

Final Phase I Restoration Plan and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment

THE OKLAHOMA PORTION OF THE TRI-STATE MINING DISTRICT NATURAL RESOURCE DAMAGE ASSESSMENT AND RESTORATION SITE, IN NORTHEAST, OK

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Table of Contents

Table of Tables.....	iii
Table of Figures	iii
List of Acronyms.....	iv
Executive Summary	1
1.0 Introduction	2
1.1 Relationship to the Programmatic RP/EA	5
1.2 Purpose and Need for Restoration	6
1.3 Restoration Goals	6
1.4 Overview of the NOMNRDAR Site.....	6
1.5 Summary of Injury to Natural Resources	7
1.6 Public Participation	8
1.7 Organization of the Final Phase 1 RP/EA	9
2.0 Restoration Alternatives	9
2.1 Restoration Evaluation Criteria	11
2.2 Compliance with applicable/relevant laws, policies, and regulations	16
2.2.1 National Environmental Policy Act (NEPA)	17
2.2.2 Clean Water Act	19
2.2.3 Endangered Species Act (and other regulations protecting fish, wildlife, and plants)	20
2.2.4 National Historic Preservation Act (NHPA)	20
2.3 Alternative A: No Action (Natural Recovery) Alternative (Not selected)	21
2.4 Tier I Alternatives (Selected)	21
2.4.1 Alternative B: Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services	21
2.4.2 Alternative C: Ozark Plateau National Wildlife Refuge Restoration Pilot Project	27
2.4.3 Alternative D: Fourmile Creek Streambank Stabilization Project – Planning and Design.....	31
2.4.4 Alternative E: Sycamore Creek Streambank Stabilization Project	34
2.4.5 Alternative F: Survey of Mussel Habitat in Tributaries of the Spring and Neosho Rivers	37
2.4.6 Alternative G: Neosho Bottoms Habitat Protection and Restoration Project	41

2.5	Tier II Alternatives	46
2.5.1	Alternative H: Restoration of Chat Bases to Restore and Enhance Terrestrial Habitat	46
2.5.2	Alternative I: Lost Creek Streambank Stabilization	46
2.5.3	Alternative J: Upland Prairie Habitat Enhancement and Restoration	47
2.6	Non-Preferred Alternative	51
2.6.1	Alternative K: Spring River Streambank Stabilization.....	51
2.7	CERCLA NRDAR Criteria Evaluations	53
2.7.1.	Conclusion on Alternative A.....	53
2.7.2	Conclusion on Alternative B	53
2.7.3	Conclusion on Alternative C	53
2.7.4	Conclusion on Alternative D.....	53
2.7.5	Conclusion on Alternative E	54
2.7.6	Conclusion on Alternative F	54
2.7.7	Conclusion on Alternative G.....	54
2.7.8	Conclusion on Alternative K.....	54
3.0	Environmental Assessment	64
3.1	Affected Environment	65
3.1.1	Physical and Biological Environment and Resources.....	65
3.1.2	Demographics and Socioeconomic Trends	69
3.1.3	Environmental Justice	70
3.1.4	Recreational Services	71
3.1.5	Cultural and Historic Resources.....	71
3.2	Evaluation of Alternative A: No Action/Natural Recovery Alternative	72
3.2.1	Conclusion on Alternative A.....	72
3.3	Evaluation of Alternative G.....	72
3.3.1	Environmental Consequences of Alternative G	72
3.3.2	Conclusion on Alternative G.....	74
4.0	Selected Alternatives	75
5.0	Restoration Monitoring	75
6.0	Budget Summary for the Tier 1 Selected Alternatives.....	76
7.0	Agencies, Organizations, and Parties Consulted for Information	77
8.0	Literature Cited.....	78
9.0	Summary of Revisions in the Final Phase 1 RP/EA.....	79

Appendix A: Response to Public Comments on the Draft Phase 1 Restoration Plan/Environmental Assessment (RP/EA)	80
Appendix B: NHPA Consultation Letters and Responses	84
Appendix C: NEPA Compliance Checklist and Endangered Species Act Intra-Service Section 7 Biological Evaluation	85

Table of Tables

Table 1. Restoration alternatives described in this Final Phase 1 RP/EA. .	11
Table 2. Restoration evaluation criteria used to evaluate restoration alternatives.	13
Table 3. List of restoration actions and associated categorical exclusions.....	18
Table 4. Neosho Bottoms Habitat Protection and Restoration Project-Specific Conditions.....	44
Table 5. Costs associated with the Neosho Bottoms Habitat Protection and Restoration Project.....	45
Table 6. Comparison of the Selected and Non-Preferred Alternatives against the Acceptability Criteria.	56
Table 7. Comparison of the Selected and Non-Preferred Alternatives against the Natural Resource and Services Criteria.	60
Table 8. Comparison of the Selected and Non-Preferred Alternatives against the Implementation Criteria.	62
Table 9. Forest native plant species associated with the Neosho Bottoms Habitat Protection and Restoration Project.....	68
Table 10. Neosho Bottoms Habitat Protection and Restoration Project area demographics by county.....	70
Table 11. Generic monitoring framework for Alternatives C, E, and G.	76
Table 12. Summary of NRDA, in-kind, and matching funds needed to support planning, implementation, and monitoring of the Selected Alternatives.....	77

Table of Figures

Figure 1. Map of Northeastern Oklahoma, containing the NOMNRDAR Site.....	4
Figure 2. Proposed locations for Tier 1, Tier 2, and Non-Preferred Alternatives in northeastern Oklahoma.....	10
Figure 3. Location of the Looney Unit in Delaware County, Oklahoma..	29
Figure 4. Severe erosion along the restoration reach of Fourmile Creek has exposed root systems (A) and caused channel incision (B).	34
Figure 5. Severely eroding segment of restoration reach of Sycamore Creek; picture shows stream incision and risk of streambank trees falling into the creek.	36
Figure 6. Streambank restoration photos depicting restoration elements proposed for the Sycamore Creek streambank stabilization project..	37
Figure 7. Neosho Bottoms Habitat Protection and Restoration Project Area.....	42

Figure 8. Severe bank erosion along Lost Creek has deeply incised the streambank (A), and trees have detached from the bank to form an island within the restoration reach (B).	47
Figure 9. Map of upland prairie habitat enhancement project site on Peoria Tribal lands.	51
Figure 10. Flooding has carved out the streambank and exposed root systems along the restoration reach of the Spring River.	52

List of Acronyms

BIA	Bureau of Indian Affairs
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CE	Conservation Easement
CFR	Code of Federal Regulations
CWA	Clean Water Act
DM	Departmental Manual
DOI	United States Department of the Interior
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FWS	U.S. Fish and Wildlife Service
GRDA	Grand River Dam Authority
HPO	Historic Preservation Officer
NBHPPA	Neosho Bottoms Habitat Protection Project Area
NBHPRP	Neosho Bottoms Habitat Protection and Restoration Project
NCP	National Contingency Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOMNRDAR	Northeastern Oklahoma Mining and Natural Resource Damage Assessment and Restoration
NRD	Natural Resource Damages
NRDAR	Natural Resource Damage Assessment and Restoration
MBTA	Migratory Bird Treaty Act
NRCS	Natural Resource Conservation Service
ODWC	Oklahoma Department of Wildlife Conservation
OU	Operable Unit
PRP	Potentially Responsible Party
RI	Remedial Investigation
RP/EA	Restoration Plan/Environmental Assessment
T&E	Threatened and Endangered
TCTC	Tar Creek Trustee Council
TSMD	Tri-State Mining District
USACE	United States Army Corps of Engineers
USDA- NRCS	United States Department of Agriculture – Natural Resource Conservation Service
WRE	Wetland Reserve Easement

Executive Summary

The Northeast Oklahoma Mining Natural Resource Damage Assessment and Restoration Site (NOMNRDAR Site) is located within the northeast Oklahoma section of the Tri-State Mining District (TSMD). The TSMD is an area covering more than 2,500 square miles across portions of southeast Kansas, southwest Missouri, and northeast Oklahoma. The TSMD was the site of commercial lead and zinc mining that began around 1848 and continued until the 1970s. Significant portions of the TSMD were and continue to be affected by releases of hazardous substances related to mining operations. The Tar Creek Superfund Site, one of four Superfund sites located within the TSMD, falls within the NOMNRDAR Site. The NOMNRDAR Site is home to numerous wetlands and ponds. Several creeks run through the NOMNRDAR Site, including Tar Creek. The NOMNRDAR Site includes all areas in Northeastern Oklahoma, terrestrial and aquatic, where hazardous substances released from the TSMD have come to be located or where natural resources or the services they provide may have been affected by the releases of these hazardous substances.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 U.S.C. § 9601 et seq.) and its implementing regulations authorize federal and state agencies, as well as Indian tribes, to act as trustees of natural resources on behalf of the public. When hazardous substances are released into the environment and harm the public's natural resources, these trustees conduct assessments to determine the extent of injury, recover monetary and other damages from the responsible parties, and use these recovered damages to plan and implement restoration actions that will compensate the public for the loss of natural resources and the services they would have provided but for the hazardous substance releases. 42 U.S.C. § 9611(i).

