites, and American Indian culture (traditional and current). NPS will strive to have selected topics presented strictly from a tribal perspective.

To provide pedestrian access to LCA 5 as indicated in the GMP, a trail will be added from the existing Yellow River Bridge Trail to the top of the bluff. The alignment of the trail will be determined by a future comprehensive circulation planning process.

[1] Chapters 2 and 3 provide explanations of documentation used to determine the presence of these communities during the era of mound construction. Sarah McGuire Bogen and Sarah C. Hotchkiss, *Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument*, National Park Service Great Lakes Northern Forest Cooperative, Ecosystem Study Unit Cost Sharing Grant 144-ND24, ii.

Landscape Treatment Approach

Within units of the National Park Service, the purpose of a landscape treatment plan is to provide guidelines for preserving and enhancing historic landscape characteristics and features while accommodating current park use.[2] A treatment plan describes the desired future conditions of the landscape; it does not provide construction-level details necessary for implementation. The treatment recommendations herein are based on guidance provided in several documents. *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* and *National Park Service Director's Orders 28: Cultural Resources Management Guidelines* both provide guidance for preparation of cultural landscape reports.[3] In addition, several planning documents address the landscapes within the project area.

The United States Secretary of the Interior provides professional standards and guidance for treatments to cultural landscapes listed in or eligible for the National Register of Historic Places.[4] Four approaches to treatment for cultural landscapes are defined, including preservation, restoration, rehabilitation, and reconstruction. Each of these approaches is described herein and discussed in relation to the project area landscape.

Preservation

Preservation includes applying measures to sustain the existing form, integrity, and materials of the contributing features of a historic property. This approach focuses upon stabilizing and protecting extant historic resources, rather than replacing missing elements. It is appropriate when a historic property is intact and does not require extensive repair or replacement and when continuing or new use does not require additions or alterations. Depiction at one particular period of time is not appropriate under this approach.[5]

Preservation has been selected as the most appropriate approach for LCA-8 and all locations outside of the landscape character areas. These locations require preservation through monitoring and minimal vegetation management focused on limiting damage to archeological resources. The Monument does not desire to alter these locations or to encourage visitors to explore the locations independently.

Although preservation could be applied to all locations within the Monument, it has not been chosen as the most appropriate overall management approach. This is because the goal to improve the ability of the landscape to reflect conditions present when the mounds were constructed requires restoration of native plant communities according to an overall management philosophy of rehabilitation.

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[2] Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan, *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* (Washington, D.C.: National Park Service, 1998), 81.
[3] Charles A. Birnbaum, and Christine Capella Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes,* (Washington, DC: Department of the Interior, National Park Service, 1996); and NPS DO 28, 1997.
[4] Birnbaum and Peters, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*, 3-5.
[5] Ibid., 17-18.

Rehabilitation

The act or process of rehabilitation allows repairs, alterations, and additions necessary to enable a compatible use for a property, as long as the portions or features which convey the historical, cultural, or architectural values are preserved. This approach is appropriate when depiction at one particular period of time is not appropriate; repair or replacement of deteriorated features is necessary; and alterations or additions are needed for a new use.[6]

Rehabilitation has been selected as the most appropriate overall management philosophy for the historic landscapes within LCA 1-7 and LCA 9. These locations include the GMP discovery zone, development zone and portions of the backcountry zone. This approach has been selected because of the existence of features related to more than one period of significance, the need for alterations to improve visitor safety and enhance visitor experience, and the need to protect the cultural resources. This approach will allow for the preservation, restoration and reconstruction of selected features as appropriate for these zones. In particular, it allows for restoration of native plant communities to improve the ability of the landscape to reflect conditions present when the mounds were constructed.

Restoration

Restoration is the act or process of accurately depicting the form, features, and character of a property as it appeared at a particular period in time. This includes reconstruction of missing features from the restoration period, and removal of features from all other periods. The approach can be considered only when the property's significance during a particular period of time outweighs the loss of extant elements from other historical periods; and when there is substantial physical and documentary evidence for the work; and when contemporary alterations and additions are not planned.[7]

Although a restoration approach may be suitably applied to select historic landscape features within the project area, it is not the most fitting overall philosophy for any of the management zones. It is desirable to restore the native plant communities, but not appropriate to attempt to restore mounds to their original conditions.

[6] Ibid., 47-48.
[7] Ibid., 89-90.

Reconstruction

Reconstruction is the act or process of using new construction to depict a non-surviving site, landscape, building, structure, or object as it appeared at a specific period of time in its historic location. The approach is appropriate only when the property's significance during a particular period of time outweighs the potential loss of extant features that characterize other historical periods. In addition, there must be substantial physical and documentary evidence for the work, and the work must be clearly identified as a contemporary re-creation.[8]

The overall landscape associated with the entire EMNM project area is not eligible for reconstruction because significant extant features relate to more than one historic period, adequate documentary evidence does not exist to reconstruct the property to one period, it would not be feasible to manage the entire area to represent one period, and current use requires features not present during the historic period.

[8] Ibid., 127-129.

Project Area Recommended Treatment

Treatment recommendations for the overall project area guide preservation and rehabilitation of the landscape of Effigy Mounds NM. These recommendations provide holistic guidance with measures for preserving extant features and qualities, and strategies for rehabilitating contributing features associated with the project area as a whole.

Treatment recommendations for the project area are included for six landscape characteristics: Archeological Features, Circulation, Vegetation, Small Scale Features, and Cultural Traditions.

The project area recommended treatment is illustrated on drawing RT-0.

Archeological Features – Treatment Tasks

This treatment plan provides for the preservation, maintenance and repair of all archeological features. General recommendations for the treatment of archeological features are presented in this section. More detailed recommendations for each landscape character area (LCA) are included after the project area recommendations.

1. Preserve archeological features throughout the Monument.
    a. Stabilize and repair mounds and other archeological features as needed.
    b. Remove woody undergrowth and trees from mounds and edges of mounds, taking care to avoid disturbing below- and above-ground features.[9]
    Example approach for removing woody plants from mounds:
        i. Remove trees when the ground is frozen to minimize damage to the ground surface. Do not drop or drag trees on mounds.
        ii. Cut the tree to ground level or slightly below the surface, leaving the roots and stump in place. If the stump is cut slightly below the surface, the resulting pit should be gradually refilled with clean soil as the stump decomposes.
        iii. Cut woody shrubs by hand.
        iv. Treat tree and shrub stumps with herbicide (such as Garlon or Roundup) after cutting to prevent regrowth.
        v. Remove woody debris from the area of the mounds by hand.
        vi. Restrict growth of woody vegetation by trimming, burning, or cutting on a regular basis.
        vii. Trees and brush should be removed from a minimum 15 feet from the base of the mound or mound group to prevent damage from roots and tree throws.
        viii. Selected trees may be retained if identified as a high quality tree or if removing the tree would cause significant, unavoidable damage.

[9] James Stubbendieck and Cheryl D. Dunn, "Review of the Literature on the Influence of Roots on Archeological Features and Vegetation Restoration Recommendations," University of Nebraska, December 2011, 8.

c. Protect mounds from animal burrowing.
   i. Maintain vegetation on mounds according to recommended mound vegetation types. Do not allow vegetation that would create cover for burrowing animals to grow on mounds.
   ii. Monitor mounds to identify and remove rodents prior to damage occurring (see Task 2 related to monitoring).
   iii. If rodent damage becomes extensive, consider establishing a rodent control program to minimize the effect of rodents on mounds.
d. Consult with formal representatives of American Indian tribes to determine if old depressions should be filled. As long as vegetation covers old depressions, they do not pose a threat to the integrity of mounds. The decision to fill or not should be based on cultural concerns of American Indian tribes, and no depression should be filled until it has been adequately demonstrated that it is not a mound feature. Filling old holes will not affect the integrity of the mound's contents, but should be carefully documented. Documentation of repairs should avoid placing foreign materials into the ground and instead utilize photographs, GPS, or three-dimensional scans of the site.
e. Monitor stream banks of the Mississippi and Yellow Rivers for erosion that threatens archeological resources, and stabilize as necessary.

2. Develop and implement a monitoring plan to track mound condition and treatment.

   Example approach for monitoring mound condition:
   a. Evaluate mound condition by visual inspection by an experienced archaeologist.
   b. Develop standard criteria for determining mound condition.
   c. Regularly inspect mounds for erosion, tampering, rodent activity, social trails, or other damage.
   d. Regularly inspect vegetation on mounds and the surrounding area for invasive species, hazard trees, and other potential impacts to mounds.
   e. Record current mound condition. Document inspections using a standardized monitoring approach and format to ease comparison over time.
   f. Photograph mounds (stereoscopically if possible) to document current conditions and provide a basis for comparison.
   g. Compare current conditions to historic documentation to determine overall integrity.
   h. Review and update monitoring plan on a regular basis to keep up with new technologies and changing conditions.

3. Consult with American Indian tribes of interest. Establish an agreement with American Indian tribes of interest regarding the desired condition of mounds and approach to use for preserving mounds and other archeological features.

4. Establish and maintain desired mound condition.
   a. Use vegetation to depict form, scale and mass of mounds. Detailed desired mound condition recommendations are provided for all mounds in the landscape character area treatment recommendations.

b. Establish vegetation on mounds according to LCA mound vegetation treatment recommendations. Mound vegetation treatment types are described in the Project Area Vegetation treatment recommendations. *Example approach for establishing vegetation on mounds:*
   i. If native/desired vegetation is present, consider burning followed by seeding. Alternately, if the area is dominated by invasive species, consider treating weeds and invasive species with and herbicide such as Garlon or Roundup prior to seeding.
   ii. Disk the surrounding area to provide acceptable seedbed. Do not disk on or immediately adjacent to the mound.
   iii. Seed site with Truax drill, using no-till methods on the mound and conventional practices on the disturbed surrounding area. Dormant seeding may also be implemented, though the success of the plantings is reduced and the volume of seeds should be increased by 50%.
   iv. Weed control is critical during the first year following planting. An herbicide such as Plateau (imazapic) may be applied at the recommended label rate one week following planting. Seeded areas may also be trimmed two to three times for the first season to a height of 8" to prevent weeds from shading out planted species.[10]

c. Provide a minimum buffer of 15 feet between mounds and trails.

d. Provide a development buffer around the mounds and mound groups of 150 feet. This is a zone where no ground disturbance should occur, other than actions taken to preserve resources. Consult with American Indian tribes of interest related to any actions planned within 150 feet of mounds.

5. Provide information to visitors to encourage respectful use and behavior, and discourage inappropriate use, of the Monument landscape.
   a. Encourage visitors to stay on trails.
   b. Discourage visitors from walking on or around mounds.
   c. Provide information explaining that mounds and archeological resources extend beyond obvious topographic edges.

6. Review and update best practices on a regular basis to keep up with new technologies and changing conditions.

Vegetation Treatment Tasks

This treatment plan provides for the use of vegetation to preserve and achieve desired conditions for mounds. It also directs preservation, restoration, and rehabilitation of vegetation communities within the project area to provide a broad landscape context for the mounds within the Monument. Large areas of prairie and oak savanna plant communities are restored in selected areas to represent landscape conditions during the mound building period. The broad scale restoration of plant communities recommended represents a long-term vision for the Monument that will take many decades to achieve.

[10] Ibid., 53.

Chapter 5 outlines a strategy for phased implementation of plant community restoration and stresses the need to re-evaluate goals and strategies based on lessons learned from initial phases of implementation.

General recommendations for the treatment of vegetation are presented in this section. More detailed recommendations for each landscape character area (LCA) are included after the project area recommendations.

1. Develop a comprehensive Vegetation Management Plan to guide conservation and restoration of vegetation communities in the Monument.
    a. Include goals, methods and techniques for site preparation, planting, maintenance and monitoring.[11]
    b. Incorporate successful techniques currently implemented at the Monument.
    c. Include recommendations for controlling invasive plants based on guidance from previous programs at the Monument and other resources including *Invasive Exotic Plant Monitoring Protocol for the Heartland Network Inventory and Monitoring Program*, and the report on *Invasive Exotic Plant Monitoring at Effigy Mounds National Monument.*[12]
    d. Monitor progress of plant community management and modify treatment as necessary based on the outcome of early projects.
    e. Implement the plan in locations indicated in this chapter using a phased approach described in Chapter 5.

2. Restore native prairie plant community in locations indicated in LCA treatment, based on a phased approach described in Chapter 5, and according to the Vegetation Management Plan.

3. Restore native oak savanna plant community in locations indicated in LCA treatment, based on a phased approach described in Chapter 5, and according to the Vegetation Management Plan.

4. Preserve prairie plant community in locations indicated in LCA treatment, based on a phased approach described in Chapter 5, and according to the Vegetation Management Plan.

5. Preserve forest plant community in locations indicated in LCA treatment, based on a phased approach described in Chapter 5, and according to the Vegetation Management Plan.

[11] Iowa State University, University Extension, "Managing Iowa Habitats: Restoring Iowa Prairies," April 1999.
[12] Craig C. Young, Jennifer L. Haack, Lloyd W. Morrison, and Michael D. DeBacker, *Invasive Exotic Plant Monitoring Protocol for the Heartland Network Inventory and Monitoring Program, Natural Resource Report NPS/MWR/HTLN/NRR—2007/018* (Fort Collins, Colorado: U.S. Department of the Interior, National Park Service, National Resource Program Center, 2007); and Craig C. Young, J. Tyler Cribbs, and Jennifer L. Haack, *Invasive Exotic Plant Monitoring at Effigy Mounds National Monument: Year 1 (2006)* (Fort Collins, Colorado: U.S. Department of the Interior, National Park Service, Natural Resource Program Center, 2007).

6. Preserve shrubland in locations indicated in LCA treatment, based on a phased approach described in Chapter 5, and according to the Vegetation Management Plan.

7. Preserve forested and non-forested wetlands in locations indicated in LCA treatment, based on a phased approach described in Chapter 5, and according to the Vegetation Management Plan.

8. Consider restoring specific plant species within the Monument that are culturally significant to Partner Tribes. Work with Partner Tribes to determine species and an approach that is of value to their communities.

9. Apply mound vegetation treatment types to mounds as indicated in LCA treatment recommendations. Four approaches to treatment of vegetation on mounds are provided. These are based on information provided in Appendix F. Appendix F also includes examples of strategies for monitoring, vegetation management, mound repair, public use, erosion control, and impacts from burrowing animals that have been successfully implemented at other sites.

   Mound vegetation treatment types A through D reflect a range of existing and proposed vegetation, visitation, and maintenance in areas surrounding mound groups. The application of these types is intended to be flexible based on the vegetation management plan, the results of changes to surrounding vegetation, and individual conditions at each mound group. Advantages and disadvantages are noted for each type to assist managers in future decisions about appropriate treatments.

   Recommendations for application of vegetation treatment types for each mound group are included in the LCA treatment section of this chapter.

Mound Vegetation Treatment Type A: Trimmed Cool Season Grasses

Maintain or plant cool season grass possibly including Pennsylvania sedge, Bermuda, or fescue to serve as a groundcover for mounds. Trim grass as needed to increase visibility of the mounds and provide a park-like character (see Figure 4-1). This treatment type is most appropriate for mound groups that have frequent visitor use.

1. *Vegetation treatment:*
    a. Establish cool season grasses (native or non-invasive introduced species) on mounds and a minimum 15 foot buffer surrounding mound groups
    b. Use a low growing grass mix (6-12 inches height), allowing grass to grow taller on mounds than in surrounding areas.
2. *Maintenance:*
    a. Regularly trim vegetation on mound groups and within the buffer area. Hand trimming of mounds is preferable. Buffer areas surrounding the mounds may be mowed regularly throughout the season to the desired height or condition.
    b. Monitor mounds and remove woody plants as necessary.
    c. Follow best practices for mound preservation outlined in the archeological features recommendations.
3. *Advantages:*
    a. visual differentiation from surroundings increases mound visibility;
    b. appearance is familiar to visitors and appears tidy;
    c. maintenance approach is straight forward;
    d. vegetation protects surface and subsurface resources from erosion.
4. *Disadvantages:*
    a. appearance does not represent conditions believed to be present during the period of significance;
    b. incorporates non-native vegetation species, making it harder to restore neighboring areas;
    c. erosion control is not as good as with taller vegetation;
    d. trimmed grass may attract visitors to walk/sit on mounds;
    e. requires frequent trimming.

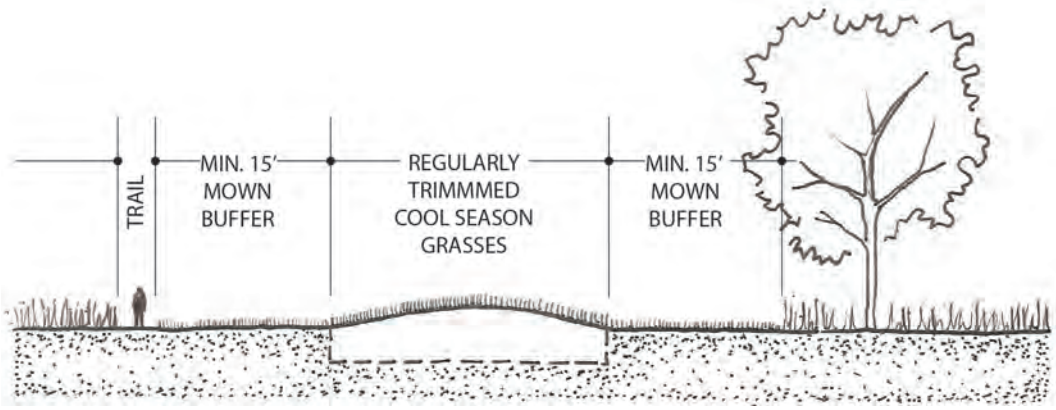


Figure 4- 1: Mound Vegetation Type A.

Mound Vegetation Treatment Type B: Native Prairie and Savanna Vegetation

Mound Vegetation Type B is most appropriate for mound groups where native prairie and savanna vegetation communities are present or will be reestablished, and where visitor use is relatively frequent (see Figure 4-2). This treatment type provides for seasonally maintained native grasses and forbs on mounds and in the area surrounding mound groups.

1. *Vegetation treatment:*
    a. Establish shallow-rooted native warm season grasses and forbs on mounds and within a minimum 15 foot buffer area surrounding mound groups.
2. *Maintenance:*
    a. Trim mounds on a regular basis to avoid creation of cover for burrowing animals. Maintain vegetation to a height of six to twelve inches. Monitor mound condition and adjust frequency and height of trimming over time to maintain plant health while discouraging rodent burrowing.
    b. Hand trimming of mounds is preferable.
    c. Conduct a prescribed burn in the spring at irregular one to three year intervals.
    d. Regularly trim the buffer area to the desired height or condition.
    e. Monitor mounds and remove woody plants as necessary.
    f. Follow best practices for mound preservation outlined in the archeological features recommendations.
3. *Advantages:*
    a. visual differentiation from surroundings increases mound visibility;
    b. utilizes native vegetation species;
    c. provides erosion control;
    d. requires infrequent maintenance;
    e. provides for increased biodiversity;
    f. utilizes fire management, which was implemented during the mound building period.
4. *Disadvantages:*
    a. vegetation may appear “messy” to uninformed visitors;
    b. roots of native prairie vegetation may increase impact to subsurface resources;
    c. prescribed burns may impact magnetometer surveys.

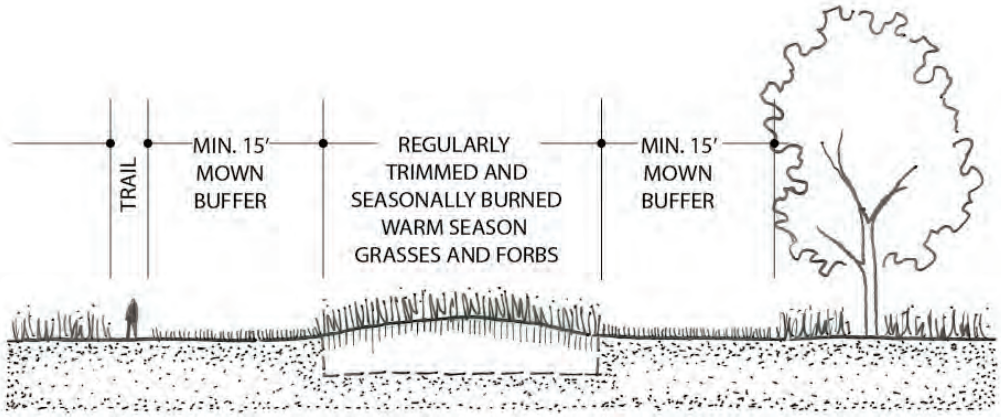


Figure 4- 2: Mound Vegetation Type B.

Mound Vegetation Treatment Type C: Native Woodland Vegetation

Mound Vegetation Type D is most appropriate for mound groups within forested areas, where prairie and savanna communities will not be expanded. It is a low-maintenance treatment type that provides for stabilization, repair, and visibility of mound groups in areas of both frequent and infrequent visitor use (see Figure 4-3).

1. *Vegetation treatment:*
    a. Encourage establishment of native woodland herbaceous species on mounds and minimum 15 foot buffer area surrounding mound groups.
    b. Allow leaf cover on mounds.
2. *Maintenance:*
    a. Seasonally trim or burn mound groups in the spring to control woody plant growth.
    b. Trim mounds on a regular basis to avoid creation of cover for burrowing animals. Maintain vegetation to a height of six to twelve inches. Monitor mound condition and adjust frequency and height of trimming over time to maintain the plant health while discouraging rodent burrowing.
    c. Trim the minimum 15 foot buffer area around mound groups as needed to maintain mound visibility.
    d. Monitor mounds and remove woody plants as necessary.
    e. Follow best practices for mound preservation outlined in the archeological features recommendations.
3. *Advantages:*
    a. utilizes native vegetation species
    b. low maintenance requirements
    c. well suited to areas of shade and canopy cover
4. *Disadvantages:*
    a. provides decreased erosion control
    b. provides decreased mound visibility
    c. leaf cover may suppress vegetation growth

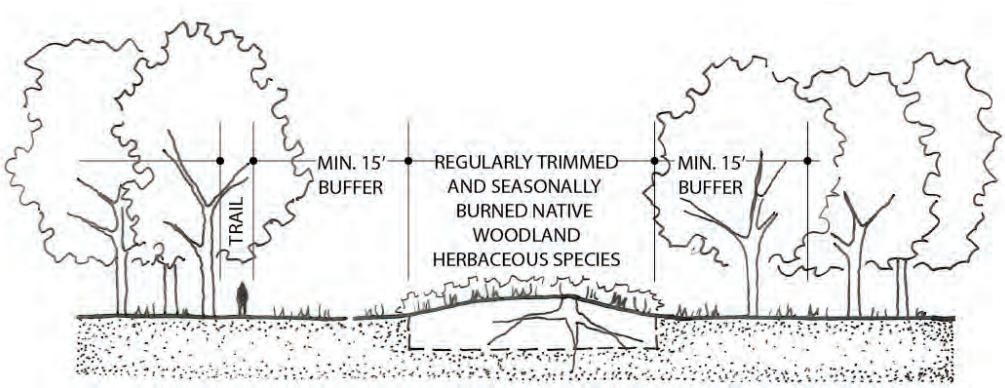


Figure 4- 3: Mound Vegetation Type C.

Mound Vegetation Treatment Type D: Low-Maintenance Mound Stabilization

Mound Vegetation Type E is most appropriate for mound groups that have no visitor use. The vegetation type provides for stabilization, repair, and monitoring of impacts to mounds caused by woody vegetation, but does not incorporate strategies for improving mound visibility or reestablishing native plant communities surrounding mound groups (see Figure 4-4).

1. *Vegetation treatment:*
    a. Encourage establishment of native woodland herbaceous species on mounds.
    b. Allow leaf cover on mounds.
2. *Maintenance:*
    a. Monitor mounds and remove woody plants as necessary.
    b. Follow best practices for mound preservation outlined in the archeological features recommendations.
3. *Advantages:*
    a. utilizes native vegetation species
    b. low maintenance requirements
    c. well suited to areas of shade and canopy cover
4. *Disadvantages:*
    a. provides decreased erosion control
    b. provides decreased mound visibility
    c. leaf cover may suppress vegetation growth

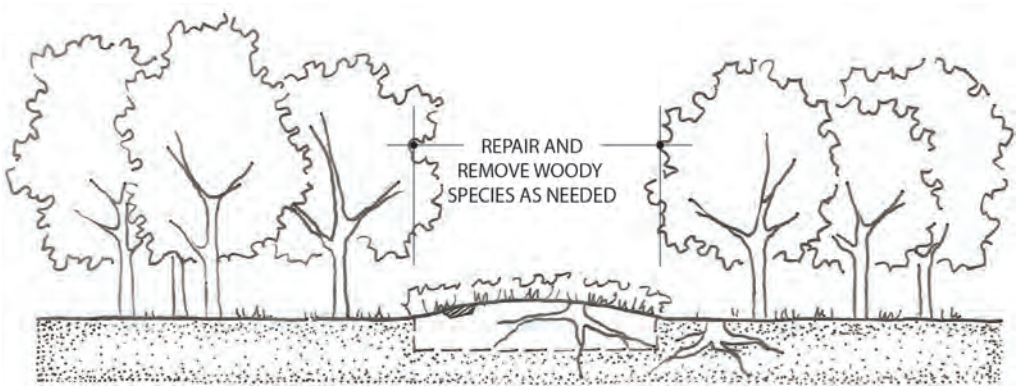


Figure 4- 4: Mound Vegetation Type D.

Circulation Treatment Tasks

General recommendations for the treatment of circulation are presented in this section. The landscape character area (LCA) descriptions provide more detailed recommendations.

Pedestrian circulation

1. Undertake a comprehensive planning project to address circulation and access within the Monument.
    a. Follow trail standards set forth in the 2013 General Management Plan.
        i. Within the GMP backcountry zone, trails would be simple, minimally developed foot trails. Over time, trails in this zone would become 2 to 3 feet in width, with some naturally occurring obstacles. The trails would generally have a dirt surface unless preservation needs require the use of surface materials for resource protection. Drainage features would be designed to blend with the natural environment. The South Unit trail to the Marching Bear Group would continue to accommodate occasional use (not to exceed two vehicle trips per week) by small park vehicles. There would be no additional raised boardwalk trails.[13]
        ii. Within the GMP discovery zone, trails would be moderately developed. Over time, trails in this zone would be 3 to 6 feet in width. Natural surface materials such as wood chips, compacted crushed stone, or dirt would be used to maintain the trail tread. Drainage features would be designed to blend with the natural environment. There would be no additional raised boardwalk trails.[14]
        iii. Surfaced trails are allowed within the GMP development zone.[15]
    b. Address issues related to safety, access, and protection of resources in the South Unit.
    c. Develop and implement a resource-sensitive design for the GMP recommended pedestrian route between LCA 4 and LCA 5.
    d. When the GMP recommended pedestrian route between LCA 4 and LCA 5 is implemented, consider working with private land owners to establish a maintenance access route to the south end of LCA 7.
    e. If a maintenance route is established at the south end of LCA 7,
        i. consider abandoning the South Unit Trail from Highway 76 to the top of the bluff and repair the landscape;
        ii. maintain the remainder of the South Unit Trail as a hiking trail appropriate to the GMP zones.
    f. Address pedestrian access issues related to access in the Sny Magill Unit.

2. Maintain trails in good condition.

3. Preserve historic trail features, including trail alignment and width.

[13] National Park Service, *General Management Plan/Environmental Impact Statement, Effigy Mounds National Monument*, 52-53.
[14] Ibid., 52-53.
[15] Ibid., 53.

4. Maintain trails at a minimum width of 3 feet, removing debris from trail edges. Restore trail surfaces that have been eroded. Trail surface treatments are indicated in the LCA recommendations.

5. Re-route or remove trails that impact mounds. Trails should be maintained at least 15 feet away from the base of all mounds. Any existing hiking trail located within this buffer area will be relocated to a minimum distance of 15 feet away from the base of all mounds.
   Example approach for trail removal:
   a. Remove any surfacing (wood chips, gravel, etc.) associated with the trail.
   b. Repair and surface damage or depressions caused by the trail with new soil.
   c. Reseed the repaired surface by hand to provide erosion control.

6. Establish or maintain trails surfaced with grass, bare earth, wood chips, boardwalks, trail bridges, or puncheon. Several documents that provide comprehensive information for constructing and maintaining trails were consulted to develop guidance for the trails in the Monument. Of particular interest are several USDA Forest Service publications including: *Trail Construction and Maintenance Notebook*, *Trails Management Handbook* (FSH 2308.18), *Forest Service Standard Specifications for Construction and Maintenance of Trails* (EM-7720-103), and the *Forest Service Health and Safety Code Handbook* (FSH 6709.11). Also useful is the Student Conservation Association publication *Lightly on the Land: the SCA Trail-Building and Maintenance Manual*.[16]

Grass Trail

Grass trails are inexpensive, easy to establish, help reduce compaction and erosion on the ground surface, and do not require excavation. However, grass trails may not be substantially differentiated from the surrounding vegetation, and as the vegetation grows the trail may become obscured, resulting in visitors straying from the desired route. Mown grass trails require regular maintenance to keep grass mown to an acceptable height, and may require periodic reseeding to maintain good vegetation cover for erosion control. Grass trails are appropriate in locations where light conditions and surrounding vegetation support growth of grasses. This trail type should not be used in soft ground conditions or in locations where mounds are not easily differentiated from the surrounding vegetation. Grass trails may be used in the GMP backcountry, discovery, and development zones.

Bare Earth Trail

Bare earth can be an acceptable accessible trail surface in well-drained areas with appropriate soil conditions. It is not recommended in locations susceptible to erosion or

[16] U.S. Forest Service, *Trail Construction and Maintenance Notebook* (U.S. Department of Agriculture, 2007); U.S. Forest Service, *Trails Management Handbook* (U.S. Deparment of Agriculture, U.S. Forest Service, FSH 2308.18, 2008); U.S. Forest Service, *Forest Service Standard Specifications for Construction and Maintenance of Trails* (Washington, D.C.: U.S. Forest Service, EM-7720-103, 2014); U.S. Forest Service, *Forest Service Health and Safety Code Handbook* (Washington, DC: U.S. Forest Service, FSH 6709.11); and Robert Birkby, *Lightly on the Land: The SCA Trail-building and Maintenance Manual* (Seattle: The Mountaineers Books, 2005).

compaction. Leaf cover may accumulate on bare earth trail surfaces. Although leaf cover is excellent ground cover for protecting areas susceptible to erosion, it is not an ideal trail surface. Leaf cover can be slippery when wet and may obscure trail locations, resulting in visitors straying from the desired route. Leaf cover should be allowed on the trail surface only in locations that are relatively dry and where the trail location is clearly obvious. Bare earth trails may be used in the GMP backcountry, discovery, and development zones.

Wood Chip Trail

Wood chip trails are inexpensive, easy to establish, do not require excavation into the ground surface, help visitors understand where it is appropriate to walk, provide a safe surface, and reduce compaction and erosion on the ground surface. In addition, if trees removed are chipped on site, the material can be stored or used immediately for trail surfaces, reducing the expense of removing woody plant material from the site. One drawback of wood chips trails is increased maintenance compared to bare earth and boardwalk trails. Wood chip trails require renewal on a one- to two-year basis. Wood chip trails are most appropriate in areas with regular visitor use, in areas where mound vegetation is not easily differentiated from surrounding vegetation, and on trails that require erosion control. Wood chip trails are not an approved barrier-free surface treatment and may not be utilized on trails that are meant to be universally accessible. Wood chip trails may only be used in the GMP discovery and development zones.

Crushed Fines of Stone

Crushed fines of stone are widely used for trails in locations that require stabilization and protection from compaction and erosion. Although not as inexpensive as wood chips, stone fines are an affordable solution for trail surfaces. Similar to wood chips, this surface clarifies for visitors where it is appropriate to walk and provides a safe, accessible surface. In addition, they are easy to install and maintain and do not require excavation of the ground surface to establish. Limestone fines provide a barrier free surface the appearance of which is consistent with the character of the rail-bed, especially where it is located on fill. Figure 4-5 illustrates a crushed stone trail. Figure 4-6 provides a detail for installing trail with a crushed stone surface. Trails surfaced with crushed fines of stone may only be used in the GMP discovery and development zones.

Figure 4- 5: Trail surface of crushed fines of limestone. (QEA)

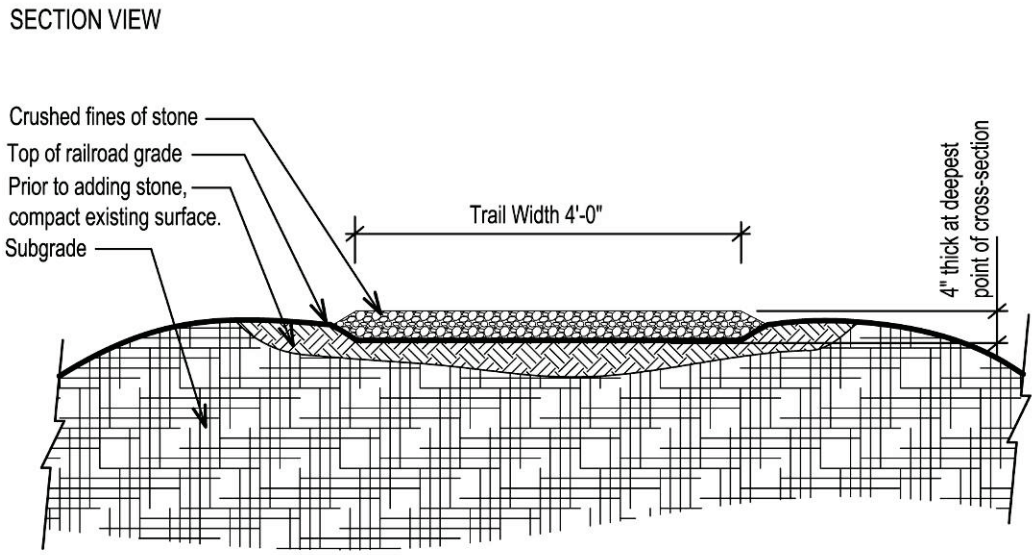


Figure 4- 6: Typical application of crushed fines of stone for trail surface.

Consolidated Rubber Mulch

Consolidated rubber mulch provides a barrier-free accessible surface that is easy to install. Preparation of the base layers and proper compaction (according to manufacturer's specifications) is imperative to ensure the stability of the surface and its longevity. Figure 4-7 provides a detail of the manufacturer's installation approach recommended for Rainbow Turf, a shredded rubber type product. Consolidated rubber mulch trails may only be used in the GMP development zones.

