

# Chapter 1. Introduction

## Introduction

1 This document presents the Cultural  
2 Landscape Report and Environmental  
3 Assessment (CLR / EA) for Hopewell Culture  
4 National Historical Park (NHP) in south-  
5 central Ohio, a network of six archeological  
6 earthwork complexes built by the American  
7 Indian Hopewell people, whose civilization  
8 flourished from circa AD 1 to AD 400. The  
9 six park units — Mound City Group, Hopeton  
10 Earthworks, Hopewell Mound Group, Seip  
11 Earthworks, High Bank Works, and Spruce  
12 Hill — represent some of the finest examples  
13 of Hopewellian resources.<sup>1.1</sup>

14  
15 This CLR / EA presents detailed  
16 documentation of Hopewell Culture NHP's  
17 historical development, evaluation of  
18 existing condition, analysis of landscape  
19 characteristics, determination of contributing  
20 features, and treatment recommendations.

21  
22 This CLR / EA builds upon the numerous  
23 studies, investigations, and documents  
24 that exist for the Hopewell Culture NHP  
25 (the park) and its discontinuous parcels.  
26 These documents include the 1997 General  
27 Management Plan (GMP); the 2014 Cultural  
28 Landscape Inventories (CLI) for Mound  
29 City Group, Hopeton Earthworks, and  
30 Hopewell Mound Group; the 1997 Long  
31 Range Interpretive Plan (LRIP); the 1999  
32 Administrative History; and various natural  
33 resource reports.

34  
35 Numerous archeological investigations have  
36 been undertaken for the park, beginning with  
37 research and mapping by Ephraim G. Squier  
38 and Edwin H. Davis in the 1840s, the work  
39 of Warren Moorehead in the 1890s, and the  
40 work of William Mills and Henry Shetrone of  
41 the Ohio Historical Society in the 1920s.

42  
43 1.1 Spruce Hill is included in the park's legislated boundary,  
44 but is co-managed with a non-NPS entity, the Arc of  
Appalachia. A separate appendix has been prepared for  
this park unit.

1 More recent studies include those undertaken  
2 by the National Park Service (NPS),  
3 particularly the NPS Midwest Archeological  
4 Center (MWAC) and researchers affiliated  
5 with academic institutions.

6  
7 Seven Hopewellian archeological complexes  
8 were included on the United States Tentative  
9 List in 2008 for possible nomination to the  
10 UNESCO World Heritage List as 'Hopewell  
11 Ceremonial Earthworks.' This includes  
12 Hopewell Culture NHP and two Hopewell  
13 earthwork complexes (Newark Earthworks  
14 State Memorial and Fort Ancient State  
15 Memorial) owned and managed by Ohio  
16 History Connection (OHC).

17  
18 This CLR / EA is the primary document used  
19 to guide management and stewardship of  
20 Hopewell Culture NHP. The intent of the  
21 CLR / EA is to provide a comprehensive  
22 and integrated guidance document that  
23 reflects the mission of the NPS, and ensures  
24 long-term preservation, stewardship, and  
25 visitor experience objectives are met to the  
26 maximum extent practicable.

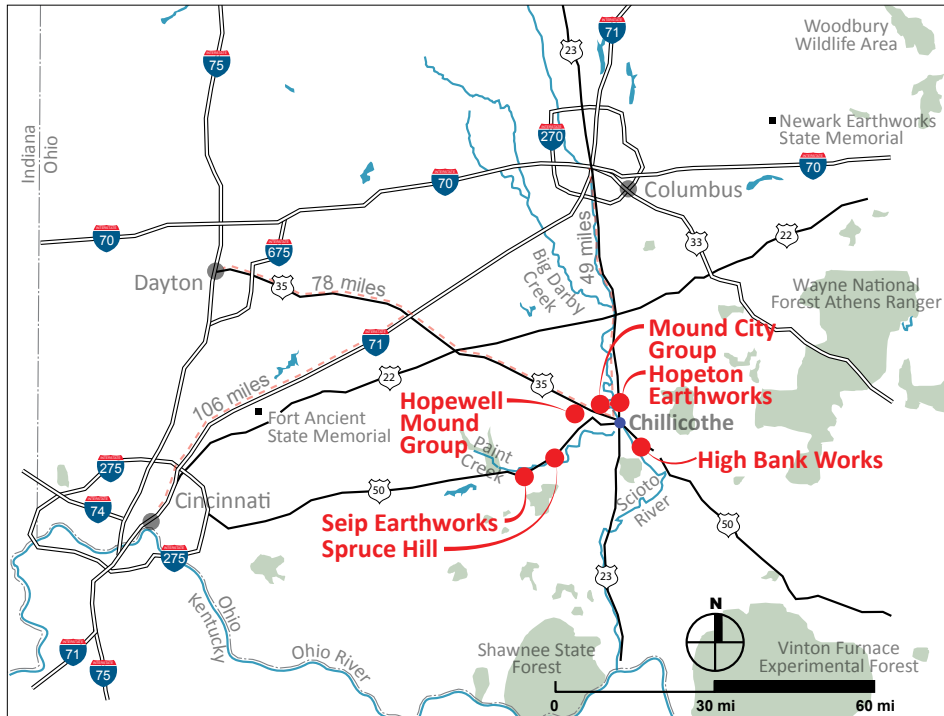


Figure 3-1. Hopewell Culture NHP is in south-central Ohio within the Scioto River valley. (Mundus Bishop 2014)

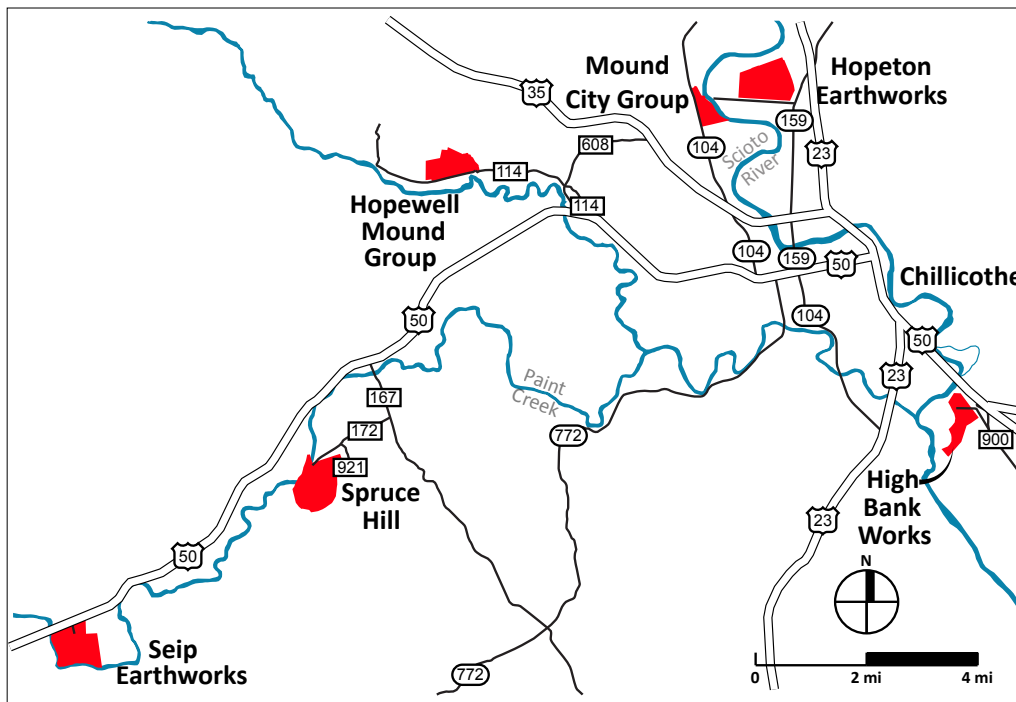


Figure 3-2. The park has six discontinuous park units, each with a unique set of archeological earthworks. Mound City Group is located north of Chillicothe, Ohio, on the west bank of the Scioto River; Hopeton Earthworks is located immediately across the river to the east. Hopewell Mound Group is located adjacent to North Fork Paint Creek, to the west of the other park units; Spruce Hill is on the north bank of Paint Creek; and Seip Earthworks is located the furthest west, on the north bank of Paint Creek. High Bank Works is south of Chillicothe, Ohio, on the east bank above the Scioto River. (Mundus Bishop 2014)

## Study Area and Park Units

1 The park is located near Chillicothe within  
2 Ross County in south central Ohio. It is  
3 approximately 45 miles south of Columbus  
4 and 100 miles east of Cincinnati. The study  
5 area is 1,828 acres in size, consists of six  
6 discontinuous park units, connected by state  
7 and federal highways. Traveling distances  
8 extend as far as 15 miles between park units.  
9

10 Hopewell Culture NHP is situated in the  
11 Scioto River Valley, at the western edge of  
12 the Appalachian foothills. The landscape is  
13 topographically rugged, and filled with heavy  
14 tree cover. Its diverse natural environment  
15 is a combination of woodlands, shrublands,  
16 riparian areas, native grasslands, hay fields,  
17 and former and current crop fields.  
18

19 Many Hopewellian earthwork complexes  
20 are within Ross County. Efforts to protect  
21 these earthwork complexes date to the turn  
22 of the twentieth century, when Mound City  
23 Group (129 acres) was established in 1923  
24 as a National Monument. In 1992, three  
25 additional parcels—Hopeton Earthworks  
26 (308 acres), Hopewell Mound Group (312  
27 acres), Seip Earthworks (167 acres), High  
28 Bank Works (170 acres)—were added  
29 creating Hopewell Culture NHP.<sup>1,2</sup> Spruce Hill  
30 (150 acres) was added in 2009. Additional  
31 lands of Seip Earthworks (120 acres) were  
32 transferred to the park in 2014. Each park  
33 unit is characterized by monumental-  
34 scaled, Hopewellian built earthworks set  
35 in relationship to both a river course (near  
36 the Scioto River, Paint Creek, or the North  
37 Fork Paint Creek), and to the surrounding  
38 mountains and hillsides.  
39  
40

41 1.2 Ron Cockrell. *Amidst Ancient Monuments, Administrative*  
42 *History / Hopewell Culture National Historical Park Ohio.*  
43 *Omaha: U.S. Department of Interior, NPS, Division of*  
44 *Cultural Resources, Midwest Support Office, 1999. NPS,*  
*Hopewell NHP Foundation Document, in preparation.*

1 The network of archeological complexes  
2 are connected by their shared function as  
3 ritual, ceremonial and burial places, and  
4 their known construction by the Hopewell  
5 people. Together, they create the significant  
6 archeological landscape of the park,  
7 representative of thousands of earthworks  
8 originally built by the Hopewell Culture,  
9 including many other extant earthwork  
10 complexes in the surrounding region. The  
11 park units are part of a broad network of  
12 archeologically important economic, political,  
13 and spiritual beliefs, and practices of the  
14 Hopewell Culture.  
15

16 Hopewell Culture NHP's national significance  
17 is recognized by its listing in the National  
18 Register of Historic Places (NRHP): Mound  
19 City Group NRHP 1978; Hopeton Earthworks  
20 NRHP 1975; Hopewell Mound Group NRHP  
21 1974; Seip Earthworks NRHP 1971; High  
22 Bank Works NRHP 1973; and Spruce Hill  
23 NRHP 1972, and by the designation of  
24 Hopeton Earthworks (1964) as a National  
25 Historic Landmark (NHL). The period  
26 of significance is AD 1 to AD 400, which  
27 recognizes the active use of the region by  
28 the Hopewell Culture and the building of  
29 the ceremonial earthwork complexes. A  
30 broader, secondary period of significance  
31 extends from AD 400 to AD 1650, to include  
32 the contributions and occupations of later  
33 groups of American Indians. Other potentially  
34 significant resources from later periods are  
35 within the study area but are not significant  
36 to the Hopewell Culture.  
37

38 Mound City Group, Hopewell Mound Group,  
39 and Seip Earthworks are open to the public,  
40 with facilities that include roads, trails,  
41 shelters, restrooms, and signage to guide  
42 visitors. Hopeton Earthworks and High Bank  
43 Works have no visitor facilities, and are not  
44 currently open to the public.

## 1 Mound City Group

2 Mound City Group is north of Chillicothe, Ohio  
3 on a 120-acre park unit, on the west side of  
4 the Scioto River, and east of State Highway  
5 104. Mound City Group consists of at least  
6 25 mounds, an earthen wall, and borrow pits  
7 located outside the earthen wall.