The natural resource trustees for the NOMNRDAR Site are the U.S. Department of the Interior, acting through the U.S. Fish and Wildlife Service and the Bureau of Indian Affairs; the State of Oklahoma, acting through the Oklahoma Secretary of Energy and Environment, the Oklahoma Department of Wildlife Conservation, and the Oklahoma Department of Environmental Quality; the Cherokee Nation; the Eastern Shawnee Tribe of Oklahoma; the Miami Tribe of Oklahoma; the Ottawa Tribe of Oklahoma; the Peoria Tribe of Indians of Oklahoma; the Seneca-Cayuga Nation; and the Wyandotte Nation (collectively, the "Trustees" or the "Tar Creek Trustee Council").

The Trustees prepared this Final Phase 1 Restoration Plan and Environmental Assessment (RP/EA), which tiers from the Programmatic Restoration Plan and Environmental Assessment published in 2017 (available at https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=907), to identify and evaluate restoration projects at or in the vicinity of the NOMNRDAR Site that are intended to restore, replace, rehabilitate, and/or acquire the equivalent of natural resources and their services injured by the releases of hazardous substances. Through the CERCLA Natural Resource Damages Assessment and Restoration (NRDAR) process, the Trustees recovered cash settlements for natural resource damages to be used to restore, replace, rehabilitate, and/or acquire the equivalent of natural resources and their associated services injured at the NOMNRDAR Site. This Final Phase 1 RP/EA proposes to use \$7,992,33.47 of settlement funds towards planning, implementation, and monitoring of six restoration alternatives.

Under the National Environmental Policy Act (NEPA; 42 U.S.C. § 4321 et seq.), federal agencies must identify and evaluate environmental impacts that may result from federal actions. This Final Phase 1 RP/EA describes the purpose and need for restoration, identifies, and evaluates potential restoration alternatives, including a No Action alternative (Alternative A), summarizes the affected environment, and describes the potential environmental consequences of proposed restoration activities. The restoration alternatives described and evaluated in this Final Phase 1 RP/EA include the following:

- Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services (Alternative B)
- Ozark Plateau National Wildlife Refuge Restoration Pilot Project (Alternative C)
- Fourmile Creek Streambank Stabilization Project – Planning and Design (Alternative D)
- Sycamore Creek Streambank Stabilization Project (Alternative E)
- Survey of Mussel Habitat in Tributaries of the Spring and Neosho Rivers (Alternative F)
- Neosho Bottoms Habitat Protection and Restoration Project (Alternative G)
- Restoration of Chat Bases to Restore and Enhance Terrestrial Habitat (Alternative H)
- Lost Creek Streambank Stabilization (Alternative I)
- Upland Prairie Habitat Enhancement and Restoration (Alternative J)
- Spring River Streambank Stabilization (Alternative K)

The Selected Alternatives, which are also referred to as Tier I Alternatives in this Final Phase 1 RP/EA, include Alternatives B - G. Alternatives H – J are Tier II Alternatives and will be further developed and evaluated in a subsequent restoration plan (i.e., Phase 2) after additional restoration planning activities have been completed. Prior to releasing this Final Phase 1 RP/EA, the Trustees released a Draft Phase 1 RP/EA for public review and comment. After considering the public comments received, the Trustees prepared this Final Phase 1 RP/EA.

1.0 Introduction

This Final Phase 1 Restoration Plan and Environmental Assessment (Final Phase 1 RP/EA) has been developed by the natural resource Trustees for the Northeastern Oklahoma Mining and Natural Resource Damage Assessment and Restoration Site (NOMNRDAR Site or Tar Creek Superfund Site; Figure 1) to address natural resources, including cultural uses and services and ecological resources and services, injured, lost or destroyed due to releases of hazardous substances at or from the Tri-State Mining District (TSMD). The NOMNRDAR Site Trustees, also referred to as the Tar Creek Trustee Council (TCTC), include the U.S. Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service (FWS) and the Bureau of Indian Affairs (BIA); the State of Oklahoma, acting through the Oklahoma Secretary of Energy and Environment, the Oklahoma Department of Wildlife Conservation (ODWC), and the Oklahoma Department of Environmental Quality; the Cherokee Nation; the Eastern Shawnee Tribe of Oklahoma; the Miami Tribe of Oklahoma; the Ottawa Tribe of Oklahoma; the Peoria Tribe of Indians of Oklahoma; the Seneca-Cayuga Nation; and the Wyandotte Nation

(Trustees)¹.

This Final Phase 1 RP/EA is tiered from the Programmatic RP/EA (2017; available at https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=907) for the NOMNRDAR Site, which selected Alternative 4: On- and Off-Site Restoration, as the preferred restoration alternative. The Programmatic RP/EA provides an overview of the natural resource damage assessment and restoration (NRDAR) process; history and background about the TSMD and Tar Creek Superfund Site; summary information concerning the releases of hazardous substances and associated injuries to natural resources and their related services; and brief descriptions of the settlements with responsible parties for natural resource damages, including how the settlement funds are being used for restoration activities. To date, the Trustees have not implemented any restoration projects within or outside the NOMNRDAR Site. In this Final Phase 1 RP/EA, the Trustees identify and evaluate the first phase of restoration projects that may be implemented and are intended to compensate for the injured resources and services lost that have not been addressed to date.

Development of this Final Phase 1 RP/EA is in accordance with 43 Code of Federal Regulations (C.F.R.) § 11.93 and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 111(i) to inform the public as to the types and amount of restoration that are expected to compensate for injuries to natural resources and the services they provide associated with the releases of heavy metals from the NOMNRDAR Site. The NRDAR process allows for recovered funds to be used to plan and implement actions to restore, replace, rehabilitate, and/or acquire the equivalent of injured natural resources and their associated lost services. In this Final Phase 1 RP/EA, the Trustees describe the purpose and need for action, identify potential restoration alternatives, including a No Action alternative, summarize the affected environment, and describe the potential environmental consequences of proposed restoration activities. The Trustees solicited comments from the public on the Draft Phase 1 RP/EA beginning on November 11, 2021 and have addressed comments received from the public in preparing this Final Phase 1 RP/EA, wherein the Trustees identify the Selected Restoration Alternatives.

¹ The Quapaw Nation withdrew from the Trustee Council for the Northeastern Oklahoma Mining and Natural Resource Damage Assessment and Restoration Site (NOMRDAR) on December 8, 2003, and is no longer participating in the restoration planning efforts described in this Final Phase 1 RP/EA.