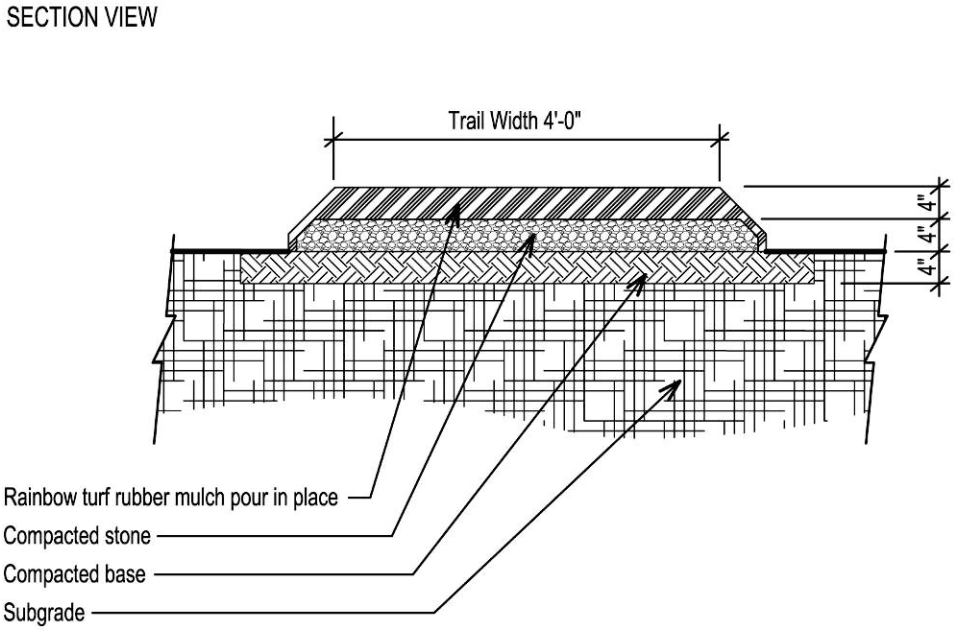


Figure 4- 7: Typical Rainbow Turf Trail Surface Detail (follow manufacturer's specifications regarding site preparation, compaction, and binder).

Boardwalk

Boardwalks are solutions for trail surfaces in wet areas or locations with soft ground conditions. They can be flush with the adjacent grade or supported slightly above the grade to allow drainage to pass underneath. Boardwalks should be pedestrian scale, with a maximum preferred width of five feet. The structure must be anchored to the ground in order to maintain a level surface and keep sections from shifting. Boardwalks requiring ground disturbance are not appropriate within 150 feet of archeological resources or locations that include significant cultural resources. No boardwalks should be constructed within the monument without consultation through Section 106 and consultation with tribal representatives.

Trail Bridge

Use trail bridges in locations where it is necessary to cross streams or long spans of uneven surface conditions. Trail bridges require site specific design for each use. Trail bridges should be scaled for pedestrian, not vehicular use, with a maximum preferred width of five feet. Consult with an archeologist to determine an appropriate location for the trail bridge that avoids impact to archeological resources. Clear the site ahead of construction. An archeologist should be on-site during ground-disturbing activity to ensure that resources are not disturbed. Currently, bridges within EMNM include trail bridges with and without handrails. Low-profile bridges are preferred where possible (see Figure 4-8). Figures 4-9 and 4-10 provide details for installing trail bridges. No bridges should be constructed within the monument without consultation through Section 106 and consultation with tribal representatives.

Figure 4- 8: Existing trail bridge without handrail located in LCA 1 (source: QEA 2013).

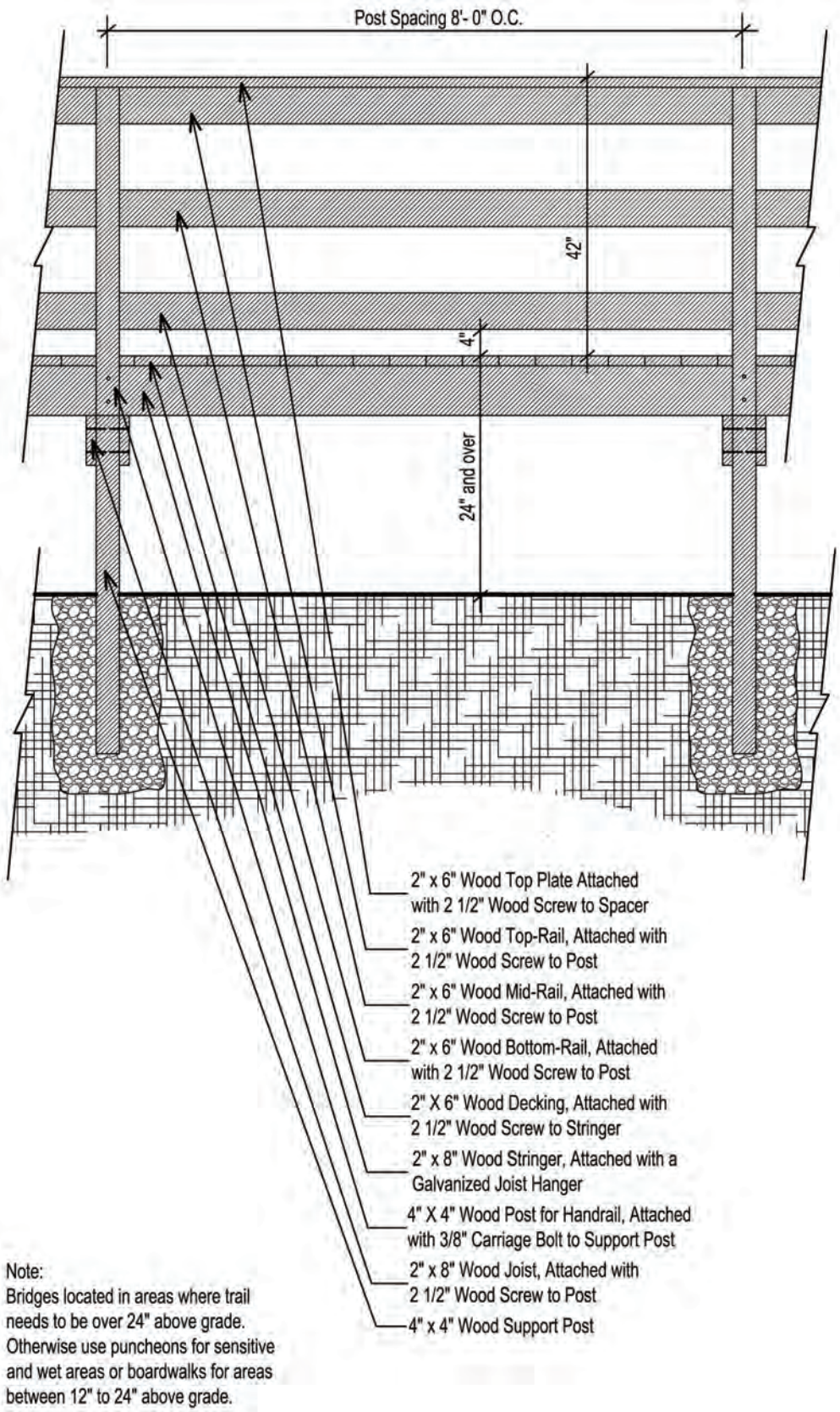


Figure 4- 9: Typical trail bridge elevation.

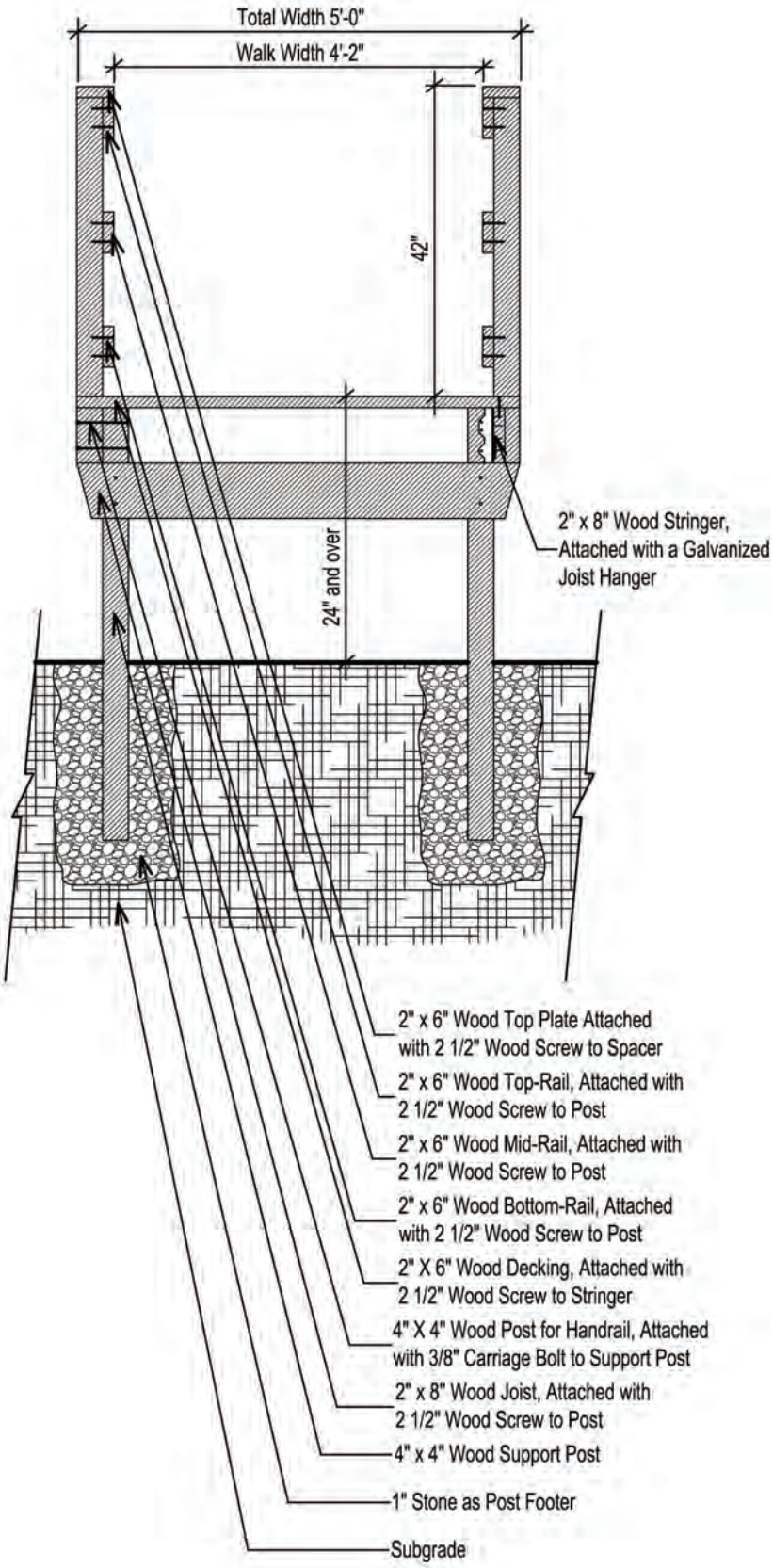


Figure 4- 10: Typical trail bridge section.

Puncheon

In situations where trails are frequently wet and there is not a good way to drain the trail, a puncheon may be used. This is a wooden walkway that can be used to cross wet soils and small streams. It may be located in areas where the trail lies directly on the ground, rather than requiring construction of a below-ground foundation. A puncheon consists of a deck or flooring of sawed, treated timber or native logs placed on stringers to elevate the trail across the wet or uneven area. The entire structure must extend to solid soil so soft spots do not develop at the ends. The adjoining trail should be straight for at least 10 feet as it approaches the puncheon. Puncheon designs vary from very simple structures to more elaborate constructions. The United States Forest Service (USFS) endorses use of preservative-treated lumber for puncheon as the sustainable design approach, as it avoids impacting on site trees. Also, puncheon constructed of preservative-treated lumber lasts longer on site. All types of puncheon are designed to be high enough above the ground surface to provide little interference with the movement of flood water. Figures 4-11 and 4-12 illustrate details for constructing puncheons. No puncheons should be constructed within the monument without consultation through Section 106 and consultation with tribal representatives.

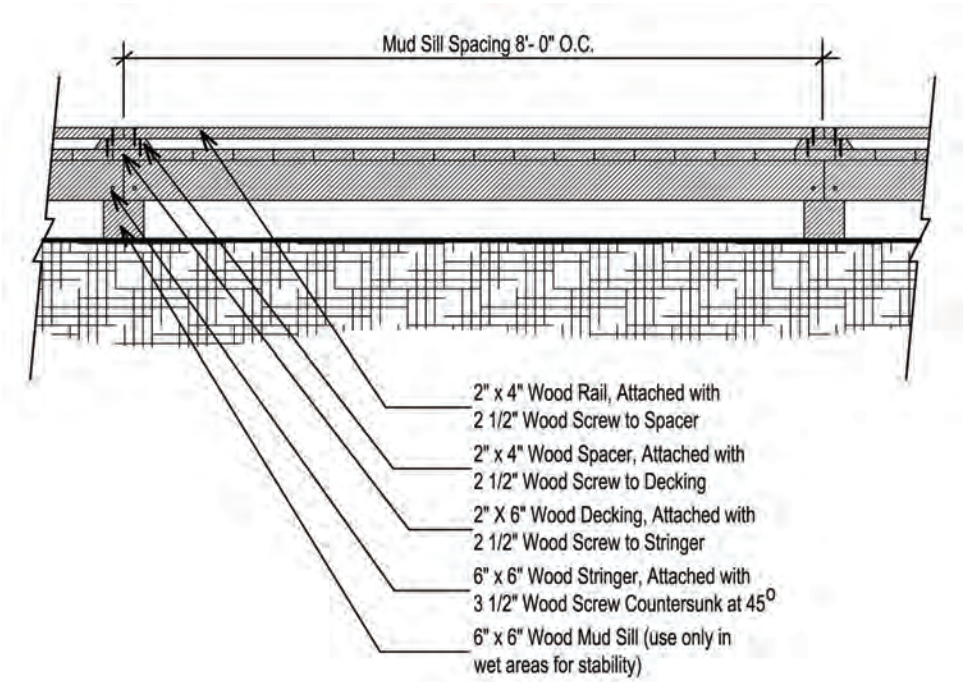


Figure 4- 11: Puncheon Elevation

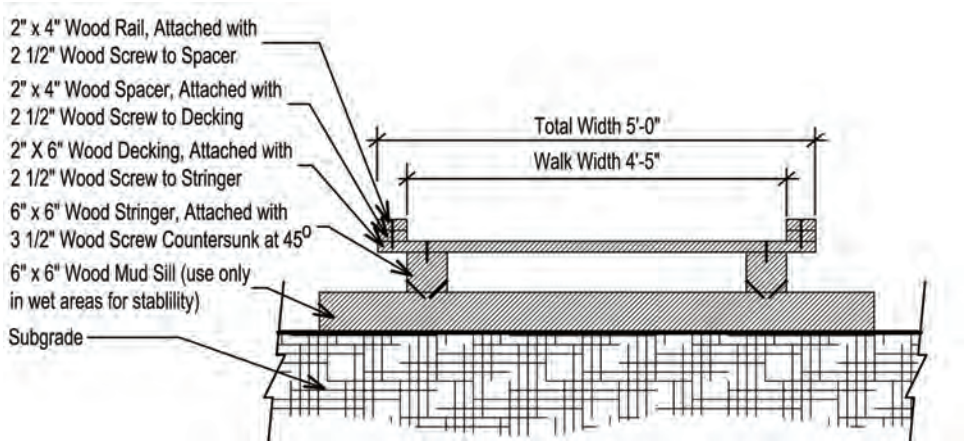


Figure 4- 12: Puncheon section

Vehicular Circulation Treatment Tasks

7. Maintain roads in good condition except where indicated in landscape character area recommendations.

8. Remove or relocate roads that impact mounds.

Small Scale Features Treatment Tasks

Guardrails and Fences

1. Maintain guardrails and fences in good condition.

2. Repair or replace guardrails or fences in poor condition, as indicated in association with each landscape character area.

3. Relocate or remove fences or guardrails that impact mounds. All guardrails and fences should be at least 15 feet away from the base of all mounds.

Signs

4. Relocate or remove signs located within 15 feet of the base of all mounds, as indicated in landscape character area recommendations.

5. Reevaluate all signs and retain only those that are necessary and appropriate.
    a. Utilize a consistent style for wayfinding signs. Wayfinding signs should be low profile and durable. Simple, low-profile, rustic style signs similar to those currently used within the Monument are appropriate (see Figure 4-13).
    b. Remove or replace interpretive waysides that include outdated or inaccurate information. Develop content and location of interpretive waysides in consultation with associated American Indian Nations. Use a consistent style for interpretive waysides.

Stone Retaining Walls and Stone Edges

6. Maintain historic masonry structures and features utilizing personnel with experience in addressing historic stone resources.

7. Stabilize and repair dry laid and mortared stone tall retaining walls, short retaining walls, and stone edges using materials and craftsmanship consistent with the original construction.

Figure 4- 13: Low-profile wayfinding sign located in LCA 3 (source: QEA 2013).

Cultural Traditions Treatment Tasks

The National Park Service is working with representatives of associated tribes to ensure that cultural traditions are accommodated at the Monument where possible. Examples include:

1. Integrate the tribal perspective of the mounds as sacred burial ground into appropriate education and interpretation (specifically in reference to Sny Magill).

2. Develop a protocol to accommodate tribal plant gathering.

3. Preserve portal tree.

4. Incorporate traditional circulation routes, including entrance and protocol for entrance, into circulation systems.

5. Develop an approach to accommodate American Indian traditional cultural practices at the Monument.

6. Replace offensive names of some resources.

7. Integrate cultural sensitivity into treatment of village site (proximity to septic system).

8. Educate visitors on appropriate behavior in relation to the sensitivity of the resources (entrances, walking at feet of effigies, explaining what we know and don’t know, allowed activities).

General Recommendations Treatment Tasks

1. Develop Preservation Maintenance Plan (PMP) to provide best practices for methods and materials used for maintenance and construction work done at the Monument.
    a. Develop the plan using guidance provided by the "Guide to Developing a Preservation Maintenance Plan for a Historic Landscape."[17]
    b. The CLR provides a basis for the development of this plan, including the broad goals, areas and categories of features, inventory of landscape features, list of work to be done, and priorities/phasing recommendations. The PMP should provide a working manual including a regular schedule for monitoring, maintenance, and record keeping related to landscape maintenance.
    c. The PMP should also include standards for construction projects done at the Monument.
    d. Include best practices for drainage and sediment control to prevent or reduce non-point source pollution and minimize soil loss and sedimentation in drainage areas. *Examples include:*
        i. *Limit the area of disturbance to minimize exposed soil and the potential for erosion.*
        ii. *Locate waste and excess excavated materials outside of drainages to avoid sedimentation.*
        iii. *Install silt fences, sediment traps, or other erosion-control measures prior to initiating work.*
        iv. *Conduct regular site inspections during implementation to ensure erosion-control measures are functioning effectively.*
    e. Include recommendations to limit noise and disturbance from work activities. *Examples include:*
        i. *Limit use of mechanical equipment to work that is not feasible to undertake using hand methods.*
        ii. *Ensure that all vehicles and equipment are in good working order to prevent excessive or unusual noise, fumes, or smoke.*
        iii. *Do not allow equipment to idle for extended periods of time.*
        iv. *Control fugitive dust generated by spraying water on the construction site using sources approved by NPS.*
    f. Include recommendations to address minimizing introduction of invasive plant species. *Examples include:*
        i. *Minimize soil disturbance.*
        ii. *Ensure project personnel check clothing, boots, laces, and gear to minimize transportation of invasive plant propagates and off-site soil to the worksite.*
        iii. *Pressure wash and/or steam clean all equipment to ensure equipment and machinery are weed free before entering the park; equipment used on the project would be inspected by park staff prior to entering the park.*

[17] Margaret Coffin and Regina M. Bellavia, Guide to Developing a Preservation Maintenance Plan for a Historic Landscape, Cultural Landscape Publication No.7, 1998 revised edition, Olmsted Center for Landscape Preservation, NPS, Boston, MA.

iv. *Limit project staging to existing roads, parking turnouts, and other designated areas; no machinery or equipment should access areas outside the project limits.*

Landscape Character Areas Recommended Treatment

LCA 1 (Hanging Rock Mound Groups) Recommended Treatment

The recommended treatment for LCA-1 emphasizes preservation of archeological resources, and long-term restoration of oak savanna vegetation to provide a contextual setting for the mounds that represents conditions present during the era of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds, improvements to trails, and broad-scale changes to vegetation communities surrounding mound groups.

The recommended treatment plan for LCA-1 illustrates the desired landscape condition (Drawing RT-1).

Because LCA-1 is located within the GMP backcountry zone, an emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experiences.

Because this site is relatively far from the visitor center (four miles) and visitation is light, restoration of savanna in this location is a long-term goal. In the short-term, the treatment approach for LCA-1 is preservation. The long-term treatment approach for LCA-1 is rehabilitation, allowing for the restoration of savanna vegetation in areas surrounding mound groups as indicated on Drawing RT-1.

Archeological Features Tasks

1-1. Preserve mounds 1-7, mounds 8-9, and other archeological resources at LCA-1 according to project area archeological features recommendations.

Vegetation Tasks

1-2. Restore oak savanna vegetation in areas surrounding mound groups. See RT-1 for general locations.

1-3. Maintain existing vegetation communities in other areas. See RT-1 for general locations.

1-4. The short-term recommended mound vegetation treatment for all mounds within LCA-1 is Type B (Native Prairie and Savanna Vegetation) or Type D (Low-Maintenance Mound Stabilization).

1-5. Once oak savanna is established in the area surrounding a mound group, the long-term mound vegetation treatment is Type B (Native Prairie and Savanna Vegetation).

Circulation Tasks

1-6. Maintain existing trails as mown grass or bare earth in good condition until further direction is provided by a future circulation planning process.

1-7. Repair trail erosion at three areas along the Hanging Rock Trail. Follow project area circulation recommendations. If erosion problems continue, consider shifting the trail location, if determined appropriate by a future circulation planning process.

Views Tasks

1-8. Maintain panoramic view from Hanging Rock Overlook.
   a. Selectively prune vegetation that blocks views and is not essential for erosion control.

1-9. Stabilize slopes where erosion threatens to harm archeological resources.

Buildings and Structures Tasks

1-10. Maintain existing trail bridges in good condition until further direction is provided by a future comprehensive circulation planning process.

Small Scale Features Tasks

1-11. Maintain existing trail signs, benches, trash and recycling receptacles, retaining walls and guardrails/fences that are in good condition.

1-12. Repair or replace walls and guardrails/fences that are in poor condition according to project area small scale features recommendations, including:
   a. Repair/replace metal railing at overlook with rustic style handrail.
   b. Replace wood railing along the trail north of mounds 1-7 with rustic/appropriately treated wood.
   c. Repair stone retaining walls and steps near the Hanging Rock Overlook.
   d. Repair stone trail edge.
   e. Replace wood retaining wall on Hanging Rock Trail.

LCA 2 (Red House Landing Mound Group)

The recommended treatment for LCA-2 emphasizes preservation of archeological resources, and long-term restoration of oak savanna vegetation to provide a contextual setting for the mounds that represents conditions present during the era of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds, broad-scale changes to vegetation communities surrounding mound groups, and alterations to circulation to remove impacts to mounds.

The recommended treatment plan for LCA-2 illustrates the desired landscape condition (Drawing RT-2).

Because LCA-2 is located within the GMP backcountry zone, an emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experiences.

Because this site is also relatively far from the visitor center, visitation is light. The long-term treatment approach for LCA-2 is rehabilitation, allowing for the restoration of savanna vegetation along the east facing slopes and in areas surrounding mound groups as indicated on Drawing RT-2. In the short-term, the treatment approach for LCA-2 is preservation, allowing for preservation of existing plant communities, application of recommended vegetation treatment for mounds, and removal of impacts caused by circulation routes.

Archeological Features Tasks

2-1. Preserve mounds 10 -14 along the Third Scenic Trail, individual mounds 15, 16, and 17, mound 18 at Twin Views Overlook, mounds 19 and 20 along the Hanging Rock Trail and other archeological resources at LCA-2 according to project area archeological features recommendations.

Vegetation Tasks

2-2. Restore oak savanna vegetation in areas east of Hanging Rock Trail and along ridgelines at Third Scenic and Twin View trails. See RT-2 for general locations.

2-3. Maintain existing vegetation communities in other areas, including restored prairie on the west side of Hanging Rock Trail and forest communities. See RT-4 for general locations.

2-4. The short-term recommended mound vegetation treatment for mounds 10-14 and 18-20 is Type B (Native Prairie and Savanna Vegetation) or Type C (Native Woodland Vegetation).

2-5. The short-term recommended vegetation treatment for mounds 15-17 is Type D (Low-Maintenance Mound Stabilization).

2-6. Once oak savanna is established in the area surrounding a mound group, the long-term mound vegetation treatment for mounds 10 through 18 is Type B (Native Prairie and Savanna Vegetation) and mounds 19 and 20 is Type A (Trimmed Cool Season Grasses) or B (Native Prairie and Savanna Vegetation).

Circulation Tasks

2-7. Maintain existing trails that are not impacting mounds as mown grass trails or bare earth trails in good condition until further direction is provided by a future circulation planning process.

2-8. Relocate trails currently within 15 feet from the base of mounds according to project area circulation recommendations, as indicated on RT-2.

2-9. Repair trail erosion at steep slopes in character area according to project area circulation recommendations.

2-10. Provide a mown grass or wood chip trail from the Hanging Rock Trail to mounds 15 and 16. Maintain the trail in good condition until further direction is provided by a future circulation planning process.

2-11. Provide a mown grass or wood chip trail from the Hanging Rock Trail to mound 17. Maintain the trail in good condition until further direction is provided by a future circulation planning process.

Views Tasks

2-12. Maintain panoramic view from Third Scenic and Twin View overlooks.
   a. Selectively prune vegetation that blocks views and is not essential for erosion control.

Buildings and Structures Tasks

2-13. Maintain existing trail bridge in good condition until further direction is provided by a future circulation planning process.

2-14. Remove maintenance shed foundation (raised platform) near mound 20. Restore prairie vegetation.

Small Scale Features Tasks

2-15. Maintain existing trail signs, benches, trash and recycling receptacles, retaining walls, stone edges and guardrails/fences that are in good condition.

2-16. Repair or replace walls, guardrails/fences, and signs that are in poor condition according to project area small scale features recommendations, including:
   a. Repair/replace wood guardrail at the Third Scenic Overlook with rustic/appropriately treated wood.
   b. Repair/replace short wood retaining wall at the Third Scenic Overlook with dry laid stone or appropriately treated wood.
   c. Repair/replace wood guardrail at Twin Views Overlook with rustic/appropriately treated wood.
   d. Maintain interpretive wayside addressing topic of geology at Twin Views Overlook.
   e. Maintain gate at Smokey Hollow Road maintenance access.

LCA 3 (Fire Point Mound Group)

The recommended treatment for LCA-3 emphasizes preservation of archeological resources, and long-term restoration of prairie vegetation to provide a contextual setting for the mounds that represents conditions present during the period of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds, revisions to trails to reduce impacts to mounds, removal of the maintenance road, restoration of the road route, and broad-scale changes to vegetation communities surrounding mound groups.

The recommended treatment plan for LCA-3 illustrates the desired landscape condition (Drawing RT-3).

The northern portion of LCA-3 is located in the GMP backcountry zone; the southern portion is located in the GMP discovery zone.

LCA-3 resources within the GMP backcountry zone include mounds 21 through 32. Emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experiences.

LCA-3 resources within the GMP discovery zone include mounds 33 through 54, the Fire Point Overlook, the Eagle Rock Overlook, and portions of the Main Trail, and Fire Point Loop Trail. Emphasis is placed on enhancing visitor access and understanding of the mounds, while maintaining a natural setting. Development is designed to enhance understanding and includes waysides and signs. Ranger-led activities occur in this area. Maintenance activities occur primarily to preserve resources and secondarily to enhance visitor experience as much as possible.

Visitation in LCA-3 is heavy, especially within the discovery zone. The dense collection of mounds combined with scenic trails and overlooks draws many Monument visitors to this location. Restoration of prairie in EC-3 is a long-term goal. In the short-term, the treatment approach for LCA-3 is preservation. The long-term treatment approach for LCA-3 is rehabilitation, allowing for the restoration of prairie vegetation along ridgelines as indicated on Drawing RT-3.

Archeological Features Tasks

3-1. Preserve mounds 21-32 along Hanging Rock Trail, mounds 33-52 along Fire Point Loop Trail, mounds 53 and 54 along the Main Trail, and other archeological resources at LCA-3 according to project area archeological features recommendations.

Vegetation Tasks

3-2. Restore prairie vegetation in areas along the ridgeline at the Main Trail and Hanging Rock Trail, along the ridgeline at Fire Point Loop. Restore prairie and/or oak savanna vegetation along the south-facing slope between the ridgeline and the Yellow River terrace. See RT-3 for general locations.

3-3. Maintain existing vegetation communities in other areas. See RT-3 for general locations.

3-4. The recommended mound vegetation treatment for all mounds within LCA-3 is Type A (Trimmed Cool Season Grasses) or B (Native Prairie and Savanna Vegetation).

Circulation Tasks

3-5. Maintain existing trails that are not impacting mounds as wood chip, bare earth, or mown grass trails in good condition until further direction is provided by a future comprehensive circulation planning process.

3-6. Relocate trails currently within 15 feet from the base of mounds according to project area circulation recommendations, as indicated on RT-3. Maintain trails in good condition until further direction is provided by a future comprehensive circulation planning process.

3-7. Monitor trails and surrounding steep slopes for erosion and repair as needed according to project area circulation recommendations.

3-8. Adjust the route of the vehicular maintenance road.
   a. Remove the maintenance road south of mound 32 as indicated on RT-3.
   b. Shift the location of the maintenance road to the west of mound 32 to provide an adequate protective buffer between the mound and the road.
   c. Shift the location of the small gravel parking area to the new terminus of the road south of mound 32.
   d. Repair the ground surface and restore prairie vegetation.

3-9. Relocate portion of the Hanging Rock Trail near mounds 29 and 30 according to project area circulation recommendations, as indicated on RT-3.
   a. Remove portion of existing trail that is impacting mounds 29 and 30.
   b. Repair the ground surface and restore vegetation.
   c. Add new trail down slope from mounds 29 and 30 to provide an adequate protective buffer between mounds and trail.
   d. Remove the existing fence at mound 30.
   e. Add a fence at the outside edge of the new trail.
   f. Consider installing an interpretive wayside near the trail at mound 29 with:
      i. information regarding protection of mounds,
      ii. an explanation of why the trail is not closer to the mounds,
      iii. information about mounds 29 and 30.

3-10. Relocate portion of Main Trail near mounds 49 through 52 according to project area circulation recommendations, as indicated on RT-3.
   a. Remove portion of existing trail that is impacting mounds.
   b. Add a new mown grass or wood chip trail on the west side of mounds 50 and 51, using the alignment of the removed maintenance road, and reconnecting to the Hanging Rock Trail southeast of mound 32.

c. Remove existing signs and interpretive waysides that are impacting mounds and repair the ground surface.
d. Consider adding a new interpretive wayside near the trail at mound 52 with:
    iv. information regarding protection of mounds,
    v. an explanation of why the trail does not go right up to the mounds,
    vi. information about the Fire Point Mound Group and mound 52.

3-11. Relocate portion of Fire Point Loop Trail and overlook according to project area circulation recommendations, as indicated on RT-3.
a. Remove portion of existing trail that is impacting mounds.
b. Repair the ground surface and restore vegetation.
c. Add a new trail down slope from mounds 33 – 50 to provide an adequate protective buffer between mounds and trail.
d. Remove existing fence at overlook and in locations where trail is removed.
e. Add a fence at the outside edge of the new trail.
f. Consider adding a new overlook north of mound 33 to encourage visitors to go to this location, rather than continuing to impact the mounds near the existing overlook.

Views Tasks

3-12. If a new overlook is established at Fire Point, establish panoramic views by selectively pruning vegetation that blocks views, is not essential for erosion control, and does not impact culturally important trees.

3-13. Maintain panoramic view from Eagle Rock Overlook by selectively pruning vegetation that blocks views, is not essential for erosion control, and does not impact culturally important trees.

Small Scale Features Tasks

3-14. Maintain existing trail signs, benches, trash and recycling receptacles, retaining walls and guardrails/fences that are in good condition, unless noted otherwise.

3-15. Repair or replace railings/fences that are in poor condition. Remove those that are impacting mounds according to project area small scale features recommendations (refer to RT-3):
a. Remove wood guardrail at mound 30 and replace in new location (refer to RT-3).
b. Repair/replace wood guardrail at Fire Point Overlook with rustic style handrail.
c. Repair/replace wood guardrail along Fire Point Trail with rustic/appropriately treated wood.
d. Repair/replace wood guardrail along the Main Trail with rustic/appropriately treated wood.

3-16. Repair or replace walls and stone edges that are in poor condition. Remove those that impact resources.
   a. Repair/replace stone trail edge between the Great Bear Mound Group and the Little Bear and Fire Point mounds.
   b. Repair/replace short stone retaining walls at Fire Point Overlook.
   c. Remove stone trail edge at Fire Point Overlook.
   d. Repair/replace short stone retaining wall along Fire Point Loop Trail.
   e. Repair/replace stone trail edge along Fire Point Loop Trail.

3-17. Remove or replace signs that are impacting mounds or in poor condition.
   a. Remove signs associated with relocated trails and repair ground (refer to RT-3).

3-18. Consider adding new interpretive waysides near mound 29, mound 52, and at the new Fire Point overlook. Consult with tribal representatives regarding the locations and content of any new interpretive waysides.

LCA 4 (Visitor Center and Nazekaw Terrace Mound Group)

The recommended treatment for LCA-4 emphasizes preservation of archeological resources, and improved visitor experience. The treatment includes establishment of a vegetation treatment approach for mounds and maintenance of existing visitor, administrative, and maintenance facilities.

The recommended treatment plan for LCA-4 illustrates the desired landscape condition (Drawing RT-4).

LCA-4 contains areas included in the GMP backcountry zone, discovery zone, and developed zone.

LCA-4 resources within the GMP backcountry zone include archeological sites immediately west of the Mississippi River. There are no trails to provide visitor access to these resources. Emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experiences.

LCA-4 resources within the GMP discovery zone include portions of the Main Trail north of the visitor center, mounds 58-61, portions of the Yellow River Bridge trail, and the maintenance access road south of the visitor center. Emphasis is placed on enhancing visitor access and understanding of the mounds, while maintaining a natural setting. Development is designed to enhance understanding and includes waysides and signs. Ranger-led activities occur in this area. Maintenance activities occur primarily to preserve resources and secondarily to enhance visitor experience as much as possible.