8  
9 In the 1920s Mound City Group was  
10 preserved and reconstructed through the  
11 efforts of grassroots organizers and the  
12 Ohio State Archaeological and Historical  
13 Society. It became Mound City Group  
14 National Monument in 1923, and came  
15 under the direction of the NPS in the 1940s.  
16 Reconstruction of the perimeter earthen wall  
17 and 23 mounds was completed in 1927. The  
18 reconstructed walls and mounds reflect the  
19 scale and spatial qualities of the earthwork  
20 complex, suggesting how it may have looked  
21 during use by the Hopewell Culture. The land  
22 is relatively flat, the mounds and earthworks  
23 are covered with mown lawn, and are  
24 surrounded by wooded areas on the north,  
25 south, and east sides. A steep bank descends  
26 on the east side of the park unit, to the Scioto  
27 River.

28  
29 The park headquarters and primary visitor  
30 facilities are immediately adjacent to Mound  
31 City Group. Facilities include a visitor center,  
32 administrative buildings, maintenance  
33 facilities, a picnic area, and nature trail in  
34 addition to the mounds and earthworks.

## 35 Hopeton Earthworks

36 Hopeton Earthworks is about one mile east  
37 of Mound City Group, on a terrace east of  
38 the Scioto River, and west of U.S. Highway  
39 23. The park unit is fairly flat and open, with  
40 some elevation gain eastward from the river.  
41 A hardwood forest and an intermittent creek  
42 is at the southeast corner of the park unit.  
43 Much of the land was formerly in agricultural  
44 production, but is now fallow. A gravel mining  
45 operation is adjacent to the park unit on the  
46 west.

1 Hopeton Earthworks is 308 acres. The  
2 earthworks include a great circle enclosure,  
3 formed by earthen walls, enclosing 20  
4 acres; a conjoined rectangular enclosure  
5 encompassing 20 acres, made of earthen  
6 walls with rounded corners; three other  
7 circular enclosures; and parallel walls that  
8 extend from the northwest corner of the  
9 rectangular enclosure towards the Scioto  
10 River.<sup>1.3</sup> Two gravel roads bisect Hopeton  
11 Earthworks, one extends north south, and the  
12 other is east west passing through the middle  
13 of the square enclosure.

14  
15 Since site documentation was completed in  
16 October 2014, a parking lot at Hopetown  
17 Road and trail between the parking lot and  
18 overlook have been designed through a  
19 separate project.

## 20 Hopewell Mound Group

21 Hopewell Mound Group is on the North Fork  
22 Paint Creek, five miles southwest of Mound  
23 City Group. Historically much of the land was  
24 in agricultural production, but is now fallow  
25 or cut for hay. A hardwood forest is at the  
26 north edge of the park unit.

27  
28  
29 In 1980 Hopewell Mound Group was  
30 purchased and preserved by the Archeological  
31 Conservancy. In 1992 it became one of six  
32 complexes established as Hopewell Culture  
33 NHP.

34  
35 The general shape of the monumental  
36 Hopewell Mound Group earthworks is a  
37 parallelogram; archeologists estimate that the  
38 walls enclose an area of 111 acres.<sup>1.4</sup> A smaller  
39 square enclosure connects to the east side of  
40 the parallelogram. Remnants of the east, west,  
41 and north walls are visible. Two earthwork  
42 features occur within the parallelogram, one

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43  
44 1.3 "Great Circle Enclosure - Hopeton Earthworks," *List of*  
45 *Classified Structures, Ohio, Hopewell Culture National*  
46 *Historical Park (OH)*. <http://www.hscl.cr.nps.gov>  
(accessed October 2014).

1.4 *Cultural Landscapes Inventory, Hopewell Mound Group,*  
*Hopewell Culture National Historical Park.* (NPS, 2014), 3.

1 circular and one D-shaped, and evidence of at  
2 least 30 mounds. One mound, Mound 25, is  
3 the largest known mound constructed by the  
4 Hopewell Culture.<sup>1.5</sup>

5  
6 A small square parcel of privately owned  
7 land occurs within the park unit on the  
8 southern boundary. The eastern side of the  
9 property contains a visitor parking area and  
10 restroom facilities. An abandoned railroad  
11 track, now a bicycle trail, extends through  
12 the southern portion of the Hopewell Mound  
13 Group. County Road 114 extends through the  
14 southern portion of the earthwork complex,  
15 and a 138kv AEP power-line bisects the  
16 earthwork complex. The NPS is working with  
17 the power company to consider options for  
18 reducing visibility of this facility within the  
19 Hopewell Mound Group.

## 20 **Seip Earthworks**

21 Seip Earthworks is 16 miles southwest of  
22 Mound City Group, on the north bank of Paint  
23 Creek, adjacent to U.S. Highway 50. The park  
24 unit is fairly open, with vegetation becoming  
25 more dense at the creek's edge. Visitor  
26 parking and a picnic area are on the north  
27 edge of the park unit.

28  
29  
30 In 1927 an approximately 10 acre tract,  
31 including the Seip-Pricer Mound, was  
32 designated 'Seip Mound State Memorial'.  
33 However, the memorial did not include the  
34 entire earthwork complex, and portions of the  
35 earthworks remained in private ownership.  
36 Today, the NPS owns the entire earthwork  
37 complex except for three parcels of land still  
38 in private ownership.

39  
40 Seip Earthworks is a large complex of 236  
41 acres. Earthworks include two miles of  
42 earthen walls enclosing over 120 acres in the  
43 shape of two immense circles, and a precise  
44 square with astronomical alignments. Two  
45 prominent mounds, the Seip-Conjoined  
46 Mound, and the Seip-Pricer Mound are in

1 the center of Seip Earthwork's great circle  
2 enclosure. The Seip-Pricer Mound is an  
3 enormous reconstructed mound that is the  
4 third largest burial mound the Hopewell are  
5 known to have built.<sup>1.6</sup>

## 6 **High Bank Works**

7 High Bank Works is south of Chillicothe, Ohio,  
8 along an upper terrace of the east bank of  
9 the Scioto River. It is west of U.S. Highway  
10 35, with a railroad extending north south, at  
11 the park unit's eastern edge. Due to safety  
12 concerns regarding the railroad crossing, this  
13 park unit is not accessible to visitors. Most  
14 of the land is cleared, with mown hay on the  
15 north and a native grasslands ecosystem to  
16 the south. A native, hardwood forest thrives  
17 along the river bank, and provides valuable  
18 habitat along the river's riparian edge.

19  
20  
21 The main earthwork complex is a conjoined  
22 circle and octagon, each enclosing about 20  
23 acres. The octagon has eight small mounds  
24 corresponding to openings or gateways in  
25 earthen walls. The circle has one gateway  
26 facing east toward a small circular enclosure  
27 and ditch earthwork. A series of borrow pits  
28 surround the octagon. Additional circular  
29 enclosures and linear walls are located to  
30 the southwest of the octagon. The NPS has  
31 acquired all but two parcels of the earthwork,  
32 which remain in private ownership.

## 33 **Spruce Hill**

34 Spruce Hill Preserve is a 150-acre  
35 archeological complex west of Chillicothe,  
36 sited on top of a flat-topped mesa that  
37 juts above Paint Creek Valley. Spruce Hill's  
38 archeological features consist of a series of  
39 stone walls that enclose the level mesa of the  
40 hill, and circumscribe the top of the bluff.

41  
42  
43 Spruce Hill is within the park's legislated  
44 boundary and is co-managed with the Arc of

1.5 *General Management Plan, Hopewell Culture National  
Historical Park, Ohio, (NPS, 1997).*

1.6 NPS, Seip Earthworks Site Bulletin (Hopewell Culture  
NHP brochure, 2010).





Figure 3-3. Mound City Group is north of Chillicothe, Ohio on a 120-acre park unit, on the west side of the Scioto River. (Mundus Bishop 2014)



Figure 3-4. Hopeton Earthworks is about one mile east of Mound City Group, on a terrace east of the Scioto River. (Mundus Bishop 2014)



Figure 3-5. Hopewell Mound Group is on the North Fork Paint Creek, five miles southwest of Mound City Group. (Mundus Bishop 2014)



Figure 3-6. Seip Earthworks is 16 miles southwest of Mound City Group, on the northern bank of Paint Creek. (Mundus Bishop 2014)

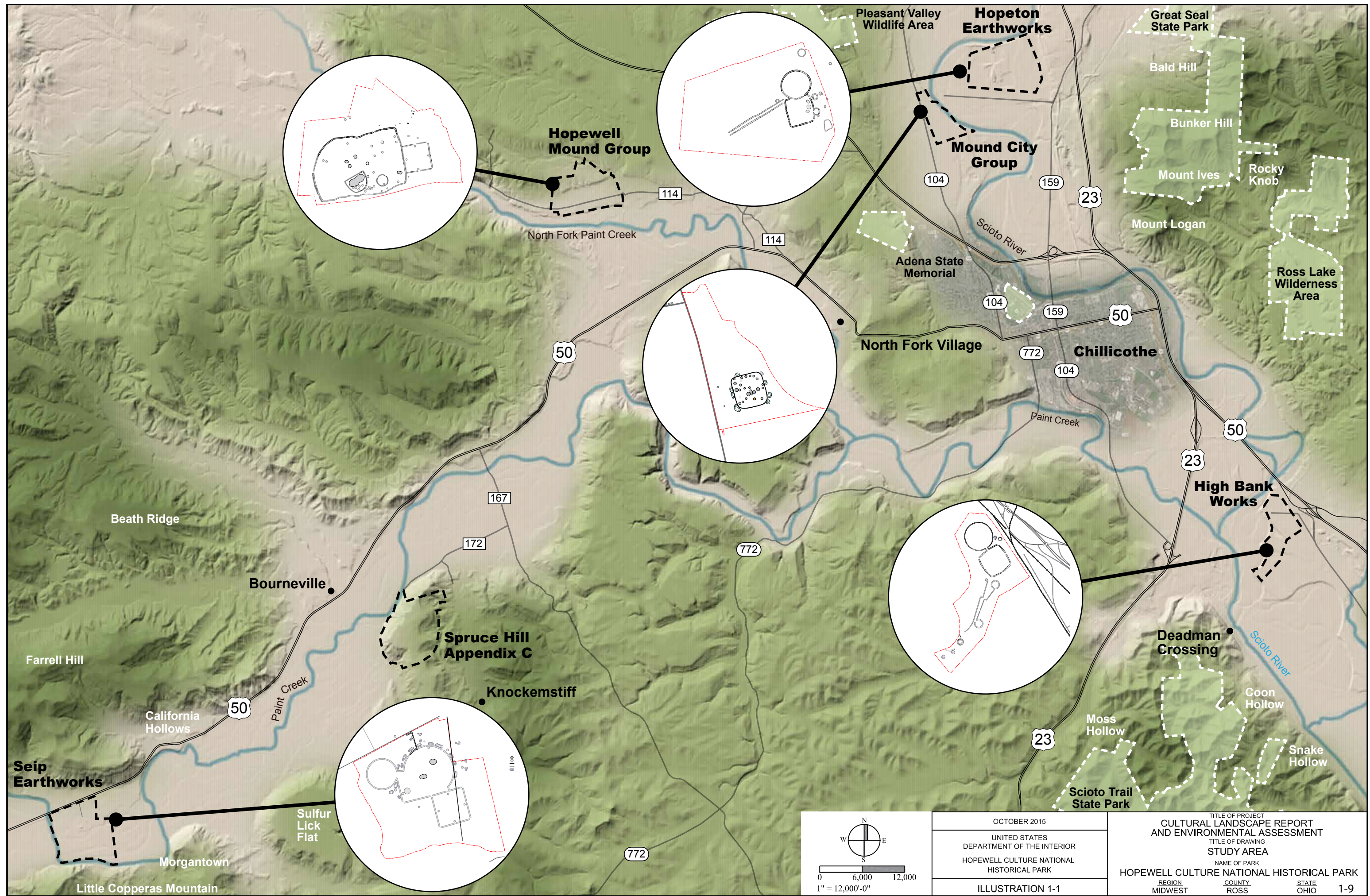


1 Appalachia. Since the park does not own the  
2 property and has no management authority,  
3 it is not included in the environmental  
4 assessment or detailed analysis and  
5 treatment recommendations. A separate  
6 appendix is provided for Spruce Hill, which  
7 includes an abbreviated CLR with general  
8 recommendations for the treatment of this  
9 archeological landscape.