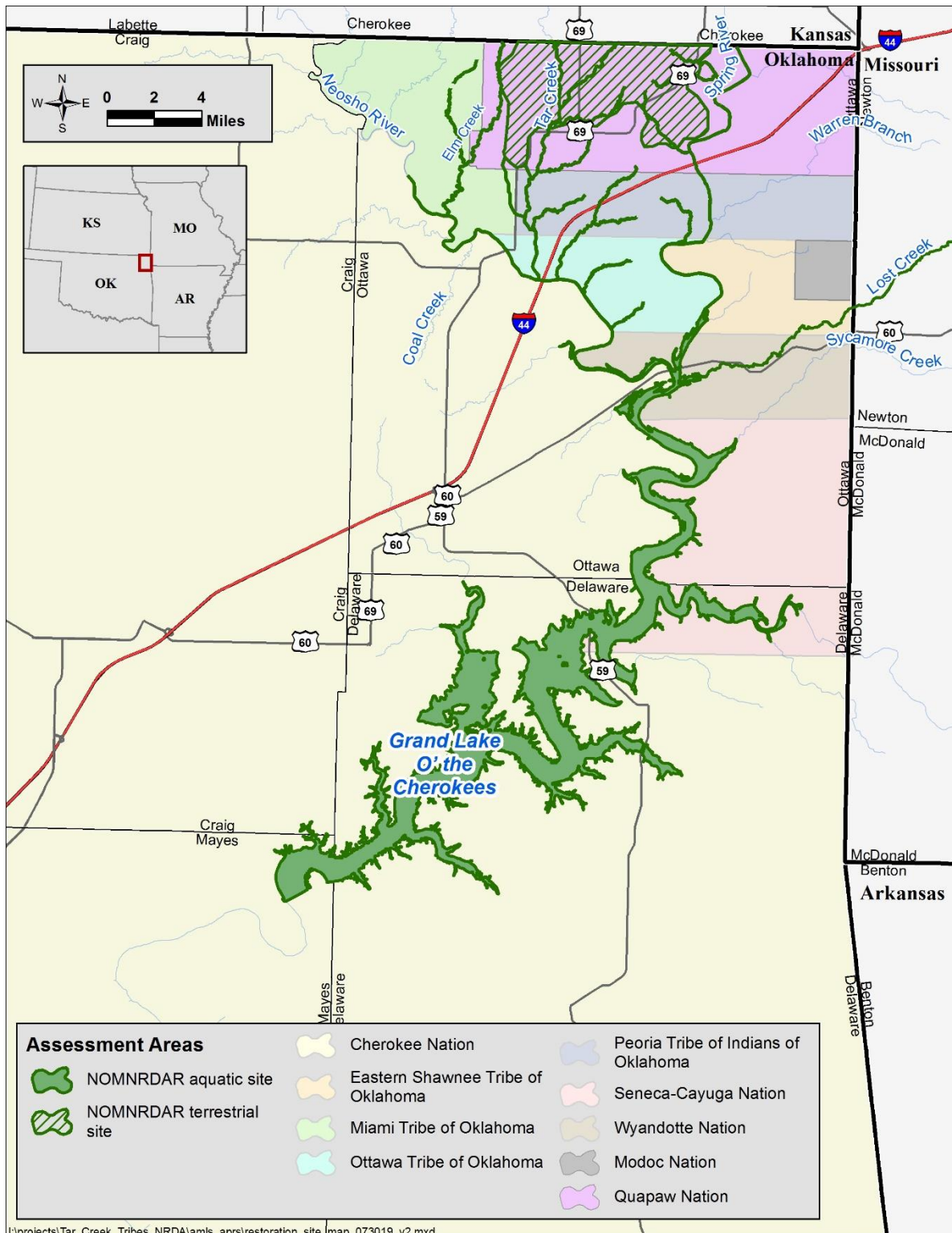


Figure 1. Map of Northeastern Oklahoma, containing the NOMNRDAR Site.

1.1 Relationship to the Programmatic RP/EA

In 2017, the Trustees released the Natural Resource Programmatic RP/EA for the NOMNRDAR Site, which provides a process framework that governs the approach for restoration project identification, evaluation, selection, and implementation. In the Programmatic RP/EA, the Trustees selected Alternative 4: On- and Off-Site Restoration as the Preferred Alternative (see Section 3.2.6, page 21 of Programmatic RP/EA for a description), where the Trustees will consider a combination of on-site² and off-site³ actions or projects to restore, rehabilitate, replace, and/or acquire the equivalent of the injured natural resources and their associated services lost at the NOMNRDAR Site. This Final Phase 1 RP/EA tiers⁴ from and incorporates by reference⁵ portions of the Programmatic RP/EA for expediency and efficiency, as appropriate. Tiering is permissible under the National Environmental Policy Act (NEPA) provided that the proposed activity is within the range of alternatives and nature of potential environmental consequences considered in the programmatic document. 40 C.F.R. §1502.20. The selected alternatives associated with this Final Phase 1 RP/EA are in alignment with the goals of the Programmatic RP/EA, and compliant with the Preferred Alternative (Alternative 4) selected in the Programmatic RP/EA.

The Trustees continue to develop and evaluate restoration project ideas encompassed under the Preferred Alternative of the Programmatic RP/EA for alignment with Trustee goals and compliance with applicable laws. As restoration project ideas are developed into fully developed projects, the Trustees will consider those projects for evaluation in subsequent restoration plans made available for public review.

² *On-site* restoration is defined as restoration that is located within the NOMNRDAR Site boundary, including both terrestrial and aquatic areas where contamination has come to be located, or where natural resources or the services they provide may have been affected by the releases of these hazardous substances.

³ *Off-site* projects are those that occur outside of the NOMNRDAR Site boundary and could include areas in Northeastern Oklahoma and areas within adjacent states that will restore, replace, rehabilitate, and/or acquire the equivalent of injured resources and services. Most projects will be in areas of Craig, Ottawa, Mayes, and Delaware counties in Northeastern Oklahoma. Appropriate off-site projects could occur in other counties in Oklahoma or portions of adjoining states that are in or near the TSMD, but restoration at those sites must provide unique or competitive opportunities to replace and/or rehabilitate resources or services that have been impacted at the NOMNRDAR site.

⁴ The NEPA regulations define “tiering” as referring to “the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequent narrower statements or environmental analyses (such as regional or basin wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.” 40 C.F.R. §1508.28.

⁵ The NEPA regulations state the following regarding “incorporation by reference”: “Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described. No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment. Material based on proprietary data which is itself not available for review and comment shall not be incorporated by reference.” 40 C.F.R. §1502.21.

1.2 Purpose and Need for Restoration

Section 1.2 of the Programmatic RP/EA identifies the Trustees' overall purpose and need for restoration. Since 2017, the Trustees have carried out a process to identify, evaluate and select restoration projects tailored to restoring, replacing, rehabilitating, and/or acquiring the equivalent of natural resources, and the services they provide, at the NOMNRDAR Site that have been injured by the releases of hazardous substances from mining operations within the TSMD. The purpose of the restoration is restoring terrestrial and aquatic habitat and their services in addition to Tribal services lost due to the release of hazardous substances. The need for these actions arises from the statutory requirement to use recovered NRDAR damages to restore, replace, or acquire the equivalent of natural resources injured by releases of hazardous substances 42 U.S.C. § 9607(f)(1).

1.3 Restoration Goals

The Trustees identified several overarching and specific restoration goals which are being used to guide development of restoration alternatives.

Overarching Restoration Goals

- Restore habitat and services closely linked to the injury, in location and type
- Incorporate cultural knowledge transfer, to restore Tribal services that require specific action to be re-established
- Select projects in a complementary and coordinated manner that provides synergies across projects

Specific Restoration Goals

- Reinstatement healthy, native terrestrial (e.g., prairie and riparian) habitat, resources, and services that were injured as a result of the released hazardous substances
- Restore aquatic instream habitat, resources, and services that were injured as a result of the released hazardous substances
- Restore Tribal/cultural services and connections to injured resources and habitat

Any project-specific objectives are provided with the description of restoration alternatives in Section 2.4.

1.4 Overview of the NOMNRDAR Site

Summary information about the NOMNRDAR Site, including terrestrial and aquatic habitat, groundwater resources, and tribal services, is contained in Sections 2.3 (page 10) and 2.6 (pages

14 – 18) of the Programmatic RP/EA. These sections of the Programmatic RP/EA are incorporated by reference herein.

The NOMNRDAR Site includes an Aquatic Site component, a Terrestrial Site component, and a Tribal Lost Use Site component. The Terrestrial Site component is comprised of the contaminated upland habitats in and around the chat piles in Ottawa County, as well as contaminated riparian and floodplain adjacent to the streams and creeks. The Aquatic Site component includes the Spring River, Neosho River, and tributaries, including Elm Creek, Tar Creek, Lytle Creek, and Grand Lake O' the Cherokees (Grand Lake). Finally, there is also a Tribal Lost Use component to the NOMNRDAR Site, which includes recreational and Tribal uses of natural resources.

1.5 Summary of Injury to Natural Resources

Information about injuries to terrestrial, aquatic, and groundwater resources and associated services and tribal services are discussed in Section 2.6 (pages 14 – 18) of the Programmatic RP/EA. These sections of the Programmatic RP/EA are incorporated by reference herein.

Terrestrial habitats within the NOMNRDAR Site include uplands and transition zones, which have been injured from releases of hazardous substances from chat piles, and floodplain and riparian corridors. Terrestrial habitats have been contaminated by hazardous substances from placement of these substances on the land surface and from flooding events that mobilize, transport, and deposit contaminated stream sediments to floodplains and riparian corridors. Within the terrestrial environment, the Trustees have documented injury to associated natural resources, such as vegetation, birds, and mammals.

Data collected within Aquatic Site habitats have demonstrated that both abiotic (surface water and sediment) and biological resources have been injured from exposure to hazardous substances released from mining activities within the NOMNRDAR Site. Injuries to the aquatic environment have been documented in surface water, sediments, macroinvertebrates, and fish.