LCA-4 resources within the GMP developed zone include mounds 55-57, the visitor center, entrance road and parking area, portions of the Yellow River Bridge Trail, and office and maintenance buildings. Emphasis in the development zone is to provide the facilities and amenities necessary for visitor services and Monument operations. Although zoned for development, numerous mound remnants have been discovered in this area, and changes or improvements in this zone must make careful and thoughtful consultation with associated tribes and other parties. Primary orientation to the park occurs in this zone, and special events for large crowds can be accommodated here. Universally accessible visitor experience is included within this zone, as well as opportunities for understanding the Monument within a short time frame. Maintenance activities maintain resources and facilities in support of visitor experience, safety, and park operations.

Visitation in LCA-4 is heavy, especially within the area immediately surrounding the visitor center, in the developed zone. The information provided by the visitor center and nearby mounds 55-57 provide a brief introduction to the Monument's resources for visitors who are restricted by time or physical ability. The overall goals for LCA-4 are to maintain current uses of the area, including providing facilities, initial visitor arrival and orientation, and serving as a park operations hub. The long-term treatment approach for LCA-4 is rehabilitation of select areas of native vegetation surrounding the visitor center and parking area.

Archeological Features Tasks

4-1. Preserve mounds 55-61 and other archeological resources at LCA-4 according to project area archeological features recommendations.

Vegetation Tasks

4-2. Restore native vegetation on the terrace on the north side of Highway 76. In order to preserve important views and visibility for safety, establish native shortgrass prairie species in the area surrounding the parking lot and visitor center, extending from Highway 76 to the base of the bluff. Shortgrass prairie species established in this area include a mix of grasses and forbs, for example prairie dropseed (*Sporobolus heterolepis*), little bluestem (*Schizachyrium scoparium*), black-eyed Susan (*Rudbeckia hirta*), and blazing star (*Liatris* spp.). Ensure that views are retained between the visitor center and the parking area, the visitor center and the Mississippi River, and within 50 feet of either side of the entrance driveway from Highway 76. See RT-4 for general locations.

4-3. Maintain mown lawn in the immediate vicinity of the Monument office and maintenance facilities. See RT-4 for general locations.

4-4. Maintain the slope between the terrace and the bluff to the north as forest. During the period of mound construction, it is likely that the south-facing slope on the north side of LCA-4 was characterized by prairie and oak savanna vegetation. Reestablishment of the early vegetation communities on this slope is not recommended due to the high risk of erosion and associated management issues that would accompany removal of woody materials on the steep slope. The forested area also enhances the visitor experience by providing a visual buffer between the development zone and the contemplative setting of the mound groups to the north.

4-5. Maintain existing vegetation communities in other areas. See RT-4 for general locations.

4-6. Establish long-term and short-term mound vegetation treatment at mounds 55-57 and mounds 58, 59, and 61.
   a. The short- and long-term recommended mound vegetation treatment for mounds 55-57 is Type A (Trimmed Cool Season Grasses) or B (Native Prairie and Savanna Vegetation).
   b. The short- and long- term recommended mound vegetation treatment for mounds 58, 59, and 61 is Type B (Native Prairie and Savanna Vegetation).

Circulation Tasks

4-7. Consider adjusting the viewing platform overlooking mounds 55-57 to improve access. Maintain in good condition until further direction is provided by a future comprehensive circulation planning process.

4-8. Maintain existing wood chip trails in good condition until further direction is provided by a future comprehensive circulation planning process.

4-9. Maintain existing boardwalk trails in good condition until further direction is provided by a future comprehensive circulation planning process focused on trails in the Monument.

4-10. Maintain existing concrete sidewalks in good condition until further direction is provided by a future comprehensive circulation planning process.

4-11. Maintain existing trail bridges in good condition until further direction is provided by a future comprehensive circulation planning process.

4-12. Maintain existing roads in good condition until further direction is provided by a future comprehensive circulation planning process.

Small Scale Features Tasks

4-13. Maintain existing trail signs, benches, trash and recycling receptacles, retaining walls and guardrails/fences that are in good condition.

4-14. Repair or replace walls, guardrails/fences, and signs that are in poor condition according to project area small scale features recommendations, including:

a. Repair/replace wood guardrail along the Main Trail with rustic/appropriately treated wood.
b. Repair/replace tall stone retaining wall along the Main Trail.
c. Repair/replace short stone retaining wall near mounds 55-57.
d. Repair/replace short wood retaining wall behind the maintenance (western) office building with appropriately treated wood or stone wall.
e. Replace 5 interpretive signs located in LCA-4.
f. Repair/replace stone trail edge along the Main Trail.

LCA 5 (Yellow River Mound Group)

The recommended treatment for LCA-5 emphasizes preservation of archeological resources, and long-term restoration of oak savanna vegetation to provide a contextual setting for the mounds that represents conditions present during the period of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds, improvements to trails, and broad-scale changes to vegetation communities surrounding mound groups

The recommended treatment plan for LCA-5 illustrates the desired landscape condition (Drawing RT-5).

Because LCA-5 is located within the GMP discovery zone, emphasis is placed on enhancing visitor access and understanding of the mounds, while maintaining a natural setting. Development is designed to enhance understanding and includes waysides and signs. Ranger-led activities occur in this area. Maintenance activities occur primarily to preserve resources and secondarily to enhance visitor experience as much as possible.

Visitation in this area is light. Access to the location is very strenuous, requiring a steep hike up the South Unit Trail. In the short term, the treatment approach for LCA-5 is preservation. The long-term treatment approach for LCA-5 is rehabilitation, allowing for the restoration of oak savanna vegetation along ridgelines as indicated on Drawing RT-5.

Archeological Features Tasks

5-1. Preserve mounds 62-64 along the Nazekaw Point Trail, two mounds at site 13AM446, and other archeological resources at LCA-5 according to project area archeological features recommendations.

Vegetation Tasks

5-2. Restore oak savanna vegetation in areas along the ridgeline that extends the Nazekaw Point Trail to the Nazekaw Point Overlook; see RT-5 for general locations.

5-3. Maintain existing vegetation communities in other areas. See RT-5 for general locations.

5-4. The short-term recommended mound vegetation treatment for mounds 62-64 is Type B (Native Prairie or Savanna Vegetation) or C (Native Woodland Vegetation). The short-term recommended mound vegetation treatment for 13AM446 East and 13AM446 West is Type D (Low-Maintenance Mound Stabilization).

5-5. Once the oak savanna is established in the area surrounding a mound group, the long-term mound vegetation treatment for mounds 62-64 is Type B (Native Prairie or Savanna Vegetation). The long-term recommended mound vegetation treatment for 13AM446 East and 13AM446 West is Type D (Low-Maintenance Mound Stabilization).

Circulation Tasks

5-6. Maintain portions of Nazekaw Point Trail that do not impact mounds as wood chip or bare earth trails. Maintain in good condition until further direction is provided by a future comprehensive circulation planning process.

5-7. Adjust portions of the Nazekaw Point Trail according to project area circulation recommendations.
   a. Adjust location of portion of existing trail that is impacting mound 62. Locate the wood chip or bare earth trail at least 15 feet from the base of the mound.
   b. Adjust the location of the portion of trail that is impacting mound 63. Locate the wood chip or mown grass trail at least 15 feet from the base of the mound.
   c. Adjust the location of the portion of trail that is impacting mound 64. Locate the wood chip or mown grass trail at least 15 feet from the base of mound 64.

5-8. In the short term, stabilize the South Unit Trail between Highway 76 and the top of the bluff to prevent further erosion damage. Maintain the trail in good condition until further direction is provided by a future comprehensive circulation planning process.
   a. Maintain as a vehicular emergency access route with a maximum width of eight to ten feet, with debris removed from road edges.
   a. Repair and stabilize road surface. When repairing road surfaces, do not impact archeological resources. An archeologist should be on site for any ground disturbing activities.

5-9. Add a new trail connecting the Yellow River Bridge Trail to Founders Pond Overlook per the GMP. Determine the route of the new trail through a future comprehensive circulation planning process.

5-10. If the comprehensive circulation plan concurs, work with local landowner to establish a NPS-only maintenance route to provide access to LCA 7.

5-11. If maintenance access to LCA 7 is established through an agreement with a local landowner, consider abandoning use of the South Unit Trail for vehicular / maintenance access. If the road is abandoned, repair areas of erosion and restore the landscape.

Views Tasks

5-12. Maintain panoramic view from Founders Pond and Nezekaw Point overlooks by selectively pruning vegetation that blocks views, is not essential for erosion control, and does not impact culturally important trees.

Small Scale Features Tasks

5-13. Maintain existing trail signs, benches, and guardrails/fences that are in good condition.

5-14. Repair or replace guardrails/fences, and signs that are in poor condition according to project area small scale features recommendations, including:
   a. Repair/replace wood guardrail at the Nezekaw Overlook with rustic/appropriately treated wood.
   b. Repair/replace wood guardrail at the Founders Pond Overlook with rustic/appropriately treated wood.

LCA 6 (Compound Mound Group)

The recommended treatment for LCA-6 emphasizes preservation of archeological resources, and long-term restoration of oak savanna vegetation to provide a contextual setting for the mounds that represents conditions present during the era of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds, improvements to trails, and broad-scale changes to vegetation communities surrounding mound groups

The recommended treatment plan for LCA-6 illustrates the desired landscape condition (Drawing RT-6).

Because LCA-6 is located within the GMP backcountry zone, emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experiences.

Visitation in this area is light given remote location and distance from the visitor center. Restoration of oak savanna in this location is a long-term goal. In the short term, the treatment approach for LCA-6 is preservation. The long-term treatment approach for LCA-6 is rehabilitation, allowing for the restoration of oak savanna vegetation along ridgelines and prairie as indicated on Drawing RT-6.

Archeological Features Tasks

6-1. Preserve mound 68 along the South Unit Trail, mounds 65-67 at the end of a spur trail, and other archeological resources at LCA-6 according to project area archeological features recommendations.

Vegetation Tasks

6-2. Restore oak savanna vegetation in areas along the South Unit Trail and spur trail to mounds 65-67; see RT-6 for general locations.

6-3. Maintain existing vegetation communities in other areas. See RT-6 for general locations.

6-4. Establish short-term mound vegetation at mounds 65-67 and mound 68 iaccording to Type B (Native Prairie and Savanna Vegetation) or C (Native Woodland Vegetation).

6-5. Once the oak savanna is established in the area surrounding a mound group, establish the long-term mound vegetation. At 65-67, establish or maintain (if previously established) Type B (Native Prairie and Savanna Vegetation), emphasizing savanna species. At mound 68 establish or maintain (if previously established) Type B (Native Prairie and Savanna Vegetation), emphasizing prairie species.

Circulation Tasks

6-6. Maintain existing trails to mounds 65-67 and 68 as bare earth or mown grass in good condition until further direction is provided by a future comprehensive circulation planning process.

6-7. Maintain existing South Unit Trail as gravel two-track road until further direction is provided by a future comprehensive circulation planning process.

Views Tasks

6-8. Consider establishing open views to the river from key points along the trails.

LCA 7 (Marching Bear Mound Group)

The recommended treatment for LCA-7 emphasizes preservation of archeological resources, and long-term restoration of oak savanna vegetation to provide a contextual setting for the mounds that represents conditions present during the period of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds and broad-scale changes to vegetation communities surrounding mound groups

The recommended treatment plan for LCA-7 illustrates the desired landscape condition (Drawing RT-7).

Because LCA-7 is located within the GMP backcountry zone, emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is minimal development and the visitor experience is focused on quiet and solitude. Maintenance activities occur mainly to further resource preservation and accommodate visitor experience. Visitation in this area is light given its remote location and distance from the visitor center. Restoration of prairie in this location is a long-term goal. In the short term, the treatment approach for LCA-7 is preservation. The long-term treatment approach for LCA-7 is rehabilitation, allowing for the restoration of prairie vegetation along ridgelines indicated on Drawing RT-7.

Archeological Features Tasks

7-1. Preserve mounds 69-83 along the South Unit Trail, mounds 84-86, the Old Military Road alignment, and other archeological resources at LCA-7 according to project area archeological features recommendations.

Vegetation Tasks

7-2. Restore prairie vegetation in areas along the South Unit Trail and ridgelines; see RT-7 for general locations.

7-3. Maintain existing vegetation communities in other areas. See RT-7 for general locations.

7-4. Establish short-term mound vegetation treatment for all mounds in LCA 7 according to Type B (Native Prairie and Savanna Vegetation) or C (Native Woodland Vegetation).

7-5. Once the prairie is established in the area surrounding a mound group, establish (or maintain if already established) the long-term mound vegetation treatment according to Type B (Native Prairie and Savanna Vegetation), with an emphasis on prairie communities.

Circulation Tasks

7-6. Maintain existing trails to mounds 84-86 as bare earth or mown grass in good condition until further direction is provided by a future comprehensive circulation planning process.

7-7. Remove portion of existing trail that is impacting mound 85.

7-8. Maintain existing South Unit Trail in good condition until further direction is provided by a future comprehensive circulation planning process.

Spatial Organization / Views and Topography Tasks

7-9. Following establishment of broad-scale vegetation treatment in LCA 7, including restoration of prairie vegetation along ridgelines, maintain visual connection between mounds 69-83, located on the upper terrace, and mounds 84-86, located on the lower terrace. Maintain views by selectively pruning vegetation that blocks views, is not essential for erosion control, and does not impact culturally important trees.

LCA 8 (Heritage Unit/Isolated Mounds)

The recommended treatment for LCA-8 emphasizes preservation of archeological resources.

The recommended treatment plan for LCA-8 illustrates the desire to maintain the landscape condition (Drawing RT-8).

LCA 8 is located within the GMP backcountry zone. Emphasis is placed on the protection of natural resources in a minimally disturbed setting. There is no development or visitor access. Maintenance activities occur mainly to further resource preservation.

Archeological Features Tasks

8-1. Preserve mound 87 (LCA 8C), mounds 97-99 (LCA 8B), Heritage Linear mound, and mounds 13AM186 east and west (LCA 8A) and other archeological resources according to project area archeological features recommendations.

Vegetation Tasks

8-2. Continue efforts to minimize invasive exotic vegetation in the Heritage Unit.

8-3. Establish mound vegetation treatment according to Type D (Low-Maintenance Mound Stabilization).

LCA 9 (Sny Magill Unit Mounds)

The recommended treatment for LCA-9 emphasizes preservation of archeological resources, and maintenance of the contextual setting for the mounds that represents conditions present during the era of mound construction. The treatment includes establishment of a vegetation treatment approach for mounds.

The recommended treatment plan for LCA-9 illustrates the desired landscape condition (Drawing RT-9).

LCA-9 contains areas included in the GMP backcountry zone and discovery zone.

LCA-9 resources within the GMP backcountry zone include all mounds within the character area. Emphasis is placed on the protection of natural resources in a minimally disturbed setting.

A portion of the trail in LCA-9 is GMP discovery zone. The public would continue to have access to the character area for approved recreational activities. Boating on the Mississippi River adjacent to and within the character area would be monitored for use levels and resource impacts. Limited development is designed to improve visitor access through trail improvement. Ranger-led activities occur in this area. Maintenance activities occur primarily to preserve resources and secondarily to enhance visitor experience as much as possible.

Archeological Features Tasks

9-1. Preserve mounds 1-94 and other archeological resources according to project area archeological features recommendations.

Vegetation Tasks

9-2. Maintain forest communities according to project area vegetation recommendations.

9-3. Establish mound vegetation treatment according to Type A (Trimmed Cool Season Grasses) or C (Native Woodland Vegetation).

Circulation Tasks

9-4. Maintain existing trails within the GMP backcountry zone of LCA 9 in good condition as bare earth or mown grass trails until further direction is provided by a future comprehensive circulation planning process.

9-5. Maintain existing trails within the GMP discovery zone portion of LCA 9 as wood chip, bare earth, or mown grass trails in good condition until further direction is provided by a future comprehensive circulation planning process.

9-6. Consider adding puncheon to improve wet areas along the trail in the GMP discovery zone portion of LCA 9.

Small Scale Features Tasks

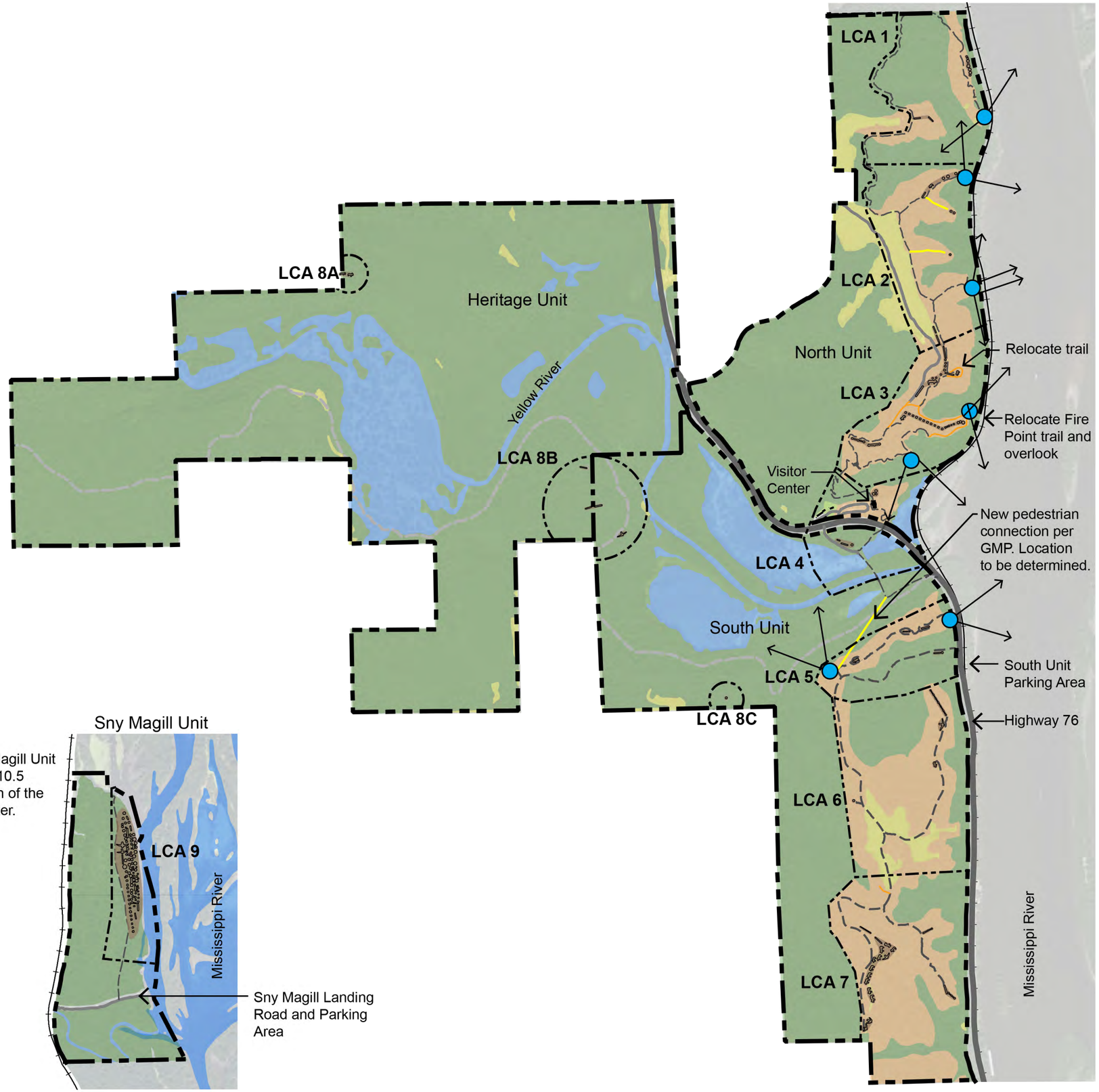
9-7. Maintain existing signs in good condition.

9-8. Relocate three signs impacting mounds according to project area small scale features recommendations.

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Recommended Treatment
Rehabilitate Landscape Context



Sny Magill Unit

The Sny Magill Unit is located 10.5 miles south of the visitor center.

Sny Magill Landing Road and Parking Area

Legend

- Monument boundary
- LCA 1 — Landscape character area boundary
- Preserve mound
- Maintain existing building
- Existing public road
- Existing closed road
- Existing railroad
- Maintain existing park road / maintenance access
- Maintain existing trail
- Adjust location of trail
- Add new pedestrian connection
- Restore prairie / oak savanna vegetation
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Maintain lawn
- Preserve mounds and archeological resources
- River, pond, or wetland
- Maintain overlook
- Relocate overlook

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.

QUINN EVANS ARCHITECTS

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0 150 300 600 Feet
1 inch = 300 feet

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RT-0

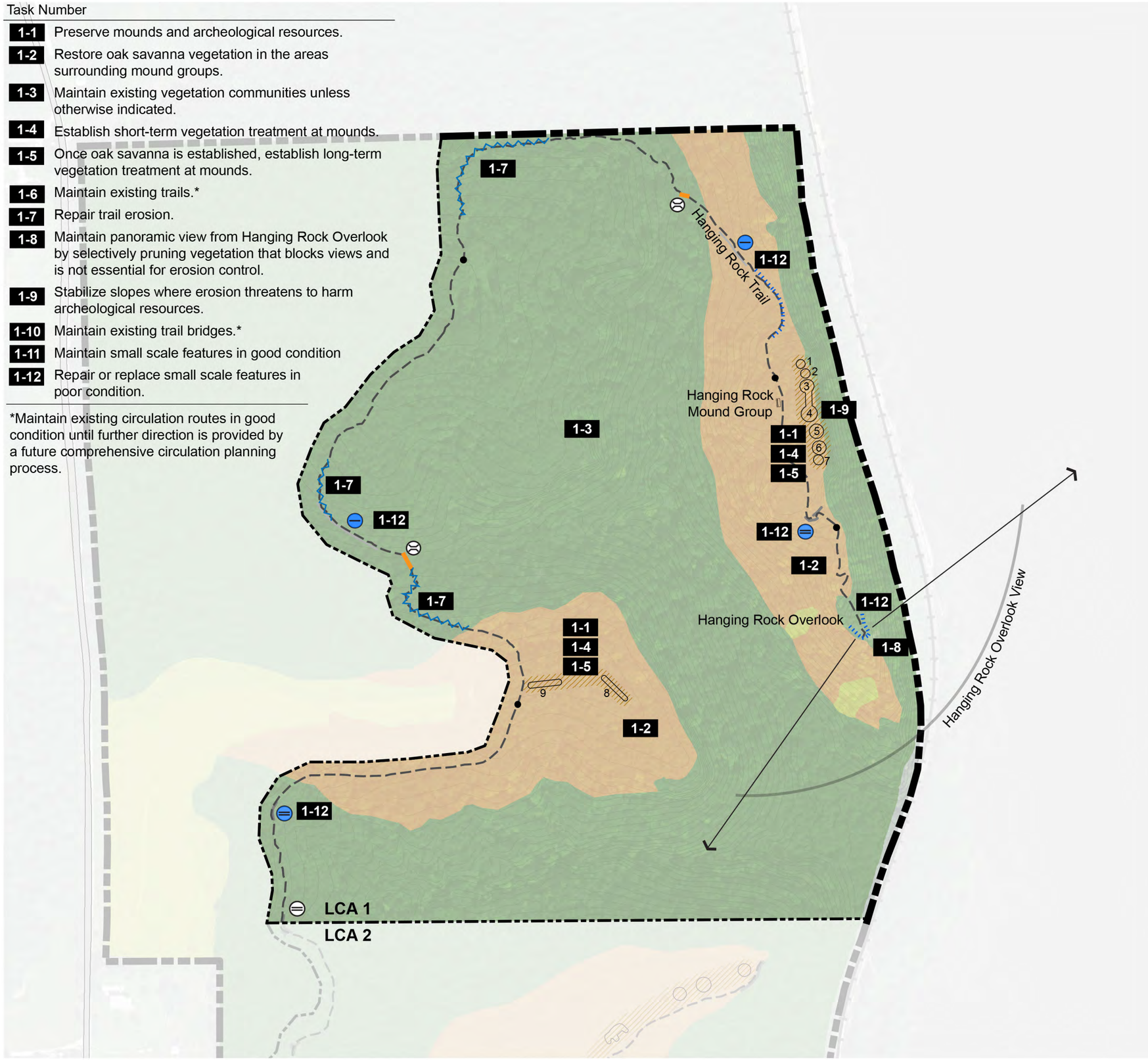
EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 1
Recommended Treatment

Task Number

- **1-1** Preserve mounds and archeological resources.
- **1-2** Restore oak savanna vegetation in the areas surrounding mound groups.
- **1-3** Maintain existing vegetation communities unless otherwise indicated.
- **1-4** Establish short-term vegetation treatment at mounds.
- **1-5** Once oak savanna is established, establish long-term vegetation treatment at mounds.
- **1-6** Maintain existing trails.*
- **1-7** Repair trail erosion.
- **1-8** Maintain panoramic view from Hanging Rock Overlook by selectively pruning vegetation that blocks views and is not essential for erosion control.
- **1-9** Stabilize slopes where erosion threatens to harm archeological resources.
- **1-10** Maintain existing trail bridges.*
- **1-11** Maintain small scale features in good condition
- **1-12** Repair or replace small scale features in poor condition.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.



Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Restore prairie / oak savanna vegetation
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation
- Maintain trail bridge*
- Maintain trail*
- Repair trail erosion
- Maintain existing small scale feature
- Maintain short retaining wall
- Repair short retaining wall
- Repair stone edge
- Repair / replace guardrail / fence
- Maintain view

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

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1 inch = 300 feet

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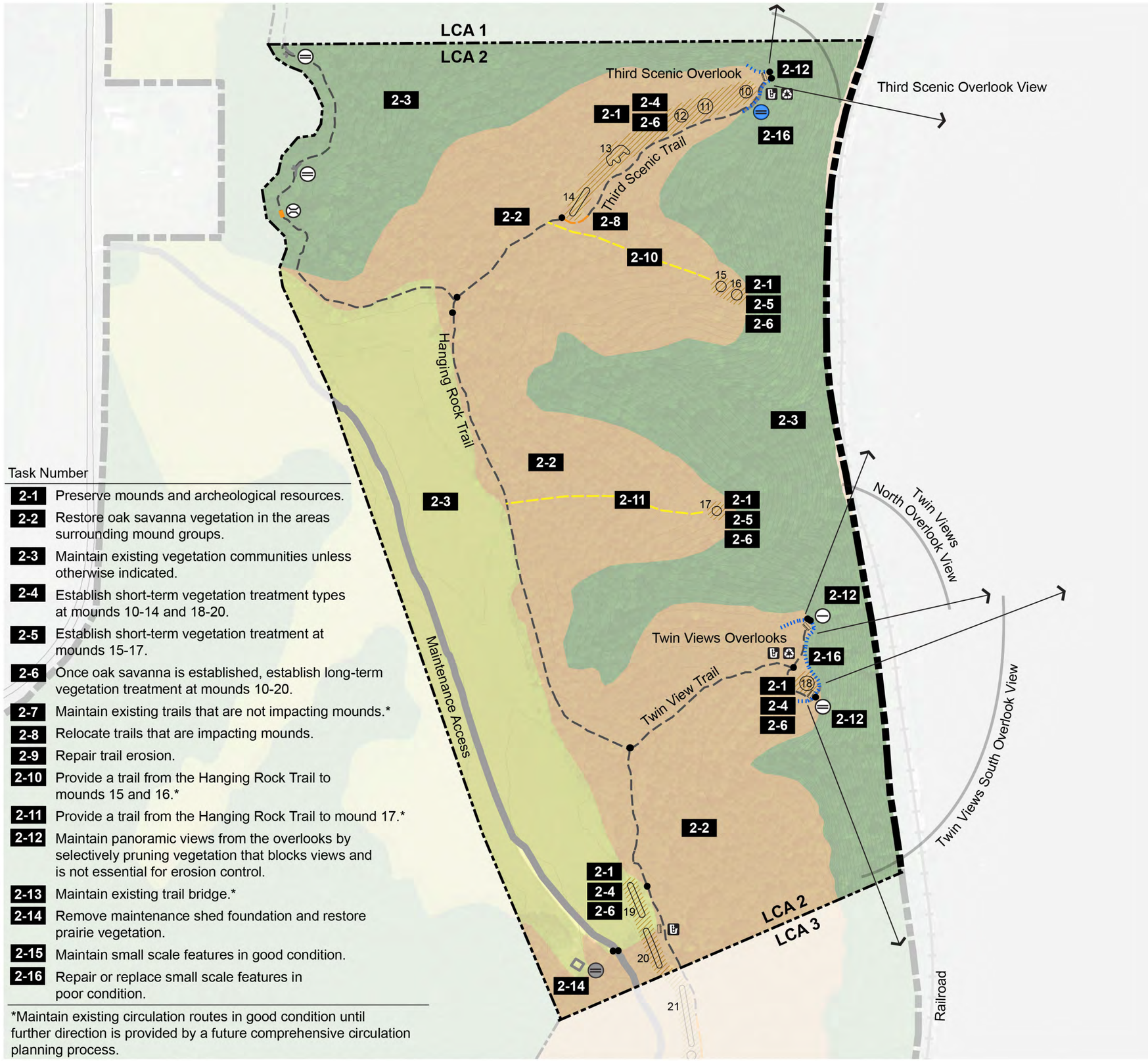
Cultural Landscape Report

Landscape Character Area 2
Recommended Treatment



Task Number

- **2-1** Preserve mounds and archeological resources.
- **2-2** Restore oak savanna vegetation in the areas surrounding mound groups.
- **2-3** Maintain existing vegetation communities unless otherwise indicated.
- **2-4** Establish short-term vegetation treatment types at mounds 10-14 and 18-20.
- **2-5** Establish short-term vegetation treatment at mounds 15-17.
- **2-6** Once oak savanna is established, establish long-term vegetation treatment at mounds 10-20.
- **2-7** Maintain existing trails that are not impacting mounds.*
- **2-8** Relocate trails that are impacting mounds.
- **2-9** Repair trail erosion.
- **2-10** Provide a trail from the Hanging Rock Trail to mounds 15 and 16.*
- **2-11** Provide a trail from the Hanging Rock Trail to mound 17.*
- **2-12** Maintain panoramic views from the overlooks by selectively pruning vegetation that blocks views and is not essential for erosion control.
- **2-13** Maintain existing trail bridge.*
- **2-14** Remove maintenance shed foundation and restore prairie vegetation.
- **2-15** Maintain small scale features in good condition.
- **2-16** Repair or replace small scale features in poor condition.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Restore prairie / oak savanna vegetation
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation
- Maintain existing small-scale feature
- Maintain short retaining wall
- Maintain stone edge
- Maintain existing trail*
- Alter location of trail*
- Add trail*
- Maintain existing trail bridge*
- Maintain existing maintenance access route*
- Repair/replace guardrail
- Repair/replace short retaining wall
- Remove short retaining wall
- Maintain view

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

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1 inch = 300 feet

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RT-2

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 3 Recommended Treatment

Task Number

- **3-1** Preserve mounds and archeological resources.
- **3-2** Restore prairie and/or oak savanna vegetation in the areas surrounding mound groups.
- **3-3** Maintain existing vegetation communities unless otherwise indicated.
- **3-4** Establish mound vegetation treatment at mounds.
- **3-5** Maintain existing trails that are not impacting mounds.*
- **3-6** Relocate trails that are impacting mounds.*
- **3-7** Monitor trails and surrounding steep slopes for erosion and repair as needed.
- **3-8** Adjust the route of the vehicular maintenance road. Remove the road south of mound 32, adjust the location of the road to avoid impacts to the mound, and shift the parking area to the new road terminus.
- **3-9** Relocate portion of the Hanging Rock Trail near mounds 29 and 30.
- **3-10** Relocate portion of Main trail near mounds 49 through 52.
- **3-11** Relocate portion of Fire Point Loop trail and overlook.
- **3-12** If a new overlook is established at Fire Point, maintain panoramic views from the overlook by selectively pruning vegetation that blocks views and is not essential for erosion control.
- **3-13** Maintain panoramic view from Eagle Rock Overlook by selectively pruning vegetation that blocks views and is not essential for erosion control.
- **3-14** Maintain small scale features in good condition.
- **3-15** Repair or replace railings/fences that are in poor condition. Remove those that are impacting mounds.
- **3-16** Repair or replace walls and stone edges that are in poor condition. Remove those that impact resources.
- **3-17** Remove or replace signs that are impacting mounds or in poor condition.
- **3-18** Consider adding new interpretive waysides through consultation with tribal representatives.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Restore prairie / oak savanna vegetation
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation
- Maintain existing maintenance access route*
- Adjust location of maintenance access route*
- Remove maintenance access route*
- Maintain existing trail*
- Adjust location of trail*
- Maintain existing small-scale feature
- Remove small-scale feature
- Add interpretive wayside
- Repair/replace short retaining wall
- Repair/replace stone edge
- Remove stone edge
- Repair/replace guardrail/fence
- Adjust location of guardrail/fence
- Maintain view

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

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1 inch = 300 feet

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RT-3

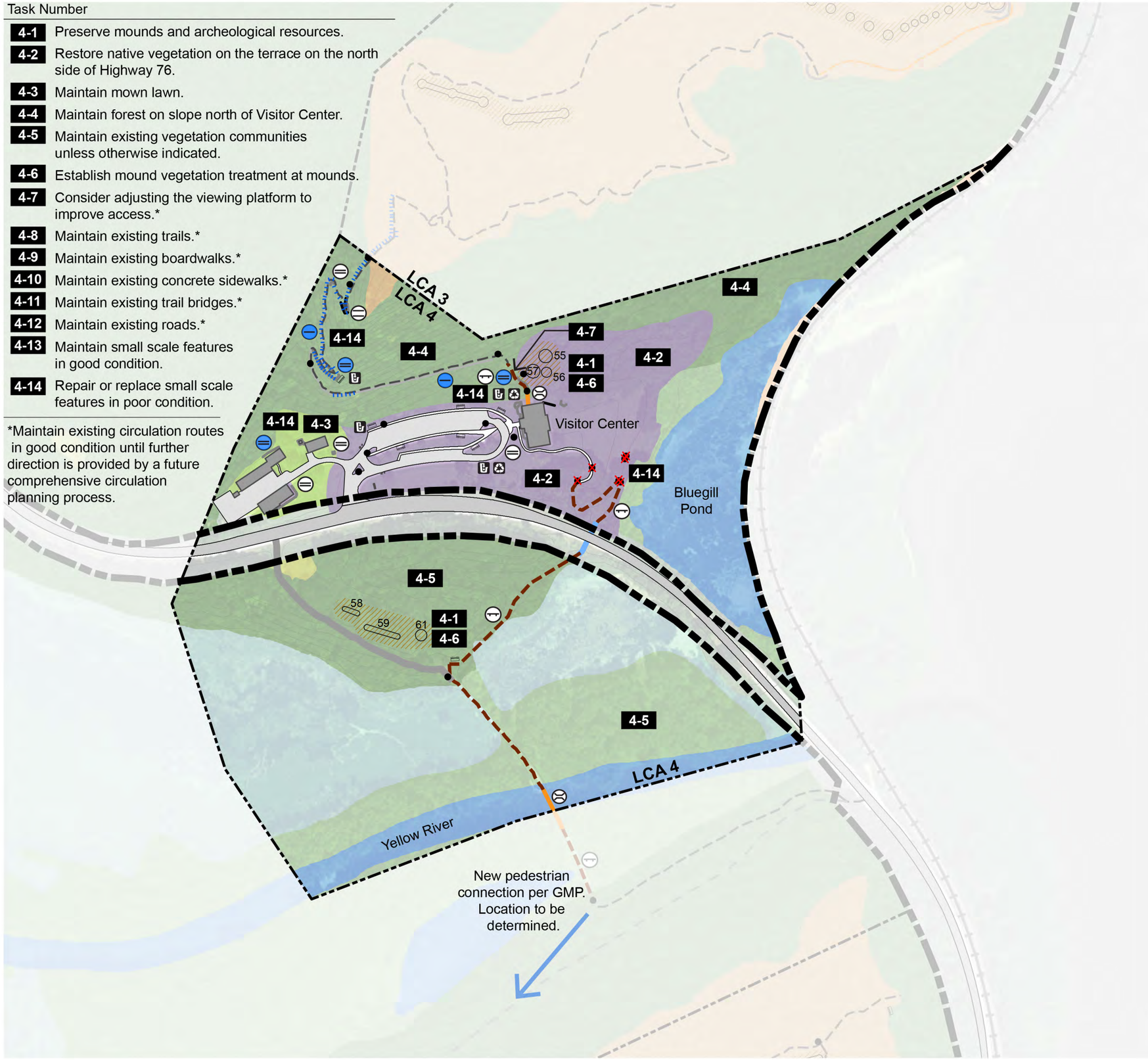
EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 4
Recommended Treatment

Task Number

- **4-1** Preserve mounds and archeological resources.
- **4-2** Restore native vegetation on the terrace on the north side of Highway 76.
- **4-3** Maintain mown lawn.
- **4-4** Maintain forest on slope north of Visitor Center.
- **4-5** Maintain existing vegetation communities unless otherwise indicated.
- **4-6** Establish mound vegetation treatment at mounds.
- **4-7** Consider adjusting the viewing platform to improve access.*
- **4-8** Maintain existing trails.*
- **4-9** Maintain existing boardwalks.*
- **4-10** Maintain existing concrete sidewalks.*
- **4-11** Maintain existing trail bridges.*
- **4-12** Maintain existing roads.*
- **4-13** Maintain small scale features in good condition.
- **4-14** Repair or replace small scale features in poor condition.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.



Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Maintain prairie / oak savanna vegetation
- Restore prairie / oak savanna vegetation
- Establish native shortgrass prairie vegetation
- Maintain mown lawn
- Maintain forest
- Maintain forested wetland
- Maintain nonforested wetland
- Establish recommended mound vegetation
- Maintain existing small-scale feature
- Maintain tall retaining wall
- Maintain short retaining wall
- Maintain stone edge
- Maintain existing trail*
- Maintain existing concrete sidewalk*
- Maintain existing boardwalk*
- Maintain existing trail bridge*
- Maintain existing road*
- Repair/replace guardrail
- Repair/replace short retaining wall
- Repair/replace stone edge
- Replace interpretive sign

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

QUINN EVANS ARCHITECTS

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0 150 300 600 Feet
1 inch = 300 feet

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RT-4

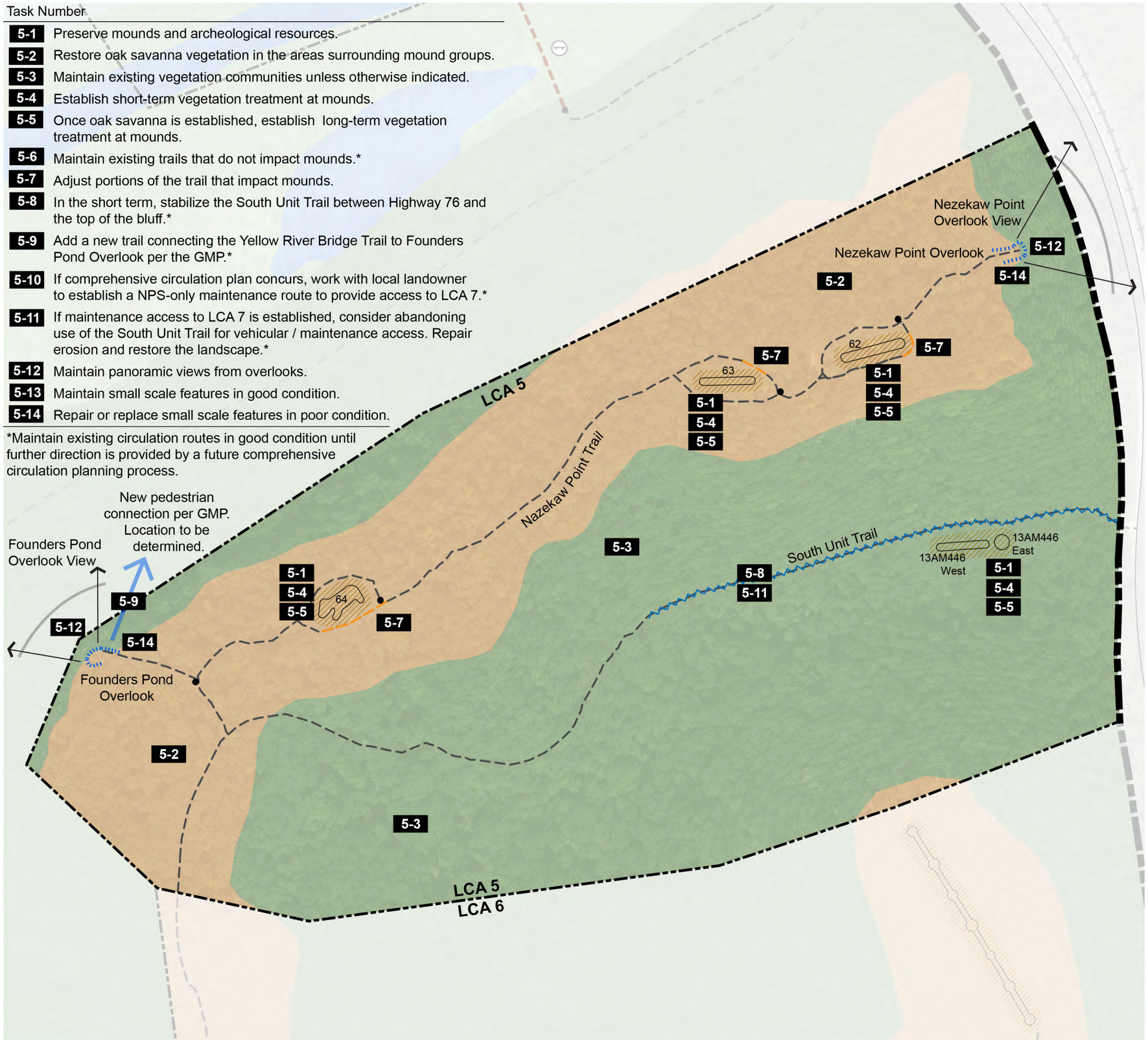
EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 5
Recommended Treatment

Task Number

- **5-1** Preserve mounds and archeological resources.
- **5-2** Restore oak savanna vegetation in the areas surrounding mound groups.
- **5-3** Maintain existing vegetation communities unless otherwise indicated.
- **5-4** Establish short-term vegetation treatment at mounds.
- **5-5** Once oak savanna is established, establish long-term vegetation treatment at mounds.
- **5-6** Maintain existing trails that do not impact mounds.*
- **5-7** Adjust portions of the trail that impact mounds.
- **5-8** In the short term, stabilize the South Unit Trail between Highway 76 and the top of the bluff.*
- **5-9** Add a new trail connecting the Yellow River Bridge Trail to Founders Pond Overlook per the GMP.*
- **5-10** If comprehensive circulation plan concurs, work with local landowner to establish a NPS-only maintenance route to provide access to LCA 7.*
- **5-11** If maintenance access to LCA 7 is established, consider abandoning use of the South Unit Trail for vehicular / maintenance access. Repair erosion and restore the landscape.*
- **5-12** Maintain panoramic views from overlooks.
- **5-13** Maintain small scale features in good condition.
- **5-14** Repair or replace small scale features in poor condition.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.



Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Restore prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation
- Maintain existing small-scale feature
- Maintain existing trail*
- Adjust location of trail
- Repair trail erosion
- Repair/replace guardrail
- Maintain view

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126321

0 100 200 400 Feet
1 inch = 200 feet

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RT-5

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 6 Recommended Treatment

Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Restore prairie / oak savanna vegetation
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation
- Maintain existing trail*

Task Number

- **6-1** Preserve mounds and archeological resources.
- **6-2** Restore oak savanna vegetation in the areas surrounding mound groups.
- **6-3** Maintain existing vegetation communities unless otherwise indicated.
- **6-4** Establish short-term vegetation treatment at mounds.
- **6-5** Once oak savanna vegetation is established in the area,establish long-term vegetation treatment at mounds.
- **6-6** Maintain existing trails.*
- **6-7** Maintain existing South Unit Trail as a gravel two-track road.*
- **6-8** Consider establishing open views to the river from key points along the trails.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126321

0 150 300 600 Feet
1 inch = 300 feet

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RT-6

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 7 Recommended Treatment

Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Restore prairie / oak savanna vegetation
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation
- Maintain existing trail*
- Remove trail*

Task Number

- **7-1** Preserve mounds and archeological resources.
- **7-2** Restore prairie vegetation in the areas surrounding mound groups.
- **7-3** Maintain existing vegetation communities unless otherwise indicated.
- **7-4** Establish short-term vegetation treatment at mounds.
- **7-5** Once prairie vegetation is established in the area, establish long-term vegetation treatment at mounds.
- **7-6** Maintain existing trails.*
- **7-7** Remove portion of trail that is impacting mound 85.*
- **7-8** Maintain existing South Unit Trail.*
- **7-9** Following establishment of broad-scale vegetation treatment in LCA 7, maintain visual connection between mounds 69-83 and mounds 84-86. Maintain views by selectively pruning vegetation that blocks views, is not essential for erosion control, and does not impact culturally important trees.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126321

0 200 400 800 Feet
1 inch = 400 feet

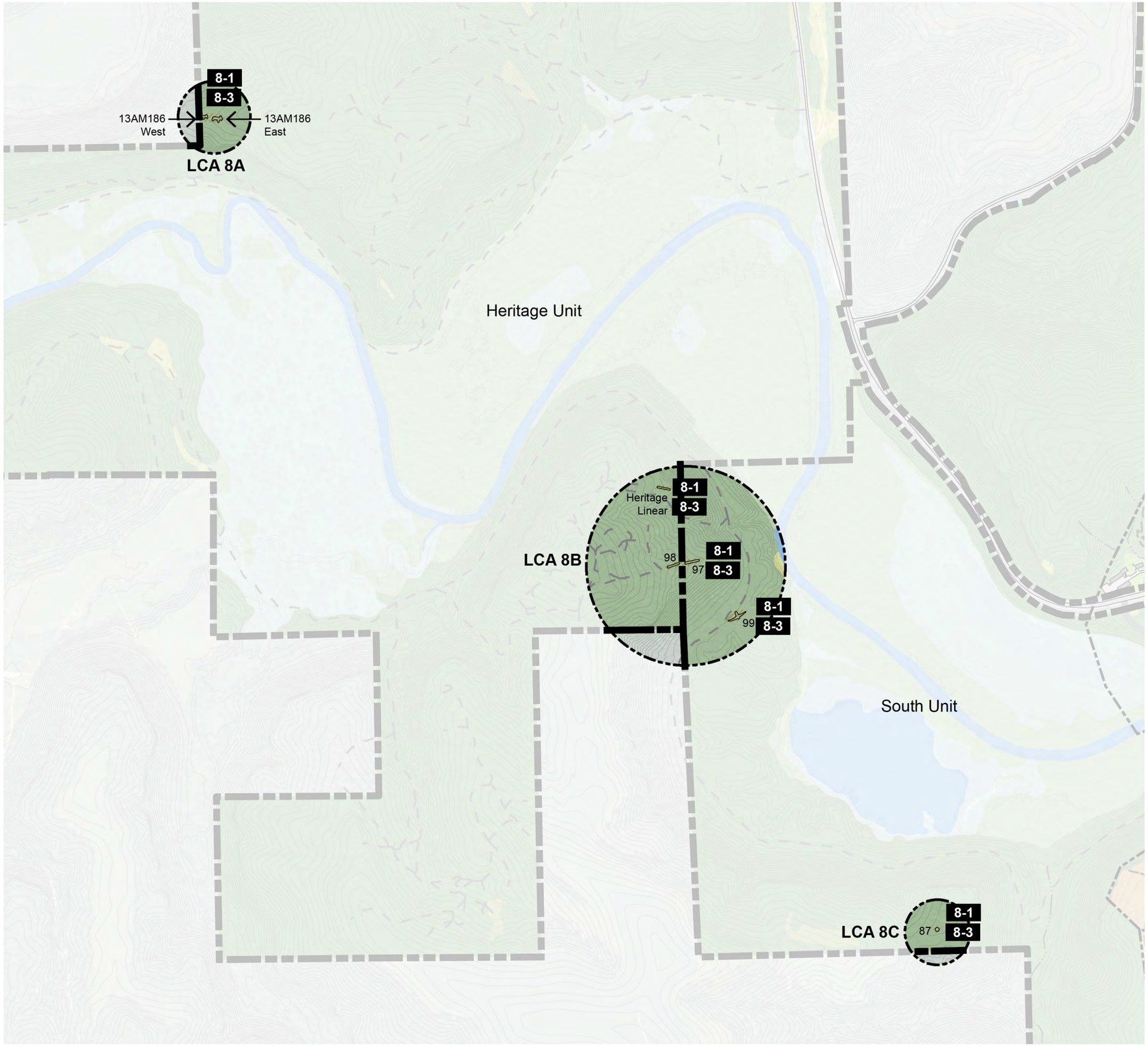
N

RT-7

EFFIGY MOUNDS NATIONAL MONUMENT

Cultural Landscape Report

Landscape Character Area 8 Recommended Treatment



Legend

- Monument boundary
- Landscape character area boundary
- Preserve mound
- Maintain prairie / oak savanna vegetation
- Maintain forest
- Establish recommended mound vegetation

Task Number

- **8-1** Preserve mounds and archeological resources.
- **8-2** Continue efforts to minimize invasive exotic vegetation in the Heritage Unit.
- **8-3** Establish mound vegetation treatment at mounds.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126321

0 400 800 1,600 Feet
1 inch = 800 feet

N

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Landscape Character Area 9
Recommended Treatment

Legend

- Monument boundary
- Landscape character area boundary
- GMP discovery zone boundary
- Preserve mound
- Maintain forest
- Maintain forested wetland
- Maintain nonforested wetland
- Establish recommended mound vegetation
- Maintain existing sign
- Relocate sign
- Maintain existing trail*

Task Number

- **9-1** Preserve mounds and archeological resources.
- **9-2** Maintain forest communities.
- **9-3** Establish mound vegetation treatment at mounds.
- **9-4** Maintain existing trails in the GMP backcountry zone as bare earth or mown grass trails.*
- **9-5** Maintain existing trails in the GMP discovery zone as wood chip, bare earth, or mown grass trails.*
- **9-6** Consider adding puncheon to improve wet areas along trail in the GMP discovery zone.*
- **9-7** Maintain existing signs.
- **9-8** Relocate signs impacting mounds.

*Maintain existing circulation routes in good condition until further direction is provided by a future comprehensive circulation planning process.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
126321

0 150 300 600 Feet
1 inch = 300 feet

N

RT-9

CHAPTER 5:
Implementation Plan

CHAPTER 5: IMPLEMENTATION PLAN

Introduction

This section provides guidance for implementing the treatment recommendations identified in Chapter 4. The implementation plan organizes the treatment recommendations into bundles of tasks to guide prioritization and preparation of Project Management Information System (PMIS) project statements.

The priorities of treatment phases outlined in this chapter reflect the prominence of the mounds as the primary resources in the Monument, and the importance of preserving them in an environment that is contextually appropriate. Also reflected is consideration for the feasibility of implementation. Three treatment phases provide broad guidance for prioritization of implementation. Within each phase, the tasks are presented in recommended order of implementation, but the order may be revised to relate to changes in needs and funding availability.

Phase 1: Immediate Treatment

Immediate treatment tasks are those that preserve significant resources or provide critical visitor services. These address maintenance and repair of existing features and removal of inappropriate features.

Phase 2: Short-term Treatment

Short-term treatment tasks are those that improve conditions and establish guidance for long-term treatment tasks.

Phase 3: Long-term Treatment

Long-term treatment tasks are those that require large commitments for funding and maintenance. Implementation of broad-scale plant community restorations fall into this category. The CLR recommended treatment provides a broad vision for the future of the Monument. It is not anticipated that extensive restoration of plant communities will be implemented in the short term. Tasks in this category may be implemented one at a time, over a long time span. As one area is established, lessons learned may result in re-evaluating the goals and making adjustments to the recommendations. This is acceptable as a part of the implementation process for this type of complex task.

For each implementation phase, a brief description of the treatment is followed by a list of tasks corresponding to those described more fully in Chapter 4. These are related to either the project area (**PA**) recommended treatments or landscape character (**LCA**) tasks.

Phase 1: Immediate Treatment

1. Preserve archeological features throughout the Monument. Implement treatment tasks:
   PA Archeological Features: tasks 1, 2
   PA Cultural Traditions: tasks 1, 3, 6, 7
   LCA tasks: 1-1, 2-1, 3-1, 4-1, 5-1, 6-1, 7-1, 8-1, and 9-1.

2. Establish an agreement with American Indian Nations regarding the desired condition of mounds and approach for preserving mounds and other archeological features. Implement treatment task:
   PA Archeological Features: task 3

3. Maintain existing features in good condition. Implement recommended treatment tasks:
   a. Preserve existing native plant communities:
      PA Vegetation: tasks 4 through 7
      LCA 8: 8-2
      LCA 9: 9-2
   b. Preserve, monitor and maintain existing trails, roads and associated features:
      PA Circulation: tasks 2, 3, 4, 6 and 7
      LCA 1: tasks 1-6, 1-10
      LCA 2: tasks 2-7, 2-13
      LCA 3: tasks 3-5, 3-7
      LCA 4: tasks 4-8, 4-9, 4-10, 4-11, 4-12
      LCA 5: task 5-6
      LCA 6: tasks 6-6, 6-7
      LCA 7: tasks 7-6, 7-8
      LCA 9: task 9-4, 9-5
   c. Maintain views:
      LCA 1: task 1-8
      LCA 2: task 2-12
      LCA 3: task 3-13
      LCA 5: task 5-12
   d. Maintain, repair, relocate, or remove small scale features:
      PA Small Scale Features: tasks 1, 2, 4, 5, 6 and 7
      LCA 1: task 1-11
      LCA 2: task 2-15
      LCA 3: task 3-14
      LCA 4: task 4-13
      LCA 5: task 5-13
      LCA 9: tasks 9-7

4. Repair existing trails, erosion, and small scale features to remain that are in poor condition.
   LCA 1: tasks 1-7, 1-9, 1-12
   LCA 2: tasks 2-9, 2-16
   LCA 3: tasks 3-15, 3-16
   LCA 4: task 4-14
   LCA 5: task 5-14

5. Relocate or remove fences or guardrails that impact mounds.
   PA Small Scale Features: task 3

6. Remove or replace signs that are impacting mounds or in poor condition.
   LCA 3: task 3-17, 3-18
   LCA 9: task 9-8

7. Provide information to visitors to encourage respectful use and behavior and discourage inappropriate use of the Monument landscape.
   PA Archeological Features: task 5
   PA Cultural Traditions: task 8

Phase 2: Short-Term Treatment

8. Re-route or remove trails that impact mounds.
   PA Circulation: task 5
   PA Cultural Traditions: task 4
   LCA 2: task 2-8
   LCA 3: tasks 3-6, 3-9, 3-10, 3-11, 3-12
   LCA 5: task 5-7
   LCA 7: 7-7

9. Remove portion of maintenance access road in LCA 3.
   PA Circulation: task 8
   LCA 3: task 3-8

10. Stabilize the South Unit Trail between Highway 76 and the top of the bluff.
    PA Circulation: task 5
    LCA 5: task 5-8

11. Consider adding puncheon in wet areas along the trail in LCA 9.
    LCA 9: task 9-6

12. Develop an approach to accommodate American Indian traditional cultural practices at the Monument.
    PA Cultural Traditions: task 5

13. Develop a protocol to accommodate American Indian plant gathering.
    PA Cultural Traditions: tasks 2, 5

14. Develop a comprehensive Vegetation Management Plan to guide conservation and restoration of vegetation communities in the Monument.
    PA Vegetation: task 1

15. Undertake a comprehensive planning project to address circulation and access within the Monument.
    PA Circulation: task 1

16. Establish recommended short-term mound vegetation treatment types at mound groups in the North Unit (LCA 1-4).
    PA Archeological Features: tasks 4, 6
    PA Vegetation: task 9
    LCA 1: task 1-4
    LCA 2: tasks 2-4, 2-5
    LCA 3: task 3-4
    LCA 4: tasks 4-6

17. Establish recommended short-term mound vegetation treatment types in South Unit (LCA 4-7).
    PA Vegetation: task 9
    LCA 5: task 5-4
    LCA 6: task 6-4
    LCA 7: task 7-4

18. Establish recommended mound vegetation treatment type in Sny Magill Unit (LCA 9).
    PA Vegetation: task 9
    LCA 9: task 9-3

19. Establish recommended mound vegetation treatment type in LCA 8 (Heritage Unit).
    PA Vegetation: task 9
    LCA 8: task 8-3

20. Add a new trail connecting the Yellow River Bridge Trail to the Founder's Pond Overlook as indicated by the GMP.
    LCA 5: task 5-9

21. Consider creating a barrier-free connection to the viewing platform overlooking mounds 55-57.
    LCA 4: task 4-7

22. Consider restoring specific plant species within the Monument that are culturally significant to Partner Tribes.
    PA Vegetation: task 8

Phase 3: Long-Term Treatment

23. Restore native plant communities and establish long-term mound vegetation treatment in LCA 3.
    PA Vegetation: tasks 2, 3
    LCA 3: tasks 3-2, 3-3, 3-4

24. Restore native plant communities and establish long-term mound vegetation treatment in LCA 4.
    PA Vegetation: tasks 2, 3
    LCA 4: tasks 4-2, 4-3, 4-4, 4-5, 4-6

25. Restore native plant communities and establish long-term mound vegetation treatment in LCA 2.
    PA Vegetation: tasks 2, 3
    LCA 2: tasks 2-2, 2-3, 2-6

26. Establish trails to access mounds 15, 16, and 17.
    LCA 2: tasks 2-10, 2-11

27. Restore native plant communities and establish long-term mound vegetation treatment in LCA 1.
    PA Vegetation: tasks 2, 3
    LCA 1: tasks 1-2, 1-3, 1-5

28. If the comprehensive circulation plan concurs, work with local landowner to establish a NPS-only maintenance route to provide access to LCA 7 and consider abandoning use of the South Unit Trail for vehicular/maintenance access. If the road is abandoned, repair areas of erosion and restore the landscape.
    LCA 5: tasks 5-10, 5-11

29. Restore native plant communities and establish long-term mound vegetation treatment in LCA 7.
    PA Vegetation: tasks 2, 3
    LCA 7: tasks 7-2, 7-3, 7-5

30. Maintain views between mound groups in LCA 7.
    LCA 7: task 7-9

31. Restore native plant communities and establish long-term mound vegetation treatment in LCA 6.
    PA Vegetation: tasks 2, 3
    LCA 6: tasks 6-2, 6-3, 6-5

32. Consider establishing open views to the river from key points along the trail in LCA 6.
    LCA 6: task 6-8

33. Restore native plant communities and establish long-term mound vegetation treatment in LCA 5.
    PA Vegetation: tasks 2, 3
    LCA 5: tasks 5-2, 5-3, 5-5

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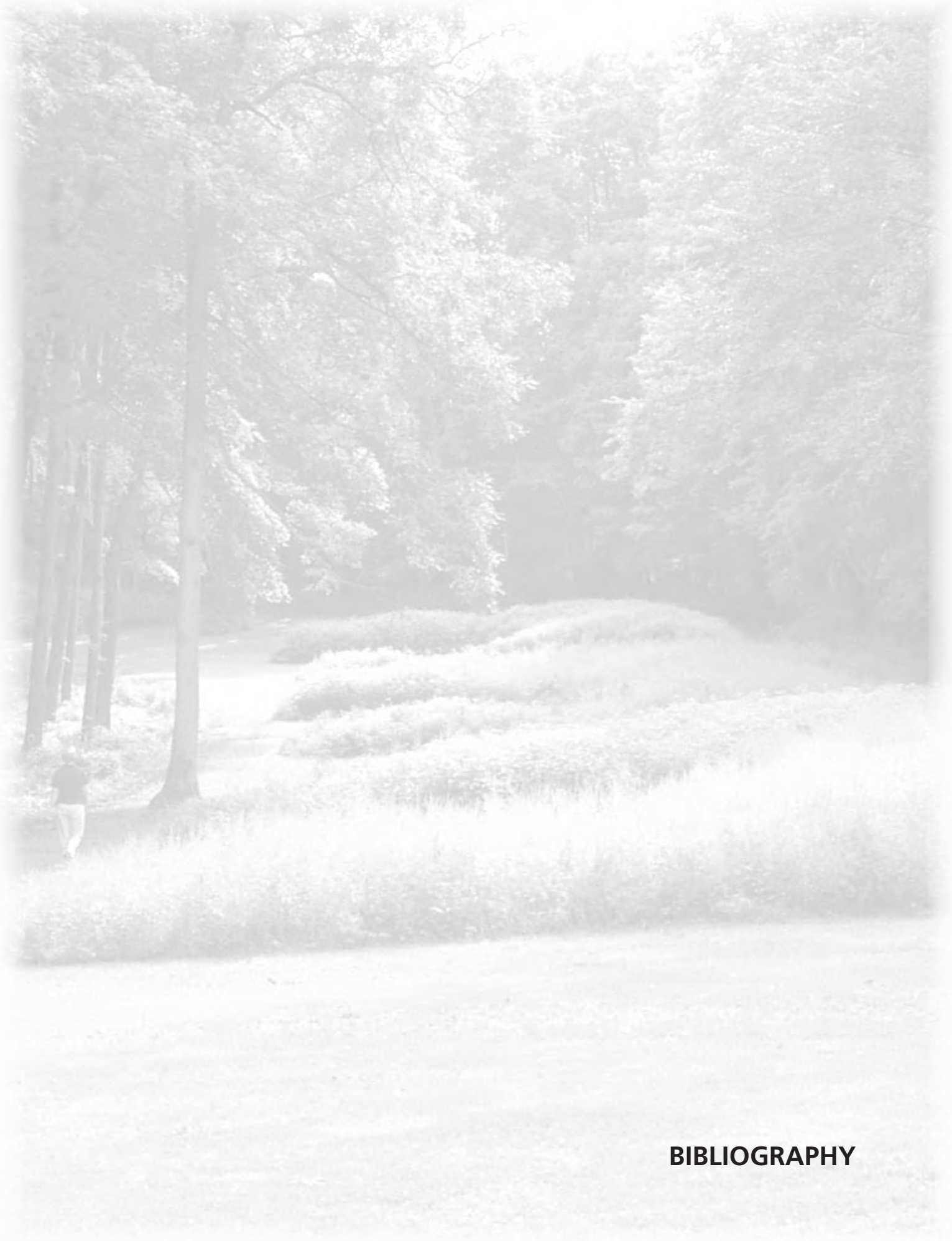

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APPENDIX A:
Treatment Alternatives

APPENDIX A: TREATMENT ALTERNATIVES

This Appendix presents treatment alternatives for the repair, protection and stewardship of the cultural landscape at Effigy Mounds National Monument.

These treatment alternatives were developed during the alternatives workshop in April 2015, and refined through a series of conference call discussions with the park and Midwest Regional Office staff. A no action alternative and two action alternatives were developed for the park.

This chapter describes the alternatives evaluated for the study area, beginning with the no action alternative, followed by the two action alternatives. The preferred alternative is presented in Chapter 4 - with detailed treatment recommendations.

Both of the action alternatives address the protection of resources and improvements to visitor experience.

The *No Action Alternative* provides a basis for comparison with the action alternatives. Under the no action alternative, the present level of use, management, interpretation, maintenance and operations would continue.

Action Alternative A– Preserving Mounds would focus on preserving mounds and other archeological features, and providing a visitor experience in sync with mound preservation and American Indian culture. Vegetation management would be the primary technique in protecting and delineating mounds, and the relationships between mounds and the surrounding topography. Extant below- and above- grade archeological features would be preserved and maintained.

Action Alternative B – Rehabilitating Landscape Context would focus on preserving mounds and other extant above- and below- grade archeological features, restoring prairie vegetation, and providing a broad landscape context appropriate for interpretation of the construction and meaning of the mounds through American Indian and archeological perspectives. This alternative would restore large areas of prairie vegetation in selected areas to represent landscape conditions during the period of mound construction.

Development of the action alternatives adheres to the management zones indicated in the General Management Plan, Alternative B: Preferred Alternative.

1. Backcountry Zone
    a. Emphasize protection of resources in a natural setting
    b. Minimal development
    c. Visitor experience is quiet and solitude
    d. Maintenance primarily to further resource preservation while accommodating visitors as appropriate, including cultural use by American Indian Nations.

2. Discovery Zone
    a. Enhance visitor access and understanding of the mounds while maintaining a natural setting
    b. Some development to enhance understanding (interpretive waysides and signs, ranger activities, visitors likely to see others in this zone)
    c. Maintenance primarily to enhance visitor experience and preserve resources
3. Development Zone
    a. Emphasize providing facilities and amenities necessary for visitor services and operations
    b. Consultation with tribes high priority prior to any development
    c. Maintenance of resources and facilities in support of visitor experience, safety and operations.

Selection of a treatment approach for a historic site provides a fundamental structure upon which future management decisions may be made. The United States Secretary of the Interior recognizes four types of treatment approaches that may be appropriate for historic landscapes. These include:

Preservation
With a preservation approach, protection, maintenance, and repair are emphasized while replacement is minimized. This approach focuses upon stabilizing and protecting extant historic resources, rather than replacing missing elements.

Restoration
Restoration is the process of depicting the form, features, and character of a property as it appeared at a particular period in time. Elements that relate to earlier or later periods are removed in order to clearly represent one time period. A high level of documentation is necessary to ensure that the site accurately represents the historic period.

Rehabilitation
Rehabilitation allows repairs, alterations, and additions necessary to enable a compatible use, as long as the portions or features which convey the historical, cultural, or architectural values are preserved.

Reconstruction
Reconstruction is the act of using new construction to depict a non-surviving site, landscape, building, structure, or object as it appeared at a specific period of time in its historic location. This approach is used only in cases where the highest level of significance applies and detailed documentation exists regarding the historic conditions of the property.

Selection of a recommended treatment approach considers the condition, proposed use, historical significance and integrity of a property. Preservation and rehabilitation have both been identified as appropriate treatment approaches for the landscape at Effigy Mounds National Monument. The two action alternatives described herein each address one of these approaches.

No Action Alternative – Existing Treatment

The No Action Alternative provides a basis for comparison with the action alternatives. Under the no action alternative, the present level of use, management, interpretation, maintenance and operations would continue.

Current vegetation treatment on mounds varies based on funding, location, and condition. Within the North and South Units and Sny Magill Unit, vegetation treatment at mounds includes regular trimming of the existing vegetation on and within a buffer surrounding mounds during the growing season. Mounds within the Heritage Unit are not actively maintained except for treatment of invasive plant species. Prescribed burns are utilized in the North and South Units of the Monument to maintain, expand, and improve the condition of restored prairie areas; however, no burning is currently allowed on mounds throughout the Monument except spot treatment to burn seed heads from invasive exotic plant species. Herbicide treatment is also used to control invasive species on mounds.

The current management of the Monument landscape is guided by a “preservation” approach that retains the existing form, features, and materials in the landscape.

Existing trails and overlooks (including views) would be preserved, including those that impact mounds or other significant resources. Existing administrative and visitor facilities would remain in their current locations. An agreement for use of the landscape by American Indian tribes for cultural activities would be implemented. Interpretive programs would educate visitors about the significance of the landscape and the sacred nature of the landscape to American Indian Nations. Existing signs would remain.

To provide pedestrian access to LCA 5 as indicated in the GMP, a trail would be added from the existing Yellow River Bridge Trail to the top of the bluff.

Treatments Common to Both Action Alternatives

Treatment recommendations that are common to both of the action alternatives are summarized in this section and are not repeated in the action alternatives descriptions.

General Recommendations

1. All applicable federal standards and guidelines would be followed. Examples include Section 106 of the *National Historic Preservation Act*, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* and *National Park Service Director's Orders 28: Cultural Resources Management Guidelines*.
2. A Memorandum of Agreement (MOA), Programmatic Agreement (PA), or other formal agreement would be developed and implemented to ensure involvement of American Indian Nations and Tribes in the process of making decisions regarding the management of the Monument.

Archeological Features

All extant above- and below- grade archeological features would be preserved.

1. Best management practices for protection of archeological features provided in this report would be implemented, reviewed and updated on a regular basis to keep up with new technologies and changing conditions.
2. Excavation of any type within Effigy Mounds NM would occur only with consultation with American Indian Nations and Tribes and the Midwest Archeological Center (MWAC).
3. River banks of the Mississippi and Yellow rivers would be monitored and areas of erosion that threaten archeological resources would be stabilized. Stabilization methods would be determined through consultation with American Indian Nations and Tribes and MWAC.
4. Additional radiocarbon dating, pollen and phytolith analysis, soil micromorphological analysis, etc., would be undertaken to reveal historic vegetation patterns.