Figure 3-7. High Bank Works is south of Chillicothe, Ohio, along an upper terrace of the east bank of the Scioto River. (Mundus Bishop 2014)









## Project Purpose and Need

### 1 Project Purpose

2 The purpose of this CLR / EA is to provide  
 3 guidance for managing landscape resources  
 4 within Hopewell Culture NHP. This project  
 5 will define a treatment strategy that will  
 6 reinforce the mission and significance of  
 7 the park. The strategy will focus on long-  
 8 term resource protection, sustainable cyclic  
 9 maintenance, and visitor understanding and  
 10 enjoyment.  
 11  
 12 This CLR / EA will document the site history  
 13 from prehistory to the present (including  
 14 recent NPS landscape treatments), determine  
 15 ongoing impacts on the landscape, evaluate  
 16 existing conditions, and develop treatment  
 17 alternatives that meet the resource protection  
 18 and visitor experience goals outlined in the  
 19 park's GMP.  
 20  
 21 This project will guide the long-term  
 22 stewardship of Hopewell Culture NHP  
 23 for the enjoyment of current visitors and  
 24 future generations by improving cultural  
 25 and archeological resource protection,  
 26 and providing a cohesive, unified visitor  
 27 experience. The treatment guidelines will  
 28 address appropriate modifications to existing  
 29 and proposed visitor facilities such as  
 30 overlooks, trails, and parking areas.  
 31  
 32 The treatment approach will address  
 33 alternatives for mound / earthwork  
 34 rehabilitation, stability, and identify  
 35 methods for enhancing visibility of degraded  
 36 earthworks. The plan will also establish  
 37 a maintenance program that the park can  
 38 sustain over time.  
 39  
 40  
 41  
 42  
 43  
 44

### 1 Project Need

2 This proposed CLR / EA addresses the need  
 3 to preserve the park's historically significant  
 4 archeological landscape. The project is  
 5 needed to generate baseline documentation,  
 6 supplement existing historical and natural  
 7 resource data, provide recommendations  
 8 for future study, and provide guidance for  
 9 treatment and resource protection.  
 10  
 11 The proposed project is needed to document  
 12 the changes to the archeological landscape  
 13 that have occurred over time, to transfer  
 14 knowledge, and to provide holistic and  
 15 integrated guidance for the long-term  
 16 preservation and stewardship of the  
 17 archeological landscape. The project is also  
 18 needed to connect archeological landscape  
 19 maintenance to other resource management  
 20 plans and projects.  
 21  
 22 Finally, this project is needed to provide  
 23 baseline documentation and management  
 24 planning to support the potential nomination  
 25 of Hopewell Ceremonial Earthworks to the  
 26 UNESCO World Heritage List.  
 27  
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## Project Goals

- 1 The CLR / EA identifies landscape
- 2 characteristics and features that convey the
- 3 historical significance of the archeological
- 4 landscape, and provides holistic, integrated
- 5 guidance for long-term preservation and
- 6 stewardship for park units.<sup>1.7</sup> This CLR / EA
- 7 addresses the following goals.
- 8
- 9 • Document the pre-contact history, historic
- 10 activity, and current physical conditions at
- 11 Hopewell Culture NHP.
- 12
- 13 • Document resource threats and ensuing
- 14 impacts, e.g., invasive plants and
- 15 animals, erosion, maintenance practices,
- 16 agricultural activity, utility lines, non-
- 17 compatible intrusions, and others.
- 18
- 19 • Evaluate management practices that may
- 20 provide income for sustaining vegetation
- 21 management programs.
- 22
- 23 • Investigate mowing and other methods
- 24 for increasing earthwork visibility.
- 25 Address Best Management Practices for
- 26 Earthen Architecture demonstrated by
- 27 these and other earthwork complexes.
- 28 Define the appropriateness of protective
- 29 buffers at park units.
- 30
- 31 • Consult with federally recognized
- 32 American Indian tribes, other federal and
- 33 state agencies, and cultural, archeological,
- 34 and natural resource experts to determine
- 35
- 36 1.7 The necessity of a CLR / EA for Hopewell Culture NHP
- 37 is mandated under the directives of the NPS Director's
- 38 Order 28: Cultural Resource Management (DO 28).
- 39 According to both federal law and NPS Management
- 40 Policies, historic landscapes in which the NPS has a legal
- 41 interest are to be managed as cultural resources, and
- 42 every landscape feature is to receive full consideration
- 43 for its historical values whenever a decision is made that
- 44 might affect its integrity. Chapter 7 of DO 28 deals with
- the Management of Cultural Landscapes, and identifies
- a Cultural Landscape Report as the primary guide to
- treatment and use of a cultural landscape.
- 1 a desired landscape condition and provide
- 2 guidance on achieving desired condition
- 3 through physical treatment and long-term
- 4 maintenance.
- 5
- 6 • Explore concepts for how the NPS can
- 7 protect resources and provide a cohesive,
- 8 unified visitor experience with the goal
- 9 for having this information transferable to
- 10 other archeological landscape managers.
- 11
- 12 • In accordance with draft 2014 Foundation
- 13 Document, establish clear management
- 14 priorities for the archeological landscape.
- 15
- 16 • Provide a synthesis / summary of other
- 17 earthwork management approaches in
- 18 the U.S. and abroad.
- 19
- 20 • Evaluate guidance from the Stubbendiek
- 21 report in light of issues other than
- 22 mechanical impacts from roots; consider
- 23 potential alterations of soil color,
- 24 chemistry, and soil formation processes.<sup>1.8</sup>
- 25
- 26 • Address issues raised as part of the World
- 27 Heritage Site nomination process—
- 28 buffers, intrusions, visibility, and
- 29 viewshed management.
- 30
- 31 • Identify opportunities for accommodating
- 32 universal access while avoiding adverse
- 33 archeological resource impacts.
- 34
- 35 • Supplement existing GIS database for
- 36 archeological resources by providing
- 37 layers to represent "Management Zoning"
- 38 (as defined in the GMP), "Treatment
- 39 Recommendations," and "Desired
- 40 Vegetation Management Regimes."
- 41
- 42 1.8 James Stubbendiek and Cheryl D. Dunn. *Hopewell Culture*
- 43 *National Historical Park: Review of the Literature on*
- 44 *the Influence of Roots on Archeological Features and*
- Vegetation Restoration Recommendations.* Lincoln:
- University of Nebraska, 2011.



- Coordinate archeological landscape condition assessment with the service-wide initiative to list nationally significant landscapes in the Facility Management Software System (FMSS). Asset and location data for Hopewell Culture NHP would fall under “Maintained Landscape” or “Maintained Archeological Site.”

## Methodology

The CLR / EA is conducted at a thorough level of investigation for historical research, existing condition assessment, landscape analysis, and treatment recommendations. The thorough level research methodology, as defined by the NPS, focuses on the use of select documentation of known and presumed relevance, including primary and secondary sources that are easily available.

The existing condition investigation was conducted according to best practices. A review of readily available documentation was undertaken, including information from Hopewell Culture NHP, the National Park Service’s Midwest Regional Office (MWRO), and the National Park Service’s Midwest Archeological Center (MWAC).

This review included planning documents, administrative reports, technical reports, natural resource studies, and correspondence. Review of historical documentation included archeological reports, historic drawings, photographs, and correspondence available from primary and secondary sources.

Background information provided by the park as a GIS database was used to prepare the CLR / EA drawings. Site investigations in October 2014 documented existing conditions. Archeological research focused on review of previous archeological studies

and investigations, including those completed prior to the establishment of the park. The CLR / EA did not include any additional archeological investigations.

This CLR / EA has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, and implementing regulations: 40 CFR Parts 1500-1508 and NPS Director’s Order (DO) – 12 and Handbook, Conservation Planning, Environmental Impact Analysis, and Decision-making. In addition, this CLR / EA was prepared in compliance with the requirements of Section 106 of the National Historic Preservation Act (NHPA), in accordance with the Advisory Council on Historic Preservation’s (ACHP) regulations implementing section 106 (36 CFR Part 800.8, Coordination with the National Environmental Policy Act).

## Park Purpose and Significance

Hopewell Culture NHP was established to protect the archeological features and artifacts of a dynamic social and ceremonial phenomenon that flourished in the woodlands of eastern North America long before Europeans first landed on this continent. The park protects and interprets the Hopewell archeological landscape and provides access and facilities for the care and accommodation of visitors.<sup>1.9</sup>

The park’s archeological landscape represents some of the finest examples of Hopewellian resources. The monumental architecture and artifacts of the park reflect a pinnacle of achievement in the fields of art, astronomy, mathematics, and engineering.

The Hopewell Culture represents an important cultural development, and “it is

<sup>1.9</sup> GMP, 5.

1 clear they had a stable society, capable of  
2 major efforts to build earthworks, as well as  
3 establishing their network of contacts with  
4 other peoples.”<sup>1.10</sup>

5  
6 They produced sculptures of stunning grace,  
7 skill and beauty, and had a complex spiritual  
8 and ritual life.<sup>1.11</sup>

9  
10 The Hopewell Culture NHP is significant due  
11 to these factors:

12  
13 • The park is the only federal area that  
14 preserves and interprets remnants of the  
15 Hopewell Culture, a culture (including  
16 regional settlement patterns, rituals, and  
17 trade routes) that was distinctive and  
18 widespread for 400 years.

19  
20 • The park represents the most elaborate  
21 earthwork complexes of the Hopewell  
22 Culture, evidenced by large geometric  
23 enclosures, unique to the Scioto River  
24 area, as well as the largest and densest  
25 concentrations of Hopewellian earthwork  
26 complexes in the country.

27  
28 • The monumental earthwork complexes  
29 are repeated across a large area, built to a  
30 similar scale and incorporating a similar  
31 series of astronomical alignments.

32  
33 • The park units were among the first  
34 places in North America where the  
35 practice of scientific archeology was used,  
36 and among the first described in scientific  
37 publications.

38  
39 • The park contains Hopewell Mound  
40 Group which is the ‘type-site’ for the  
41 Hopewell Culture. A type-site means that  
42 it is the location where the Hopewell

43  
44 1.10 *General Management Plan. Hopewell Culture National*  
45 *Historical Park, Ohio. (NPS, 1997), 3.*

46 1.11 *Hopewell Culture National Historical Park, Long-Range*  
*Interpretive Plan (NPS, 1997), 15.*

1 Culture was first defined by archeologists  
2 and gives the culture its name.

3  
4 • The park contains Hopewell resources  
5 with tremendous potential for directed  
6 research and further investigation  
7 to answer many questions about the  
8 Hopewell Culture.

9  
10 • The park preserves some of the general  
11 physical environment in which the  
12 Hopewell peoples lived.

13  
14 • The park preserves some of the most  
15 spectacular Hopewellian achievements.  
16 The biggest Hopewellian conjoined  
17 mound is located at Hopewell Mound  
18 Group, the largest concentration of  
19 mounds within an enclosure occurs at  
20 Mound City Group, and one of two known  
21 extant octagonal structures occurs at High  
22 Bank Works.

23  
24 • The Hopewell Ceremonial Earthworks  
25 in Ohio were the focal center of an  
26 influential network of interaction  
27 that linked together distinct societies  
28 scattered across half a continent.

29  
30 • Associated ritual deposits contain  
31 exceptionally finely crafted objects  
32 fashioned from exotic raw materials  
33 obtained from distant parts of North  
34 America: copper from the Great Lakes,  
35 mica from the Appalachians, marine  
36 shell from the Gulf of Mexico, and even  
37 obsidian from the Rocky Mountains.

38  
39 • The earthwork complexes were settings  
40 for ceremonies, sacred rituals and  
41 festivals that brought together peoples  
42 living in small dispersed settlements, and  
43 may have drawn pilgrims bearing exotic  
44 gifts from hundreds of miles away.

### 1 Mound City Group

2 Mound City Group is significant for its  
3 numerous ceremonial and burial mounds,  
4 and is the only fully restored Hopewellian  
5 earthwork complex. Mound City Group played  
6 an important role as a mortuary precinct.  
7 Mounds were built over the remains of a  
8 wooden building once used for funerary  
9 rites and other ceremonial activities. Mound  
10 City Group's importance was nationally  
11 recognized in 1923, when President Warren  
12 G. Harding established the Mound City Group  
13 National Monument. It was entered into the  
14 National Register of Historic Places (NRHP)  
15 on February 17, 1978.

### 17 Hopeton Earthworks

18 Hopeton Earthworks is significant as one  
19 of the finest and best preserved examples  
20 of a monumental Hopewellian geometric  
21 earthwork complex. It contains a rich  
22 archeological record of domestic habitations  
23 and specialized activity areas that help  
24 to place the construction and use of the  
25 earthworks in broader cultural context.  
26 Hopeton Earthworks includes large earthen  
27 walls, but no associated mounds or mortuary  
28 features. Mound City Group and Hopeton  
29 Earthworks likely served complementary  
30 roles in the ritual life of a single community.  
31 Hopeton Earthworks' importance was  
32 nationally recognized in 1964, when it was  
33 designated as a National Historic Landmark  
34 (NHL). It was entered into the NRHP on July 2,  
35 1975.