Potentially injured groundwater resources in the NOMNRDAR Site include the shallow Boone aquifer and the deeper Roubidoux aquifer. Elevated concentrations of metals, including cadmium, zinc, and lead, have been measured in groundwater from the Boone aquifer and private and municipal water wells.

Natural resources within the NOMNRDAR Site provide Tribal services, as well as recreational uses to Tribal members and citizens. Examples of lost Tribal services include the inability of Tribal members to provide their families with healthy traditional foods; fulfill their traditional tribal cultural obligations toward the land and environment, plants, and animals; or pass on practical, philosophical, theoretical, and linguistic knowledge of what it means to be a Tribal member or citizen.

1.6 Public Participation

Public participation and review are integral parts of the restoration planning process and are specifically required in the CERCLA NRDAR regulations (e.g., 43 C.F.R. §11.81(d)(2)). In addition, NEPA and its implementing regulations require that federal agencies fully consider the environmental impacts of their proposed decisions and that such information is made available to the public.

Prior to releasing the Draft Phase 1 RP/EA, the Tar Creek Trustees provided an opportunity for the public to submit restoration project ideas addressing natural resource injuries and/or cultural service losses within the NOMNRDAR Site. Project idea submissions were accepted between the dates of October 3, 2019, and November 18, 2019. In total seven project ideas were submitted to the Trustee Council including upland prairie restoration, riparian/streambank restoration, and a Tribal apprentice project. All projects were considered based on the CERCLA NRDAR Regulations and Programmatic RP/EA Evaluation Criteria (see Table 2 below or page 23 in Programmatic RP/EA). Some projects were modified and became preferred alternatives, others were identified as non-preferred alternatives for varying reasons.

Beginning on December 11, 2021, the Draft Phase 1 RP/EA was made available for review and public comment for 30 days from the date of publication in Tulsa World and Joplin Globe. Towards the end of the initial 30-day public comment period, the Trustees granted a request from an interested party for a 30-day extension, extending the comment period until January 10, 2022. A second 30-day extension to the comment period was requested by another interested party; this extension was granted by the Trustees, leading to a comment period that was open until February 28, 2022. The Trustees received several comments on the Draft Phase 1 RP/EA; public comments and the Trustees' responses can be found in the Appendix A of this document. After reviewing and responding to public comments and making appropriate changes, the Trustees determined it is appropriate to proceed with the Selected Alternatives as described herein.

Copies of this document are available online at:
https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=907

Physical copies of this document are also available for review by interested members of the public at the BIA Miami Agency 10 South Treaty Road, Miami, OK 74354. In addition, arrangements can be made in advance to review or obtain copies of the document from the FWS Oklahoma Ecological Services Field Office by contacting Suzanne Dunn at Suzanne_Dunn@fws.gov or (918) 521-5879.

The Trustees have also maintained records documenting the information considered and actions taken during this NRDAR process. These records are available on the Tri-State Mining District - Tar Creek NRDAR document website, found at https://www.cerc.usgs.gov/orda_docs/CaseDetails?ID=907

For joint assessments, trustees must designate a Trustee as the lead administrative trustee (43 C.F.R. 11.32 (a)(1)(ii)(A)). The State of Oklahoma serves as the lead administrative trustee for

the Tar Creek Trustee Council and maintains the administrative record.

1.7 Organization of the Final Phase 1 RP/EA

The sections that follow describe and evaluate the alternatives considered (including timelines) and a summary of the affected environment of the proposed restoration projects (Sections 2 and 3, respectively); the probable consequences on the human environment that may result from the implementation of the proposed restoration activities (also Section 3); the Selected Alternatives (Section 4); restoration monitoring considerations for restoration alternatives (Section 6), and a budget summary for the Selected Alternatives (Section 7).

2.0 Restoration Alternatives

To compensate the public for injuries to natural resources and associated lost services resulting from releases of metals from the NOMNRDAR Site, the Trustees are required to develop alternatives for the restoration, rehabilitation, replacement, and/or acquisition of the equivalent of the natural resources and the services those resources provide (43 C.F.R. §11.82 (a)). In accordance with the preferred alternative of on-site and off-site restoration (see Programmatic RP/EA, Section 3.2.6), the Trustees presented a suite of restoration project types that would be considered for implementation, including, but not limited to: land acquisition and preservation of native habitat, rehabilitation of remediated areas, native prairie restoration, oak savanna and forest restoration, stream habitat improvements, stocking of native aquatic species, and apprenticeship programs meant to support Tribal communities through the teaching and preservation of traditional cultural practices, knowledge, and values. Except for Alternative A, the No Action alternative, all the restoration alternatives selected by the Trustees in this Final Phase 1 RP/EA are consistent with the preferred alternative in the Programmatic RP/EA and overarching and specific restoration goals (see Figure 2 and Table 1).

Given that the restoration alternatives selected in this RP/EA would expend less than one-fourth of the total funds available for restoration, the Trustees will continue to conduct restoration planning in phases until all remaining restoration funds are expended. Accordingly, it is anticipated that some alternatives that are identified as Tier II in this Final Phase 1 RP/EA may be considered, evaluated further, and potentially deemed to be preferred in future restoration planning efforts.

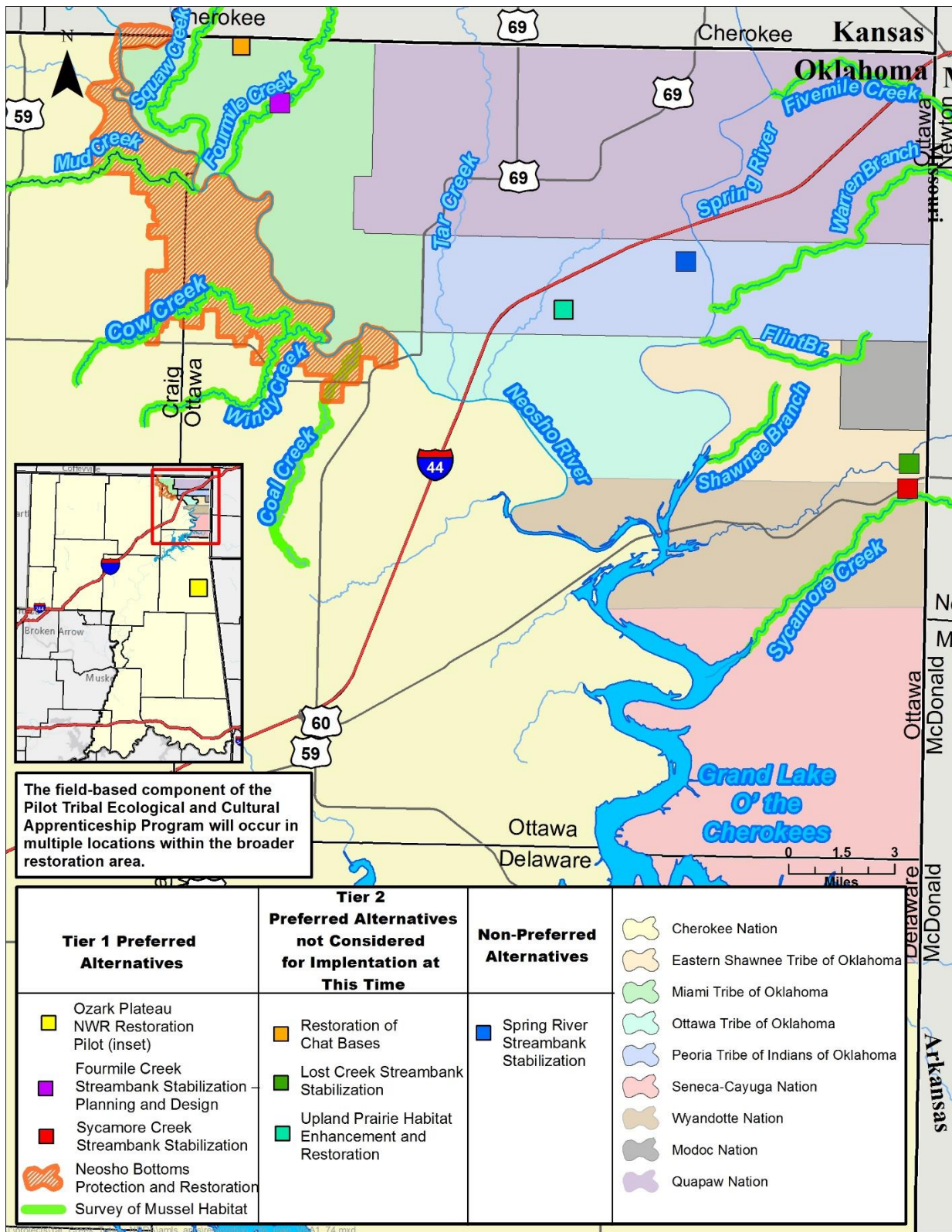


Figure 2. Proposed locations for Tier 1, Tier 2, and Non-Preferred Alternatives in northeastern Oklahoma.