Circulation

Most existing pedestrian and vehicular routes would be maintained. In locations where existing routes are impacting archeological features, alignments would be revised. Repairs would be made where existing routes are in poor condition.

Vegetation

Vegetation management techniques would be used to protect and reveal archeological features.

1. Vegetation on archeological features would be low herbaceous species, periodically trimmed. Tall grasses and herbaceous vegetation create habitat for destructive burrowing animals and make it difficult to monitor the landscape for the presence of animals.
2. All machinery used for landscape management would be tested and evaluated to ensure that maintenances practices do not harm archeological features.
3. Use of the Monument landscape as a protected collection of seeds and plants identified as culturally important by American Indian Nations would be considered. The plants or other materials protected here could be used as starters for other locations where they have been lost.

Small Scale Features

1. Remove unnecessary or inappropriate signs, and other features that are not compatible with the historic character of the landscape.

Cultural Traditions

1. Accommodate cultural use by American Indians to a high degree through the establishment of an agreement or other formal arrangement.

Action Alternative A: Preserving Mounds

Preserving Mounds would focus on preserving mounds and other archeological features, and providing a visitor experience in sync with mound preservation and American Indian cultural values. Vegetation management would be the primary technique used to protect and delineate mounds, and the relationships between mounds and the surrounding topography. Extant below- and above- grade archeological features would be preserved and maintained.

Under Alternative A: Preserving Mounds, future management of the landscape would be guided by a "preservation" approach to retain the existing form, features and materials in the landscape.

Best management practices for protecting mounds would be developed and implemented. Vegetation within the broader landscape would be managed to maintain existing plant communities and encourage their healthy growth and development. This would include controlling invasive exotic species, but would not include broad scale restoration of plant communities that are not currently present.

Existing trails and overlooks (including views) would be preserved, with the exception of those that impact mounds or other significant resources. Those would be revised or removed and impacted areas would be repaired and stabilized. Existing administrative and visitor facilities would remain in their current locations. An agreement for use of the landscape by American Indian Nations and Tribes for cultural activities would be implemented. Interpretive programs would educate visitors about the significance of the landscape and the sacred nature of the landscape to American Indian Nations. Unnecessary or inappropriate signs, and other small scale features would be removed.

To provide pedestrian access to LCA 5 as indicated in the GMP, a trail would be added from the existing Yellow River Bridge Trail to the top of the bluff.

Next page: ALT A: Treatment Alternative A

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Treatment Alternative A
Preserving Mounds

Sny Magill Unit

The Sny Magill Unit is located 10.5 miles south of the visitor center.

Sny Magill Landing Road and Parking Area

Legend

- Monument Boundary
- LCA 1 — Landscape Character Area
- Mound
- Existing Building
- Existing Public Road
- Closed Road
- Maintain Existing Park Road / Maintenance Access
- Maintain Existing Trail
- Remove Existing Trail or Park Road / Maintenance Access
- New Trail
- Railroad
- 20 ft contours (2 ft contours in Sny Magill)
- Preserve Mounds and Archeological Resources
- Maintain Prairie / Oak Savanna Vegetation
- Maintain Forest
- Maintain Lawn
- River, Pond, or Wetland
- Maintain Overlook
- Relocate Overlook
- Small Parking Area for Maintenance Vehicles and Barrier-free Parking.

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.

QUINN EVANS ARCHITECTS

NPS #: EFMO 394
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1 inch = 300 feet

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ALT A

Action Alternative B: Rehabilitating Landscape Context

Action Alternative B, Rehabilitating Landscape Context would focus on preserving mounds and other extant above- and below- grade archeological features, providing a broad landscape context appropriate for interpretation of the mounds from both American Indian and archeological perspectives, and education about American Indian traditions and practices. This alternative would involve ecological restoration of large areas of prairie and oak savanna in selected areas to represent landscape conditions during the era of mound construction.

Future management of the Monument would be guided by a "rehabilitation" approach with an emphasis on preservation of mounds and other archeological resources, restoration of native plant communities, and education of visitors to enhance understanding of the mounds as part of American Indian culture (past and present). The Monument would seek to provide opportunities for visitors to learn about American Indian culture related to the landscape, through the perspective of American Indian Nations. Management of the landscape would seek to provide an environment and/or opportunities for American Indian youth to spend time in the landscape according to tribal protocols.

Best management practices for protecting mounds would be developed and implemented. The Monument landscape would be used as an example to educate people about appropriate treatment of mounds and other culturally significant features in the landscape. In the long run, it is anticipated that this would help to improve treatment of mounds and other culturally significant features on private property.

Vegetation within the broad landscape of the Monument would be managed to preserve native plant community remnants and restore selected areas to reflect prairie or oak savanna present during the period when the mounds were constructed.[1] This would enhance educational and interpretive opportunities for American Indians and all visitors. Based on guidance from American Indian tribes, specific plants with cultural uses would be used by tribes. In other locations existing plant communities would be maintained and their healthy growth and development would be supported through appropriate management practices.

Areas to be restored to prairie or oak savanna would be determined based on comprehensive ecological restoration management planning. General recommendations for prairie and savanna locations are illustrated on drawing ALT B. Areas within LCA 1-7 on upland bluffs and south and west facing slopes would be recommended for prairie or oak savanna restoration, except in cases where erosion control or other limiting factors are present. Although the prairie/oak savanna would have extended well beyond the landscape character areas, the restoration treatment focuses mainly on the LCAs, to support visitor experience while setting achievable goals.

[1] Chapters 2 and 3 provide explanations of documentation used to determine the presence of these communities during the era of mound construction. Sarah McGuire Bogen and Sarah C. Hotchkiss, *Paleo-Environmental Investigations of a Cultural Landscape at Effigy Mounds National Monument*, National Park Service Great Lakes Northern Forest Cooperative, Ecosystem Study Unit Cost Sharing Grant 144-ND24, ii.

Vegetation would also be used to protect and make visible the mounds. Groundcover selection would be based on consideration of coverage and erosion control, mowing requirements, native species and biodiversity, mound visibility, and public perception.

Existing trails and overlooks (including views) would be preserved in most locations. Alterations would reflect guidance from American Indian Nations regarding appropriate protocols and approaches to preservation and interpretation. Existing administrative and visitor facilities would remain in their current locations. An agreement for use of the landscape by American Indian Nations for cultural activities would be implemented. Interpretive programs would educate visitors about the significance of the landscape, ways to care for culturally significant sites, and American Indian culture (traditional and current). NPS would strive to have selected topics presented strictly from a tribal perspective.

To provide pedestrian access to LCA 5 as indicated in the GMP, a trail would be added from the existing Yellow River Bridge Trail to the top of the bluff.

Next page: ALT B: Treatment Alternative B

EFFIGY MOUNDS NATIONAL MONUMENT
Cultural Landscape Report

Treatment Alternative B
Rehabilitate Landscape Context

Sny Magill Unit

The Sny Magill Unit is located 10.5 miles south of the visitor center.

Sny Magill Landing Road and Parking Area

Legend

- Monument Boundary
- LCA 1 — Landscape Character Area
- Mound
- Existing Building
- Existing Public Road
- Closed Road
- Maintain Existing Park Road / Maintenance Access
- Maintain Existing Trail
- Remove Existing Trail or Park Road / Maintenance Access
- New Trail
- Railroad
- 20 ft contours (2 ft contours in Sny Magill)
- Preserve Mounds and Archeological Resources
- Maintain Prairie / Oak Savanna Vegetation
- Restore Prairie / Oak Savanna Vegetation
- Maintain Forest
- River, Pond, or Wetland
- Maintain Lawn
- Maintain Overlook
- Relocate Overlook

Sources

1. Aerial Imagery: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGF, swisstopo, and the GIS user Community.

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1 inch = 300 feet

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ALT B

Alternatives Dismissed from Further Consideration

Consideration of the conceptual alternatives has determined that two of the alternatives (Alternatives C and D) are not consistent with NPS planning policies and conflict with the General Management Plan prepared for the Monument. Therefore, these two have been dismissed from further evaluation in the environmental assessment. The report will include descriptions of these alternatives and an explanation of why they were dismissed from further consideration.

Sacred Exclusion

Future management of the landscape would be guided by the concept of the location as a sacred landscape where it is not appropriate for people to come for entertainment. A protocol focused on respect and protection of the sacred land would be applied and the National Monument would not be open to visitors. Human hands would not intervene in the protection of mounds and archeological features. These sacred features would be the purview of natural forces. Features related to visitor use would be removed or allowed to naturally degrade until they are no longer present. Efforts to educate people about the sacred nature of the landscape would occur in an alternate location. In the event that tribal elders indicate that use of the sacred landscape should occur, this would be allowed.

The Monument was established by Presidential Proclamation 2860 on October 25, 1949 because "… 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." [2]

Implementation of the Sacred Exclusion alternative would result in a gradual deterioration of the mounds and other archeological resources. Therefore, it does not adhere to any of the four Secretary of the Interior's Approaches for the Treatment of Historic Properties, and is not an appropriate approach for treatment of the historic landscape at Effigy Mounds National Monument.

[2] *Effigy Mounds National Monument Foundation Document* (U.S. Department of the Interior, National Park Service, 2014), 14.

Removal of Impacts at the Visitor Center Area

Studies conducted by the Midwest Archeological Center have identified remnants of at least 30-40 mounds in the Nazekaw Terrace area in LCA 4. Agricultural plowing and construction of the Monument parking lot, visitor center, and residences disturbed these resources. Below-grade archeological resources remain under the parking lot.[3]

The "Removal of Impacts at the Visitor Center Area" alternative would be guided by a "rehabilitation" approach with an emphasis on removal of impacts in the current visitor center area, and improved visitor access and understanding of American Indian culture (past and present). The visitor center and maintenance facilities would be removed from their current location and the Nazekaw Terrace would be repaired to preserve archeological resources. Interpretative information would explain that the area formerly included a dense collection of mounds, and below-grade remnants remain. New facilities, including a visitor center, administrative offices, and maintenance complex, would be established along Smokey Hollow Road in the Monument's North Unit. A trail from the new visitor center would provide easy access to mounds located in LCA 2 and 3.

This alternative was dismissed from further consideration because it would involve a major financial investment requiring new construction within the Monument boundary that could disturb previously unknown significant resources. The 2012 General Management Plan (GMP) for the Monument does not identify a developed zone along Smokey Hollow Road; therefore, this alternative is not compatible with the GMP recommendations.

[3] Midwest Archeological Center, "Known, probable, and possible mound locations in developed area," map (U.S. Department of the Interior, National Park Service, Midwest Archeological Center, June 2012).

Mitigation Measures

Effigy Mounds National Monument staff and contracted workers would strive to maximize sustainable designs and systems to minimize potential adverse environmental effects. The following mitigation measures have been developed to minimize the degree and/or severity of adverse effects, and would be applied, prior and during implementation of the Preferred Alternative, as needed.

Cultural Resources

Proposed projects that would affect historic features of the cultural landscape (vegetation, landscape features, etc.) must comply with the requirements of The Secretary of Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes, the Cultural Resource Management Guideline, and this CLR.

Implement Section 106 of NHPA and conduct site/project specific assessments prior to ground disturbance associated with action implementation. Assessments should be conducted by an archeologist with detailed knowledge of the EMNM resources and thorough understanding of the findings and recommendations of this CLR. If NRHP-eligible resources are identified, project redesign or other appropriate mitigation measures would be determined through consultation with all appropriate parties.

The maintenance of trails, waysides and other small landscape features would avoid impacts to mounds, emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings.

Any contractors and subcontractors, utilized for maintenance or construction projects would be instructed on procedures to follow in case previously unknown archeological resources are uncovered during work.

If previously unknown and significant archeological resources are discovered during work, work would be stopped in the area of discovery and the NPS would consult with all appropriate parties. If impacts to significant resources could not be avoided by redesign, mitigating measures would be developed in consultation with all appropriate parties. If appropriate, provisions of the Native American Graves Protection and Repatriation Act of 1990 would be implemented.

The NPS would ensure that any contractors and subcontractors utilized for construction are informed of the penalties for illegally collecting artifacts or intentionally damaging archaeological sites, or historic properties.

Visitor Experience

To minimize the amount of ground disturbance, staging and stockpiling areas would be located in previously disturbed sites, away from visitor use areas and circulation to the extent possible. All staging and stockpiling areas would be returned to pre-action conditions following construction.

To minimize the potential impact to park visitors, variation on project implementation timing may be considered, such as conducting a majority of the work in shoulder seasons.

Temporary signage would be placed at approach points of implementation zones to alert visitors of mechanical treatments. No implementation activities would be permitted outside these limits.

All protection measures would be clearly stated in work plans/specifications and workers would be instructed to avoid conducting activities beyond the work zone.

Wildlife

To reduce noise disturbance and limit impacts on breeding avian and mammalian species, tree removal would be conducted from October 1 to March 1, whenever possible. If trees need to be removed outside of this time frame, they would be identified for removal and evaluated for nesting or roosting use.

Alternatives Comparison

Table A-1 shows the elements of each alternative and provides a comparison among alternatives.

Table A-1
Alternatives Comparison

Impact Topic	No Action Alternative	Treatments Common to Both Alternatives	Alternative A: Preserving Mounds	Alternative B: Rehabilitating Landscape Context
Visitor Experience	Visitors to the Monument can have a short or long experience at the and still have a basic understanding of the significance of the landscape and enjoy the natural setting of the Mississippi River valley. However, Visitors would not benefit from improved experiences associated with trails, mounds, overlooks, and the natural environment that would be implemented through either of the action alternatives. Under the no action alternative, there would be adverse, direct, long term effects to visitor experience at the Monument.	This alternative would slightly alter the visitor experience of the Monument, but will not be a drastic change from current experiences. Therefore, implementation of treatments common to both action alternatives would still result in a beneficial, direct short and long-term effect to visitor experience.	The implementation of Action Alternative A, Preserving Mounds, will enhance the visitor experience by allowing visitors better access within the Monument. Vegetation management actions for mounds may improve visitor's interpretation of the Monument landscape. Visitor contact with Monument staff would continue to primarily be conducted at the visitor center and on Ranger-led hikes. Therefore, implementation of this alternative will present a direct, beneficial, and long term effect to the visitor experience.	This alternative will change the visitor experience by enhancing interpretation of the resources and increasing visitor access to areas of the Monument. Therefore, the implementation of Action Alternative B, Rehabilitating Landscape Context, will present a direct, long term, beneficial effect on the visitor experience.

Monument Operations	There would be no notable increase from the present level of operations under the No Action Alternative. However, if funding were increased additional staff could accomplish more work throughout the year.	This alternative will alter the maintenance and interpretation of the Monument, but will not be a drastic change from current operations. Therefore, the implementation of treatments common to both action alternatives will not present an adverse effect to Monument operations.	This alternative will alter the maintenance and interpretation of the Monument, but will not be a drastic change from current operations. Therefore, the implementation of Action Alternative A, Preserving Mounds, will not present an adverse, direct, or indirect effect to Monument operations.	This alternative will alter the maintenance and interpretation of the Monument and would require additional staff and/or volunteers to accommodate additional workload. Therefore, the implementation of Action Alternative 2, Rehabilitating Landscape Context, will present an adverse, direct, and short to long term effect to Monument operations.
Wildlife	Under the no action alternative, there would be no significant change to the Monument landscape and wildlife habitat and current management practices of those habitats would continue. Therefore, there would be beneficial direct short to long-term effects to wildlife.	Under the treatments common to both action alternatives there would be direct, adverse impacts from the removal of trees, but this negative effect would be short term. Large areas of woodland within the Monument would remain available for fauna to inhabit providing long-term, beneficial impacts.	Under the Action Alternative A, Preserving Mounds, direct, adverse, and short-term effects to wildlife will occur. However, there is a large quantity of natural forest and wetlands elsewhere in the Monument providing wildlife habitat that would result in long-term, beneficial impacts.	Under the Action Alternative B, Rehabilitating Landscape Context, direct, adverse, and short-term effects to wildlife will occur. However, there is a large quantity of natural forest and wetlands elsewhere in the Monument that provide wildlife habitat. Long-term, beneficial impacts to biodiversity and ability to adapt to climate change would result from the establishment of prairie/ savanna.
Special Status Species	Under the no action alternative, current management of habitats would continue.	Under the treatments common to both action alternatives, there would be a direct, beneficial, long	Under the Action Alternative A, Preserving Mounds, it is unknown if there will be an affect to Special Status	Under the Action Alternative B, Rehabilitating Landscape Context, it is unknown if there will be an affect to

	Therefore, there would be no adverse or beneficial direct or indirect effects to Special Status Species. Ongoing operations and maintenance would likely result in status quo for state-listed Special Status Species.	term effect to Special Status Species through the implementation of the vegetation management techniques. Impacts from the removal of trees would be determined through a presence/absence survey and mitigation measures can be developed with the regulatory agencies.	Species. Therefore, impacts from the mound preservation measures and minor trail and overlook development would be determined through a presence/absence survey and if mitigation measures are necessary they can be developed with regulatory agencies.	Special Status Species. Therefore, impacts from the landscape rehabilitation and trail/overlook development would be determined through a presence/absence survey and if mitigation measures are necessary they can be developed with regulatory agencies.
Soils	Under the No Action Alternative, ongoing routine maintenance operations would continue, but no new construction associated with the CLR would occur. Soils on mounds with woody vegetation in the Heritage Unit and other backcountry zones may be vulnerable to direct, adverse impacts from tree falls. Funding for maintenance operations and access limits the amount of mound maintenance in the Heritage Unit, which could lead to further damage of the resource.	Under the treatments common to both action alternatives, impacts to soil will be limited because tree stumps will remain in place and a 150-foot no build buffer will be implemented around the mounds. Therefore, this alternative will have a direct, beneficial, and long-term effect on soils.	Under the Action Alternative A, Preserving Mounds, direct, adverse, and short-term effects to soils will occur from minor vegetation removal and trail and overlook realignment. The direct, adverse long-term impacts of the trail realignment would be limited to the minimal sections of trail corridor and length affected. Overlook relocation would result in direct, adverse, long-term impacts to soils. However, re-stabilization of the ground surface for the former trails and overlooks will minimize long-term effects on soils.	Under the Action Alternative B, Rehabilitating Landscape Context, direct, adverse, and short-term effects to soils will occur primarily from re-vegetation operations, trail realignment, overlook relocation and construction of a small parking area along the existing maintenance road in LCA 2. However, re-stabilization of the ground surface will result long-term, beneficial effects on soils in areas of revegetation.

Ethnographic Resources	The no action alternative would not accommodate American Indian tribes' cultural traditions or provide a formal agreement that would create a stronger participation in the decision making processes, which would have a long-term, direct, adverse effect on these resources.	With the enhanced use, management, and coordination between the Monument and American Indian tribes, the implementation of the treatments common to both action alternatives will present a direct, long term, beneficial effect to ethnographic resources.	With the enhanced traditional cultural use and improved coordination between the Monument and American Indian tribes, the implementation of action alternative A, Preserving Mounds will present a direct, long term, beneficial effect to ethnographic resources.	Action Alternative B, Rehabilitating Landscape Context, would provide greater levels of landscape use for cultural traditions; provide opportunities for American Indian youth to experience the landscape and cultural traditional practices and tribal customs. Therefore, this alternative will result in long-term, beneficial, and direct effects to ethnographic resources.
Cultural Resources	Effigy Mounds National Monument staff maintains cultural resources in accordance with federal regulations, standards and NPS policies and guidance. However, if the no action alternative were implemented, the guidance for cultural resource management and interpretation would not be implemented. This alternative, when compared to the treatments common to both action alternatives, Action Alternative A and Action Alternative B	As noted in the no action alternative, Monument staff follows federal cultural resources regulations and guidelines for their management activities, and there would be no change for any action alternative, which results in direct, long-term beneficial impacts. Implementation of an agreement between the Monument/NPS and associated tribes would be an important element of future management of the Monument that would be direct, long-term and beneficial. Archeological resources would receive additional	With action alternative A, Preserving Mounds, there will be direct, beneficial, and long-term effects to cultural resources because vegetation management will occur and minor trail and overlook development will be undertaken, all with the goal of protecting cultural resources. **Section 106** The potential effects of Action Alternative A, Preserving Mounds, have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the	Mounds would be rehabilitated, the historic landscape would be restored, and trails and overlook locations would be modified in consultation with American Indian tribes. The changed landscape context and physical improvements (e.g.; trails, overlooks) would serve to protect the resource while balancing the needs of visitors. Therefore, Action Alternative B, Rehabilitating Landscape Context, there would be direct, long term, beneficial effects on cultural resources.

	would present an adverse, direct, indirect and long-term effect to cultural resources at the Monument.	direct and long-term beneficial impacts through minimizing the potential for tree root impacts to mounds. This alternative presents a direct, long-term, and beneficial effect to cultural resources. **Section 106** The potential effects of treatments common to both action alternatives have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the National Park Service concludes that implementation of treatments common to both action alternatives would result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.	National Park Service concludes that implementation of Action Alternative A, Preserving Mounds, would result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.	**Section 106** The potential effects of Action Alternative B-Rehabilitating Landscape Context have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the National Park Service concludes that implementation of Action Alternative B, Rehabilitating Landscape Context, would result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.

Environmentally Preferable Alternative

The environmentally preferable alternative is the alternative required by 40 CFR 1505.2(b), to be identified in the record of decision, that causes the least damage to the biological and physical environment and best protects, preserves, and enhances historic, cultural, and natural resources. The "Environmentally Preferable Alternative" is identified upon consideration and weighing by the Responsible Official of long-term

environmental impacts against short-term impacts in evaluating what is the best protection of these resources (43 CFR 46.30).

Alternative B: Rehabilitating Landscape Context has been identified as the Environmentally Preferable Alternative, because this alternative would provide the best balance between the preservation of cultural resources, overall landscape and vegetation management, the desires of the visitors to experience quiet, solitude and accommodate cultural traditions of associated tribes at this significant landscape. This alternative would result in a greater extent of landscape modifications; however the proposed modifications to the landscape, including limited trail realignment and overlook relocation would mitigate existing adverse impacts to cultural resources. Alterations to trail corridors would not have adverse impacts to visitor experience and viewsheds of the Mississippi River valley would be retained, albeit in a different location. Landscape modifications include re-vegetation of areas that would reflect the prairie/savannah landscape from the period of significance associated with mound building. Landscape management would likely have some short-term effects to wildlife; however the overall biodiversity of the Monument and surrounding region may be enhanced with a wider variety of plant communities. These re-vegetation efforts would also reflect projected changes in weather patterns for this region. A prairie/savannah landscape meets the need to adapt over time as the regional weather patterns shift to a warmer and drier climate.

NPS Preferred Alternative

Although an environmentally preferable alternative is identified, it does not have to be identified as the NPS preferred alternative. The preferred alternative is the alternative the NPS believes would best fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors. Although the NPS does not have to choose the environmentally preferable alternative as the preferred alternative, in this case the NPS has selected *Alternative B: Rehabilitating Landscape Context* as the preferred alternative. The NPS made this decision following IPT discussion of how each alternative met the project purpose, need, and objectives of the CLR as well as the Effigy Mounds National Monument GMP. Other very important considerations were the potential environmental consequences of the actions to cultural resources, the natural landscape, and potential impacts to visitors. Discussions on potential environment consequences were always viewed in context to the recommendations in the CLR related to ethnographic resources and how the involvement and future use of the site by associated tribes would be conducted. The preferred alternative, *Alternative B: Rehabilitating Landscape Context*, presents NPS's preferred management action and defines the rationale for the action in terms of resource protection and management; ethnographic resources, visitor use, operations, and other applicable factors. While all of the alternatives considered would meet the project goals to a certain degree, the preferred alternative has the best overall combination of features to meet the project objectives.

APPENDIX B:
Impacts from Treatment Alternatives / Environmental Consequences

APPENDIX B: IMPACTS FROM TREATMENT ALTERNATIVES / ENVIRONMENTAL CONSEQUENCES

Impacts from Treatment Alternatives / Environmental Consequences

Environmental Consequences Introduction

This chapter forms the scientific and analytic basis for the comparisons of treatment alternatives as required by 40 CFR 1502.14. The discussion of impacts/effects is organized in parallel with Chapter III: Existing Conditions/Affected Environment by resource topic areas. The no action alternative and each action treatment alternative are discussed within each resource topic area. Resource topics analyzed include Cultural Resources, Ethnographic Resources, Visitor Experience, Monument Operations, Wildlife, Special Status Species, and Soils. The analysis of alternatives in this CLR/EA is at a programmatic level. Each of the action alternatives includes multiple proposed treatment components. A number of these treatments are common to all action alternatives and would result in redundant analysis if addressed for each alternative. Common treatments for all action alternatives are highlighted in Appendix A: Treatment Alternatives. To minimize redundant discussion, the elements common to the action alternatives will only be discussed at the beginning of each resource topic. The balance of the discussion for each resource topic will focus on treatments that are distinct to specific treatment alternatives. Potential impacts from the treatment alternatives are described in terms of type, context, and duration.

Type

Type of impact refers to the consequences of implementing a given alternative as beneficial or adverse, direct or indirect as detailed below.

- Beneficial — A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
- Adverse — A change that moves the resource away from a desired condition or detracts from its appearance or condition.
- Direct — An effect that is caused by an action and occurs in the same time and place.
- Indirect — An effect that is caused by an action but is later in time or farther removed in distance, but is still reasonably foreseeable.

Context

Context describes the area or location in which the impact will occur.

Duration

Duration describes the length of time an effect will occur, either short-term or long-term as detailed below.

- Short-term — Impacts generally last only during construction, and the resources resume their preconstruction conditions following construction.
- Long-term — Impacts last beyond the construction period, and the resources may not resume their preconstruction conditions for a longer period of time following construction.

Intensity

This refers to the severity of the impact. The following should be considered in evaluating intensity:

- Impacts that may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.
- The degree to which the proposed action affects public health or safety.
- Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
- The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.
- The degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.
- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.
- The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
- The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act of 1973.
- Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the impact.

For each impact topic analyzed, an assessment of the potential significance of the impacts according to context, intensity and duration is provided in the “conclusion” section that follows the discussion of the impacts under each alternative. Intensity of the impacts fully considers the relevant factors from the list above. Intensity factors that do not apply to a given resource topic and/or alternative are not discussed.

Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations, which implements the National Environmental Policy Act (NEPA), requires 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 reasonable foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions."

Cumulative impacts are considered for the no-action and action alternatives. Cumulative impacts were determined by combining the impacts of the no-action and action alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing or foreseeable future projects at Effigy Mounds National Monument, and if applicable, within the surrounding area. These actions include the following:

- Construction of the current Effigy Mounds National Monument Visitor Center/Headquarters complex.
- Connection to sanitary sewer system due to a failing septic system at the Effigy Mounds National Monument Visitor Center/Headquarters complex.
- Acquisition of parcels and Monument boundary adjustment.
- Ongoing ecosystem restoration and invasive species management.
- Logging, agriculture, residential construction and pot hunting.
- Stabilization of riverbanks at the Sny Magill Unit.
- Adaptation of the maintenance complex to meet changing Monument needs.
- Abandonment of the northern maintenance road.
- Recommendation to add appropriate signage in the Discovery Zone while minimizing signage in the Backcountry Zone.
- Reducing widths of trails in the Discovery and Backcountry Zones according to the zone descriptions.

Several actions were undertaken in recent years that may not have adhered to federal laws and NPS NEPA policies, guidance and procedures. These actions are currently undergoing investigation and are not directly addressed in this document.

The comparison of impacts for each treatment alternative is summarized in Table A-1, which is at the end of Appendix A: Treatment Alternatives. The impact analysis presented in this chapter results in a determination of an Environmentally Preferred Alternative, which is also described in Appendix A: Treatment Alternatives.

Cultural Resources

Basis of Analysis (Cultural Resources)

In this integrated CLR/EA, impacts to historic properties are described in terms of type, context, and duration, as described above, according to regulations of the CEQ, which implement the NEPA. This CLR/EA is complies with the requirements of both NEPA and Section 106 of the National Historic Preservation Act (NHPA). To achieve this, a Section 106 summary is included under the Preferred Alternative for each of the cultural resource topics carried forward for analysis. The Section 106 summary provided to meet the requirements of Section 106 of the NHPA and is an assessment of effect of the implementation of the alternatives on cultural resources, based upon the criterion of

effect and criteria of adverse effect found in the Advisory Council of Historic Preservation's regulations.

Under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect must be made for affected historic properties that are eligible for, or listed in the National Register of Historic Places (NRHP). 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 of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the alternative that would occur later in time; be farther removed by distance; or be cumulative (36 CFR Part 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 NRHP.

In accordance with the Advisory Council's regulations implementing Section 106 of the NHPA, impacts to historic properties for this project were identified and evaluated by (1) determining the area of potential effect; (2) identifying cultural resources present in the area of potential effect that were listed in or eligible to be listed in the NRHP; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the NRHP; and (4) considering ways to avoid, minimize, or mitigate adverse effects. The area of potential effect was established in Chapter 3: Existing Conditions/Affected Environment and further refined in Appendix A: Treatment Alternatives.

The No Action Alternative (Cultural Resources)

Archeological Resources – All applicable federal regulations, standards and guidelines would continue to be followed. Mounds would continue to be monitored and vegetation managed for most Landscape Character Areas at Effigy Mounds National Monument. The mounds in the Heritage Unit do not receive the same level of management as the North, South and Sny Magill Units partly because there is little or no visitation to that Unit. Effigy Mounds has a Fire Management Plan and prescribed burns have been used in the past; however this method has not been used recently. The exceptions are spot burns for invasive species management. The timing and location of vegetation management on and around the mounds is greatly affected by funding. Excavations of the mounds are prohibited; however very limited tests for subsurface resources would still be undertaken if ground disturbing actions, such as construction of a new trail.

Landscape – The preservation management philosophy is extended to landscape features (waysides, trails, etc.) and the no action alternative would result in a continuation of this approach that maintains the existing form, features and materials in the landscape. Existing trails would be maintained and the trail proposed in the GMP, which would provide access to LCA 5 from the Yellow River Bridge would be constructed.

Essentially the park adheres to the "preservation" approach to management of cultural resources throughout Effigy Mounds National Monument. There would be no change to current management, interpretation, or preservation of cultural resources at the Monument as a result of the no action alternative.

Cumulative Impacts-The No Action Alternative (Cultural Resources)

Considering the no action alternative in combination with the past, present, and reasonably foreseeable future actions, the no action alternative would contribute to cumulative actions of the past and would not present new management actions and philosophy that would contribute to Effigy Mounds National Monument achieving objectives stated in this CLR and may lead to effects to cultural resources that, when compared to the two action alternatives, would be adverse, direct, indirect and long-term.

Conclusion-The No Action Alternative (Cultural Resources)

Effigy Mounds National Monument staff maintains cultural resources in accordance with federal regulations, standards and NPS policies and guidance. However, if the no action alternative were implemented, the guidance for cultural resource management and interpretation would not be implemented. This alternative, when compared to the treatments common to both action alternatives, Action Alternative A and Action Alternative B would present an adverse, direct, indirect and long-term effect to cultural resources at the monument.

Section 106 Summary-The No Action Alternative (Cultural Resources)

The potential effects of the no-action alternative have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the National Park Service concludes that the no action alternative provides the least beneficial effects to cultural resources at Effigy Mounds National Monument of all alternatives addressed in this document. Implementation of the no-action alternative could result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.

Treatments Common to Both Action Alternatives (Cultural Resources)

Archeological Resources – All applicable federal regulations, standards and guidelines would continue to be followed, which is no different than current operations under the no action alternative. The treatments common to both action alternatives includes the recommendation for cutting trees down to ground level on the mounds and buffers areas which would prevent deterioration of cultural resources, or in the case of a tree falling and pulling out its root system, direct damage to the resource. Ongoing monitoring of riverbank erosion will continue to identify and areas where additional stabilization efforts are required to protect archeological resources.

Landscape – Small scale features such as signs would be limited to those necessary for a positive visitor experience and safety. Unnecessary signage would be removed. Most existing trails would be maintained and where necessary, repaired to minimize erosion and improve safety. Existing trails that impact mounds would be relocated and former trail alignment would be restored to natural conditions. The trail proposed in the GMP, which would provide access to LCA 5 from the Yellow River Bridge would be constructed.

An overriding common recommendation is the establishment of a formal agreement between Effigy Mounds National Monument/NPS and associated tribes. The agreement would be intended to provide a basis for future cooperation in management of the Monument.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Cultural Resources)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future that have been both beneficial and adverse direct, and indirect actions, the treatments common to both action alternatives would result in beneficial, direct and long-term cumulative impacts to cultural resources.

Conclusion-Treatments Common to Both Action Alternatives (Cultural Resources)

As noted in the no action alternative, Monument staff follows federal cultural resources regulations and guidelines for their management activities, and there would be no change for any action alternative, which results in direct, long-term beneficial impacts. Implementation of an agreement between the Monument/NPS and associated tribes would be a very important element of future management of the Monument that would be direct, long-term and beneficial. Archeological resources would receive additional direct and long-term beneficial impact by minimizing the potential for tree root impacts. This alternative presents a direct, long-term, and beneficial effect to cultural resources.

Section 106 Summary-Treatments Common to Both Action Alternatives (Cultural Resources)

The potential effects of treatments common to both action alternatives have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the National Park Service concludes that implementation of treatments common to both action alternatives would result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.

Action Alternative A-Preserving Mounds (Cultural Resources)

Archeological Resources – Mounds and below-grade resources would be maintained through management of vegetation and visitors. Best Management Practices for managing mounds are provided, which include controlling invasive species and restoration of plant communities that were present during the period of significance.

Landscape – Minor trail and overlook development is proposed with this alternative. Trail construction and overlook development may require some degree of ground disturbance to test for archeological resources. Small scale features, such as inappropriate speed limit signs would be removed.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Cultural Resources)

Considering Action Alternative A-Preserving Mounds in combination with the past, present and reasonably foreseeable future actions, Action Alternative A-Preserving Mounds will not contribute to cumulative impacts that would lead to adverse effects to cultural resources.

Conclusion-Action Alternative A-Preserving Mounds (Cultural Resources)

With Action Alternative A-Preserving Mounds, there will be direct, beneficial, and long-term effects to cultural resources because vegetation management will occur and minor trail and overlook development will be undertaken, all with the goal of protecting cultural resources.

Section 106 Summary-Action Alternative A-Preserving Mounds (Cultural Resources)

The potential effects of Action Alternative A-Preserving Mounds have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the National Park Service concludes that implementation of Action Alternative 1-Preserving Mounds would result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.