### 37 Hopewell Mound Group

38 Hopewell Mound Group is the largest  
39 Hopewell earthwork complex and has  
40 provided the greatest set in quality and  
41 quantity of artistic Hopewell artifacts ever  
42 discovered. Many of the most famous images  
43 of the Hopewell Culture are from artifacts  
44 found at this park unit: mica bird claw, copper  
45 bear paw, and mica hand with its elongated  
46 fingers stretching upward. All of these

1 extraordinary features support the idea that  
2 Hopewell Mound Group was possibly the  
3 most important ceremonial center of all the  
4 earthwork complexes in southern Ohio. This  
5 park unit gives the Hopewell Culture its name  
6 and sets the standard for what is considered  
7 'Hopewell.' The park unit was entered into the  
8 NRHP in 1974.

### 10 Seip Earthworks

11 Seip Earthworks is significant for being the  
12 only existing example of the rare class of  
13 extremely large Hopewell burial mounds.  
14 It represents the only protected example  
15 of a type of geometric enclosure known as  
16 a tripartite earthwork, of which five once  
17 existed in the Scioto and Paint Creek valleys  
18 in southern Ohio. Rich ritual deposits  
19 buried under the mound attest to Hopewell  
20 ceremonialism, artistry, and long distance  
21 interactions. Seip Earthworks was listed in  
22 the NRHP in 1971.

### 24 High Bank Works

25 High Bank Works is among the largest and  
26 most intricate earthwork complexes in the  
27 Hopewell core area. The conjoined circle and  
28 octagon mirrors the geometry of the Octagon  
29 Earthworks at Newark, nearly 60 miles  
30 away. These are the only two known circle  
31 and octagon enclosures ever constructed.  
32 The circles at both earthwork complexes are  
33 exactly the same size, and are remarkable  
34 for their monumental scale, geometric  
35 complexity and precision, and for the  
36 complicated set of lunar and solar alignments.  
37 These exact similarities across vast distances  
38 distinguish Hopewell earthwork complexes as  
39 a uniquely inter-regional phenomenon. High  
40 Bank Works was listed in the NRHP in 1973.

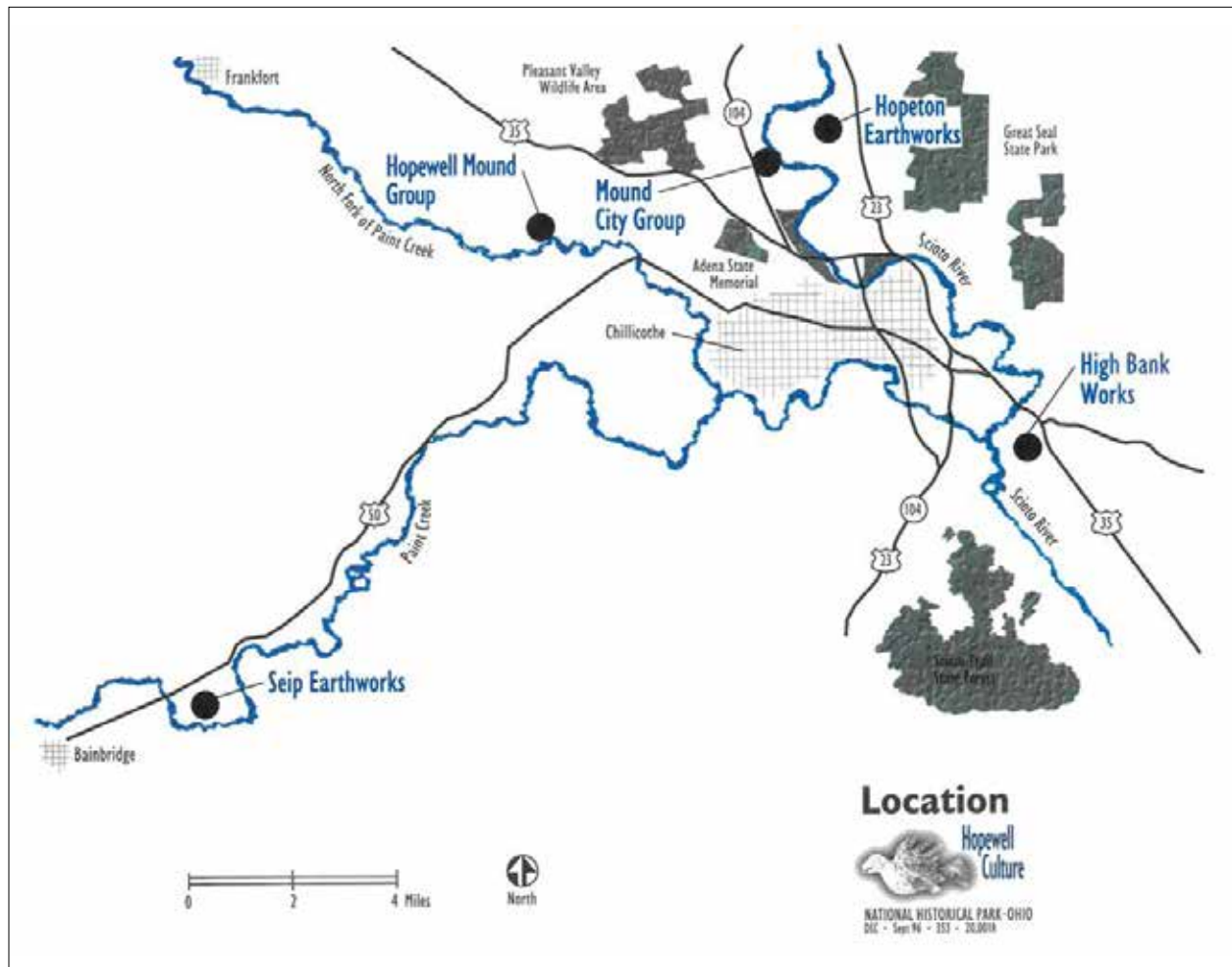


Figure 3-8. The 1997 GMP guides the management and stewardship of the six discontinuous park units. (GMP, 9)



## Management

1 The study area is composed of five  
 2 discontinuous park units that comprise  
 3 Hopewell Culture NHP, owned and managed  
 4 by the NPS. Legislation originally created  
 5 the park in 1923 when Mound City Group  
 6 was established as a National Monument, to  
 7 “preserve prehistoric mounds of great historic  
 8 and scientific interest . . . , and from all  
 9 depredations and from all changes that would  
 10 to any extent mar or jeopardize their historic  
 11 value.” In 1980 the park was expanded by  
 12 Congress to include 150 acres of the Hopeton  
 13 Earthworks archeological landscape. In  
 14 the same legislation, NPS was directed to  
 15 investigate other earthwork complexes  
 16 within the region for their suitability for  
 17 preservation. Of 20 earthwork complexes  
 18 considered, NPS recommended three  
 19 archeological landscapes, plus the remainder  
 20 of Hopeton Earthworks, for preservation as  
 21 they represented some of the best examples  
 22 of Hopewellian earthwork architecture.<sup>1.12</sup>  
 23  
 24 In 1992 the park became a National Historical  
 25 Park and was renamed Hopewell Culture  
 26 NHP. The four recommended parcels— the  
 27 remainder of Hopeton Earthworks, Hopewell  
 28 Mound Group, Seip Earthworks, and High  
 29 Bank Works, were authorized for addition  
 30 to the park at this time. The new name  
 31 recognized the park’s larger size, 1,134 acres,  
 32 and greater complexity resulting from the  
 33 addition of these parcels.<sup>1.13</sup> Of these five park  
 34 units, three have been developed for public  
 35 access.

36  
 37 The 1992 law establishing the NHP, initiated  
 38 a special resource study to “determine the  
 39 adequacy of the present unit boundaries.”<sup>1.14</sup>  
 40 Hopewell earthwork complexes specifically  
 41 identified for further study included the

---

42  
 43 1.12 GMP, 2.  
 44 1.13 GMP, 2.  
 1.14 GMP, 2.

1 Harness Group near U.S. Highway 35, four  
 2 miles south of Chillicothe; Cedar Bank  
 3 near U.S. Highway 23, four miles north of  
 4 Chillicothe; and Spruce Hill above Paint Creek  
 5 and U.S. Highway 50, ten miles southwest of  
 6 Chillicothe.<sup>1.15</sup>

7  
 8 Since the GMP was completed, Spruce Hill  
 9 was added to the park’s legislated boundary  
 10 in 2009. Spruce Hill is co-managed by the  
 11 NPS and the Arc of Appalachia, a non-profit  
 12 organization.<sup>1.16</sup>

13  
 14 The management of Hopewell Culture NHP  
 15 is primarily guided by the 2014 Foundation  
 16 Document; the 1997 General Management  
 17 Plan (GMP); the 1999 Long Range  
 18 Interpretive Plan (LRIP); Cultural Landscape  
 19 Inventories (CLI) for Mound City Group,  
 20 Hopeton Earthworks, and Hopewell Mound  
 21 Group; numerous archeological surveys  
 22 and investigations; and a World Heritage  
 23 Nomination currently in preparation. A  
 24 Foundation Document is currently being  
 25 drafted for the park. It is intended to provide  
 26 clear guidance on management priorities, and  
 27 to identify the NHP’s fundamental resources  
 28 and values.

29  
 30 The GMP envisions Hopewell Culture  
 31 NHP becoming an “international center  
 32 for the interpretation, study, and resource  
 33 preservation of the Hopewell Culture,”  
 34 focused on “preservation with an emphasis  
 35 on interpretation and research.” In addition  
 36 to preserving lands with archeological  
 37 earthwork complexes, the GMP recommended  
 38 acquiring “adjacent lands or easements for  
 39 necessary resource protection.”<sup>1.17</sup>

---

42  
 43 1.15 GMP, 2.  
 44 1.16 A separate appendix has been prepared for this park unit.  
 1.17 GMP, 17.

Mound City Group would remain the central visitor center for orientation and interpretation for the park and all park units, and would have “expanded collection and research facilities.”<sup>1.18</sup>

- The goal of cultural resource management recommended in the GMP is to “identify, evaluate, preserve, interpret, and protect significant cultural properties, including archeological sites and cultural landscapes.” The GMP specifically notes that “protection of the cultural environment would be given the highest priority” in relationship to natural resource management. The need for archeological inventories and evaluations is emphasized, particularly for the recently added park units.<sup>1.19</sup>

- Inventory and evaluation to determine integrity, significance, and NRHP eligibility of potential historic features and archeological remains “thought to pre-date 1850” is recommended, as is an inventory of remnants of Camp Sherman.<sup>1.20</sup>

- The GMP notes the need for research and investigations into the daily life, settlement patterns, and subsistence of the Hopewell.<sup>1.21</sup>

- The treatment of earthwork complexes for resource protection is emphasized in the GMP to provide a meaningful experience for visitors, and as a means to interpret their ‘original extent, appearance, and significance.’ A series of treatment goals are recommended, and

---

<sup>1.18</sup> GMP, 17.

<sup>1.19</sup> GMP, 20.

<sup>1.20</sup> Draft General Management Plan / Environmental Assessment, Hopewell Culture National Historical Park, Ohio, (NPS, 1996), 45. Specific areas of inquiry are listed in the draft GMP / EA, and not included in the final.

<sup>1.21</sup> GMP / EA, 45.

include preservation of original features and materials, protection against further deterioration (particularly related to cultivation), research and correction of any inaccurate reconstructions, stabilization by non-invasive vegetation, restoration of select archeological features, and “outline features” for interpretation.<sup>1.22</sup>

- The GMP recommends natural resource management “follow recommendations of an approved cultural landscape report,” with natural resources to be more actively managed, for control and elimination of “non-native flora,” and for aggressive habitat restoration associated with threatened and endangered species.<sup>1.23</sup>

- A physical network of trails and waterway routes is recommended in the GMP to promote resource conservation, offer visitors alternative modes of travel between park units, and to connect to local and regional greenways, and park and open space properties.<sup>1.24</sup>

- Four management zones recommended in the GMP include a limited access zone for preservation and research of archeological features; natural resource zone for preservation and restoration of native ecosystems with limited visitor access; pedestrian zone where visitors could view and walk among the earthwork complexes; and a development zone where park and visitor facilities for visitor use, orientation, education, and maintenance would be developed. An educational subzone and special use subzone are also included.

---

<sup>1.22</sup> GMP, 21.

<sup>1.23</sup> GMP, 24.

<sup>1.24</sup> GMP, 29.