Table 1. Restoration alternatives described in this Final Phase 1 RP/EA. Tier 1 Alternatives include Alternatives B through G and are selected and proposed for implementation. Tier 2 Alternatives include Alternatives H through J and are preferred but require further evaluation by the Trustees; Tier 2 Alternatives may be considered for funding and implementation in a subsequent restoration plan but are not proposed for implementation in this Phase 1 RP/EA. The non-preferred alternatives are Alternatives A and K.

Alternative	Project Name
A	No Action/Natural Recovery; No projects implemented
B	Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services
C	Ozark Plateau National Wildlife Refuge Restoration Pilot Project
D	Fourmile Creek Streambank Stabilization Project – Planning and Design
E	Sycamore Creek Streambank Stabilization Project
F	Survey of Mussel Habitat in Tributaries of the Spring and Neosho Rivers
G	Neosho Bottoms Habitat Protection and Restoration Project
H	Restoration of Chat Bases to Remediate Natural Resource Injuries and Enhance Terrestrial Habitat
I	Lost Creek Streambank Stabilization
J	Upland Prairie Habitat Enhancement and Restoration
K	Spring River Streambank Stabilization

2.1 Restoration Evaluation Criteria

The CERCLA NRDAR Regulations at 43 C.F.R. Part 11 list ten factors for the Trustees to evaluate and consider in selecting a restoration alternative or project to pursue. Thus, these

factors must be applied in restoration planning to identify a range of alternatives for consideration as well as to identify the restoration alternative(s) or project(s) that is/are best to pursue. When using settlement funds, compatibility with these factors (referred to as “criteria” in the Programmatic RP/EA and this document) does not necessarily mean an alternative or project will be funded; it only means that the Trustees may consider the alternative or project for possible funding. Further, the sums recovered and available for restoration are also a factor to be weighed by Trustees in choosing a restoration alternative or project for implementation.

The Trustees evaluated the alternatives to determine if they provide sufficient type, quality, and quantity of ecological and/or Tribal services to compensate for those lost due to contamination in the context of the CERCLA NRDAR (Acceptability criteria) (43 C.F.R. §11.82 (d)), Natural Resource and Services Criteria, and Implementation Criteria (Table 2). Each of the ten factors listed in 43 C.F.R. §11.82 (d) are evaluated in Table 6. The Trustees also evaluated whether significant effects may be associated with the preferred alternatives to restore the natural resources and services injured or lost due to the releases hazardous substances as required by NEPA (40 C.F.R. §1508.9(b)).

Table 2. Restoration evaluation criteria used to evaluate restoration alternatives. Criteria that do not include reference to the CERCLA evaluation factors found in 43 C.F.R. § 11.82 (d)(1-10) are criteria developed by the TCTC.

Acceptability Criteria	Interpretation
Addresses injured natural resource and services	Project must restore, rehabilitate, replace, and/or acquire the equivalent of injured natural resources or lost services that have been targeted for restoration within the Restoration Plan/Programmatic Environmental Assessment (e.g., project addresses tribal cultural services losses from injured natural resources, project restores habitat for federally protected migratory species, project restores state regulated upland game species). In addition, projects should address/incorporate restoration of targeted natural resources and services identified in the corresponding Restoration Project Packages Period, as documented by Trustee mandates, priorities, and resolutions.
Consistency and compliance with applicable/relevant laws, policies, and regulations	Project must be legal and adhere to federal, state, and tribal laws, policies and regulations. (see Section 2.2) 43 C.F.R. § 11.82 (d)(9-10)
Technical feasibility	Technology and management skills necessary to implement [a restoration project] are well known and each element of the [project] has a reasonable chance of successful completion in an acceptable period of time. 43 C.F.R. § 11.82 (d)(1)
Cost Effectiveness	When two or more activities provide the same or similar level of benefits, the least costly activity providing that level of benefits will be selected. 43 C.F.R. § 11.14(j); 43 C.F.R. § 11.82(d)(3)
Cost Benefit	The relationship of the expected costs of the proposed actions to the expected benefits from the restoration, rehabilitation, replacement, and/or acquisition of equivalent resources. 43 C.F.R. § 11.82(d)(2)

Table 2 Continued.

Natural recovery period and the ability of resources to recover without restoration	Consider the ability of injured natural resources to recover and the time required for that recovery if no restoration is undertaken to benefit injured natural resources; also consider the time required to realize those benefits if the project is implemented. 43 C.F.R. § 11.82(d)(6-7)
Potential for additional injury resulting from the proposed actions	Identify the adverse impacts, short and/or long term, from the project. Some short-term adverse impacts from implementation are expected, however, projects with large or long-term adverse impacts are not preferred. 43 C.F.R. § 11.82(d)(5)
Public Health and Safety	The preferred alternative(s) should not pose a threat to the health and safety of the public. 43 C.F.R. § 11.82(d)(8)
Actual or Planned Response Actions	Consider the results of any actual or planned response actions when evaluating restoration alternatives. 43 C.F.R. § 11.82(d)(4)
Natural Resource and Services Criteria	Interpretation
Injured resources and services restored by project	Evaluation will be based on the specific natural resource or service that benefits from the project. Projects must benefit the injured natural resource(s) or service(s) identified in the <i>Invitation to Submit Restoration Project Ideas</i> . Projects that benefit more than one injured natural resource or service are preferred. In addition, projects that avoid or minimize additional natural resource injury or environmental degradation will be given priority.
Proximity of project to injured resources and services	Project location must be identified for Trustee consideration. Both on-site and off-site projects will be considered. For off-site projects, all else being equal, restoration in closer geographic proximity to the NOMNRDAR Site is preferred.

Table 2 Continued.

Natural Resource and Services Criteria (continued)	Interpretation
Benefits to resources and services	Project will be evaluated in terms of whether the expected benefits can be quantified and the success of the project determined. Projects can be scaled to provide restoration of appropriate magnitude. Small projects that provide only minimal benefits relative to injured resources or larger projects that cannot be appropriately scaled to meet the goals of the Restoration Plan are less favorable.
Equity and Environmental Justice	Restoration projects that benefit low-income and ethnic populations (including Native Americans) in proportion to the impacts to these populations are preferred. Restoration should not have disproportionately high costs or low benefits to low-income or ethnic populations. Further, where there are specific service losses to these populations, such as impacts on subsistence fishing, hunting and gathering, restoration should target benefits to these populations.
Cost effective and established technologies	Projects with a high ratio of expected benefits to costs are preferred. This includes using established technologies that have a high success rate. Projects with experimental or unproven technologies are not preferred.
Monitoring plans	For most projects (e.g., planting of native prairie, removal of invasive vegetation) the Trustees will expect the project plans to include a monitoring plan that covers the timeframe needed for restored resources and habitats to gain full functionality, which is generally anticipated to be no less than 5 years. Monitoring plans establish monitoring and reporting provisions to ensure the specific restoration actions are conducted as intended and are effectively restoring injured resources and services. Such provisions include monitoring techniques, performance standards and criteria, guidelines for implementing corrective actions, and a schedule for frequency and duration of monitoring.

Table 2 Continued.

Implementation Criteria	Interpretation
Timing of restoration completion	Identify if the project will take longer than 5 years to implement. If so, identify completion timeframe. Projects that provide restoration benefits earlier are preferred.
Land manager (if applicable)	Projects will be evaluated based on availability and costs of a long-term land manager (e.g., Federal, State, or Tribal government) involved in managing the project.
Accessibility	Projects will be evaluated based on accessibility. Depending on the type of project and the resources and services being restored, open access may or may not be required or preferred (e.g., restrictions during bird nesting season).
Matching funds	Projects with matching funds will be given preference during evaluation. If matching funds are available, the source of the funding and any matching ratio (e.g., 1:1) or other restrictions should be identified.
Provides benefits not being provided by other projects/programs	Preference will be given to projects not already being implemented, have no planned funding, or are insufficiently funded by other programs. Preference is given to projects that would not be implemented without NRDAR restoration funds.
Implementation proficiency of restoration projects	Projects that use techniques that have been demonstrated proficient elsewhere are preferred.