Action Alternative B-Rehabilitating Landscape Context (Cultural Resources)

Archeological Resources – Rehabilitation, with an emphasis on mound preservation in LCA 1-7 and LCA 9 is a key element of this alternative. Stabilization or repair of mounds would be conducted as needed. Guidance is provided on approaches for vegetation removal on mounds and preparation of a mound monitoring plan would provide ongoing data on the maintenance efforts. Best Management Practices would be developed to manage mound resources, including vegetation, which would reflect the period of significance and the specific site within the Monument. Mound management recommendations are also based on mound types. These approaches would also provide appropriate context for interpretation and education of American Indian traditions.

Landscape – Prairie vegetation would be established on the mounds and large areas of prairie elsewhere in the monument will be restored. Broad areas of oak savannah/prairie vegetation complexes would be restored to represent vegetation present at the time the mounds were built. Trails and overlook locations would be modified and the former trail corridors and overlook locations would be restored to a natural condition in consultation with American Indian tribes. Trail corridors would have standard cross sections. As an example, trails would not be allowed within 15 feet of a mound. Small scale features such as signs that are within 15 feet of a mound would be relocated and old, out of date interpretive waysides would either be removed or replaced.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Cultural Resources)

Considering Action Alternative B in combination with the past, present, and reasonably foreseeable future actions, Action Alternative B-Rehabilitating Landscape Context would not contribute to cumulative impacts that would lead to adverse effects to cultural resources.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Cultural Resources)

Under Action Alternative B-Rehabilitating Landscape Context, there will be direct, long term, beneficial effects on cultural resources because the mounds will be rehabilitated, the historic landscape will be restored, and trails and overlook locations would be modified in consultation with American Indian tribes. The changed landscape context and physical improvements (e.g.; trails, overlooks) will serve to protect the resource while balancing the needs of the visitors.

Section 106 Summary-Action Alternative B-Rehabilitating Landscape Context (Cultural Resources)

The potential effects of Action Alternative B-Rehabilitating Landscape Context have been evaluated at a programmatic level and after applying the Advisory Council's criteria of adverse effects (36 CFR Part 800.5), the National Park Service concludes that

implementation of Action Alternative B-Rehabilitating Landscape Context would result in no adverse effect to the cultural landscape at Effigy Mounds National Monument.

Ethnographic Resources

Basis of Analysis (Ethnographic Resources)

Ethnographic resources are resources associated with a people's cultural system or way of life. These resources include sites, structures, material features, and natural resources. The mounds and landscape at the Monument can be considered archeological or ethnographic resources and/or components of the Monument's cultural landscape. Effects to ethnographic resources from the treatment alternatives were analyzed using a qualified best professional judgment assessment.

The No Action Alternative (Ethnographic Resources)

American Indian tribes claim affinity to the Monument and until recently have not been involved in decision making process of managing Monument's mounds, landscape and other ethnographic resources. The American Indian tribes have expressed a strong desire to participate at a higher level of involvement in management at the Monument and have their cultural traditions accommodated. The no action alternative would not provide guidance on the establishment of a formal agreement that would provide participation in the decision making processes at Effigy Mounds National Monument, nor would American Indian tribe's cultural traditions be accommodated.

Cumulative Impacts-The No Action Alternative (Ethnographic Resources)

Considering the no action alternative in combination with the past, present, and reasonably foreseeable future, the no action alternative could contribute to cumulative impacts that would lead to adverse effects to ethnographic resources.

Conclusion-The No Action Alternative (Ethnographic Resources)

The no action alternative would not accommodate American Indian tribes' cultural traditions or provide a formal agreement that would create a stronger participation in the decision making processes, which would have a long-term, direct, adverse effect on these resources.

Treatments Common to Both Action Alternatives (Ethnographic Resources)

Under the treatments common to both action alternatives, American Indian tribes would be more integrated into the decision making processes in guiding the management of the Monument's landscape and accommodation of cultural traditions. With this alternative, the monument would be available for American Indian collection of plant seeds important to their culture. This alternative of common action would accommodate cultural use of the Monument by associated American Indian tribes. Therefore, under this alternative, there would be a long-term, direct, and beneficial effect to ethnographic resources at the Monument.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Ethnographic Resources)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future actions described in the introduction paragraphs of this section, the Treatments Common to Both Action Alternatives would not contribute to cumulative impacts leading to adverse effects to ethnographic resources.

Conclusion-Treatments Common to Both Action Alternatives (Ethnographic Resources)

With the enhanced use, management, and coordination between the Monument and American Indian tribes, the implementation of the treatments common to both action alternatives will present a direct, long term, beneficial effect to ethnographic resources.

Action Alternative A-Preserving Mounds (Ethnographic Resources)

Action Alternative A-Preserving Mounds would focus on preserving mounds in coordination with American Indian cultural values. An agreement for use of the landscape by American Indian tribes for cultural activities, stronger participation in the decision making processes and interpretation of the resource focusing on the American Indian perspective would be implemented. With these approaches, action alternative A-Preserving Mounds presents a long term, beneficial, and direct effect to ethnographic resources.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Ethnographic Resources)

Considering the action alternative A-Preserving Mounds in combination with the past, present, and reasonably foreseeable future actions, this alternative would not contribute to cumulative impacts leading to adverse effects to ethnographic resources.

Conclusion-Action Alternative A-Preserving Mounds (Ethnographic Resources)

With the enhanced traditional cultural use and improved coordination between the Monument and American Indian tribes, the implementation of action alternative A-Preserving Mounds will present a direct, long term, beneficial effect to ethnographic resources.

Action Alternative B-Rehabilitating Landscape Context (Ethnographic Resources)

Action Alternative B-Rehabilitating Landscape Context would focus on preserving mounds in coordination with American Indian cultural values, accommodating cultural traditions, providing stronger participation in the decision making processes and educating visitors about American Indian traditions and practices. Management of the landscape would seek to provide an environment for American Indian youth to spend time in the landscape according to tribal customs.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Ethnographic Resources)

Considering the Action Alternative 2-Rehabilitating Landscape Context in combination with the past, present, and reasonably foreseeable future actions, this alternative would not contribute to cumulative impacts leading to adverse effects to ethnographic resources.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Ethnographic Resources)

Action Alternative 2-Rehabilitating Landscape Context would provide greater levels of landscape use for cultural traditions; provide opportunities for American Indian youth to experience the landscape and cultural traditional practices and tribal customs. Therefore, this alternative will result in long-term, beneficial, and direct effects to ethnographic resources.

Visitor Experience

Basis of Analysis (Visitor Experience)

NPS Management Policies state that enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks. The analysis focuses on the potential affects from the overall guidance provided in the treatment alternatives and whether those affects would benefit the visiting public.

The No Action Alternative (Visitor Experience)

Under the no action alternative, the current visitor experiences, programs, and interpretation, would continue at the Monument and visitors receive a quality experience with the landscape, by entering the visitor center and viewing a film, talking to a ranger, and/or through a "self-guided" hike. Some visitors have the ability to participate in a ranger-led hike. Existing visitor contact facilities would remain in their same location and visitor amenities like trash cans would remain along trails and at overlooks.

Cumulative Impacts-The No Action Alternative (Visitor Experience)

Considering the no action alternative in combination with the past, present, and reasonably foreseeable future actions, there would be effects from the lack of implementation of action alternatives in the CLR that would lead to adverse effects to visitor experience.

Conclusion-The No Action Alternative (Visitor Experience)

Visitors to Effigy Mounds National Monument can have a short or long experience at the Monument and still have a basic understanding of the sacred nature of the land and enjoy the natural setting of the Mississippi River valley. However, Visitors would not benefit from improved experiences along the trails, mounds, overlooks, and natural environment at the Monument that would be implemented through either of the action alternatives. Under the no action alternative, there would be adverse, direct, long term effects to visitor experience at the Monument.

Treatments Common to Both Action Alternatives (Visitor Experience)

Implementation of this alternative would result in realignment of some trails to mitigate impacts to cultural resources, which may be discouraging to some visitors that have visited the Monument prior to the realignment. But for the most part it is unlikely that the casual visitor would notice if they haven't visited the Monument prior to the trail realignments. All current visitor contact operations would be continued to provide a good experience for the casual visitor. This alternative would slightly alter the visitor experience at the monument; however the implementation of treatments common to both action alternatives would still result in a beneficial, direct short and long-term effect to visitor experience.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Visitor Experience)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future, the treatments common to both action alternatives would not contribute to cumulative impacts leading to adverse effects to visitor experience.

Conclusion-Treatments Common to Both Action Alternatives (Visitor Experience)

This alternative would only slightly alter the visitor experience of the monument, but will not be a drastic change from current experiences. Therefore, implementation of treatments common to both action alternatives would still result in a beneficial, direct short and long-term effect to visitor experience.

Action Alternative A-Preserving Mounds (Visitor Experience)

Under Action Alternative A-Preserving Mounds, vegetation management will occur on the mounds with a focus on protecting the mounds and delineating them from the surrounding landscape, which should aid visitor's understanding of the landscape. Minor trail realignment and overlook relocation and the establishment of a 15 foot buffer between the trail and the mounds to discourage visitors from walking too close to, or on a mound. Visitor contact will still primarily be conducted at the visitor center. Upon implementation of this alternative, the new trails, relocated overlooks, and improved mound delineation will improve the visitor experience by allowing better access and interpretation of the Monument.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Visitor Experience)

Considering the Action Alternative A-Preserving Mounds in combination with the past, present, and reasonably foreseeable future actions, the Action Alternative A-Preserving Mounds would not contribute to cumulative impacts leading to adverse effects to visitor experience.

Conclusion-Action Alternative A-Preserving Mounds (Visitor Experience)

The implementation of Action Alternative A-Preserving Mounds will enhance the visitor experience by allowing visitor's better access walking through the Monument. Vegetation management actions for mounds may improve visitor's interpretation of the Monument landscape. Visitor contact with Monument staff would continue to primarily be conducted at the visitor center and on Ranger-led hikes. Therefore, implementation of this alternative will present a direct, beneficial, and long term effect to the visitor experience.

Action Alternative B-Rehabilitating Landscape Context (Cultural Resources) (Visitor Experience)

Under Action Alternative B-Rehabilitating Landscape Context, prairie vegetation would be established on the mounds and large areas of prairie elsewhere in the monument will be restored and broad areas of oak savannah/prairie vegetation complexes would be restored to represent vegetation present at the time the mounds were built. Trails and overlook locations would be modified in consultation with American Indian tribes, which would still provide views of the Mississippi River valley. The changed landscape context and physical improvements (e.g.; trails, overlooks) will change the visitor experience by enhancing interpretation of the resources and increasing visitor access to areas of the Monument. Therefore, the implementation of this alternative will present a direct, long term, beneficial effect on the visitor experience.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Visitor Experience)

Considering the Action Alternative B-Rehabilitating Landscape Context in combination with the past, present, and reasonably foreseeable future actions, the Action Alternative 2-Rehabilitating Landscape Context would not contribute to cumulative impacts leading to adverse effects to visitor experience.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Visitor Experience)

This alternative will change the visitor experience by enhancing interpretation of the resources and increasing visitor access to areas of the Monument. Therefore, the implementation of Action Alternative B-Rehabilitating Landscape Context will present a direct, long term, beneficial effect on the visitor experience.

Monument Operations

Basis of Analysis (Monument Operations)

Implementation of any alternative would affect the operations of Effigy Mounds National Monument in some manner. This includes the number of staff required to accomplish recommendations for any alternative; when these actions would occur; and how these actions were to occur. Park operations related to maintenance of park structures and grounds and interpretation of the cultural and natural heritage of Effigy Mounds National Monument are also reviewed. Effects to monument operations from the treatment alternatives were analyzed using a qualified best professional judgment assessment.

The No Action Alternative (Monument Operations)

Under the no action alternative, the present level of use, management, interpretation, maintenance and operations would continue at current levels. The use of volunteers would continue to be used for special projects. Although maintenance of some areas in the Monument, where maintenance may be deferred, this is primarily the result of lack of funding. Therefore, there would be no adverse or beneficial, direct or indirect effects to monument operations from the no action alternative.

Cumulative Impacts-The No Action Alternative (Monument Operations)

Considering the no action alternative in combination with the past, present, and reasonably foreseeable future actions, the no action alternative would not contribute to cumulative impacts that would lead to adverse effects to monument operations.

Conclusion-The No Action Alternative (Monument Operations)

There would be no notable increase from the present level of operations under the No Action Alternative, and with the use of volunteers there would be beneficial, direct effects to monument operations. However, if funding were increased additional staff could accomplish more work throughout the year.

Treatments Common to Both Action Alternatives (Monument Operations)

For the treatments common to both action alternatives, there would be changes to monument operations such as establishing the 150-foot no build buffer and assuring that trees are not allowed to be re-established on the mounds. Coordination with American Indian tribes will occur for management guidance and use. This alternative will alter the maintenance and interpretation of the monument, but will not be a drastic change from current operations. Therefore, the implementation of treatments common to both action alternatives will not present an adverse effect to monument operations.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Monument Operations)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future actions, the treatments common to both action alternatives would not contribute to cumulative impacts leading to adverse effects to monument operations.

Conclusion-Treatments Common to Both Action Alternatives (Monument Operations)

This alternative will alter the maintenance and interpretation of the monument, but will not be a drastic change from current operations. Therefore, the implementation of treatments common to both action alternatives will not present an adverse effect to monument operations.

Action Alternative A-Preserving Mounds (Monument Operations)

Under Action Alternative A-Preserving Mounds, vegetation management will occur on the mounds with a focus on protecting the mounds and delineating them from the surrounding landscape. Minor trail and overlook development is also proposed with this alternative. Upon implementation of this alternative, the change in maintenance and interpretation workload will be similar to what currently occurs. Maintenance of the new trail will be an additional workload but will not present a large increase from current levels. Therefore, the implementation of this alternative will not present an adverse, direct, or indirect effect to monument operations.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Monument Operations)

Considering the Action Alternative A-Preserving Mounds in combination with the past, present, and reasonably foreseeable future, the Action Alternative A-Preserving Mounds would not contribute to cumulative impacts leading to adverse effects to monument operations.

Conclusion-Action Alternative A-Preserving Mounds (Monument Operations)

This alternative will alter the maintenance and interpretation of the monument, but will not be a drastic change from current operations. Therefore, the implementation of Action Alternative A-Preserving Mounds will not present an adverse, direct, or indirect effect to monument operations.

Action Alternative B-Rehabilitating Landscape Context (Monument Operations)

Under Action Alternative B-Rehabilitating Landscape Context, prairie vegetation would be established on the mounds and large areas of prairie elsewhere in the monument will be restored. Broad areas of oak savannah/prairie vegetation complexes would be restored to represent vegetation present at the time the mounds were built. The changed landscape context and physical improvements (e.g.; trails, overlooks) may require additional interpretive and maintenance workload, depending on the timing of the projects. It is possible that the additional workload could be high enough to require additional personnel. Therefore, the implementation of this alternative would present an adverse, direct, short to long term effect on monument operations. This effect can be reduced through analyzing the alternative during its implementation, forecasting manpower requirements, and procuring additional staff and/or volunteers.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Monument Operations)

Considering the Action Alternative B-Rehabilitating Landscape Context in combination with the past, present, and reasonably foreseeable future actions, the Action Alternative 2-Rehabilitating Landscape Context could contribute to cumulative impacts leading to adverse effects to monument operations.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Monument Operations)

This alternative will alter the maintenance and interpretation of the monument and would likely require additional staff and/or volunteers to accommodate additional workload. Therefore, the implementation of Action Alternative 2-Rehabilitating Landscape Context will present an adverse, direct, short to long term effect to monument operations.

Wildlife

Basis of Analysis (Wildlife)

Analysis for wildlife impacts was through a qualitative evaluation of impact intensities based on the knowledge and best professional judgment of park staff, planners through past experience, evaluation of data from park records and similar studies when applicable.

The No Action Alternative (Wildlife)

Under the no action alternative, there would be no significant change to Monument landscape and wildlife habitat and current management practices of those habitats would continue. Therefore, there would be beneficial direct short to long-term effects to wildlife.

Cumulative Impacts-The No Action Alternative (Wildlife)

Considering the no action alternative in combination with the past, present, and reasonably foreseeable future actions, the no action alternative would not contribute to cumulative impacts that would lead to adverse effects to wildlife.

Conclusion-The No Action Alternative (Wildlife)

Wildlife habitat would not change under the no action alternative, so there would be beneficial, direct effects to current biodiversity of the Monument.

Treatments Common to Both Action Alternatives (Wildlife)

Components of the treatments to both action alternatives would be applicable to wildlife including removing trees on the mounds to ground level. Removing trees to ground level may result in the loss of perching or roosting habitat for birds and bats which would be a direct, adverse effect to wildlife. However, wildlife would experience a long-term, beneficial effect from the maintenance of a large forested area throughout most of the monument, which would continue to provide habitat for these fauna.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Wildlife)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future actions, the treatments common to both action alternatives would not contribute to cumulative impacts leading to adverse effects to wildlife.

Conclusion-Treatments Common to Both Action Alternatives (Wildlife)

Under the treatments common to both action alternatives, there would be a direct, adverse impacts from the removal of trees, but this negative effect would be short term because of the large areas of woodland elsewhere on the monument available for fauna to inhabit provides long-term, beneficial impacts.

Action Alternative A-Preserving Mounds (Wildlife)

Under Action Alternative A-Preserving Mounds, vegetation management will occur on the mounds with a focus on protecting the mounds and delineating them from the surrounding landscape. Minor trail and overlook development is also proposed with this alternative. Minor vegetation removal and ground disturbance will occur with this alternative that would present a direct, adverse effect to wildlife. However, the effect would be short-term since there is a large quantity of natural forest and wetlands elsewhere in the monument that provide wildlife habitat, which provides long-term, beneficial impacts.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Wildlife)

Considering the Action Alternative A-Preserving Mounds in combination with the past, present, and reasonably foreseeable future actions, the Action Alternative A-Preserving Mounds would not contribute to cumulative impacts leading to adverse effects to wildlife.

Conclusion-Action Alternative A-Preserving Mounds (Wildlife)

Under the Action Alternative A-Preserving Mounds, direct, adverse, and short-term effects to wildlife will occur. However, there is a large quantity of natural forest and wetlands elsewhere in the monument providing wildlife habitat that would result in long-term, beneficial impacts.

Action Alternative B-Rehabilitating Landscape Context (Wildlife)

Under Action Alternative B-Rehabilitating Landscape Context, prairie vegetation would be established on the mounds and large areas of prairie elsewhere in the monument will be restored. Broad areas of oak savannah/prairie vegetation complexes would be restored to represent vegetation present at the time the mounds were built. Trails and overlook locations would be modified in consultation with American Indian tribes. It is likely that the restoration of native prairie vegetation communities will have a beneficial, direct, and long term effect to wildlife. Modification of trails/overlooks, changes to vegetation on mounds and long-term establishment of prairie/savannah may present a direct and adverse effect to wildlife. However, the effect would be short-term since there is a large quantity of natural forest and wetlands elsewhere in the monument that provide wildlife habitat and long-term, beneficial impacts to the biodiversity of the Monument.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Wildlife)

Considering the Action Alternative B-Rehabilitating Landscape Context in combination with the past, present, and reasonably foreseeable future actions, the Action Alternative 2-Rehabilitating Landscape Context would not contribute to cumulative impacts leading to adverse effects to wildlife.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Wildlife)

Under the Action Alternative B-Rehabilitating Landscape Context, direct, adverse, and short-term effects to wildlife will occur. However, there is a large quantity of natural forest and wetlands elsewhere in the monument that provide wildlife habitat and long-

term, beneficial impacts to the biodiversity of the Monument. Establishing prairie/savannah would likely increase biodiversity of the Monument as well as adapting to potential climate change of drier, hotter weather in this region.

Special Status Species

Basis of Analysis (Special Status Species)

The Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.) requires examination of impacts to all federally-listed threatened, endangered, and candidate species. Section 7 of the ESA requires all federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the NPS Management Policies 2006 and Director's Order 77 Natural Resources Management Guidelines require the NPS to examine the impacts on federally-listed, endangered and candidate species, as well as state-listed threatened, endangered, candidate, rare, declining and sensitive species. Effects to special status species from the treatment alternatives were analyzed using a qualified best professional judgment assessment.

The No Action Alternative (Special Status Species)

Under the no action alternative, current management practices of habitats would continue. Therefore, there would be no adverse or beneficial direct or indirect effects to Special Status Species. Ongoing operations and maintenance would likely result in status quo for state-listed Special Status Species.

Cumulative Impacts-The No Action Alternative (Special Status Species)

Considering the No Action Alternative in combination with the past, present, and reasonably foreseeable future actions described in the introduction paragraphs of this section, the No Action Alternative would not contribute to cumulative impacts that would lead to adverse effects to special status species.

Conclusion-The No Action Alternative (Special Status Species)

Under the No Action Alternative, there would be no adverse or beneficial direct or indirect effects to Special Status Species.

Treatments Common to Both Action Alternatives (Special Status Species)

Components of the treatments common to both action alternatives would be applicable to Special Status Species including removing trees on the mounds to the stumps. While exact locations of special status species at the monument are not entirely known, removing trees to ground level may result in more sunlight reaching the ground surface which could adversely and directly affect the growth of Special Status Species plants. A survey of Special Status Species in the area of tree removal would determine the presence/absence of these species, and mitigation measures can be developed (if needed) in conjunction with the Iowa Department of Natural Resources (IDNR) and the USFWS.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Special Status Species)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future actions, the treatments common to both action alternatives would not contribute to cumulative impacts leading to adverse effects to special status species.

Conclusion-Treatments Common to Both Action Alternatives (Special Status Species)

Under the treatments common to both action alternatives, there would be a direct, beneficial, long term effect to Special Status Species through the implementation of the vegetation management techniques. Impacts from the removal of trees would be determined through a presence/absence survey and mitigation measures can be developed with the regulatory agencies.

Action Alternative A-Preserving Mounds (Special Status Species)

Under Action Alternative A-Preserving Mounds, vegetation management will occur on the mounds with a focus on protecting the mounds and delineating them from the surrounding landscape. Minor trail and overlook development is also proposed with this alternative. It is unknown if this approach will affect Special Status Species (particularly plants). Therefore, a survey of Special Status Species in the mound preservation and minor development areas would determine the presence/absence of these species, and mitigation measures can be developed (if needed) in conjunction with the IDNR and the USFWS.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Special Status Species)

Considering the Action Alternative A-Preserving Mounds in combination with the past, present, and reasonably foreseeable future actions, the Action Alternative 1-Preserving Mounds would not contribute to cumulative impacts leading to adverse effects to special status species.

Conclusion-Action Alternative A-Preserving Mounds (Special Status Species)

Under the Action Alternative A-Preserving Mounds, it is unknown if there will be an affect to Special Status Species. Therefore, impacts from the mound preservation measures and minor trail and overlook development would be determined through a presence/absence survey and mitigation measures can be developed with the regulatory agencies.

Action Alternative B-Rehabilitating Landscape Context (Special Status Species)

Under Action Alternative B-Rehabilitating Landscape Context, prairie vegetation would be established on the mounds and large areas of prairie elsewhere in the monument will be restored. Broad areas of oak savannah/prairie vegetation complexes would be restored to represent vegetation present at the time the mounds were built. Trails and overlook locations would be modified in consultation with American Indian tribes. It is likely that the restoration of native prairie vegetation communities will have a beneficial, direct, and long term effect to Special Status Species (particularly rare prairie plants). However, it is also possible that adverse effects may occur to these species. Therefore, a survey of Special Status Species in the landscape rehabilitation and trail/overlook project areas would determine the presence/absence of these species, and mitigation measures can be developed (if needed) in conjunction with the IDNR and the USFWS.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Special Status Species)

Considering the Action Alternative B-Rehabilitating Landscape Context in combination with the past, present, and reasonably foreseeable future actions described in the introduction paragraphs of this section, the Action Alternative B-Rehabilitating Landscape Context would not contribute to cumulative impacts leading to adverse effects to special status species.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Special Status Species)

Under the Action Alternative B-Rehabilitating Landscape Context, it is unknown if there will be an affect to Special Status Species. Therefore, impacts from the landscape rehabilitation and trail/overlook development would be determined through a presence/absence survey and mitigation measures can be developed with the regulatory agencies.

Soils

Basis of Analysis (Soils)

Soils in the Effigy Mounds area originated from erosion of limestone bedrock and were deposited by wind or water in relatively recent geologic times. Soil is a critical component of the mounds and stabilization of soils is important to preserve their shape and subsurface contents. Effects to soils from the treatment alternatives were analyzed using a qualified best professional judgment assessment.

The No Action Alternative (Soils)

A continuation of current practices results in minimal soil impact as no new construction is under this alternative; however trail maintenance would continue on as needed basis. Most existing trails are either paved, are boardwalks or are covered with wood chips. Less pervious paved roads and boardwalks would result in greater storm water runoff than trails with wood chips. Mounds are stabilized with vegetation, reducing the potential for erosion. Some mounds have woody vegetation with root systems extending into the soil. If the trees were to topple, the root ball would likely be torn out of the mound, which would have direct, adverse effect to soils and potentially to the below-grade resources of that mound.

Cumulative Impacts-The No Action Alternative (Soils)

Considering the no action alternative in combination with the past, present, and reasonably foreseeable future actions, the no action alternative would not contribute to cumulative impacts that would lead to adverse effects to soil.

Conclusion-The No Action Alternative (Soils)

Under the No Action Alternative, ongoing trail maintenance and other routine maintenance operations would continue, but no new construction associated with a CLR would occur. Soils on mounds with woody vegetation in the Heritage Unit and other backcountry zones may be vulnerable to direct, adverse impacts from toppling trees. Funding for maintenance operations and access, limits the amount of mound maintenance in the Heritage Unit, which could lead to further damage of the resource.

Treatments Common to Both Action Alternatives (Soils)

The treatments common to both action alternatives would result in cutting trees down to ground level on mounds. The subsurface root system left behind after a tree is removed in place will minimize effects to the soil in the vicinity of the stump removals, with direct, beneficial impacts. Creation of a 150’ buffer zone around the mounds and mound groups will benefit soils because new development in that zone will be prohibited. Therefore, this alternative will have a direct, beneficial, and long-term effect on soils.

Cumulative Impacts-Treatments Common to Both Action Alternatives (Soils)

Considering the treatments common to both action alternatives in combination with the past, present, and reasonably foreseeable future, the no action alternative would not contribute to cumulative impacts that would lead to adverse effects to soil.

Conclusion-Treatments Common to Both Action Alternatives (Soils)

Under the treatments common to both action alternatives, impacts to soil will be limited because tree stumps will remain in place and a 150-foot no build buffer will be implemented. Therefore, this alternative will have a direct, beneficial, and long-term effect on soils.

Action Alternative A-Preserving Mounds (Soils)

Under Action Alternative A-Preserving Mounds, vegetation management will occur on the mounds with a focus on protecting the mounds and delineating them from the surrounding landscape. Minor trail and overlook development is also proposed with this alternative. Minor vegetation removal and ground disturbance will occur with this alternative that would present a direct, adverse effect to soils. However, the effect would be short-term during implementation and re-stabilization of the ground surface will minimize long-term effects on soils.

Cumulative Impacts-Action Alternative A-Preserving Mounds (Soils)

Considering the Action Alternative A-Preserving Mounds in combination with the past, present, and reasonably foreseeable future actions, Action Alternative 1-Preserving Mounds would not contribute to cumulative impacts that would lead to adverse effects to soils.

Conclusion-Action Alternative A-Preserving Mounds (Soils)

Under the Action Alternative A-Preserving Mounds, direct, adverse, and short-term effects to soils will occur from minor vegetation removal and trail and overlook realignment. The direct, adverse long-term impacts of the trail realignment would be limited to the trail corridor and trail length. Overlook relocation would result in direct, adverse, long-term impacts to soils. However, re-stabilization of the ground surface for the former trails and overlooks will minimize long-term effects on soils.

Action Alternative B-Rehabilitating Landscape Context (Soils)

Under Action Alternative B-Rehabilitating Landscape Context, prairie vegetation would be established on the mounds and large areas of prairie elsewhere in the monument will be restored. Broad areas of oak savannah/prairie vegetation complexes would be restored to represent vegetation present at the time the mounds were built. The methodology for reestablishment of prairie/savannah vegetation at any specific site will be determined; however there would be direct, adverse short-term impacts to soils. Over the long-term, soil stabilization will occur in those locations, which would result in direct, long-term beneficial impacts. A new parking lot on the maintenance access road in LCA 2 would result in direct, adverse impacts to soils. Over, the effect of implementation of alternative B would be long-term and beneficial since re-stabilization of the ground surface will occur.

Cumulative Impacts-Action Alternative B-Rehabilitating Landscape Context (Soils)

Considering the action alternative B-Rehabilitating Landscape Context in combination with the past, present, and reasonably foreseeable future actions, action alternative B-

Rehabilitating Landscape Context would not contribute to cumulative impacts that would lead to adverse effects to soils.

Conclusion-Action Alternative B-Rehabilitating Landscape Context (Soils)

Under the Action Alternative B-Rehabilitating Landscape Context, direct, adverse, and short-term effects to soils will occur primarily from re-vegetation operations, trail realignment and overlook relocation and construction of a new parking lot along the maintenance road in LCA 2. However, re-stabilization of the ground surface will result long-term, beneficial effects on soils in areas of re-vegetation.

APPENDIX C:
Consultation and Coordination

APPENDIX C: CONSULTATION AND COORDINATION

Internal Scoping With NPS, Interdisciplinary Project Team (IPT), Tribal Representatives and Iowa State Historic Preservation Office

A pre-proposal meeting was held at Monument headquarters July 23, 2013 to discuss the Effigy Mounds National Monument Cultural Landscape Report scope and determine an approach for integrating input from stakeholders (most notably, tribal representatives and the Iowa State Historic Preservation Office) throughout the project process. Meeting attendees included:

- Jim Nepstad, Superintendent Effigy Mounds National Monument (EMNM)
- Albert LeBeau, Cultural Resource Specialist, EMNM
- Marla McEnaney, Historical Landscape Architect, NPS, Midwest Regional Office (MWRO)
- Michael J. Evans, Ethnographer, NPS, MWRO
- Jonathan Buffalo, Sac and Fox Tribe of Mississippi in Iowa
- Elmore Green, Sac and Fox Nation of Kansas
- Doug Jones, Iowa State Historic Preservation Office (SHPO)
- Jerome Thompson, Iowa SHPO
- John Doershuk, Office of the State Archeologist
- Shirley Schermer, Office of the State Archeologist
- Pat Murphy, Iowa Tribe of Kansas and Nebraska
- Martin Fee, Iowa Tribe of Kansas and Nebraska
- Steve Jones, Principal, Quinn Evans Architects
- Brenda Williams, Project Manager/Historical Landscape Architect, Quinn Evans Architects

Meeting with NPS, IPT and Field Investigations

The project team travelled to Effigy Mounds National Monument to conduct site investigations, meet with NPS staff and conduct research from October 27 through November 1, 2013.

Meeting attendees included:

- Jim Nepstad, Superintendent EMNM
- Albert LeBeau, Cultural Resource Specialist, EMNM
- Rodney Rovang, Natural Resource Manager, EMNM
- Jessica Salesman, Biological Science Technician, EMNM
- Kat Busse, Seasonal Field Ecologist, EMNM
- Jeanette Muller, Seasonal Field Ecologist, EMNM
- Friday Wiles, Administrative Assistant, EMNM
- Thomas Sinclair, Chief of Maintenance, EMNM

- Jeremy Parker, Maintenance Foreman, EMNM
- Marla McEnaney, Historical Landscape Architect, NPS, MWRO
- Brenda Williams, Quinn Evans Architects
- Stephanie Austin, Quinn Evans Architects
- Will Ballard, Environmental Specialist, Woolpert
- Joe DiMisa, Environmental Consultant, Woolpert
- Melody Pope, Iowa Office of the State Archeologist
- Bill Whittaker, Iowa Office of the State Archeologist
- William Quackenbush, Ho-Chunk Nation of Wisconsin and project team Native American Use and Vegetation Specialist
- Paul West, Plant Community Specialist

Meeting with IPT, Tribal Representatives and Iowa SHPO

A meeting was conducted at Effigy Mounds National Monument on April 10, 2014. This meeting included members of the interdisciplinary team, representatives of tribes and the Iowa SHPO. The meeting was intended to provide an introduction to Cultural Landscape Report team and process. Meeting discussions included the importance of having a Tribal Summit at Effigy Mounds National Monument later in 2014. Meeting attendees included:

- Jim Nepstad, Superintendent EMNM
- Albert LeBeau, Cultural Resource Specialist, EMNM
- Rodney Rovang, EMNM
- Jessica Salesman, EMNM
- Marla McEnaney, Historical Landscape Architect, NPS, MWRO
- Doug Jones, Iowa SHPO
- Brenda Williams, Quinn Evans Architects
- Will Ballard, Woolpert
- Melody Pope, Iowa Office of the State Archeologist
- Bill Whittaker, Iowa Office of the State Archeologist
- William Quackenbush, Ho-Chunk Nation of Wisconsin and project team American Indian Plant Use Specialist
- Gary L. Bahr, Sac and Fox Nation of Missouri, Kansas and Nebraska
- James Jensen, Sac and Fox Nation of Missouri, Kansas and Nebraska
- Pat Murphy, Iowa Tribe of Kansas and Nebraska
- Jonathan Buffalo, Sac and Fox Tribe of Mississippi in Iowa
- Sandra Massey, Sac and Fox Nation in Oklahoma
- Jim Whitted, Sisseton-Wahpeton Oyate
- Vine T. Marks, Sr., Sisseton-Wahpeton Oyate

Project Workshop with IPT, Tribal Representatives and Iowa SHPO

On April 8th and 9th, 2015, a project workshop was held for the Effigy Mounds National Monument cultural landscape report and environmental assessment at the Monument headquarters. The purpose of this project workshop was to develop landscape treatment

alternatives for the Monument based on input from American Indian nations and tribes as well as other stakeholders. Meeting attendees included:

- James Nepstad, Superintendent EMNM
- Albert LeBeau, Cultural Resource Specialist, EMNM
- Rodney Rovang, EMNM
- Marla McEnaney, Historical Landscape Architect, NPS, MWRO
- Brenda Williams, Quinn Evans Architects
- Doug Jones, Iowa SHPO
- John Doershuk, University of Iowa, Office of the State Archaeologist
- Bill Whittaker, University of Iowa, Office of the State Archaeologist
- Lara Noldner, University of Iowa, Office of the State Archaeologist
- Paul West, Coolfire Conservation
- Will Ballard, Woolpert, Inc.
- James Blackdeer, Ho-Chunk Nation of Wisconsin
- Ira Anderson, Ho-Chunk Nation of Wisconsin
- Lance Foster, Iowa Tribe of Kansas and Nebraska
- Randy Teboe, Ponca Tribe of Nebraska
- Jim Whitted, Sisseton-Wahpeton Oyate
- Vine T. Marks, Sr., Sisseton-Wahpeton Oyate
- Dianne Desrosiers, Sisseton-Wahpeton Oyate
- Phyllis R. Roberts, Sisseton-Wahpeton Oyate
- LaDonna Holstein, Winnebago Tribe of Nebraska
- Reva DeCora, Winnebago Tribe of Nebraska
- William Quackenbush, Ho-Chunk Nation of Wisconsin
- Emily Smith-Deleon, Winnebago Tribe of Nebraska

Agency Coordination:

U.S. Fish and Wildlife Service

The U.S. Fish and Wildlife Service (USFWS) was contacted in a letter dated February 26, 2014 for Section 7 consultation and for data on federally-listed special status species. The USFWS did not respond to the request, but the species list for this CLR/EA was generated using the Effigy Mounds General Management Plan list and updated data from the USFWS Endangered Species website. A copy of the public review draft of the CLR / EA will be forwarded to the USFWS.