1 The 1997 Long Range Interpretive  
2 Plan (LRIP) “provides guidance for the  
3 interpretation and education programs at  
4 Hopewell Culture NHP; and for development  
5 of visitor experiences, interpretive media,  
6 and facilities “to meet the purpose and  
7 significance of the park.” The LRIP intends  
8 for these actions to be accomplished to  
9 provide quality experiences, and to protect  
10 irreplaceable resources.<sup>1.25</sup>

11  
12 • The LRIP presents a primary interpretive  
13 theme, supported by a series of secondary  
14 themes as the framework for the park’s  
15 interpretive program. The primary theme  
16 is to interpret the Hopewell Culture,  
17 from daily life, to artistry and earthwork  
18 complexes —“construction techniques,  
19 especially of geometric earthworks,  
20 demonstrated sophisticated engineering,  
21 architecture and mathematics, and  
22 significant investments of human labor,”  
23 to the preservation of archeological  
24 features and earthwork complexes,  
25 to understanding early archeology in  
26 the park.<sup>1.26</sup> Secondary themes are to  
27 interpret Camp Sherman and the Ohio-  
28 Erie Canal.<sup>1.27</sup>

29  
30 • The LRIP supports the goal of the GMP  
31 to create an international center for  
32 interpretation, study and preservation of  
33 the Hopewell Culture; and recommends  
34 three complexes be open to the public—  
35 Mound City Group, Hopewell Mound  
36 Group, and Seip Earthworks; and two  
37 complexes to be devoted to preservation  
38 and research, Hopeton Earthworks and  
39 High Bank Works. To support this goal,  
40 the LRIP recommends new or renovated  
41 facilities for visitor use, and collections  
42 and research. An expanded visitor center  
43 at Mound City Group is envisioned to

44  
45 1.25 *LRIP*, 2.

46 1.26 *LRIP*, 16-19.

1.27 *LRIP*, 19.

1 provide increased exhibit and museum  
2 space, a research center with controlled  
3 public access, and indoor and outdoor  
4 education areas. Wayside exhibits are  
5 envisioned for each park unit open to the  
6 public, some of which have been recently  
7 revised, as are park trails.<sup>1.28</sup>

8  
9 • For Hopewell Mound Group, the LRIP  
10 recommends a new seasonal contact  
11 station, trail connections to the county  
12 regional trail, new wayside exhibits, new  
13 trails of varying degrees of difficulty,  
14 and interpretation of the earthwork  
15 complexes by ‘outlining’ the archeological  
16 features.

17  
18 • An off-site “multi-agency visitor center”  
19 is envisioned in the LRIP for Seip  
20 Earthworks, as are linkages to the high  
21 school, viewing platform, demonstration  
22 garden, and trails that include a greenway  
23 trail along Paint Creek, and a rails-to-trails  
24 route.<sup>1.29</sup>

25  
26 • For Hopeton Earthworks and High  
27 Bank Works, the two complexes noted  
28 to be archeological research sites,  
29 the LRIP envisioned a short trail with  
30 interpretive wayside for visitor access,  
31 with the remainder primarily for active  
32 archeological investigations.<sup>1.30</sup>

33  
34 Recent archeological research and  
35 investigations guide management decisions  
36 within the park. Modern archeological  
37 investigations focus on less-intrusive methods  
38 than in the past.

39  
40 • High resolution mapping, including  
41 magnetic surveying are being used to  
42 identify extant below-grade archeological  
43 features.

44  
45 1.28 Hopewell Culture NHP, *LRIP*, 37-45.

1.29 Hopewell Culture NHP, *LRIP*, 49-52.

46 1.30 Hopewell Culture NHP, *LRIP*, 55-57.

1 • Radiocarbon dating, pollen and phytolith  
2 analysis, soil micromorphological  
3 analysis, etc., are being used to shed  
4 further light on the Hopewell Culture.

6 • Magnetic surveys commissioned by  
7 the NPS have resulted in more detailed  
8 maps of the earthwork complexes,  
9 revealing previously unverified deposits  
10 and features that must be managed as  
11 archeological resources.

13 • Field investigations demonstrate that  
14 plowing has only caused superficial  
15 disturbance to upper mound strata.

17 • Recent high resolution topographic  
18 mapping using LiDAR (“light radar”)  
19 technology provides evidence on the  
20 integrity of the earthwork architecture.

22 • Archeological salvage investigations  
23 are used to remove archeological  
24 material that is threatened by erosion  
25 by waterways (e.g. 2004 to 2006  
26 investigations at Hopewell Mound Group  
27 removed deposits threatened by potential  
28 erosion of North Paint Creek).<sup>1.31</sup>

30 Vegetation management is informed by the  
31 archeological studies, which reveal that  
32 managing earthwork complexes as hay  
33 fields, cut and baled one to three times per  
34 year, establishes an effective barrier to soil  
35 erosion, enhances visibility of the earthwork  
36 complexes, and facilitates access for  
37 archeological research.

39 • Native plant cover obscures the  
40 earthwork complexes, especially during  
41 the growing season when most visitation  
42 occurs. Prescribed burning would be  
43 a sustainable method of reducing the

---

1.31 Bret Ruby, “Authenticity and Integrity of the Hopewell  
Mound Group,” Draft World Heritage Nomination, 2.

1 biomass, but burning has been shown to  
2 interfere with magnetic surveys and may  
3 introduce carbon that could interfere with  
4 radiocarbon dating efforts.

6 • Recently, an Executive Order on proper  
7 herbicide use was issued to help the park  
8 protect pollinators.<sup>1.32</sup>

10 The park units and two affiliated properties  
11 began a nomination process for the UNESCO  
12 World Heritage List in 2013. The nomination  
13 is currently under review. The seven  
14 archeological landscapes nominated include  
15 the five park units of Hopewell Culture NHP,  
16 Newark Earthworks State Memorial, and Fort  
17 Ancient State Memorial, the latter two owned  
18 and managed by the Ohio History Connection.

20 Upon approval, the World Heritage  
21 Nomination (WHN) will provide a statement  
22 of integrity and authenticity for each  
23 earthwork complex, a summary of field  
24 investigations, and history.

26 • The WHN provides a basis for  
27 preservation and care that is required to  
28 maintain World Heritage status.

30 • The nomination identifies threats to the  
31 park units and how they can be mitigated.

33 • It provides a rationale for any  
34 archeological salvage investigations that  
35 might be required in order to protect the  
36 integrity of the park units.

38 • It stresses the need for protection of  
39 these earthwork complexes, indicates the  
40 importance of maintaining or expanding  
41 the park unit boundaries to encompass  
42 all or most of the earthwork complexes,

---

1.32 Presidential Memorandum for Heads of Executive  
Departments and Agencies. Creating a Federal Strategy to  
Promote the Health of Honey Bees and Other Pollinators,  
June 20, 2014.



and boundary adjustments that may be necessary to provide a protective buffer against encroaching development.<sup>1.33</sup>

#### Management Issues

The following summarizes management issues identified during the research, inventory, and evaluation of Hopewell Culture NHP's archeological landscape.

#### Need for Research and Archeological

##### Investigations

The six park units encompass some of the most important archeological complexes in the nation, for which additional scientific investigations and systematic study continue to be needed.

- Recent magnetic surveys revealed important findings on extant below-grade features, not currently visible on the surface. The survey work completed for Mound City Group and High Bank Works on parcels within NPS ownership have revealed the extent of extant below-grade features. This same level of investigation is needed for the other park units including Hopeton Earthworks, Hopewell Mound Group, and Seip Earthworks, and for archeological features that remain on private property including portions of High Bank Works. Hopeton Earthworks, and Seip Earthworks.

- Recent magnetic surveys have confirmed that most reconstructions of mounds and earthen walls have occurred in historic locations, i.e., in relationship to identified below-grade features identified in these magnetic surveys. However not all mounds or earthen walls were surveyed, and additional investigations are needed.

<sup>1.33</sup> Ruby, "Authenticity and Integrity of the Hopewell Mound Group," 3.

- Reconstructions of mounds and earthen walls may not have been built with materials that match the original materials in the original compositions. Additional research, investigations, and magnetic surveys are needed to confirm material reconstructions.

- Additional magnetic surveys are needed to confirm accuracy of some reconstructions. Potential archeological features for additional investigation include the earthen wall at Seip Earthworks.

- Little is known of early American Indian habitation sites in relationship to the earthwork complexes, and of modes of circulation (waterways and overland routes) between earthwork complexes. More information on the lives of the Hopewell people, who built and used the earthwork complexes, is critical to understanding settlement in the region, and the purpose and use of the earthwork complexes.

- Additionally, archeological research is needed to identify vegetation evident during the period of significance. This could include pollen and seed analysis from excavations.

#### Need for Earthwork Complex Preservation

Earthwork complexes within Hopewell Culture NHP include reconstructions of mounds and earthen walls, re-excavation of borrow pits, and protection of extant original materials. Vegetation management on archeological features varies from mown lawn to native grasslands.

A consistent long-term strategy for earthwork preservation is needed, in which best management practices are identified based on those undertaken for nationally

1 and internationally significant earthwork  
2 complexes.

3  
4 • Vegetation on many archeological features  
5 is managed as mown lawn, hay fields, or  
6 crop fields.<sup>1.34</sup> In some areas, archeological  
7 features are covered by native grassland  
8 vegetation. Some earthwork complexes,  
9 still privately owned, continue to be  
10 cultivated for agricultural purposes.  
11 Earthwork complexes in active cultivation  
12 continue to degrade by plowing and other  
13 agricultural practices.

14  
15 • In park units with reconstructed  
16 archeological features, mown lawn is  
17 the vegetation management approach  
18 for earthen walls, mounds, and borrow  
19 pits. This is the same vegetation used  
20 for visitor or public use areas. Mown  
21 lawn clearly defines the extent of the  
22 archeological feature and its topography;  
23 however, it is subject to erosion and  
24 requires extensive maintenance. In areas  
25 where earthwork complexes are mown  
26 lawn, such as Mound City Group, the  
27 extensive use of a singular vegetation type  
28 assists in the visibility of the individual  
29 archeological features. However,  
30 using mown lawn for both earthwork  
31 complexes and visitor areas creates a  
32 confusing experience.

33  
34 • Many earthwork complexes are managed  
35 as field vegetation, with some specific  
36 archeological features or portions of  
37 features managed as hay fields. In some  
38 earthwork complexes, limited public  
39 access is via mown paths. Field vegetation  
40 generally grows to a height that obscures  
41 the subtle topographic presence of the  
42 archeological features. Hay fields assist

---

44 1.34 Mown lawn is regularly mown turf grass species;  
45 hay fields are primarily grass species with regular or  
46 occasional cultivation; crop fields are yearly cultivated  
crop species such as corn, soybeans, or wheat.

1 in defining the archeological features, but  
2 due to the low height of many features,  
3 the form is still difficult to discern.

4  
5 • Mown paths are used to provide visitor  
6 access. When paths cross or transect  
7 archeological features, it can be confusing  
8 because it is difficult to know if the path  
9 follows the outline of an archeological  
10 feature and wayfinding is difficult.

11  
12 • In earthwork complexes with native  
13 grasslands, archeological features are  
14 completely obscured due to the density  
15 and height of the vegetation. Deep roots  
16 of native grasslands may impact below-  
17 grade features. Native vegetation occurs  
18 in other areas within the park units,  
19 near rivers and on the exterior of some  
20 earthwork complexes. Placing a native  
21 vegetation type within an earthwork  
22 complex creates a confusing scene for  
23 visitors in which it is difficult to discern  
24 between an earthwork complex and a  
25 native area.

26  
27 • Other vegetation management issues  
28 include erosion on steeper slopes of  
29 mounds and earthen walls, and burrowing  
30 animals and mowing equipment. Erosion  
31 is due to natural forces and pedestrians  
32 accessing the mounds.

33  
34 • Archeological materials have been  
35 compromised due to agricultural  
36 practices, intrusive archeological  
37 excavations, and the presence of  
38 buildings, roads, and other features  
39 built upon the earthwork complexes. As  
40 a result, a large amount of the original  
41 archeological features have been  
42 removed, damaged, or destroyed.

43  
44 • Burning has been shown to interfere with  
45 magnetic surveys to identify subsurface  
46 archeological features. Burning introduces

modern carbon into the soil that may interfere with radiocarbon dating.