2.2 Compliance with applicable/relevant laws, policies, and regulations

All preferred alternatives must comply with all applicable federal, state, Tribal, and local laws, policies, and regulations. Federal natural resource and environmental laws, orders, and regulations considered during the development of this Final Phase 1 RP/EA include, but are not limited to, the following acts and their implementing regulations: National Environmental Policy Act; Clean Water Act; Endangered Species Act of 1973; National Historic Preservation Act of 1966; Migratory Bird Treaty Act of 1918; and Fish and Wildlife Coordination Act of 1934. An explanation of how compliance will be met for several major statutes is described below. Additional environmental compliance, including at the state, Tribal, or local level, may be required depending on the specific activities required for each restoration project. Additional

laws, policies, regulations, and authorities that may be applicable to the Selected Alternatives are included in Appendix C of the Programmatic RP/EA and are incorporated by reference herein.

2.2.1 National Environmental Policy Act (NEPA)

Actions undertaken by the Trustees to restore natural resources or services under CERCLA and other federal laws are subject to NEPA and its implementing regulations. These authorities outline the responsibilities of federal agencies in their decision-making process concerning proposed actions, including the federal agencies' responsibility to consider the relevant NEPA documentation. NEPA requires that an agency take a hard look at actions that have the potential to significantly affect the human environment. If an impact is considered significant, then an Environmental Impact Statement (EIS) is prepared. If the impact is considered not significant, then an Environmental Assessment (EA) is drafted and a Finding of No Significant Impact (FONSI) is issued. Certain types of agency actions are categorically excluded from preparation of an EA or EIS if the agency determines the action has no significant individual or cumulative effect on the quality of the human environment (40 C.F.R. § 1508.4) and the action does not meet any of the extraordinary circumstances in section 43 C.F.R. § 46.215. If the action does meet any of the extraordinary circumstances, further analysis and environmental documents must be prepared for the action.

Compliance: In accordance with NEPA and its implementing regulations, this Final Phase 1 RP/EA summarizes the affected environment for the selected restoration actions and their alternatives (Alternative G only); describes the purpose and need for restoration actions; identifies a reasonable range of alternatives; assesses the environmental consequences of the selected restoration actions and their alternatives, including cumulative impacts; and summarizes the opportunity the Trustees will provide for public participation in the decision-making process. After conducting the NEPA analysis, the Trustees conclude that the impacts associated with the restoration actions identified herein do not meet the threshold requiring an EIS. Alternatives B-F meet the criteria for categorical exclusions (Table 3) and Alternative G requires an EA, which is provided herein. The categorical exclusion forms are provided in Appendix C of this Final Phase 1 RP/EA.

Table 3. List of restoration actions and associated categorical exclusions.

Restoration Action (associated alternative in parentheses)	Categorical Exclusion	Citation
Mussel surveying activities, riparian and stream habitat surveys, and restoration monitoring activities (B, C, D, E, F, G)	Nondestructive data collection, inventory (including field, aerial, and satellite surveying and mapping), study, research, and monitoring activities.	43 C.F.R. § 46.210(e)
Education and training of youth students (B)	Personnel training, environmental interpretation, public safety efforts, and other educational activities, which do not involve new construction or major additions to existing facilities.	Departmental Manual (DM) 516 8.5 A.2
Mussel surveying activities and inventory and monitoring of plants and animals (B, C, D, E, F, G)	Research, inventory, and information collection activities directly related to the conservation of fish and wildlife resources which involve negligible animal mortality or habitat destruction, no introduction of contaminants, or no introduction of organisms not indigenous to the affected ecosystem.	DM 516 8.5 B.1
Fencing, small water control structures, planting of seeds or seedlings, and other minor revegetation (E and G)	The construction of new, or the addition of, small structures or improvements, including structures and improvements for the restoration of wetland, riparian, instream, or native habitats, which result in no or only minor changes in the use of the affected local area.	DM 516 8.5 B.3
Prescribed burning for native habitat enhancement (C and G)	The use of prescribed burning for habitat improvement purposes, when conducted in accordance with local and State ordinances and laws.	DM 516 8.5 B.4

Table 3 Continued.

Restoration Action (associated alternative in parentheses)	Categorical Exclusion	Citation
Fire management activities for the purpose of native habitat restoration and enhancement (C and G)	Fire management activities, including prevention and restoration measures, when conducted in accordance with Departmental and Service procedures	DM 516 8.5 B.5
Riparian buffer creation and enhancement activities through seeding and planting; wetland restoration and enhancement (E and G)	The reintroduction or supplementation (e.g., stocking) of native, formerly native, or established species into suitable habitat within their historic or established range, where no or negligible environmental disturbances are anticipated.	DM 516 8.5 B.6
Technical assistance activities associated with stream and riparian restoration design and planning (D)	Consultation and technical assistance activities directly related to the conservation of fish and wildlife resources.	DM 516 8.5 B.8
All restoration actions where BIA has co-approval with FWS	Actions where BIA has concurrence or co-approval with another Bureau and the action is categorically excluded for that Bureau	DM 516 10.5 M.3

2.2.2 Clean Water Act

The Clean Water Act (33 U.S.C. § 1251, et seq.) is the principal law governing pollution control and water quality of the Nation's waterways. Section 404 of the Clean Water Act authorizes a permit program to regulate the discharge of dredged or fill material in navigable waters. The U.S. Army Corps of Engineers (USACE) administers the program.

Compliance: Coordination with the USACE would be completed pursuant to Section 404 of the Clean Water Act before any site-specific restoration action under this proposed plan could be undertaken. The Trustees envision that at least some wetland and riparian restoration and enhancement projects would be completed under Nationwide Permit 27: Aquatic Habitat Restoration, Enhancement, and Establishment Activities. All joint federal/state permits would be obtained prior to the start of any site-specific construction activities. Consultation and coordination with the USACE will be documented and added to the administrative record for this NRDAR case.

2.2.3 Endangered Species Act (and other regulations protecting fish, wildlife, and plants)

The federal Endangered Species Act (ESA; 16 U.S.C. § 1531, *et seq.*, 50 C.F.R. Parts 17, 222, 224) directs all federal agencies to conserve threatened and endangered (T&E) species and their habitats and encourages such agencies to utilize their authority to further these purposes. Under the ESA, the National Oceanic and Atmospheric Administration - National Marine Fisheries Service and FWS publish lists of endangered and threatened species. Section 7 of the ESA requires that federal agencies consult with these agencies to minimize the effects of federal actions on endangered and threatened species.

Compliance: Several federally-listed T&E species and candidates for listing occur in or near the proposed restoration areas. All federally-listed species, plus one additional species, are State-listed T&E species in northeastern Oklahoma. Tribally-Listed Protected Species in northeastern Oklahoma also may be located in proposed restoration areas; all the species have been designated by the Cherokee Nation as culturally protected species. Information related to federal, state, and Tribal-listed species can be found in Chapter 4.4 of Programmatic RP/EA and is incorporated by reference herein.

Because of the restoration and enhancement nature of the proposed habitat projects and the best management practices (BMPs) that will be used, the Trustees anticipate only minor and temporary adverse impacts to the biological environment, including fish, wildlife, and their supporting habitats, and cultural resources and services. The Trustees will conduct necessary ESA Section 7 consultations with FWS prior to implementation of any future restoration projects proposed under this plan. Such consultations would begin before implementation of a specific project but may be completed and/or updated during a project's design phase. The results of the consultation will be documented and added to the administrative record for this NRDAR case.

2.2.4 National Historic Preservation Act (NHPA)

Cultural resources are those parts of the physical environment, natural and built, that have cultural value to some socio-cultural groups and human social institutions. Cultural resources include historic sites, archeological sites and associated artifacts, sacred sites, traditional cultural properties, cultural items, and buildings and structures. Most cultural resources concerns can be identified through the Section 106 process of the NHPA. Absent objections from Historic Preservation Officers or from other interested persons (36 C.F.R. §§ 800.2(c)(3), (4), and (5)), the NHPA has legal standing in land acquisition projects, projects involving ground disturbance, and projects impacting buildings and structures 50 years and older.