Iowa Department of Natural Resources

The Iowa Department of Natural Resources (DNR) was contacted February 26, 2014. The Iowa DNR responded in a letter dated April 21, 2014 that provided data on special status species. The Effigy Mounds National Monument CLR/EA process extended into the fall 2015 and a second request-via email-for an updated species list was sent to the Iowa DNR on October 6, 2015. An updated list of state species has not yet been sent by Iowa DNR.

United States Department of the Interior

NATIONAL PARK SERVICE
Effigy Mounds National Monument
151 HWY 76
Harpers Ferry, Iowa 52146

IN REPLY REFER TO:

February 26, 2014

1.A.2

Mr. Richard C. Nelson, Field Supervisor
U.S. Fish and Wildlife Service
Rock Island Field Office
1511 47th Avenue
Moline, Illinois 61265

Re: Effigy Mounds National Monument (EFMO)
Cultural Landscape Report/Environmental Assessment
Allamakee and Clayton Counties, Iowa

Dear Mr. Nelson:

The National Park Service has begun preparing a Cultural Landscape Report and Environmental Assessment (CLR/EA) to guide the future of landscape treatments at Effigy Mounds National Monument. This project is one of the first endeavors based on our recently completed General Management Plan/Environmental Impact Statement. You commented on that plan in 2012.

The main unit is located in Allamakee and Clayton Counties on the Prairie du Chien USGS topo quad map. The Sny Magill unit is located in Clayton County on the Clayton USGS topo quad map. We have attached a map of the monument for your reference. To reflect the most current information in the CLR/EA, we are requesting a list of federally-listed or any other special status species and designated critical habitat that might occur in the vicinity of the monument.

We appreciate your attention to this inquiry and look forward to further communication. Please send your response to my attention at the address noted above. If you have any questions regarding this request, please contact me at (563) 873-3491, extension 101.

Sincerely,

James A. Nepstad
Superintendent

Enclosure

United States Department of the Interior

NATIONAL PARK SERVICE
Effigy Mounds National Monument
151 HWY 76
Harpers Ferry, Iowa 52146

IN REPLY REFER TO:

February 26, 2014

1.A.2

Environmental Review for Natural Resources
Conservation and Recreation Division
Iowa Department of Natural Resources
502 E. 9th Street
Des Moines, Iowa 50319-0034

Re: Effigy Mounds National Monument (EFMO)
Cultural Landscape Report/Environmental Assessment
Allamakee and Clayton Counties, Iowa

Dear Sir or Madam:

The National Park Service has begun preparing a Cultural Landscape Report and Environmental Assessment (CLR/EA) to guide the future of landscape treatments at Effigy Mounds National Monument. This project is one of the first endeavors based on our recently completed General Management Plan/Environmental Impact Statement. Your office commented on that plan in 2012.

The main unit is located in Allamakee and Clayton Counties on the Prairie du Chien USGS topo quad map. The Sny Magill unit is located in Clayton County on the Clayton USGS topo quad map. We have attached a map of the monument and a GIS shape file of the monument boundaries for your reference. To reflect the most current information in the CLR/EA, we are requesting a list of state-listed or any other special status species and designated critical habitat that might occur in the vicinity of the monument.

We appreciate your attention to this inquiry and look forward to further communication. Please send your response to my attention at the address noted above. If you have any questions regarding this request, please contact me at (563) 873-3491, extension 101.

Sincerely,

James A. Nepstad
Superintendent

Enclosures (2)

Fields of Opportunities

STATE OF IOWA

TERRY E. BRANSTAD, GOVERNOR
KIM REYNOLDS, LT. GOVERNOR

DEPARTMENT OF NATURAL RESOURCES
CHUCK GIPP, DIRECTOR

April 21, 2014

US Department of the Interior National Park Service
Effigy Mounds National Monument (Attn: James Nepstad)
151 HWY 76
Harpers Ferry, IA 52146

RE: Environmental Review for Natural Resources
Effigy Mounds National Monument
Allamakee and Clayton Counties

Dear Mr. Nepstad:

Thank you for inviting Department comment on the impact of this project. Please reference the following DNR Environmental Review/Sovereign Land Program tracking number assigned to this project in all future correspondence related to this project: 9919. The Department has searched Natural Areas Inventory for records of animal and plant species determined to be endangered, threatened or of special concern in Iowa and summarized recent records of state-listed animals (Table 1) and plants (Table 2) known to occur in vicinity of Effigy Mounds National Monument. Department records and data are not the result of thorough field surveys. If listed species or rare communities are found during the planning or construction phases, additional studies and/or mitigation may be required.

This letter is a record of review for protected species, rare natural communities, state lands and waters in the project area, including review by personnel representing state parks, preserves, recreation areas, fisheries and wildlife but does not include any comment from the Environmental Services Division of this Department. This letter does not constitute a permit. Other permits may be required from the Department or other state or federal agencies before work begins on this project.

Table 1. Animal species determined to be endangered, threatened or of special concern in Iowa known to occur in the vicinity of Effigy Mounds National Monument.

Endangered		Threatened	
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Etheostoma chlorosoma	Bluntnose Darter	*Buteo lineatus*	Red-shouldered Hawk
Lampsilis higginsi	Higgin's-eye Pearly Mussel	*Esox americanus*	Grass Pickerel
Lampsilis teres	Yellow Sandshell	*Strophitus undulatus*	Creeper
Vertigo meramecensis	Bluff Vertigo Snail	*Ellipsaria lineolata*	Butterfly

502 EAST 9th STREET / DES MOINES, IOWA 50319-0034
PHONE 515-281-5918 FAX 515-281-6794 www.iowadnr.gov

Table 2. Plant species determined to be endangered, threatened or of special concern in Iowa known to occur in the vicinity of Effigy Mounds National Monument.

Threatened		Special Concern	
Scientific Name	**Common Name**	**Scientific Name**	**Common Name**
Juniperus horizontalis	Creeping Juniper	*Cypripedium candidum*	Small White Lady's Slipper
Corydalis aurea	Colden Corydalis	*Vitis aestivalis*	Summer Grape
Spiranthes lacera	Slender Ladies'-tresses		
Dodecatheon amethystinum	Jeweled Shooting Star		
Dryopteris intermedia	Glandular Wood Fern		
Platanthera psychodes	Purple Fringed Orchid		
Botrychium multifidum	Leathery Grape Fern		

If you have questions about this letter or require further information, please contact me at (515) 281-8967.

Sincerely,

Kelly Poole
Environmental Specialist
Conservation and Recreation Division

FILE COPY: Kelly Poole
Tracking Number: 9919

CC: U.S. Fish and Wildlife Service, Rock Island Field Office, 1511 47th Ave., Moline, IL 61265-7022

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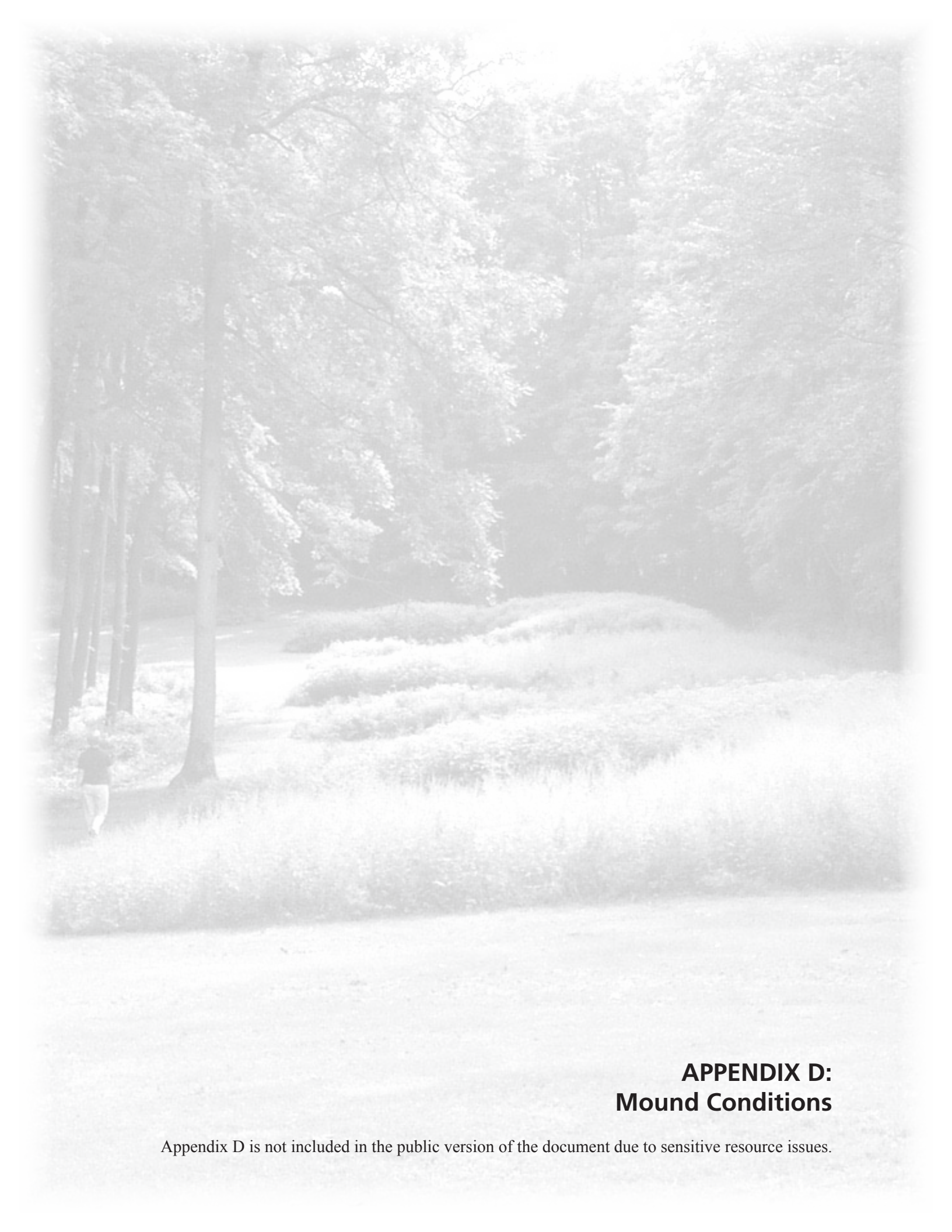

APPENDIX D:
Mound Conditions

Appendix D is not included in the public version of the document due to sensitive resource issues.

APPENDIX E:
Enabling Legislation

APPENDIX E: ENABLING LEGISLATION

The present boundaries of Effigy Mounds National Monument were established through the following legislation: 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.

Refer to Effigy Mounds National Monument Foundation Document, dated March, 2014, for specific information regarding legislation:

> **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."
>
> **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.[1]

[1] *Effigy Mounds National Monument Foundation Document* (U.S. Department of the Interior, National Park Service, 2014), 14.

October 25
1949
[No. 2860]

By the President of the United States of America
A Proclamation

Whereas the 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; and

Whereas the Advisory Board on National Parks, Historic Sites, Buildings, and Monuments at its meeting held October 28-30, 1941 declared the Effigy Mounds to be of national scientific importance; and

Whereas the State of Iowa has acquired title to 1,204.39 acres of land containing these unusual objects, and has conveyed 1,000 acres thereof to the United States as a donation for national-monument purposes, such conveyance having been accepted on behalf of the United States by the Acting Director of the National Park Service on August 31, 1949; and

Whereas it is contemplated that the State of Iowa will convey the remaining 204.39 acres of such land to the United States for national monument purposes in the near future; and

Whereas it appears that it would be in the public interest to set aside and reserve the said land as a national monument as hereinafter indicated:

Effigy Mounds National Monument.

Now, Therefore, I, Harry S. Truman, President of the United States of America, under and by virtue of the authority vested in me by section 2 of the act of June 8, 1906, 34 Stat. 225 (16 U.S.C. 431), do proclaim that, subject to all valid existing rights, the lands within the following-described boundaries and shown on the diagram hereto attached and forming a part hereof which belong to the United States are hereby reserved and established as a national monument, to be known as the Effigy Mounds National Monument; and that the lands within such boundaries which do not now belong to the United States shall become a part of such monument upon the acquisition of title thereto by the United States:

FIFTH PRINCIPAL MERIDIAN

T. 96 N., R. 3 W., Allamakee County

T. 95 N., R. 3 W., Clayton County

Beginning at the point where the West line of the Right-of-Way of the Chicago, Milwaukee, and St. Paul Railroad intersects the North line of Sec. 27 of said T. 96 N.;

Thence southerly along said West line of the Railroad Right-of-Way through said Sec. 27 and part of Sec. 34 of said T. 96 N. to the North

line of the Right-of-Way of Iowa Primary Highway No. 13 in Government Lot 3 of said Sec. 34;

Thence westerly along said North line of the Highway Right-of-Way through said Sec. 34 to the West line thereof;
Thence northerly along said Section line to the Southeast corner of the North Half of the Northeast Quarter of the Northeast Quarter (N 1/2NE 1/4 NE 1/4) of Sec. 33 of said T. 96 N.;

Thence westerly along the South line of said North Half of the Northeast Quarter of the Northeast Quarter (N 1/2 NE 1/4 NE 1/4) to said North line of the Highway Right-of-Way;

Thence northerly along said North line of the Highway Right-of-Way to the North line of said Sec. 33;

Thence easterly along said Section line to the Southwest corner of said Sec. 27;

Thence northerly along the West line of said Sec. 27, N. 0 degrees 07' E., 594.27 ft.;

Thence N. 68 degrees 54' E., 186.28 ft.;

Thence N. 58 degrees 08' E., 135.01 ft.;

Thence S. 77 degrees 11' E., 77.79 ft.;

Thence N. 62 degrees 15' E., 218.66 ft.;

Thence N. 57 degrees 14' E., 168.48 ft.;

Thence N. 62 degrees 34' E., 430.06 ft.;

Thence N. 50 degrees 06' E., 142.68 ft.;

Thence N. 24 degrees 30' E., 319.20 ft. to a point on the East line of the West Half of the Southwest Quarter (W 1/2 SW 1/4) of said Sec. 27 and N. 0 degrees 16 1/2' W., 1477.65 ft. from the Southeast corner of said West Half of the Southwest Quarter (W 1/2 SW 1/4);

Thence along said East line N. 0 degrees 16 1/2' W., 947.40 ft.;

Thence N. 89 degrees 43 1/2' E., 367.08 ft.;

Thence N. 0 degrees 16 1/2' W., 445.00 ft.;

Thence S. 89 degrees 43 1/2' W., 367.08 ft. to a point on the West line of the Southeast Quarter of the Northwest Quarter (SE 1/4 NW 1/4) of said Sec. 27;

Thence northerly along the West line of the Southeast Quarter of the Northwest Quarter (SE 1/4 NW 1/4) and Government Lot 1 of said Sec. 27 to the North line of Sec. 27;

Thence easterly along the North line of Sec. 27 to the point of beginning.

Also, beginning at a point where the South line of the North Half (N 1/2) of Government Lot 1 of Sec. 10 in said T. 95 N. intersects the West line of the Right-of-Way of Iowa Primary Highway No. 13;

Thence westerly along said South line of the North Half (N 1/2) of Government Lot 1 to the West line thereof;

Thence northerly along said West line of Government Lot 1 to a point S. 0 degrees 39 1/2' E., 50 ft. from the Northwest corner thereof;

Thence along a straight line to a point on the North line of said Sec. 10 and N. 86 degrees 18 1/2' W., 150 ft. from said Northwest corner of Government Lot 1;

Thence westerly along the said North line of Sec. 10 to the Northwest corner thereof;

Thence northerly along the West line of Sec. 3 of said T. 95 N., to the Northwest corner thereof;

Thence westerly along the South line of Sec. 33 of said T. 96 N., to the Southwest corner of the East Half of the Southeast Quarter (E 1/2 SE 1/4) thereof;

Thence northerly along the West line of said East Half of the Southeast Quarter (E 1/2 SE 1/4) to the Southeast corner of the Northwest Quarter of the Southeast Quarter (NW 1/4 SE 1/4) of said Sec. 33;

Thence westerly along the South line of said Northwest Quarter of the Southeast Quarter (NW 1/4 SE 1/4) to the Southwest corner thereof;

Thence northerly along the West line of said Northwest Quarter of the Southeast Quarter (NW 1/4 SE 1/4) to the center of said Sec. 33;

Thence easterly along the Quarter (1/4) line of said Sec. 33 to the East Quarter (1/4) corner thereof;

Thence northerly along the West line of said Sec. 34 to the South line of the said Highway Right-of-Way;

Thence easterly and southerly along the South and West line of said Highway Right-of-Way through said Secs. 34, 3, and the North Half (N

1/ 2) of Government Lot 1 of Sec. 10 to the point of beginning.

The small area in Lot 3, Sec. 34, T. 96 N., R. 3 W., lying south of the middle of Yellow River and between the Chicago, Milwaukee, and St. Paul Railroad Right-of-Way line and the east Right-of-Way line of the Iowa Primary Highway No. 13 is not intended to be included in this description.

The area as described contains in the aggregate 1,204.39 acres, more or less.

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.

The Director of the National Park Service, under the direction of the Secretary of the Interior, shall have the supervision, protection, management, and control of this monument as provided in the act of Congress entitled "An act to establish a National Park Service, and for other purposes," approved August 25, 1916, 39 Stat. 535 (16 U.S.C. 1-3), and acts supplementary thereto or amendatory thereof.

In Witness Whereof, I have hereunto set my hand and caused the seal of the United States to be affixed.

DONE at the City of Washington this 25th day of October in the year of our Lord nineteen hundred and forty-nine, and of the Independence of the United States of America the one hundred and seventy-fourth.

HARRY S. TRUMAN

By the President:

DEAN ACHESON
Secretary of State

Public Law 87-44

May 27, 1961
[H. R. 5571]

AN ACT

To provide for the addition or additions of certain lands to the Effigy Mounds National Monument in the State of Iowa, and for other purposes.

Effigy Mounds National Monument, Iowa. Lands.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, for the purposes of preserving certain important prehistoric Indian mounds and protecting existing wildlife and other natural values, the following described lands, consisting of approximately 272 acres, are hereby added to the Effigy Mounds National Monument in the State of Iowa:

TRACT A

Township 94 north, range 3 west, fifth principal meridian, Clayton County, Iowa: the portion of the southeast quarter southeast quarter of section 22 that lies between the easterly right-of-way line of the Chicago, Milwaukee, Saint Paul, and Pacific Railroad and the section line common to sections 22 and 23; those portions of lot 1 (except the northerly 900 feet thereof), lot 2, and lot 3 that lie easterly of the easterly right-of-way line of said railroad, the unnumbered lot adjacent to lot 3; and the former meandered river channel between said lot 3 and said unnumbered lot, all in section 23; containing in all 138 acres more or less.

TRACT B

Township 96 north, range 3 west, fifth principal meridian, Allamakee County, Iowa: Southwest quarter southeast quarter of section 33, containing 40 acres more or less.

TRACT C

Township 96 north, range 3 west, fifth principal meridian, Allamakee County, Iowa: South half northeast quarter and south half northeast quarter northeast quarter of section 33, excepting the right-of-way of Iowa State Highway Numbered 13; containing 93.7 acres more or less.

SEC. 2. The lands under the administrative control and jurisdiction of the United States Fish and Wildlife Service within tract A are included in the monument subject to such terms and conditions as the Secretary of the Interior may deem necessary and desirable in order to facilitate and control public access to the adjacent lands of the Upper Mississippi River Wild Life and Fish Refuge, and subject to the authority of the Secretary of the Interior to return them to the jurisdiction of the United States Fish and Wildlife Service when they are no longer required for purposes of the monument. The lands under the administrative control and jurisdiction of the Corps of Engineers, United States Army, within tract A are included in the monument subject to the right of the Corps of Engineers to retain adequate flowage and navigation rights thereon to facilitate the operation and maintenance of lock and dam numbered 10, Upper Mississippi River, or the construction, operation, and maintenance of any dam affecting this location.

SEC. 3. The Secretary of the Interior is hereby authorized to acquire the lands designated tract C by purchase or through donations.

Applicability.

SEC. 4. All laws, rules, and regulations applicable to such national monument shall be applicable with respect to the lands described in the first section of this Act upon the addition of such land to such national monument.

Appropriation.

SEC. 5. There is hereby authorized the sum of not to exceed $2,000 for the purpose of acquiring lands, interests in lands, and improvements thereon as may be necessary for carrying out this Act.

Approved May 27, 1961.

PUBLIC LAW 106–323—OCT. 19, 2000 114 STAT. 1289

Public Law 106–323
106th Congress

An Act

To authorize the addition of certain parcels to the Effigy Mounds National Monument, Iowa.

Oct. 19, 2000
[H.R. 3745]

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

Effigy Mounds National Monument Additions Act.
16 USC 431 note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Effigy Mounds National Monument Additions Act".

SEC. 2. DEFINITIONS.

In this Act:

(1) MAP.—The term "map" means the map entitled "Proposed Boundary Adjustments/Effigy Mounds National Monument", numbered 394/800 35, and dated May 1999.

(2) MONUMENT.—The term "Monument" means the Effigy Mounds National Monument, Iowa.

(3) SECRETARY.—The term "Secretary" means the Secretary of the Interior.

SEC. 3. ADDITIONS TO EFFIGY MOUNDS NATIONAL MONUMENT.

(a) IN GENERAL.—The Secretary may acquire by purchase, from willing sellers only, each of the parcels described in subsection (b).

(b) PARCELS.—The parcels referred to in subsection (a) are the following:

(1) FERGUSON/KISTLER TRACT.—The parcel consisting of approximately 1054 acres of undeveloped, privately-owned land located in portions of sections 28, 29, 31, 32, and 33, T. 95 N., R. 3 W., Fairview Township, Allamakee County, Iowa, as depicted on the map.

(2) RIVERFRONT TRACT.—The parcel consisting of approximately 50 acres of bottom land located between the Mississippi River and the north unit of the Monument in sections 27 and 34, Fairview Township, Allamakee County, Iowa, as depicted on the map.

(c) BOUNDARY ADJUSTMENT.—On acquisition of a parcel described in subsection (b), the Secretary shall modify the boundary of the Monument to include the parcel. Any parcel included within the boundary of the Monument pursuant to this subsection shall be administered by the Secretary as part of the Monument.

(d) AVAILABILITY OF MAP.—The map shall be on file and available for public inspection in appropriate offices of the National Park Service.

(e) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to carry out this Act $750,000.

Approved October 19, 2000.

LEGISLATIVE HISTORY—H.R. 3745 (S. 1643):

HOUSE REPORTS: No. 106–826 (Comm. on Resources).
SENATE REPORTS: No. 106–374 accompany S. 1643 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 146 (2000):
Sept. 26, considered and passed House.
Oct. 5, considered and passed Senate.

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APPENDIX F:
Mound Management at Other Sites

APPENDIX F: MOUND MANAGEMENT AT OTHER SITES

American Indian mounds are constructed structures that are topographic features on the landscape with associated archeological resources. Their management and maintenance falls under the purview of archeologists, landscape architects, architects, cultural resource managers, natural resource managers and maintenance crews. Each of these disciplines approach resource management from a different perspective. Each mound site contains unique resources constructed by groups of people with different backgrounds for a variety of purposes in distinct environments that require consideration when determining management and maintenance techniques. To assist in development of the recommendations for Effigy Mounds National Monument, mound management approaches used at other sites and organizations (listed below) were reviewed.

- Angel Mounds State Historic Site, Evansville, Indiana
- Poverty Point World Heritage Site, Pioneer, Louisiana
- Kingsley Bend Site, Wisconsin
- Wisconsin State Parks, including Aztalan State Park, Lake Mills, Wisconsin
- Wickliffe Mounds State Historic Site, Wickliffe, Kentucky
- Moundville Archaeological Park, Moundville, Alabama
- Cahokia Mounds World Heritage Site, Collinsville, Illinois
- Newark Earthworks State Memorial, Newark and Heath, Ohio
- Hopewell Culture National Historical Park, Chillicothe, Ohio
- Folkert Mound Group, Hardin County, Iowa
- Iowa Office of the State Archaeologist
- Indian Mounds Regional Park, St. Paul, Minnesota
- National Park Service Sustainable Military Earthworks Management
- Hadrian’s Wall, United Kingdom

Summary of Mound Management Approaches

Monitoring

Mounds should be regularly inspected for erosion, tampering, or other damage. The vegetation community on the mounds and the surrounding area should be inspected for invasive species and hazard trees.

Site Access and Trail Features

Pedestrian and vehicular traffic is generally prohibited on mounds. Erosion is the primary problem associated with pedestrian traffic. Signs, trails, fencing, utilities, and other site features should not be placed on or in the mounds. A buffer of at least five feet should be implemented to prevent traffic on the mounds. Trail placement, low-profile fencing, and appropriate signage should be used to guide movement at the site. Mound restoration, if necessary, should be undertaken only after consultation.

Vegetation Management

Tree and woody shrub removal is critical to nearly all mound management approaches identified. Tree removal prevents damage to the mounds from tree throws and root lifts, and reduces erosional problems. Additionally, tree roots may also impact archeological features through prying, wedging, and increased fungal growth.[1]

Revegetation with grasses and forbs is widely supported as an effective means to protect and stabilize mounds and earthworks. Groundcover selection is based on numerous considerations including coverage and erosion control, trimming requirements, native species and biodiversity, mound visibility, and public perception.

At a number of mound sites, turf grass including Bermuda grass, brome, and fescue are preferred groundcover for mounds. Advantages of turfgrass include a shallow root system, commonly used maintenance practices, and consistent appearance. Trimmed grass increases the visibility of the mounds and suits the site for the purposes of interpretation.

Mound sites near EMNM in Wisconsin and Iowa specify that mounds should be planted with native herbaceous species promoting the establishment of a prairie and/or oak savanna areas at mound site. A mix of native species including grasses, legumes, and forbs also promotes biodiversity at the site, and root systems of prairie species aid in controlling erosion. Additionally, native species are adapted to the local climate and conditions, and may require less maintenance than introduced species once established.[2]

However, there is potential for deep-rooted prairie plants to impact subsurface archeological features. In particular, tap roots have a greater potential to negatively influence artifacts and underground features than fibrous roots, and therefore potential depth of roots and distribution of roots in the soil profile should be considered before selecting a seed mixture.[3]

A tool available through the USDA has been developed to calculate seed mixes that meet Iowa National Resource Conservation Service (NRCS) standards. This tool incorporates both introduced and native species into seed mixes adapted to local conditions including prairie, savanna, wetland, and woodland sites.[4] Short-to-midgrass species including sideoats grama, junegrass, and little bluestem are recommended by the Iowa Office of the State Archaeologist to minimize the perception of prairie areas as “messy” or “unkempt,” and to aid in visibility of mound shapes.[5]

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[1] James Stubbendieck and Cheryl D. Dunn, “Review of the Literature on the Influence of Roots on Archeological Features and Vegetation Restoration Recommendations,” University of Nebraska, December 2011, 8.
[2] Ibid., 8-54.
[3] Ibid.
[4] Iowa Natural Resource Conservation Service, *Iowa NRCS Native Seed Calculator*, USDA, updated November 13, 2012.
[5] Iowa Office of the State Archaeologist, “13HA30, Folkert Mound Group Recommendations,” University of Iowa, Iowa City, Iowa, 2004; and Shirley Schermer, John Pearson, and Jennifer Anderson-Cruz, email correspondence to author, the University of Iowa, Office of the State Archaeologist, Iowa City, Iowa, April 2014.

Maintenance

Regular maintenance of groundcover in mound areas includes periodic trimming or burning, depending on the species present and maintenance goals of the site, and removal of woody volunteers. Grassy areas surrounding the mounds may be mowed regularly throughout the season to the desired height or condition.

Woody volunteers on mounds should be monitored and removed annually by hand-cutting and treating stumps with an herbicide such as Garlon or Roundup. Prescribed burns will also aid in controlling woody species on mounds.

For mounds in less visible areas, maintenance requirements may be reduced to a three-year cycle:

- Year one: trim the site during the spring.
- Year two: allow vegetation to grow throughout the season.
- Year three: controlled burn during the spring.

Prescribed burns may be implemented every one to three years to manage herbaceous vegetation and control growth of weeds and woody vegetation on mounds. This practice also serves to remove the biomass from the site, which may otherwise impede growth of prairie species.[6]

Review of Mound Management Strategies

Angel Mounds State Historic Site, Evansville, Indiana

Angel Mounds State Historic Site includes twelve American Indian mounds located in southwestern Indiana. The site tells the story of the people of the Middle Mississippian culture who inhabited the area from ca. 1000 to ca. 1450 AD. The mounds, which were built for ceremonial and residential purposes, are scattered in an area of approximately 100 acres. The State Historic Site, totaling 600 acres, is operated by the Indiana State Museum, and includes an interpretive center, recreations of the Mississippian buildings and a working reconstruction of the 1939 archaeological laboratory, as well as trails for biking and hiking.[7]

Management of the mounds at this location is addressed differently for large-scale versus small-scale mounds. Substantial mound stabilization efforts were undertaken at the three large mounds to correct erosion issues. Annual maintenance of the large mounds includes a controlled burn in late February, followed by hand treatment of nuisance woody plants. If necessary, the vegetation on the large mounds is trimmed with a weed whacker. Extensive tree removal from the site's largest mound began in 2002. The mound is now clear of trees. The eight smaller mounds at Angel Mounds State Historic site are mowed according to the site's weekly mowing plan.

The mounds are planted with a grass blend used on golf courses that is allowed to grow tall and lay over, reducing the need for mowing. Throughout the site, old stumps are

[6] Stubbendieck and Dunn, "Review of the Literature on the Influence of Roots on Archeological Features and Vegetation Restoration Recommendations," 54.
[7] Indiana State Museum, "Angel Mounds Historic Site."

gradually removed from the mounds to protect subsurface remains. Following stump removal, the holes are lined with chalk and filled with new, clean soil.[8]

Poverty Point World Heritage Site, Pioneer, Louisiana

Poverty Point World Heritage Site includes five mounds and a series of ridges in open and wooded areas. The mounds were constructed between 1700 and 1100 BC at the height of the Poverty Point culture, which incorporated an extensive trading network that stretched for hundreds of miles across the North American continent. The property is approximately 400 acres and includes a museum, hiking trails, and outdoor classrooms and meeting areas.[9]

Mounds at Poverty Point World Heritage Site are managed through the site's Grounds Management Plan. Trees have been removed from the mounds to reduce damage to the mounds from tree throws and root lifts and to reduce erosion problems. The mounds are planted with natural and planted grasses, primarily Bermuda grass. Mounds with steep slopes are mowed using a slope mower set atten inches high. Mounds with shallower slopes are mowed with a regular mower set approximately six inches high. Ridges in wooded areas are annually cleared of fallen trees and limbs and mown with brush hogs.[10] A 2013 study of dendrogeomorphology (the study of surface processes using tree rings) concluded that the site's largest mound could have incurred substantial damage from windthrown trees (a conservative estimate of 1308 cubic yards) if trees had not been removed from the mound.[11]

Kingsley Bend Site, Wisconsin

The Kingsley Bend site is located in a preserve in central Wisconsin owned and managed by the Ho-Chunk Nation of Wisconsin. The preserve, which overlooks the Wisconsin River, includes at least thirty conical, linear, and effigy mounds constructed by the Effigy Mound Culture between ca. AD 700 and 1000.[12]

Recommendations for the Kingsley Bend site focus on tree removal and promoting light for growth of protective grass cover. Oak savanna/white pine grove or native grassland areas are promoted in the area surrounding the mounds. Mounds are assessed regularly through an annual, two-year, or four-year process. Hazard trees, including dead or leaning trees, or trees with excessive branch loss, are removed from the mounds and from a twenty-five foot buffer area surrounding the mounds. Tree and brush removal is completed when the ground is frozen to minimize ground disturbance. Stumps are ground to within two inches of the surface, but not removed, and new woody growth is treated with an herbicide such as Triclopyr (Garlon). Herbaceous vegetation on the mounds is maintained either through prescribed burns or mowing. If mowing is implemented, mounds are mowed at a high setting to minimize ground disturbance. Alternately,

[8] Mike Linderman, Western Regional Manager for State Historic Sites, email message to author, August 2014.
[9] Louisiana State Parks Historic Sites, "Poverty Point World Heritage Site."
[10] David Griffing, Poverty Point Site Manager, email message to author, August 2014.
[11] Dana Greenlee, "Dendrogeomorphological Analysis of Earthwork Stability at Poverty Point SHS, Louisiana," (University of Louisiana at Monroe, Poverty Point Station Archaeology Program, September 30, 2013).
[12] Devil's Lake State Park Visitor Guide, "Kingsley Bend Indian Mounds."

mounds may be mowed with a push mower only in the early spring, and the area around the mounds is mowed regularly throughout the growing season.[13]

Wisconsin State Parks (numerous effigy and burial mounds including Aztalan State Park, Lake Mills, Wisconsin)

The Wisconsin Department of Natural Resources Burials, Earthworks, and Mounds Preservation Policy and Plan outlines general policies for the preservation of approximately 4,000 mounds within the state. The plan directs that each site is assessed according to the condition of the burial area proper, general conditions of the site, location (public accessibility/remoteness), and risk of damage. Assessment includes an **archeological assessment** to identify mound condition including shapes, dimensions, relationship to other mounds, presence of "spirit houses," depressions or other burial features, general condition (looters pits, animal burrows, actual/potential impacts), and relationship to nearby prominent topographic features. Additionally, a **vegetation assessment** at each site is conducted to describe the existing plant community including endangered and threatened species and invasives, discussion of forest health including impact of tree removal on mounds if area is wooded, and whether use of fire is an appropriate and desirable vegetation management tool at the site.