- Tall grasses create habitat for destructive burrowing animals such as groundhogs, and make it difficult to monitor archeological landscapes for the presence of destructive burrowing animals.
- Tall grasses and shrubs limit access for archeological research, especially the new generation of large-scale geophysical survey instruments that require low, mown vegetation for data collection

#### Acquisition of Significant Earthwork Complexes

The establishment of Hopewell Culture NHP in 1992, and expansion of park boundaries in 2000, preserved several significant earthwork complexes—the remainder of Hopeton Earthworks, Hopewell Mound Group (2000 boundary expansion gained a greater portion of the earthwork), Seip Earthworks, and High Bank Works. However, some portions of certain earthwork complexes remain in private ownership, with some still in agricultural cultivation. These include a portion of Seip Earthworks, and the center parcel of High Bank Works.

Several additional Hopewell complexes were identified in the 1992 enabling legislation, which authorized special resource studies to evaluate the Harness Group, Cedar Banks, Spruce Hill, the Mann Site in Indiana, and other earthwork complexes. The Harness Group, Spruce Hill and Mann Site studies have been completed, but additional special resource studies are needed to evaluate the desirability and feasibility of preserving additional earthwork complexes as park units, or by other means.<sup>1.35</sup>

<sup>1.35</sup> Cedar-Bank Works and Edwin Harness Mound are both located in Ross County, approximately 10 miles north of Chillicothe.

#### Adjacent lands threaten setting and Earthwork

##### Complexes

Some adjacent land uses threaten the setting. Ongoing residential development occurs close to some park units; and Mound City Group is adjacent to two government owned institutional facilities, including two state prisons and a U.S. Veterans Administration hospital. A privately-owned gravel pit is adjacent to Hopeton Earthworks, and has damaged archeological resources. Public and private roads and utilities have right-of-ways across the park units. Some of the roads have damaged the earthwork complexes, and overhead power lines disrupt views and the spatial organization of the earthwork complexes. Agricultural activities are adjacent to most park units. Portions of park units, not owned by the NPS, are cultivated yearly with corn and soybean fields. Crop cultivation damages earthwork complexes.

## Related Laws, Regulations, Policies, Orders, and Planning Documents

Several guiding laws and policies, as well as previous planning project reports, provide background and management information for this CLR / EA. Relevant laws, policies, and plans are described below.

### Guiding Laws and Policies

#### National Environmental Policy Act of 1969 as Amended

NEPA was passed by Congress in 1969 and took effect on January 1, 1970. This legislation established the country's environmental policies, including the goal of achieving a productive harmony between human beings and the physical environment for present and future generations. NEPA provides the tools to implement these goals by requiring that every federal agency prepare an in-depth study of the impacts of "major federal actions having a significant effect on the environment" and alternatives to those actions. NEPA also requires that each agency makes that information an integral part of its decision-making process. In addition, NEPA requires that agencies make a diligent effort to involve interested members of the public before agencies make decisions affecting the environment. NEPA is implemented through regulations of the Council on Environmental Quality (CEQ).<sup>1.36</sup>

#### Natural Resource Management Reference Manual #77

The Natural Resource Management Reference Manual #77 offers comprehensive guidance to National Park Service employees responsible for managing, conserving, and protecting the natural resources found in National Park System units. This Reference Manual serves as the primary Level 3 guidance on natural resource management in units of the National

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<sup>1.36</sup> 40 CFR 1500-1508.

Park System, replacing NPS-77, The Natural Resource Management Guideline, issued in 1991 under the previous NPS guideline series.

#### National Historic Preservation Act of 1966, as Amended

The NHPA, as amended, protects buildings, sites, districts, structures, and objects that have significant scientific, historic, or cultural value. The act established affirmative responsibilities of federal agencies to preserve historic and prehistoric resources. Effects on properties that are listed in, or that are eligible for listing in, the NRHP must be taken into account in planning and operations. Any property that may qualify for listing on the NRHP must not be inadvertently transferred, sold, demolished, substantially altered, or allowed to deteriorate.

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. The Advisory Council on Historic Preservation (ACHP) is then afforded a reasonable opportunity to comment. The historic preservation review process mandated by Section 106 is outlined in regulations issued by the ACHP. Revised regulations, known as "Protection of Historic Properties" (36 CFR Part 800), were updated on August 5, 2004.

In addition to considering the effects of their undertakings on historic properties, Section 110 of the NHPA requires federal agencies to establish a historic preservation program to identify and protect historic properties under their management or control. The plans must include a process for evaluating historic properties for listing in the NRHP.

#### NPS Organic Act of 1916

By enacting the NPS Organic Act of 1916, Congress directed the U.S. Department of



1 the Interior and NPS to manage units “to  
2 conserve the scenery and the natural and  
3 historic objects and wildlife therein and to  
4 provide for the enjoyment of the same in such  
5 a manner and by such a means as will leave  
6 them unimpaired for the enjoyment of future  
7 generations.”<sup>1.37</sup>

8  
9 Impairment is an impact that, in the  
10 professional judgment of the responsible  
11 NPS manager, would harm the integrity  
12 of park resources or values, including the  
13 opportunities that otherwise would be  
14 present for the enjoyment of those resources  
15 or values. Whether an impact meets this  
16 definition depends on the particular  
17 resources that would be affected; the severity,  
18 duration, and timing of the impact; the direct  
19 and indirect effects of the impact; and the  
20 cumulative effects of the impact in question  
21 and other impacts. An impact would be less  
22 likely to constitute an impairment if it is an  
23 unavoidable result of an action necessary  
24 to preserve or restore the integrity of park  
25 resources or values and it cannot be further  
26 mitigated.

27  
28 NPS Management Policies 2006  
29 NPS Management Policies 2006 provides  
30 guidance for all management decisions,  
31 including decisions related to archeological  
32 resources. Archeological resources, including  
33 archeological landscapes and historic  
34 structures, are addressed in section 5.0,  
35 which states the NPS cultural resources  
36 management program involves “...stewardship  
37 to ensure that cultural resources are  
38 preserved and protected, receive appropriate  
39 treatments (including maintenance) to  
40 achieve desired conditions, and are made  
41 available for public understanding and

---

43 1.37 16 United States code [USC] section 1.

1 enjoyment.” The policy goes on to state  
2 that “each park’s resource stewardship  
3 strategy will provide comprehensive  
4 recommendations about specific actions  
5 needed to achieve and maintain the desired  
6 resource conditions and visitor experiences  
7 for the park’s cultural resources.”<sup>1.38</sup>

8  
9 Director’s Order-12 (2001, rev. 2011) and  
10 Handbook (2001)  
11 DO-12 and Handbook provides the  
12 instruction or procedures by which the  
13 NPS complies with NEPA and for practicing  
14 environmental impact assessment and  
15 resource conservation.<sup>1.39</sup> DO-12 and  
16 Handbook provide the framework for  
17 the NPS’s approach in environmental  
18 analysis, public involvement, and making  
19 resource-based decisions. The order and  
20 handbook require a full and open evaluation,  
21 interdisciplinary approach, and technical and  
22 scientific analysis of management decisions.

23  
24 Director’s Order-28: Cultural Resource  
25 Management  
26 DO-28 elaborates on the existing laws  
27 for cultural resources including, but not  
28 limited to, the 1916 NPS Organic Act, NPS  
29 Management Policies 2006, and NHPA.<sup>1.40</sup>  
30 DO-28 offers guidance in applying the laws  
31 and regulations regarding cultural resource  
32 management to establish, maintain, and  
33 refine park cultural resource programs.

34  
35 Executive Order 11593, “Protection and  
36 Enhancement of the Cultural Environment”  
37 Executive Order (EO) 11593 mandates that  
38 all agencies 1) compile an inventory of the  
39 cultural resources for which they are the

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41 1.38 NPS, *Management Policies 2006*.

42 1.39 NPS, *Director’s Order-12 (2001, rev. 2011) and Handbook*  
(2001).

43 1.40 NPS, *DO-28: Cultural Resource Management*, 2002.

1 trustee, 2) nominate all eligible government  
2 properties to the NRHP, 3) preserve and  
3 protect their cultural resources, and 4)  
4 ensure that agency activities contribute to the  
5 preservation and protection of non-federally  
6 owned cultural resources.

7  
8 Executive Order 11990, "Protection of  
9 Wetlands"

10 EO 11990, "Protection of Wetlands" is an  
11 order to avoid adverse impacts associated  
12 with the destruction or modification of  
13 wetlands. The order requires agencies to  
14 "take action to minimize the destruction, loss,  
15 or degradation of wetlands, and to preserve  
16 and enhance the natural and beneficial values  
17 of wetlands in carrying out the agencies'  
18 responsibilities." The order applies to  
19 acquisition, management, and disposition of  
20 federal lands and facilities construction and  
21 improvement projects that are undertaken,  
22 financed, or assisted by federal agencies, and  
23 federal activities and programs affecting land  
24 use.

25  
26 2011 Guidance for Non-impairment

27 Determinations and the NPS NEPA Process

28 New guidance for non-impairment  
29 determinations was approved by the NPS in  
30 September 2011. The new guidance states  
31 that non-impairment determinations will only  
32 be required for the preferred alternative in  
33 NEPA documents and that the determination  
34 will be appended to the decision document  
35 (FONSI or Record of Decision (ROD))  
36 (previously included in the analysis for  
37 each resource area). The new guidance will  
38 be included in the upcoming revised DO-  
39 12 Handbook. Based on the new guidance,  
40 the non-impairment determination will be  
41 appended to the decision document for this  
42 EA.

43

1 Relevant Planning Documents, Related  
2 Studies, Recommended Future Studies

3 In addition to NPS management policies,  
4 the following park-specific documents  
5 provided information on park resources and  
6 management strategies and priorities.

7  
8 General Management Plan

9 The General Management Plan provides  
10 broad management direction for resource  
11 management, visitor use, and development  
12 15-20 years into the future.<sup>1.41</sup>

13  
14 Long Range Interpretive Plan

15 The Long Range Interpretive Plan articulates  
16 a vision for the park's interpretive future, and  
17 recommends the media and programs best  
18 suited for meeting visitor needs, achieving  
19 management goals, and telling the park  
20 stories.<sup>1.42</sup>

21  
22 Wildland Fire Management Plan

23 The Wildland Fire Management Plan outlines  
24 a detailed program of actions to be taken by  
25 the park to meet the fire management goals  
26 for the area.<sup>1.43</sup> The fire management program  
27 at the park was developed to balance the  
28 park's goals with the goals of the National  
29 Fire Plan.<sup>1.44</sup> Resource management objectives  
30 determine whether fire may be used as a tool  
31 to manipulate vegetation and how fire will be  
32 managed.

33  
34 Heartland Invasive Plant Management Plan

35 The Heartland Inventory and Monitoring  
36 Network (HTLN) is part of the nationwide  
37 Inventory and Monitoring Program of

38

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39 <sup>1.41</sup> GMP.

40 <sup>1.42</sup> LRIP.

41 <sup>1.43</sup> GMP.

42 <sup>1.44</sup> *Managing the Impact of Wildfires on Communities and*  
43 *the Environment.* (Washington, D.C.; U.S. Departments of  
Agriculture and Interior: 2000).

## Environmental Assessment Impact Topics

the NPS.<sup>1.45</sup> HTLN parks in eight states (Arkansas, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, and Ohio) propose the establishment of an invasive plant management team (IPMT) action plan to control invasive plants cooperatively. This will support restoration of native vegetation in several ecosystem types associated with tallgrass prairies, eastern deciduous forests, interior highlands, and the Mississippi floodplain within the parks.

### 1 Scope of the Report

This CLR / EA has been prepared to evaluate potential effects on environmental, socioeconomic, and cultural resources from the proposed treatment alternative and a no action alternative. The CLR / EA provides the decision-making framework that:

1. Analyzes a reasonable range of alternatives to meet objectives of the proposal,
2. Evaluates potential issues and impacts to the park's resources and values, and
3. Identifies mitigation measures to lessen the degree or extent of these impacts.

Impact topics evaluated in detail in this EA are cultural resources, vegetation, wildlife, visual resources, visitor use and experience, and park operations and maintenance. Some impact topics were dismissed because the project would result in no more than minor effects. No major effects were identified as a result of implementing the proposed alternatives in an initial analysis of effects. The public, regulatory agencies, and other stakeholders have an opportunity to comment on this CLR / EA. Comments received will be considered in the final evaluation of effects.

### Scoping

Scoping is an early and open process to determine the breadth of issues and alternatives to be addressed in an environmental assessment. Park staff and resource professionals of the NPS Midwest Regional Office conducted internal scoping. This interdisciplinary process defined the purpose and need, identified potential actions to address the need, determined the likely issues and impact topics, and identified the

<sup>1.45</sup> S.A. Middlemis-Brown and C.C. Young. *Heartland Invasive Plant Management Plan and Environmental Assessment. Natural Resource Data Series NPS/MWR/HLN/NRDS-2012/XXX*. (Philadelphia, PA; National Park Service 2012).

relationship of the proposed action to other planning efforts at the park.