The National Historic Preservation Act of 1966 (NHPA) established a process to preserve historical and archaeological sites affected by projects directed or funded by the federal government. Compliance with the NHPA is undertaken through consultation with the Oklahoma State Historic Preservation Officer (SHPO), Oklahoma Archeological Survey, Tribal governments, and Tribal Historic Preservation Officers (THPOs). If an eligible historic property

or archeological resource is within the area of one of the proposed restoration alternatives, then an analysis should be made to determine whether the alternative would have an adverse effect on historic properties or archaeological resources. Prior to completion of this Final Phase 1 RP/EA the Department of the Interior provided the SHPO and THPOs opportunities to consult under NHPA about the potential adverse effects of the proposed projects on historic properties or archaeological, religious, and cultural resources. These consultation letters will be added to the administrative record and are provided in Appendix B of this document.

2.3 Alternative A: No Action (Natural Recovery) Alternative (Not selected)

Pursuant to CERCLA and NEPA, the Trustees considered a No Action alternative. Under this alternative, the Trustees would rely on natural recovery and would take no direct action to restore injured natural resources or compensate for interim lost natural resource services. The remedial process would continue, and this alternative would include the continuance of ongoing monitoring programs, such as those implemented by federal, state, or Tribal environmental agencies. No additional Trustee-led and funded activities aimed at reducing contamination, reducing potential exposure to contaminants, enhancing ecosystem biota or processes, or restoring lost cultural uses, would be provided. Under this alternative, no compensation would be provided to compensate the public for losses of natural resources and the services they provide over time. The No Action Alternative is further described in Section 3.2.3 of the Programmatic RP/EA and incorporated by reference herein.

2.4 Tier I Alternatives (Selected)

2.4.1 Alternative B: Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services

Introduction

The footprint of the injured terrestrial and aquatic resources of the NOMNRDAR Site overlaps with the area in which Tribal members and citizens hunt, fish, and gather natural resources for subsistence and cultural practices. It also overlaps with the Tribal jurisdictions of the seven Tar Creek Trustee Council Indian Tribes (TCTCIT). Because these injured natural resources (plants, fish, furbearers, mussels, surface water, sediment, soil, etc.) are integral to Tribal subsistence and cultural practices, injuries to these resources have had negative impacts on Tribal lifeways. The Tribes have lost opportunities to transfer across generations their cultural knowledge on gathering, harvesting, hunting, fishing, preparing, and using these resources. There has also been a loss of traditional ecological knowledge (TEK) about caring for the land, and traditional practices to sustain it for future generations to come. TEK represents knowledge about place, historical insight, spiritual beliefs, and longstanding and tested understanding about how terrestrial and aquatic systems function (Smythe et al. 2020).

Pilot Tribal Apprenticeship Program – Goals

- Restore natural resources by contributing to the implementation of habitat and resource restoration projects.
- Restore lost Tribal services by teaching traditional practices and uses of natural resources.

The Tribes desire to directly engage in actions to restore the injured resources and lost Tribal services, through an apprenticeship program that combines teaching Tribal youth (high school – aged youth and recent high school graduates) about natural resource restoration, with learning about their individual Tribe’s distinct heritage, language, cultural practices and traditional uses and care of those resources. Upon completion of the program, each student will receive a State of Oklahoma lifetime combination hunting/fishing license, which will enable graduates to continue to practice their Tribes’ traditional activities after the program ends.

Each of the seven Tribes of the TCTCIT – Cherokee Nation, the Eastern Shawnee Tribe of Oklahoma, the Miami Tribe of Oklahoma, the Ottawa Tribe of Oklahoma, the Peoria Tribe of Indians of Oklahoma, the Seneca-Cayuga Nation, and the Wyandotte Nation – will develop and implement a pilot apprenticeship

program. Teaching and learning activities will occur in existing indoor Tribal facilities that will serve as the initial classrooms for the pilot and in “outdoor classrooms” at selected natural resource restoration sites. It is possible that students from multiple Tribes will work on a given habitat restoration project together. However, each Tribe will develop its own distinct Tribal lifeway practices curriculum, and the traditional uses of natural resources will be taught separately by each Tribe.

Program Development and Implementation

This subsection includes information about (1) program development and administrative set-up, (2) development of the apprenticeship program curriculum, (3) implementation of the pilot apprenticeship program, and (4) pilot program evaluation.

Activity 1: Program Development and Administrative Set-Up

Activity 1 will take place over approximately one year. Then administrative systems will continue to operate throughout the second year of the pilot program. Under this activity, the Tribes will initially hire a program coordinator who will oversee the program for all seven Tribes. This will involve developing a job description and call for applications for an apprenticeship program coordinator; reviewing and evaluating applications; interviewing candidates; selecting, hiring, and onboarding the selected candidate.

The selected program coordinator’s responsibilities will include:

- **Identify a Traditional Lifeway Teacher (TLT) for each Tribe:** The coordinator will work with each Tribe to identify a TLT. TLTs are anticipated to be Tribal elders

or other members of the Tribal communities with knowledge of traditional uses of natural resources. The coordinator will work with each TLT to develop the traditional use (e.g., gathering, preparing plants for food, medicines), and TEK-based habitat conservation curriculums for each Tribe (see Activity 2 below).

Pilot Tribal Apprenticeship Program – Objectives

- Build Tribal youth’s knowledge and technical skills in natural resource restoration, conservation, and management, through learning ecological restoration techniques, in combination with learning and preserving the traditional land stewardship practices of their Tribe.
- Contribute to ecological restoration through “boots-on-the-ground” participation in the implementation of restoration projects, such as cataloguing plants and other natural resources for conservation purposes, assisting with the design of habitat restoration projects, planting native vegetation, recording monitoring data, and other potential habitat and resource restoration actions.
- Build cultural knowledge and appreciation in Tribal youth about the use of natural resources in traditional lifeway practices. For example, learning about the traditional uses of different animals and plants (such as preparing traditional meals, medicines, other uses), which part of the animal/plant is collected for these different purposes, at what time of year, the name of the animal/plant in their Tribal language, etc.

- **Identify habitat restoration activities:** The coordinator will work with the Tribes, the TCTC, and possibly other organizations to identify restoration projects that are conducive to hosting student workers, and that are applicable to both ecological restoration and traditional lifeway learning activities. The program coordinator will work with the restoration project manager(s) and TLTs to define the restoration actions in which the apprenticeship students will participate, including location, nature of the action (e.g., planting, cataloguing, etc.), frequency, duration, etc. They will also coordinate with the restoration manager(s) on restoration technique(s) training sessions.
- **Enroll students:** The program coordinator will develop apprenticeship pilot program

advertising materials and call for student applications. He or she will review applications with the TLT and select up to five students. He or she will also manage communications with students and their families to provide important information about program dates, schedules, requirements, expectations, and administration.

- **Administration:** The program coordinator will also work with the Tribe to identify and train administrative staff to establish and manage administrative systems for the pilot program.

Activity 2: Development of Apprenticeship Program Curriculum

Under Activity 2, the program coordinator will develop the program curriculum, activities, student learning assessments and evaluations, and the program evaluation framework. This activity will involve engaging the TLTs and restoration project manager(s). The curriculum will teach natural resource restoration approaches and traditional uses of natural resources, focusing on the resources that have been injured as a result of the released hazardous substances. The preparation work will potentially involve the following types of activities:

- **Coordinate with proponents, managers of restoration projects, and TLTs to develop learning activities.** The specific restoration projects for the apprenticeship program will be identified under Activity 1. Under this task, the program coordinator will work with habitat/resource restoration project managers and the TLTs to identify and plan specific restoration activities that could engage student workers and that align with learning goals of the apprenticeship program. This may also involve planning training sessions beforehand to teach the students the restoration techniques they will be using and identifying opportunities to blend western science and traditional knowledge systems, such as land stewardship practices.
- **Plan learning/training sessions about restoration skills and techniques.** The program coordinator will work with restoration project managers who will host students at their project sites to plan instruction sessions in ecological restoration principles and techniques. The program coordinator could also consider inviting other natural resources restoration practitioners to introduce the restoration principles and techniques that students will apply in their restoration work. For example, this could include lessons, in the classroom and/or in the field, on cataloguing plants and managing native seed banks, or on restoration strategies for a given habitat type, such as using non-pesticide techniques for invasive species removal in upland prairie habitat.
- **Work with the TLTs to develop traditional lifeway and TEK curriculum modules and activities.** The program coordinator will work with the TLTs to develop curriculum for each Tribe. The curriculum could be structured around specific Tribal lifeways/cultural practices (e.g., hunting, fishing, gathering, preparing traditional meals, preparing medicines, land stewardship), or it could be planned around specific resources (e.g., plants, furbearers, fish, mussels) or ecosystems and

habitats (e.g., prairie, forest, riparian). Lessons will provide instruction related to specific uses of those resources, species that inhabit those habitats, and traditional conservation practices. A key component of the pilot program will be the integration of traditional Tribal languages into the curriculum.