The Wisconsin DNR policies specify that no disturbance is to occur within five feet of the base of the mound; a fifteen foot buffer is preferable. When mounds occur in clusters that form "groups" or "sub-groups," mounds are maintained as a group, with the buffer area extending out from a perimeter line which circumscribes the group or sub-group. Mounds in remote areas and/or away from public use areas are not indicated with signage, and are maintained in a more natural condition. These sites do not have trails built to, around, or proximal to the burial site.

Vegetation Management: Trees and shrubs are removed from mounds and the immediately adjacent area (within approximately fifteen feet of the mound base) to protect from windthrow and damage and encourage growth of ground cover. Woody vegetation including non-native buckthorns (*Rhamnus spp.*), bush honeysuckles (*Lonicera spp.*), white mulberry (*Morus alba*), box elder (*Acer negundo*), and ash (*Fraxinus spp.*) less than four inches dbh are removed with a forestry (Fecon) mower. Selected trees and selected understory species (including native dogwoods) may be retained for forestry purposes or when significant, unavoidable mound damage would occur during tree removal. Tree removal must avoid disturbing the burial site in any way. Trees may not be dropped or dragged across the mound, and vehicles and materials may not be staged on the mounds. Stump removal is prohibited. Stumps are left in place or cut to ground level using smaller equipment. Stump removal should not penetrate below the "natural" soil surface. For mounds with overgrown woody vegetation, tree and shrub removal may be undertaken using a phased approach. Herbicide application may be necessary to control invasive and/or woody species; ideally, application should be selective and targeted rather than broadcast type.

Native grassy vegetation is established to stabilize soils and inhibit woody plant succession on mounds. Grassy vegetation is maintained through mowing and/or periodic controlled burning. Mowing must avoid having mowing equipment blades or deck "clip" or otherwise cut into the burial area. Mounds do not need to be mowed with every

[13] Bill Quackenbush, email message to author, April 2014.

mowing. In general, mounds should be mowed once in the spring and again in the fall with mower deck set high. Hand-mowing of mounds is preferable, and mowing should not occur when soils are water-saturated. Ideally, species planted on mounds are native species commonly found in the area that require little to no routine maintenance. For shoreline site restoration at Aztalan State Park, plugs are planted one inch on center. Plugs consist of native species selected from a genotype within a one hundred mile radius. Following initial planting, the site is watered two times during each seven day period.

A Planting Plan for Aztalan State Park in Jefferson, Wisconsin identifies a number of other low-height (under three feet) native Midwestern species for various habitat types:

Wet Mesic:

- Spreading oval sedge (*Carex normalis*)
- Brown fox sedge (*Carex vulpinoidea*)
- Southern blue flag iris (*Iris virginica*)
- Common rush (*Juncus effuses*)
- Torrey's rush (*Juncus torreyi*)

Mesic:

- Nodding pink onion (*Allium cernuum*)
- Meadow anemone (*Anemone canadensis*)
- Great blue lobelia (*Lobelia siphilitica*)
- Heart-leaved golden alexanders (*Zizia aptera*)

Mesic Dry:

- Side-oats grama (*Bouteloua curtipendula*)
- Prairie brome (*Bromus kalmia*)
- Flowering spurge (*Euphorbia corrolata*)
- Rough blazing star (*Liatris aspera*)
- Little bluestem (*Schizachyrium scoparium*)

Woodland:

- Sharp-lobed hepatica (*Hepatica acutiloba*)
- Wild geranium (*Geranium maculatum*)
- Dutchman's breeches (*Dicentra cucullaria*)[14]

Public use, trails, signs, and fences: Pedestrian and vehicular traffic is not allowed on mounds except for maintenance. Signage indicates that the site is protected from disturbance and directs people to stay on the trail and off the mounds. Signs may also inform the public about the significance of the mounds and the people who built them and the sacred nature of the site, when appropriate. Trails are located a minimum of five feet from the base of the mound or mound group. A trail does not need to be built to provide access to every mound in a group. Wood chips, shredded bark, or mowing are used for trail maintenance. Fencing may also be used to direct and limit traffic flow. Fencing should be a low-profile type or barrier-type vegetation.

[14] Wisconsin Department of Natural Resources, "Woody Invasive Vegetation Removal and Site Restoration," Aztalan State Park, August 7, 2013.

Mound site restoration requires extensive consultation before proceeding. A general recommended procedure includes the following steps:

- Record the nature and extent of damage and current mound condition
- Remove leaf litter from the damaged area
- Lay geotextile fabric on the ground surface in the area of damage
- Scatter current year coins (year of restoration; nickel preferred) on the fabric to indicate time of restoration
- Use hand tools to place new soil from an off-site location on the fabric to replace missing soil
- Do not apply chalk or lime to the ground surface to outline mounds or mound damage. [15]

Wickliffe Mounds State Historic Site, Wickliffe, Kentucky

The Wickliffe Mounds State Historic Site is located in western Kentucky and is managed through the Kentucky State Parks. The site includes two large platform mounds, with at least eight smaller mounds scattered around a central plaza area. The mounds were constructed by people of the Mississippian culture from approximately AD 1100 to 1350. The park includes a museum, welcome center, gift shop, trails, and picnic areas.[16]

Wickliffe Mounds State Historic Site does not have a written mound management plan for the site's mound resources. Rules and regulations concerning park usage dictate that digging, disturbing the surface, and fires are not allowed within the site. Visitors are allowed to walk on the mounds, which are covered with a thick growth of grass to protect from erosion. Grasses were established naturally, and consist of a mix of Bermuda grass, Kentucky bluegrass, and tall. Grass is mowed to approximately three to four inches. Brush including grapevines, honeysuckle, and tree saplings are not allowed to accumulate on or near the mounds. Brush is removed through careful use of weedeaters or cut using machetes to avoid disturbing the soil.[17]

[15] Wisconsin Department of Natural Resources, "Burials, Earthworks, and Mounds Preservation Policy and Plan;" Wisconsin Department of Natural Resources, "Woody Invasive Vegetation Removal and Site Restoration," Aztalan State Park, August 7, 2013; and Mark Dudzik, email correspondence with author, December 9, 2014.
[16] Kentucky State Parks. "Wickliffe Mounds."
[17] Carla Hildebrand, Wickliffe Mounds State Historic Site Park Manager, email message to author, October 2014.

Moundville Archaeological Park, Moundville, Alabama

Moundville Archaeological Park was the site of a large settlement by people associated with the Mississippian culture from approximately AD 1000 to AD 1450. The park is located in central Alabama and is managed as part of the University of Alabama Museums. It contains twenty-six mounds. Park facilities include a museum, gift shop/café, and campsites.[18]

While Moundville Archaeological Park does not have a written formal mound management plan, the park references an archeological site management plan that details procedures for proposed ground disturbance related to archeological research, new construction, buried systems, and park maintenance. Excavations at the site are to be kept to the minimum level necessary to address the specific research questions. The park's mounds are surfaced primarily with grass to prevent soil erosion. Eighteen mounds within the park are mowed no more than is necessary to prevent broadleaf vegetation from growing. The largest mound is approximately sixty feet tall and is too steep to be mowed; in the past the mound had been cut twice per year by hand using inmate labor, but the mound has recently become overgrown due to the closure of the correctional facility. Two large mounds are located in a wooded area of the site and have trees growing on them. Management for these mounds includes removing any trees that are dying or are otherwise at risk of falling over to prevent damage from upturned root balls.[19]

Cahokia Mounds World Heritage Site, Collinsville, Illinois

Cahokia Mounds World Heritage Site is managed as a State Historic Site in southwestern Illinois. This 2,200-acre property is the site of a large city occupied by people of the Mississippian Culture from ca. AD 700 to the late 1300s. The city originally covered approximately 400 acres and included at least 120 mounds; 70 mounds now remain within the protected site. Site facilities include trails and an interpretive center. [20]

While mound management at Cahokia Mounds World Heritage Site follows no formal plan, mound management practices have been developed based on experimentation and collaboration with the local agricultural resource station. At the time of its occupation, the landscape at Cahokia would have included plants suited to a mesic prairie community, with woody vegetation in wetland areas and on the fringes of the settlement area. The site is therefore maintained as grassland. Trees and brush were removed from the mounds during the 1960 through the early 1980s, with the exception of remote mounds. Smooth brome grass was selected on the mounds for erosion control. The grass is short with a thick, even spread and medium depth roots to protect subterranean resources. To establish the brome, fescue (KY 31 fescue) was planted as a short-term cover, and brome was repeatedly over-seeded in the spring and the fall until a cover of brome was well-established. The grass is currently mowed to a height of eight inches. Small, short mounds are mowed every several weeks, and larger, steeper mounds are

[18] University of Alabama Museums, "Moundville Archaeological Park."
[19] William Bomar, Executive Director, University of Alabama Museums, email message to author, October 2014; and Moundville Site Advisory Board, "Management Policies Governing the Treatment of Archaeological Resources at Moundville Archaeological Park," University of Alabama Museums, Tuscaloosa, Alabama, March 2, 1995.
[20] Cahokia Mounds State Historic Site, "Cahokia Mounds Site Brochure."

mowed two to three times per year to prevent growth of trees and brush. Controlled burns are also used on steep slopes. Visitors are not allowed to walk on mounds except for the large Monks Mound. Visitors may access the flat top of this mound by a staircase, but are kept off the side slopes.[21]

Newark Earthworks State Memorial, Newark, Ohio and Heath, Ohio

Newark Earthworks State Memorial is located in central Ohio. The site consists of two disconnected units that include three major earthwork enclosures and associated mounds originally encompassing more than four square miles. The earthworks were constructed between 100 BC and AD 500 by the Hopewell Culture. Today, 206 acres are preserved as a state park operated by the Ohio Historical Society.[22]

The Ohio Historical Society has established a society-wide policy on maintenance practices for earthworks. Erosion has been identified as the primary threat to earthworks at the Newark Earthworks State Memorial, and maintenance practices for the site's earthworks focus on minimizing damage from erosion. The site's preservation and treatment plan specifies that an existing conditions assessment will be completed for each earthwork at the site. Pedestrian traffic on earthworks will be minimized, and erosion caused by pedestrian traffic on a path accessing the Great Circle will be mitigated. Turf grass is the preferred groundcover for the earthworks. In the long-term, trees are to be eliminated from the interior of the enclosures. Small trees (diameter of less than six inches) are to be removed from the site and new plantings restricted to areas outside the earthworks. However, large trees will be retained on the site until they represent an imminent threat to the earthworks or if there is an over-riding need to remove the tree for interpretation, preservation, or access. Tree plantings are being considered around the perimeter of the site to create a visual, sound, and smog barrier, with preference toward planting native species.[23]

Hopewell Culture National Historical Park, Chillicothe, Ohio

Hopewell Culture National Historical Park is composed of six major earthworks complexes on discontinuous units in south-central Ohio. The park totals 1,828 acres, with each of the units averaging around 100-300 acres, and is owned and managed by the National Park Service. The earthworks and mounds are ceremonial in nature and were constructed primarily between AD 1 and AD 400 by the Hopewell Culture. The mound groups are situated in close association to local waterways, and are located primarily in active or fallow agricultural lands or forested areas.

In 2011, a literature review on the influence of roots on archeological features was completed to inform vegetation management at Hopewell Culture National Historical Park. This literature review noted that re-vegetation with grasses and forbs has been given broad support to protect and stabilize archeological sites. However, roots exert some influence on archeological sites and features, including vertical displacement, changes in soil chemistry and hydrology, and a community shift of microorganisms.

[21] Woolpert, Inc, "Cahokia Mounds State Historic Site Master Management Plan," St. Louis, Missuori, January, 2008, 23; and Mark Esarey, Site Superintendent, Cahokia Mounds SHS, NHL, WHS, email message to author, October 2014.
[22] Ohio History Connection, "Newark Earthworks."
[23] Ohio Historical Society, "Newark Earthworks HSMP," Newark Earthworks State Memorial, Newark, Ohio.

Research has primarily focused on the effects of tree roots on archeological sites, which may include tree uprooting, prying and wedging, and increased fungal growth that can obscure archeological features. In addition, tap roots have a greater potential to negatively influence artifacts and underground features than fibrous roots, and therefore potential depth of roots and distribution of roots in the soil profile should be considered before selecting a seed mixture.[24]

The report identifies eight classifications of root systems with varying depth and potential influence on archeological feature that are considered when designing seed mixtures. A selection of grasses and forbs was selected for re-vegetation of sites throughout the park, consisting primarily of Ohio-native species with root systems that will not adversely impact archeological resource. The planting mixes vary in species diversity to address expected weed competition, cost, and a desire for increased biodiversity of the site, in addition to other considerations. Seeding is recommended in the dormant season from November 15 to March 15, with best results when seeding is completed April 15 to May 31. A no-till drill is suggested to seed native prairie species, though the seeds may also be broadcast during winter months with snowcover present. Removal of the biomass through burning or haying is recommended a minimum once every three years.[25]

Stubbendieck and Dunn identify several U.S. native species with shallow roots:

- Big bluestem (*Andropogon gerardii*)
- Indiangrass (*Sorghastrum nutans*)
- Switchgrass (*Panicum virgatum*)
- Little bluestem (*Schizachyrium scoparium*)
- Sideoats grama (*Bouteloua curtipendula*)
- Canada wildrye (*Elymus candensis*)
- Orange butterflyweed (*Asclepias tuberosa*)
- New England aster (*Symphyotrichum novae-angliae)*
- White wild indigo (*Baptisia alba)*
- Lanceleaf coreopsis (*Coreopsis lanceolata*)
- Purple prairieclover (*Dalea purpura*)
- Canada tick trefoil (*Desmondium canadense*)
- Illinois bundleflower (*Desmanthus illinoensis*)
- Purple coneflower (*Echinacea purpurea*)
- Rattlesnake master (*Eryngium yuccifolium*)
- False sunflower (*Heliopsis helianthoides*)
- Dense blazingstar (*Liatris spicata*)
- Wild bergamot (*Monarda fistulosa*)
- Upright coneflower (*Ratibida columnifera*)
- Black-eyed Susan (*Rudbeckia hirta*)
- Grayhead coneflower (*Ratibida pinnata*)
- Cup-plant (*Silphium perfoliatum*)
- Prairie dock (*Silphium terebinthinaceum*)
- Stiff goldenrod (*Oligoneuron rigidum*)[26]

[24] Stubbendieck and Dunn, "Review of the Literature on the Influence of Roots on Archeological Features and Vegetation Restoration Recommendations," 8-54.
[25] Ibid.
[26] Ibid., 70-95.

Prescribed burns may be implemented every one to three years to manage herbaceous vegetation and control growth of weeds and woody vegetation on mounds. This practice also serves to remove the biomass from the site, which may otherwise impede growth of prairie species.[27]

Management Recommendations for Burial Sites, Iowa Office of the State Archaeologist

The Iowa Office of the State Archaeologist (OSA), in conjunction with the OSA Indian Advisory Council, have developed recommendations for long-term management of mounds and other unmarked burial sites located in the state of Iowa.

General Recommendations

- Inspect mounds periodically for signs of erosion, illegal tampering, or other damage
- Vehicles should not be driven onto mounds or burial sites. Walking on mounds should be avoided, and trails, roads, and paths should clearly visible and situated to avoid mound or burial sites.
- Fence posts, signs, utility poles, etc should not be placed in or on mounds.
- Repair old "excavation" depressions by filling with similar soil and compacting by hand only to the contour of the mounds. Mark the bottom of the pit with a modern artifact with the current year's date. Soil should be obtained from an area well away from the mounds or other archeological site.
- If mounds are mown, care should be taken to avoid damage by raising the blade of the mower. Avoid mowing while soil is wet, and use a hand mower or low impact tires if possible.

Recommendations for timbered areas

- Establish grass cover to prevent erosion.
- Trees and brush should be removed from within 8' of a mound.
- Tree cutting is to be done when the ground is frozen to reduce damage to the mounds. Remove trees from mound by cutting by hand down to 6" below ground level and filling the resulting cavity with clean soil, followed by reseeding. This method requires periodic soil filling as the tree decomposes. Alternately, trees may be cut to the ground level and left to decompose naturally.
- Remove brush from the mounds annually and haul away from the mound area by hand.

Recommendations for open, grassy areas

- Seed the mounds with prairie vegetation for long-term management
- To establish prairie vegetation, spray the site and surrounding area in the spring with Roundup to eliminate weeds and encroaching vegetation.
- Disk the surrounding area to provide acceptable seedbed. Do not disk on or immediately adjacent to the mound or burial site.
- Seed site with Truax drill, using no-till methods on the mound or burial site and conventional practices on the disturbed surrounding area.
- Seed with local ecotypes, preferably harvested from similar prairie sites in the general vicinity of the mound. Match historical vegetation if possible.

[27] Ibid., 54.

- Ongoing maintenance involves a three-year maintenance cycle. The site is mown the first year, and allowed to grow the second year. During the third spring a controlled burn takes place with assistance from the local County Conservation Board staff or the County Roadside Vegetation Manager.[28]

Folkert Mound Group, Hardin County, Iowa

The Folkert Mound Group consists of twenty-three linear mounds, one oval-shaped mound, two conical mounds, and a cruciform mound/possible effigy mound on bluffs overlooking the Iowa River. The vegetation on the property is timber with overgrown scrubby, invasive species. It is currently managed by the Hardin County Conservation Board.[29]

A proposed management plan was developed to address issues including American Indian perspectives, protection of the site from vandalism, damage from invasive and overgrown vegetation, time and cost of maintenance, and impact to research and long-term monitoring of the mounds. The Iowa Office of the State Archaeologist (OSA) recommended that invasive vegetation should be removed from the mound surfaces by removing trees and brushy vegetation in two phases. Before vegetation removal, the Hardin County Conservation Board arranged for a forester to visit the mound group to identify high quality native trees and assess long term effects of the management plan. As part of the first phase, OSA recommended that an old pot hole should be profiled by OSA archeologists. The bottom of the hole would then be marked with a crushed pop can or recent coin, and refilled with sterile soil and seeded with native vegetation. Brushy vegetation on and between the mounds was recommended to be removed by hand-cutting, and stumps treated with Round Up. Brush would then be cleared away from the mounds and hauled off the site. In phase two, selected species would be targeted for removal in the surrounding area, including multiflora rose and honeysuckle. Annual or biennial controlled burns were recommended to control the growth of invasive species and allow re-establishment of grass and native species. For native species reseeding, the Iowa OSA recommended short-to-midgrass species including sideoats grama, junegrass, and little bluestem that would minimize the perception of the area as "unkempt."[30] A tool is available to develop seed mixes that meet Iowa National Resource Conservation Service (NRCS) standards through the USDA.[31]

[28] Shirley Schermer, "Management Suggestions for Burial Sites," Iowa Office of the State Archaeologist, University of Iowa, Iowa City, Iowa, 2014.
[29] Iowa Office of the State Archaeologist, "13HA30, Folkert Mound Group Recommendations," University of Iowa, Iowa City, Iowa, 2004.
[30] Ibid.; and Shirley Schermer, John Pearson, and Jennifer Anderson-Cruz, email correspondence, the University of Iowa, Office of the State Archaeologist, Iowa City, Iowa, April 2014.
[31] Iowa Natural Resource Conservation Service, *Iowa NRCS Native Seed Calculator*, USDA, updated November 13, 2012.

Indian Mounds Regional Park, St. Paul, Minnesota

Indian Mounds Regional Park is home to six conical mounds located atop bluffs overlooking downtown St. Paul and the Mississippi River. At least sixteen mounds were formerly located on the bluff. The mounds were constructed between approximately AD 1 and AD 500. They are maintained in a one hundred and eleven acre urban park that also includes biking and hiking trails, picnic areas, a playground, public art, shelters, tennis courts, and a softball field.[32]

Indian Mounds Regional Park does not have a formal management plan, and the park's natural resource management plan does not address the mounds. The mounds are fenced to keep visitors off the mound surface. Mounds in the park are either mown or planted with native species. According to the St. Paul Parks and Recreation Department, the mounds that are planted with native species have been more challenging to maintain, as the mounds have become overgrown with weeds and trees and are less visible than the mown mounds. The State of Minnesota Indian Affairs Council indicated that native species are preferred treatment for the mounds, and the mounds should be burned once a year to suppress the weeds and woody growth.[33]

Sustainable Military Earthworks Management, National Park Service

The National Park Service has developed recommendations for sustainable management of military earthworks at numerous military parks including Fredericksburg and Spotsylvania National Military Park, Manassas National Battlefield Park, Richmond National Battlefield Park, Petersburg National Battlefield, and numerous others.

Primary principles to consider prior to a change in the management strategy of earthworks:

- Any action that results in bare soil exposes the earthwork to erosion. Plan to minimize and/or mitigate any impacts of proposed change and be prepared to address unintended impacts.
- Implement change in a small area and monitor for intended results before undertaking a new strategy on an entire area.
- Determine that the proposed management change can be sustained long-term within the human and financial capacity of the organization

Implementing a Management Strategy for Earthworks in Grass Cover:

- Long-term benefits of native warm-season grass cover including low maintenance requirements, low impact to resources, and dense roots to control erosion. To overcome the slower germination of native species, include quick germinating native annual species in seed mix to ensure adequate cover over the first years. A native plant specialist should be consulted to determine an appropriate seed mix and application technique.
- Because good seed-to-soil contact is necessary for germination, hand sowing is often required to establish an adequate seed bed. If existing vegetation is dominated by woody and exotic species, is may be necessary to clear the

[32] City of Saint Paul Minnesota, "Indian Mounds Regional Park."
[33] Kathleen Anglo, St. Paul Parks and Recreation, email correspondence with author, December 10, 2014.

earthwork of vegetation before seeding. Lightly rake the soil surface to ensure good seed to soil contact.

- Planting native grass plugs may produce better results if hand seeding does not take. If grass plugs are used, an archeologist may be required to walk the site to determine the potential for subsurface discoveries associated with disturbing the soil for planting.
- In subsequent years following seed germination, maintain the grass cover by mowing or prescribed burning (where permitted). Do not remove more than 50% of the leaf surface of grasses by grazing or mowing. When native grasses are the desired dominant species on earthworks, allow the grass to grow at least ten to twelve inches between mowing and set the minimum mower height at six inches.
- Mow both cool-season and warm-season grasses in late winter or early spring. Do not mow sites that are predominantly native warm season grass cover after early to mid-July. This allows for development of the leaves, flowering stalks, and seed maturation.
- Manage earthworks vegetated with predominantly native warm-season grasses with prescribed burns where feasible. Early to mid-spring burns facilitate earlier soil warming, suppress undesirable cool-season plant species, including a number of woody species, and avoid the impact of mowing machinery of the earthworks.
- A prescribed burn management approach requires a detailed burn plan developed by a qualified burn specialist.
- Apply a thin mulching with oak or wheat straw, or native grass hay, to steep slopes after a burn to reduce erosion potential.
- To control invasive species that cannot be eradicated through prescribed burning or mowing, apply herbicides selectively with spot treatments either by spraying small problem areas or applying herbicide to individual plants with a wick applicator.

Implementing a Management Strategy for Earthworks Under Forest Cover

- Conduct a thorough tree inventory before any work is undertaken to determine where hazard trees are present and prioritize hazard trees for removal.
- Remove hazard trees to avoid scarring earthworks or disturbing the forest floor. Cut hazardous trees flush with the earth, directionally felling them away from earthworks. Avoid earthworks damage by removing tree branches that may impale the ground before the tree is felled and if necessary, lift large trees away from complex earthwork systems with cranes.
- If earthworks are isolated from trails and visitor activities, cut stems can remain in place to decompose. If earthworks are near trails or interpretive zones, remove cut stems. Treat newly cut deciduous tree stumps with an herbicide to prevent regrowth (coniferous trees generally do not sprout from the stump).
- If windthrow occurs, respond immediately to cut fallen trees at the base, leaving a minimal stump. If the stump does not spring back into place after the tree is cut, remove the stump carefully with hand tools or leave in place to decay. Repair the ground surface with existing soil or new sterile.
- Establish a maintenance program that responds to exposed bare soil on earthworks by immediately covering with mulch or leaf litter.
- Control invasive species with hand-removal where possible. Larger woody plants may require herbicide application for eradication.[34]

[34] National Park Service, "05 Currents: Sustainable Military Earthworks Management."

Hadrian's Wall World Heritage Site, United Kingdom

Hadrian's Wall was constructed in northern Britain after AD 122, and formed the northwest frontier of the Roman Empire for nearly 300 years. The Roman military landscape includes the wall constructed of stone or turf fronted by a ditch, and associated elements including forts and civil settlements, milecastles and turrets, towers, bridges, temples, the Vallum earthwork, and the Military Way road. The World Heritage Site spans 150 miles and includes two National Parks and 11 sites and museums.[35]

The earthworks associated with Hadrian's Wall are primarily maintained in grassland. A guidance manual for the care of archeological earthworks under grassland management was prepared to develop proactive, low-cost, minimal intervention techniques to prevent the onset of erosion and archeological damage. Recommendations from this report are summarized below.[36]

Recommendations for erosion control:

- Revet with sandbags, boarding or geotextile fabric while re-establishing groundcover
- Reduce soil compaction with root-zone mesh reinforcement, grass pavers, geotextiles
- Moveable interpretation panels – alter routes
- Higher wear resistant species
- Surface or shallow depth aeration
- Vehicular impacts:
    - Indirect methods to improve:
        - Reducing the load
        - Changing the route
        - Altering time of use
    - Direct methods to improve:
        - Provision of hard surfacing
        - Provision of improved soft surfacing (reinforcing the root zone, improving ground cover)
        - Improving ground conditions (improving drainage)

Recommendations for burrowing animals (rabbit, badger, and mole impacts):

- Exclusion methods:
    - Netting, wire mesh laid on the surface or fencing
    - Remove cover (scrub) for rabbits, etc.
    - Non-lethal repellants such as bone-oil repellent or ultrasound
- Removal methods:
    - Fumigation
    - Shooting
    - Trapping
- Repair methods:
    - Block burrows with turf, earth, sand, or gravel

[35] English Heritage, "Hadrian's Wall."
[36] J N Rimmington, *Managing Earthwork Monuments: A guidance manual for the care of archaeological earthworks under grassland management* (Proactive Management on Hadrian's Wall World Heritage Site Project, 2004).

- PFA grout in a plastic sleeve to backfill burrows (hard substrate discourages re-excavation)
- Remove molehills by raking or harrowing, then reestablish vegetative cover.[37]

[37] Ibid.

APPENDIX G:
Spatial Data Information

APPENDIX G: SPATIAL DATA INFORMATION

The maps included in the CLR/EA were generated using lidar and GIS data in ESRI ArcMAP 10.2. The graphics for the diagrams and maps included in the report were finished in Illustrator CC 2015. The final deliverables for the report include all spatial data used in these maps, which will be provided to the monument as a geodatabase to facilitate viewing and synthesis of the existing conditions and historic information with other monument GIS data.

Data Collection

A basemap of the project area was assembled from spatial data gathered from the Effigy Mounds National Monument GIS database, the Iowa Office of the State Archaeologist (OSA), the Iowa DNR Natural Resource Geographic Information System (NRGIS) Library, the USGS Upper Midwest Environmental Sciences Center, and the USGS National Map.[1] A summary of base data is listed below: [2]

Effigy Mounds National Monument GIS Database: administrative data including boundaries and trails, topography, historic aerial photographs and maps, historic field edges, lidar scans, presettlement vegetation, and a 2005 vegetation mapping project of the monument.

Iowa Office of the State Archaeologist: georeferenced archaeological drawings, archeological sites, historically referenced cultural sites, and a lost mound survey.

Iowa DNR NRGIS Library: vegetation maps from Government Land Office surveys, railroads, FEMA floodplain data, public conservation lands, and historic aerial photographs.

USGS Upper Midwest Environmental Sciences Center: Mississippi River Commission data.

USGS National Map: hydrography, governmental units, and railroads.

[1] Iowa Department of Natural Resources, *Natural Resource Geographic Information System (NRGIS) Library*. http://www.igsb.uiowa.edu/nrgislibx/; and USGS, *The National Map*. http://nationalmap.gov/viewer.html.
[2] USGS Upper Midwest Environmental Sciences Center, "Upper Mississippi River System GIS Data," http://www.umesc.usgs.gov/rivers/upper_mississippi/reach_1/pool_10/p10_gis_data.html.

File Organization

Final deliverables are organized into four feature datasets within the EFMO_CLREA geodatabase:

- General: Monument and landscape character area boundaries, project area boundaries, organizational layers used for clipping, and other reference layers.
- Existing_Conditions: layers pertaining to existing conditions diagrams 0-9
- POC_Diagrams: layers pertaining to period of change diagrams 1 through 6
- Alt_B : layers pertaining to Alternative B (Preferred Alternative)

Data Generation

GIS data layers were created by Quinn Evans Architects throughout the report to document the spatial extent of existing conditions, historic conditions, and recommended landscape treatments. Spatial data created as a part of the CLR/EA is consistent with National Park Service standards defined by the June 2011 *National Park Service Cultural Resource Spatial Data Transfer Standards: Guidelines for Use and Implementation*. These guidelines provide a framework for organizing cultural resource spatial data, documenting its lineage, and facilitating data integration and data sharing.[3]

New spatial data was organized within a geodatabase following the template for cultural resource spatial data. Existing conditions, historic conditions, and recommended landscape treatment were created as polygon, line, or point feature classes within this geodatabase. Each of the features created for the CLR/EA share a common spatial projection. All features also include the feature level metadata fields specified by the NPS Cultural Resource Data Standards. Features created for the report and included in the geodatabase are:

Feature Dataset	**Feature Name**	**Description**
General	CLR_Landscape Character Areas	Landscape Character Areas – polygon feature
	CLR_LCA_Linework	Landscape Character Areas – line feature
	CLR_LCA10	Mask of all areas that are not included in LCA 1-9
	CLR_Project_Area	Project area boundary – polygon feature
	GMP_Zones	GMP backcountry, discovery, and development zones – polygon feature
	EC_Boundary_Buffer	Clipping mask for drawing sheets – polygon feature
Existing_ Conditions	EC_Buildings	Existing buildings – polygon feature

[3] *NPS Cultural Resource Spatial Data Transfer Standard Guidelines* (Cultural Resource GIS Facility, Heritage Documentation Programs, National Park Service, 2011), 1.

	EC_Drainage	Existing drainage patterns – line feature
	EC_linear_small_scale_features	Existing small scale features, including fences, retaining walls, and stone edges- line feature
	EC_Mound_Outlines	Outline of mounds with existing above ground features
	EC_Points_Interest	Existing points of interest at the monument, including overlooks, ponds, and marker trees.
	EC_railroad	Existing railroad – line feature
	EC_small_scale_features	Existing small scale features, including signage, benches, and trash and recycling receptacles – point feature
	EC_VC_Parking	Existing parking areas and public roads within the project area – polygon
	EC_Veg	Existing vegetation conditions based on 2005 vegetation study of the monument, with additions from QEA survey – polygon
	Regional_Plan_Towns	Location of Prairie du Chein, Marquette, and McGregor for regional plan of EMNM area – polygon feature
POC_Diagrams	POC_6000_700_Oneota_sites	Period of change plan 1: Sites with documented Oneota component – polygon feature
	POC_1650_1848_CultSites	Period of change plan 2: historically documented cultural sites – polygon feature
	POC_1650_1848_Roads	Period of change plan 2: roads and trails– line feature
	POC_1849_1900_Bldgs	Period of change plan 3: buildings – polygon feature
	POC_1849_1900_CultSites	Period of change plan 3: historically documented cultural sites – polygon feature
	POC_1849_1900_Fences	Period of change plan 3: fences – line feature
	POC_1849_1900_Roads	Period of change plan 3: roads and trails – line feature

	POC_1849_1900_RockOutcrop	Period of change plan 3: rock outcroppings – line feature
	POC_1901_1945_Bldgs	Period of change plan 4: buildings – polygon feature
	POC_1901_1945_CultSites	Period of change plan 4: historically documented cultural sites – polygon feature
	POC_1901_1945_TrailsRoads	Period of change plan 4: roads and trails – line feature
	POC_1901_1945_Veg	Period of change plan 4: vegetation; includes rivers and ponds – polygon feature
	POC_1946_1961_Bldgs	Period of change plan 5: buildings – polygon feature
	POC_1946_1961_Boundary	Period of change plan 5: monument boundary changes from 1946-1961 – line feature
	POC_1946_1961_TrailRoads	Period of change plan 5: roads and trails – line feature
	POC_1946_1961_Veg	Period of change plan 5: vegetation; includes rivers and ponds – polygon feature
	POC_1962_2012_Bldgs	Period of change plan 6: buildings – polygon feature
	POC_1962_2012_Boundary	Period of change plan 6: monument boundary changes from 1962-2012 – line feature
	POC_1962_2012_TrailsRoads	Period of change plan 6: trails and roads – line feature
	POC_1962_2012_Vegetation	Period of change plan 6: vegetation; includes rivers and ponds – polygon feature
Alt_B	Alt_B_Veg	Alterative B (Preferred Alternative): broad-scale vegetation changes – polygon feature
	Alt_B_Guardrails	Alterative B (Preferred Alternative): modifications to guardrails in response to trail changes in preferred alternative – line feature
	Alt_B_Trails_Roads	Alterative B (Preferred Alternative): modifications to trails to preserve mounds in preferred alternative – line feature
	Alt_B_Mound_Buffer	Alterative B (Preferred Alternative): 15 foot buffer around mounds and mound groups – polygon feature

Feature-level metadata for each feature was completed for the fields listed below by Quinn Evans Architects to facilitate documentation of sources and basic feature identification. All other metadata fields are provided for future use by NPS. Additional attribute fields were added to features as required.

- RESNAME (Resource Name)
- BND_TYPE (Boundary Type)
- IS_EXTANT (Is Extant?)
- CONTRIBRES (Contributing Resource Flag)
- SOURCE
- SRC_DATE (Source Date)
- SRC_SCALE (Source Scale)
- SRC_COORD (Source Coordinate System)
- MAP_METHOD (Map Method)
- CREATEDATE (Creation Date)
- ORIGINATOR
- ALPHA_CODE (NPS Unit Code)
- UNIT (NPS Unit Name)
- UNIT_TYPE (NPS Unit Type)

Only spatial data generated for the CLR/EA is included in the geodatabase.

Certain graphics in the report, including the location of vegetation and rivers in early periods, are based on conjectural information. These graphics have not been included in the geodatabase as a feature layer, as the information presented in these graphics is not represented with the same level of spatial accuracy as the features in the geodatabase.

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National Park Service
U.S. Department of the Interior

Effigy Mounds National Monument
Harpers Ferry, Iowa