As part of tribal consultation, scoping letters were sent to federally recognized tribes on February 4, 2015, to initiate informal consultation on the CLR/EA. The tribes and governments that received letters are:

- Absentee-Shawnee Tribe of Indians of Oklahoma
- Delaware Nation
- Delaware Tribe of Indians
- Eastern Shawnee Tribe of Oklahoma
- Miami Tribe of Oklahoma
- Ottawa Tribe of Oklahoma
- Seneca-Cayuga Tribe of Oklahoma
- Shawnee Tribe
- Wyandotte Nation

The NHPA requires the consideration of impacts on cultural resources, either listed in or eligible to be listed in, the National Register.<sup>1.46</sup> Park staff sent a scoping letter to the Ohio State Historic Preservation Officer (SHPO) on February 4, 2015 to solicit input on issues of concern. The park will continue to consult with the SHPO to determine the effects of the action alternatives on eligible historic resources and to develop mitigation for impacts on historical features, if any, from the preferred alternative.

The park also sent a scoping letter on February 4, 2015 to the U.S. Fish and Wildlife Service (USFWS) to solicit input on issues of concern. The USFWS Ohio Field Office responded to the scoping letter in a letter dated February 25, 2015, recommending a consultation with ODNR. A response from ODNR has not yet been received.

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<sup>1.46</sup> 16 USC 470 et seq.

The park initiated public scoping with a press release that was sent to the NAME OF PUBLICATION, published on xxx xxx, 2015. [This statement is for draft review purposes only and will be modified in subsequent drafts based on the actual publication date]

### Issues and Impact Topics

An important part of the decision-making process is seeking to understand the consequences of making one decision over another. This CLR / EA identifies the anticipated impacts of possible actions on certain resources, park visitors, and neighbors. The impacts are organized by topic, such as “vegetation” or “public health and safety.” Impact topics serve to focus the environmental analysis and ensure the relevance of impact evaluation.

Impact topics were developed from the questions and comments brought forth during scoping; existing conditions; staff knowledge of the park resources; and any laws, regulations, policies, or orders applicable to the project. Some topics were dismissed from detailed analysis because the resource is not present in the study area, or because the action alternatives would either have no effect on the impact topic, or the effects would be negligible to minor. Some impact topics were retained even though the effects of the alternatives would be negligible to minor because the impact topic is a particularly sensitive resource, or was identified as an important topic in scoping.



TABLE 1-1. Impact Topics Retained and Relevant Laws, Regulations, and Policies

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Cultural Landscapes, Archeological Sites, and Historic Structures / Objects	The treatment recommendations for archeological landscapes are key issues of the CLR / EA. Because implementing one or more of the alternatives may result in changes to archeological landscapes and historic structures and because ground disturbances may affect archeological sites (i.e., disturb buried artifacts) this topic was retained for further analysis.	Sections 106 and 110 of the NHPA; ACHP implementing regulations regarding the “Protection of Historic Properties” (36 CFR 800); DO-28: Cultural Resource Management Guidelines; NPS Management Policies 2006; Secretary of the Interior’s Standards for the Treatment of Historic Properties; NEPA; Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes (1996); Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation; DO-28A: Archeology (NPS 2004)
Vegetation	Vegetation disturbance could occur and the introduction of invasive nonnative species is possible from ground-disturbing activities. Because the alternatives have the potential to affect vegetation, including state listed species, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies 2006; Resource Management Guidelines (NPS-77); Federal Noxious Weed Control Act; EO 13112, “Invasive Species” (NPS 1999)
Wildlife	Changes in vegetation may alter wildlife habitat and could affect wildlife in the project area. Because the CLR / EA alternatives have the potential to affect wildlife habitat, including for state listed species, this topic was retained for further analysis.	NPS Organic Act; enabling legislation; NPS Management Policies 2006; NPS-77

Impact Topic	Reasons for Retaining Impact Topic	Relevant Laws, Regulations, and Policies
Visual Resources	Modifications to the archeological landscape proposed in the CLR / EA alternatives may alter the views for park visitors; therefore, this topic was retained for further analysis.	NPS Management Policies 2006
Visitor Use and Experience	The CLR / EA alternatives could affect overall visitor understanding of the park, including interpretive and educational opportunities and, therefore, this topic was retained for further analysis.	NPS Organic Act; NPS Management Policies 2006
Park Operations and Maintenance	Park operations and maintenance activities could be affected by the CLR / EA alternatives; therefore, this topic was retained for further analysis.	NPS Management Policies 2006

### Impact Topics Selected for Analysis

The issues identified during scoping that are evaluated in this CLR / EA are potential effects on the following resources:

- Archeological landscapes, archeological sites, and historic structures / objects
- Vegetation
- Wildlife
- Visual resources
- Visitor use and experience
- Park operations and maintenance

Table 1 discusses the retained impact topics; the reasons for retaining the topic; and relevant laws, regulations, and policies.

### **Impact Topics Dismissed from Further Consideration**

The following impact topics or issues were eliminated from consideration because either the resources are not present in the areas proposed for management implementation or because the effects, if any, would be negligible to minor.

#### Natural Resources

##### Air Quality

Ross County is designated as a Class II Air Quality area under the 1963 Clean Air Act, as amended.<sup>1.47</sup> The park and the State of Ohio do not monitor air quality. The local and short-term changes in air quality associated with emissions from construction or maintenance equipment during implementation of the proposed action alternatives would have a negligible effect on regional and local air quality. Because there would be a negligible effect on regional and local air quality from the proposed alternatives, this impact topic was dismissed from further analysis.

##### Climate Change

As discussed above, any local, short-term emissions associated with the proposed

alternatives would be negligible. These emissions would have an indiscernible effect on climate change. Changes in visitor use following implementation of action alternatives would not result in a substantial increase in traffic to the park. Because the proposed alternatives would result in indiscernible contributions to climate change, this impact topic was dismissed from further analysis.

##### Geology and Soils

The NPS Organic Act and NPS Management Policies 2006 direct the NPS to preserve and protect geologic resources and maintain natural geologic and coastal processes and preserve and protect soil resources. The park is located in south-central Ohio, an area that has experienced numerous episodes of glaciation.<sup>1.48</sup> The major geologic features include glacial outwash, moraines, and terraces formed by rivers cutting through glacial till and outwash.<sup>1.49</sup> Soils at the earthwork park units are dominated by silty to gravelly loams formed in the floodplains of Paint Creek, North Paint Creek, and the Scioto River. Most of the land at the park units has been cultivated in the past or is currently under cultivation. Geologic and soil resources do not contribute to the significance of the park and no important or unusual geologic formations would be affected by the alternatives.

The proposed action alternatives would have little to no impact on park geology or soils because no extensive excavation is proposed. There would be minor soil disturbances associated with proposed visitor facilities, but adverse effects would be minimized by limiting areas of disturbance and by revegetating temporarily disturbed areas

<sup>1.48</sup> Hopewell Culture NHP, Ancillary Map Information Document. (National Park Service, 2009)

<sup>1.49</sup> Hopewell Culture NHP, Ancillary Map Information Document. (National Park Service, 2009)

<sup>1.47</sup> NPS. 2004, 14. 42 USC 7401 et seq.

1 as soon as possible following completion  
2 of work. As a result, at most, the action  
3 alternatives would have local short-term  
4 and long-term negligible adverse effects on  
5 geologic and resources in the project area.  
6 The no action alternative would have no effect  
7 on geologic or soil resources. Because impacts  
8 to geologic and soil resources would be no  
9 more than negligible under the proposed  
10 alternatives, this impact topic was dismissed  
11 from further analysis.

12

### 13 Prime or Unique Farmland

14 In 1980, the Council on Environmental  
15 Quality (CEQ) directed federal agencies to  
16 assess the effects of their actions on farmland  
17 soils classified as prime or unique by the  
18 United States Department of Agriculture,  
19 Natural Resource Conservation Service  
20 (NRCS). Prime farmland is defined as soil  
21 that particularly produces general crops such  
22 as common foods, forage, fiber, and oil seed  
23 and is available for these uses; and unique  
24 farmland produces specialty crops such as  
25 fruits, vegetables, and nuts.

26

27 The NRCS has classified the majority of soils  
28 in the park as prime farmlands.<sup>1.50</sup> No unique  
29 farmland has been identified within the  
30 Hopewell Culture National Historical Park.

31

32 Potential effects of the proposed alternatives  
33 on prime farmland in the park include  
34 constructing new facilities and vegetation  
35 management treatments. The extent of  
36 the effects is related to the amount of land  
37 disturbance caused by construction and  
38 operation of park facilities and the extent of  
39 vegetation management treatments. Under  
40 the action alternatives, a maximum of one  
41 acre would be converted from prime farmland  
42 to building sites and parking areas associated

43

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44 1.50 Natural Resource Conservation Service (NRCS). "Web  
45 Soil Survey of Ross County, Ohio." Soil Survey Staff. United  
46 States Department of Agriculture. Accessed October 2014,  
<http://websoilsurvey.nrcs.usda.gov/>.

1 with new facilities. This represents less than  
2 1% of prime farmland in the park and would  
3 result in a long-term, negligible, adverse  
4 effect. Vegetation management treatment  
5 alternatives would be implemented on much  
6 of the prime farmland, but the alternatives  
7 would not affect the classification of the areas  
8 because their capability to produce common  
9 foods, forage, fiber, and oil seed would not be  
10 diminished.

11

12 Overall, the proposed alternatives would  
13 at most result in local long-term negligible  
14 adverse effects on prime farmland. Because  
15 effects would be negligible, this topic was  
16 dismissed from further analysis.

17

### 18 Threatened and Endangered Species

19 Federally threatened and endangered species  
20 are protected under the Endangered Species  
21 Act of 1973, as amended (16 USC 1531 et  
22 seq.) (ESA). Section 7 of the ESA requires  
23 federal agencies to promote the conservation  
24 purposes of the ESA and to consult with the  
25 USFWS to ensure that effects of actions they  
26 authorize, fund, or carry out are not likely to  
27 jeopardize the continued existence of listed  
28 species or species proposed for listing.

29

30 The USFWS lists six federally endangered  
31 species as having the potential to be affected  
32 by projects in Ross County, the county in  
33 which the park is located.<sup>1.51</sup> The listed species  
34 are Indiana bat (*Myotis sodalis*), clubshell  
35 mussel (*Pleurobema clava*), northern  
36 riffleshell (*Epioblasma torulosa rangiana*),  
37 snuffbox mussel (*Epioblasma triquetra*), rayed  
38 bean mussel (*Villosa fabalis*), and running  
39 buffalo clover (*Trifolium stoloniferum*). The  
40 USFWS also lists two species of concern  
41 as potentially present in Ross County

42

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43 1.51 U.S. Fish and Wildlife Service (USFWS). "Ohio, Federally-  
44 Listed Threatened, Endangered, Proposed, and Candidate  
45 Species.' County Distribution, Revised December 2014."  
46 Accessed January 2015. <http://www.fws.gov/midwest/Endangered/lists/pdf/OhioSppList2014.pdf>



1 – eastern hellbender (*Cryptobranchus*  
2 *alleganiensis alleganiensis* (Daudin)) and  
3 timber rattlesnake (*Crotalus horridus*). Bald  
4 eagle (*Haliaeetus leucocephalus*) is listed as  
5 protected under the Bald and Golden Eagle  
6 Protection Act. The northern long-eared bat is  
7 a species impacted by white-nose syndrome,  
8 and due to recent declines, the USFWS  
9 proposed listing this bat as endangered on  
10 October 2, 2013.<sup>1.52</sup> The comment period on  
11 the proposed 4(d) rule relating to the listing  
12 expired on July 1, 2015.

13  
14 Based on relevant studies, park resource data,  
15 and staff knowledge, NPS has determined  
16 that suitable habitat is not present in the  
17 park for clubshell mussel, northern riffleshell,  
18 snuffbox mussel, rayed bean mussel, or  
19 eastern hellbender because suitable aquatic  
20 habitat is not present in the park units.  
21 Because of the lack of suitable habitat and  
22 because the proposed alternatives would  
23 be limited to terrestrial areas, the proposed  
24 alternatives would have no effect on federal  
25 threatened or endangered aquatic species.  
26 The project would also have no effect on  
27 timber rattlesnake because habitat for the  
28 timber rattlesnake was not found within park  
29 boundaries during a herpetological study  
30 conducted in 2002-2003.<sup>1.53</sup>

31  
32 Although within the habitat range of Indiana  
33 bat and running buffalo clover, the species  
34 have not been documented in the park.  
35 Because they are not known to occur in  
36 the park, despite a number of surveys, it is  
37 unlikely Indiana bat and running buffalo  
38 clover are present in the park and the  
39 proposed alternatives would at most have an  
40 insignificant and discountable effect on the

42 1.52 78 Fed. Reg. 191.

43 1.53 Christina Wieg. *A Herpetofaunal Inventory of Hopewell*  
44 *Culture National Historical Park, Ross County, Ohio.*  
45 *Technical Report NPS/HTLN/P6514020002.* (Republic,  
46 MO: Heartland Network Inventory and Monitoring  
Program, National Park Service, 2004).

1 species. Bald eagles have been documented  
2 within the park units, but it is not likely the  
3 proposed treatments would have an adverse  
4 effect on bald eagles.

5  
6 A bat inventory conducted in the park  
7 documented the occurrence of northern  
8 long-eared bat at the park.<sup>1.54</sup> This species  
9 has been described as roosting and having  
10 their young in association with forest trees,  
11 either in the foliage, in cavities, or under  
12 loose bark. The population of the bat has  
13 primarily declined due to the white-nose  
14 syndrome disease.<sup>1.55</sup> To avoid inadvertently  
15 harming individuals or roost sites, tree  
16 removal would be completed during the  
17 hibernation period of northern long-eared  
18 bat (November 1 to March 1). If removal of  
19 trees between November 1 and March 1 is  
20 not feasible, surveys for the species would  
21 be completed before trees are removed.  
22 Removing trees during the hibernation period  
23 and surveying trees before removal outside  
24 of the hibernation period would reduce the  
25 likelihood of harming individual bats. At  
26 most the proposed alternatives would affect  
27 a small fraction of the 244 acres of wooded  
28 habitat in the park and the thousands of acres  
29 of habitat in the region.<sup>1.56</sup> For these reasons,  
30 the proposed alternatives would not likely  
31 adversely affect northern long-eared bat and  
32 would not contribute to further declines in  
33 the population.

34  
35 Due to a lack of habitat for aquatic species;  
36 likely absence from the park of Indiana bat,

38 1.54 Lynn W. Robbins. *Inventory of Distribution, Composition,*  
39 *and Relative Abundance of Bats at Hopewell Culture*  
40 *National Historical Park.* (Republic, MO: Heartland  
41 Network Inventory and Monitoring Program, National  
Park Service, 2005).

42 1.55 78 Fed. Reg. 191

43 1.56 David D. Diamond, Lee F. Elliott, Michael D. DeBacker,  
44 Kevin M. James, Dyanna L. Pursell, and Alicia Struckhoff.  
45 *Vegetation Classification and Mapping of Hopewell Culture*  
46 *National Historical Park, Ohio. Natural Resource Report*  
*NPS/HOCU/NRR—2014/793.* (Fort Collins, CO: National  
Park Service, 2014.)

1 bald eagle, and running buffalo clover; and  
2 measures that would be undertaken to avoid  
3 and minimize impacts to northern long-eared  
4 bat and its habitat, the proposed alternatives  
5 would have at most an insignificant and  
6 discountable effect on federally listed and  
7 candidate species. The USFWS concurred with  
8 the NPS effects determination in a letter dated  
9 February 25, 2015. For this reason this impact  
10 topic was dismissed from further evaluation.

11

#### 12 Water Resources and Wetlands

13 The Clean Water Act, EO 11990 Wetland  
14 Protection, NPS Management Policies 2006,  
15 and DO 77-1 direct that water resources and  
16 wetlands be protected, and that wetlands  
17 and wetland functions and values be  
18 preserved. These orders and policies further  
19 stipulate that direct or indirect impacts  
20 to wetlands be avoided when practicable  
21 alternatives exist. When an alternative is  
22 selected for implementation that will result  
23 in adverse impacts on wetlands, a wetland  
24 statement of findings must be prepared  
25 that documents the extent and functions of  
26 impacted wetlands, why wetland impacts  
27 are unavoidable, what measures were taken  
28 to minimize impacts, and how impacts will  
29 be compensated. Some types of activities  
30 are exempted from the requirement for a  
31 wetland statement of findings, including foot  
32 trails with the primary purpose of public  
33 education, interpretation, or enjoyment of  
34 wetland resources and where total wetland  
35 impacts from placement of fill material does  
36 not exceed 0.10 acre.

37

38 Although not in the units themselves, each  
39 earthwork complex is located in the Scioto  
40 River watershed on floodplains near the  
41 Scioto River or North Paint Creek or Paint  
42 Creek, tributaries to the Scioto River. Within  
43 the park units, Dry Run, an intermittent  
44 stream is located at Hopeton Earthworks, a  
45 man-made pond and ephemeral drainage at  
46 Hopewell Mound Group, and five vernal pools

1 of wetland vegetation, each less than 30 feet  
2 in diameter at Hopewell Mound Group.

3

4 None of the proposed alternatives would  
5 affect the drainages or wetlands in the park  
6 or rivers adjacent to the units. In the unlikely  
7 event work would occur near the drainages or  
8 wetlands, buffer zones would be established  
9 around these areas for all action alternatives  
10 to prevent disturbance from implementing  
11 treatment alternatives. Because the buffer  
12 zones would ensure that the alternatives  
13 would have no impact on wetlands, this topic  
14 was dismissed from detailed discussion in  
15 this CLR / EA.

16

#### 17 Floodplains

18 EO 11988, "Floodplain Management" requires  
19 an examination of impacts on floodplains and  
20 potential risks involved in placing facilities  
21 within floodplains. NPS Management Policies  
22 2006 and DO-77-2: Floodplain Management  
23 provide guidelines for proposed actions in  
24 floodplains.

25

26 With the exception of High Bank Works, parts  
27 of each of the park units are located in a  
28 FEMA-mapped 100-year floodplain. Although  
29 floodplains are present, the proposed  
30 alternatives do not include constructing  
31 new permanent structures or discharging  
32 fill material into the floodplain and so would  
33 have no impacts on existing floodplains.

34

35 The action alternatives would also have no  
36 impacts on natural floodplain values (e.g.,  
37 river processes or aquatic habitat) and the  
38 ability of the floodplains within the park  
39 to function naturally. There would be no  
40 increase in risk to life or property. Because  
41 there would be no impacts on floodplains,  
42 this impact topic was dismissed from further  
43 analysis in this CLR / EA.

44

45

46

## 1 Cultural Resources

### 2 Indian Trust Resources

3 Secretarial Order 3175 requires that  
4 any anticipated impacts to Indian trust  
5 resources from a proposed project or action  
6 by Department of the Interior agencies  
7 be explicitly addressed in environmental  
8 documents. The federal Indian trust  
9 responsibility is a legally enforceable  
10 fiduciary obligation on the part of the  
11 United States to protect tribal lands, assets,  
12 resources, and treaty rights. The order  
13 represents a duty to carry out the mandates  
14 of federal law with respect to American  
15 Indian and Alaska Native tribes. None of  
16 the park units is an Indian trust resource  
17 according to this definition. In addition, any  
18 Indian titles to such lands now within the  
19 park have been extinguished through cession  
20 or sale. Therefore, Indian trust resources was  
21 dismissed as an impact topic.

### 23 Ethnographic Resources

24 Ethnographic resources are defined by the  
25 NPS as “subsistence and ceremonial locales,  
26 structures, objects, and rural and urban  
27 landscapes assigned cultural significance  
28 by traditional users.” An ethnographic study  
29 conducted by the park did not identify any  
30 current ethnographic resources or uses of  
31 the park units. No specific issues related  
32 to ethnographic resources were identified  
33 during scoping or during consultation with  
34 the tribes contacted for this CLR / EA. No  
35 specific issues related to ethnographic  
36 resources have been identified in past  
37 consultations for actions in the park or as  
38 of the date of this publication. If subsequent  
39 issues or concerns are identified, appropriate  
40 consultations would be undertaken.  
41 Because it is unlikely that ethnographic  
42 resources would be affected by the preferred  
43 alternative, and because appropriate steps  
44 would be taken to protect any ethnographic  
45 resources that are inadvertently discovered,  
46 ethnographic resources was dismissed as an  
47 impact topic.

## 1 Museum Collections

2 Museum collections include historic  
3 artifacts, natural specimens, and archival  
4 and manuscript material. These collections  
5 may be threatened by fire, vandalism, natural  
6 disasters, and careless acts. The preservation  
7 of museum collections is an ongoing process  
8 of preventative conservation, supplemented  
9 by conservation treatment, when necessary.  
10 The primary goal is preservation of artifacts  
11 in the most stable condition possible to  
12 prevent damage and minimize deterioration.

13  
14 The proposed alternatives would not affect  
15 the current museum objects of the park.  
16 The proposed action alternatives may  
17 produce new museum accessions, including  
18 archeological objects, during any limited  
19 earthwork associated with the proposed  
20 alternatives. These new accessions would  
21 likely have minor beneficial contributions to  
22 the understanding of the park’s natural and  
23 cultural resources. Because the effects on  
24 the museum collection would be minor and  
25 beneficial, museum collections was dismissed  
26 as an impact topic.

## 28 Environmental Justice

29 EO 12898, “Federal Actions to Address  
30 Environmental Justice in Minority Populations  
31 and Low-Income Populations” requires all  
32 federal agencies to incorporate environmental  
33 justice into their missions by identifying and  
34 addressing the disproportionately high and  
35 adverse human health or environmental  
36 effects of their actions on minorities and low-  
37 income populations and communities.

38  
39 No actions in the proposed alternatives  
40 would have disproportionate health or  
41 environmental effects on minorities or  
42 low-income populations or communities as  
43 defined in the EPA’s “Draft Environmental  
44 Justice Guidance” (July 1996); therefore,  
45 environmental justice was dismissed as an  
46 impact topic.

1 *Soundscapes*

2 An important part of the NPS mission  
3 is preservation of natural and cultural  
4 soundscapes associated with national park  
5 units as indicated in NPS Management  
6 Policies 2006 and DO – 47: Sound  
7 Preservation and Noise Management. Natural  
8 soundscapes exist in the absence of human-  
9 caused sound and is the aggregate of all  
10 natural sounds within the park. Cultural  
11 soundscapes include sounds that are  
12 fundamental to the purposes and values for  
13 which a park was established. Examples of  
14 cultural sounds include native drumming;  
15 music; and bands, cannon fire, or other  
16 military demonstrations at some national  
17 battlefield parks.

18  
19 The park units are located in a patchwork  
20 of agricultural areas, dispersed residences,  
21 and light industry or public facilities. Visitors  
22 would generally expect to hear a mix of  
23 natural sounds such as bird calls and insect  
24 noises and non-natural sounds such as those  
25 from farm equipment, cars and trains, and  
26 people. A prison facility is adjacent to the  
27 park and visitors to the park can hear a siren  
28 from the prison facility 2 to 3 times a day.

29  
30 The proposed alternatives, including the  
31 no action alternative, include vegetation  
32 management treatments that would require  
33 the use of motorized equipment such as  
34 tractors, saws, and maintenance vehicles.  
35 These noises would be of similar character  
36 and loudness as noises generated by existing  
37 vegetation management activities and  
38 activities outside of the park units. Increases  
39 in noise that may result from proposed  
40 vegetation management treatments would  
41 be local and no more than minor because the  
42 alternatives do not propose using equipment  
43 different than what is currently used and  
44 because sound-reducing equipment such as  
45 mufflers would be kept in good repair.

46

1 Because effects from the alternatives would  
2 be no more than minor, soundscapes was  
3 dismissed as an impact topic.

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5 *Lightscape*

6 In accordance with NPS Management  
7 Policies 2006, the NPS strives to preserve  
8 natural ambient lightscapes, which are  
9 natural resources and values that exist in  
10 the absence of human-caused light. The  
11 proposed alternatives may result in a minor  
12 use of nighttime lighting, specifically at any  
13 proposed structures. However, in compliance  
14 with NPS policies and design guidelines,  
15 potential effects of this lighting would be  
16 minimized, resulting in localized and minor  
17 adverse effects at most. Only a small area  
18 would be affected by any proposed additional  
19 lighting and it would have a negligible impact  
20 on the night sky. Therefore, lightscape was  
21 dismissed as an impact topic.

22

23 Public Health and Safety. The NPS seeks to  
24 provide a safe and healthful environment  
25 for visitors and employees. Conditions in the  
26 park are similar to those of surrounding areas  
27 and do not pose unusual threats to public  
28 health and safety. None of the proposed  
29 alternatives would increase risks to public  
30 health and safety because standard best  
31 practices would be used during design and  
32 construction of new facilities. Because there  
33 would be no increased risk to public health  
34 and safety, this impact topic was dismissed  
35 from further analysis.

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