- **Develop student learning assessments.** To understand the effectiveness of program instruction and to gauge student learning, the program coordinator will assess student knowledge at the beginning and end of the pilot program, in “pre-” and “post-” assessments. The assessments could include, for example, assessing the student’s ability to identify and name plants and their medicinal uses at the beginning and end of the program. Alternatively, the assessment could be based on the student’s demonstrated ability to properly plant seedlings or make traditional tools at the completion of the program (e.g., gigging spears). Assessments could also focus on students’ language skills.
- **Develop pre- and post-course student surveys.** A pre-course survey could help the program coordinator understand students’ goals and expectations for the apprenticeship, and their motivations for participating in the pilot program. A post-course survey could help identify the students’ perceived benefits of the program and their suggestions for improvements. These surveys reveal the extent to which the program met students’ expectations and helped them meet their own personal goals.

Activity 3: Implementation of the Pilot Apprenticeship Program

Students will spend time in indoor classrooms and at active restoration sites. The program coordinator will oversee instruction, which will include teachings by the TLTs, other Tribal elders/community members, and presentations by restoration practitioners. Students will participate in experiential restoration activities, through which they will learn about ecological restoration and traditional practices. The selected restoration projects will determine which restoration techniques students will learn, and the traditional lifeway curriculum will identify which cultural resources the students focus on. For example, the students could be involved in planting culturally significant vegetation as a part of a habitat restoration project. They may also learn which specific portion of the plant species to gather for preparing a medicinal tea or food, and the name of the plant in their traditional language.

As a result, students will learn restoration techniques for significant plants and their cultural importance, as well as the scientific skills of identifying the species, sustainable harvesting practices, and preparing the medicinal tea/food with the plant. With this knowledge, students will be able to prepare traditional foods/medicines and restore and conserve the plant for ecological benefits and for cultural use.

Toward the end of the pilot program, when the program coordinator knows the number of students who will complete the program, the coordinator will purchase a lifetime hunting/fishing license for each graduate. Upon graduation from the apprenticeship program, students will receive a lifetime combination hunting/fishing license that will allow them to carry out their

Tribes' cultural practices and traditional activities on State of Oklahoma lands that permit hunting and fishing, subject to all applicable federal, state, and local laws, rules, and regulations.

Activity 4: Pilot Program Evaluation

In advance of implementing the pilot program, the program coordinator will lead the development of an evaluation framework, with input from Tribal administrators, the TLTs, restoration project managers, TCTCIT representatives, and the TCTC. The framework will be used to evaluate the success of the pilot apprenticeship, and to identify refinements that could improve learner outcomes. Specifically, the evaluation will be used to determine which elements of the program should remain in the curriculum, and which elements may need revision or replacement in the design of a full apprenticeship program.

The apprenticeship pilot program evaluation framework questions will be developed and shared with stakeholders (TLTs, restoration program managers, TCTCIT representatives, TCTC, and other stakeholders, as appropriate) for review and approval, prior to finalization. The evaluation and associated questions will be developed in a manner that allows for the transparent evaluation of the program by stakeholders, while at the same time protecting culturally sensitive information. For example, the student assessments may include evaluating language learning. To protect culturally sensitive information, the metric used to assess this learning to be shared with stakeholders may be the number of tribal language words or phrases learned pertaining to natural resources, rather than specifying the specific words learned, which may have culturally sensitive connotations.

The evaluation questions will fall into the following three categories:

- **Learner (student) satisfaction or reaction to the pilot program** (based on Kirkpatrick⁶ level 1 in Frye and Hemmer, 2012): To gain student feedback on the program, pre- and post-program student surveys will be conducted. A pre-course survey will help the program coordinator understand students' goals and expectations for the apprenticeship, and their motivations for participating in the pilot program. A post-course survey will help identify what students liked most about the program and their suggestions for improvements. These surveys reveal the extent to which the program met students' expectations and helped them meet their own personal goals.
- **Measures of learning attributed to the program:** To understand the effectiveness of program instruction and to gauge student learning, student knowledge will be assessed at the beginning and end of the pilot program, in "pre-" and "post-" assessments. The assessments could include, for example, assessing the student's ability to identify and name plants (English scientific name and traditional name in their Tribal language), and describe their medicinal uses; assessing the student's ability to properly catalogue plants,

⁶ The Kirkpatrick evaluation model has 4 hierarchical levels of program outcomes: (1) learner satisfaction or reaction to the program; (2) measures of learning attributed to the program (e.g., knowledge gained, skills improved, attitudes changed); (3) changes in learner behavior in the context for which they are being trained; and (4) the program's final results in its larger context.

plant seedlings, and apply other restoration techniques; or make traditional tools (e.g., gigging spears).

- **Measures of the program administration and implementation:** The TCTCIT will ask a series of questions to assess the effectiveness of the program administration and implementation. These questions will target the administrative staff, teachers, and restoration project managers. Examples of questions include:
 - Was each program activity implemented as planned? If changes from the planned activities were made, what changes were made and why were they necessary?
 - What barriers to program administration and implementation were encountered? How was the planned program modified to accommodate them?
 - What skills or knowledge did administrative staff/teachers acquire?
 - Were the facilities and any educational technologies used in the program adequate? If not, what changes are necessary?

A program evaluation report will be prepared that details how the pilot program met its goals and objectives, and makes recommendations for the full program, based on information learned during the pilot. If the TCTCIT seeks additional funding to implement a full apprenticeship program, the TCTC will be given an opportunity to review the evaluation report to understand the need/justification of funding the full program.

Timeline and Budget

The pilot apprenticeship program will be administered over a two-year period. It will target high school graduates and will involve an intensive two-month summer curriculum in Year 2. Program development, administrative set-up, and curriculum development will occur in Year 1 and the first half of Year 2. Program evaluation will be completed in the final quarter of Year 2, after pilot program implementation.

The total cost for a two-year pilot apprenticeship for the seven Tribes is \$1,046,568. Of the total cost, \$732,598 would be supported by TCTC NRDAR funds. The TCTCIT will furnish 30% matching funds (\$313,970) for the pilot program.

2.4.2 Alternative C: Ozark Plateau National Wildlife Refuge Restoration Pilot Project

The FWS owns and manages the Ozark Plateau National Wildlife Refuge (Refuge) in northeastern Oklahoma, with management units in Adair, Cherokee, Delaware, and Ottawa Counties. The natural resources and native habitats of the Refuge have experienced impacts from fire suppression regimes and historic logging, and the project area exhibits high tree density and low understory plant diversity. Through this project, FWS proposes to implement a small-scale pilot project to test techniques for restoring and enhancing native woodland and forest habitat on a parcel of the Refuge.

Alternative C is a pilot project located on the Mary and Murray Looney Unit (Looney Unit) of the Refuge (Figure 3). The focus of the project is to restore a 15.5-acre portion of the Looney

Unit to a more open upland woodland condition believed to have historically occurred at the site under natural ecological processes including a high fire frequency.

Project Background and Activities

Since European settlement, suppression of the natural fire regime has led to overcrowded forest conditions and allowed forests to encroach on areas that were once more open native woodland and savanna habitats. In general, woodlands can be distinguished from forests by a relatively open understory and the presence of sun-loving ground flora species. Areas that historically were open woodlands with an abundance of native grasses and forbs in the ground flora have become closed forests with diminished ground flora. Many of the remaining forest areas consist primarily of exceedingly high densities of even-aged stands with an excessive fuel load and a lack of well-developed understory. Current conditions not only lead to unnatural and uncontrollable wildfires, but they are also unfavorable for native vegetation and native wildlife. Habitat restoration measures that mimic the historic fire regime and maintain a natural mosaic of native plant communities will reduce the risk of unplanned, high-intensity wildfires while also supporting a greater diversity of native flora and fauna. (FWS, 2013).

Dominant ecological sites associated with the area of interest include a combination of Low-Base Chert Upland Woodland, Loamy Terrace Forest, and Ultic Chert Upland Pinery Woodland (ESD, 2011). These ecological sites describe an area with an oak-hickory-pine forest with an overstory dominated by a variety of trees including post oak, black oak, blackjack oak, black hickory, short-leaf pine, an understory of dogwood trees, and a rich ground flora with native grasses and forbs species (ESD, 2011).

The primary goals of the project are to 1) restore a mosaic pattern of native forest including open woodland habitat on a 15.5-acre parcel in the Refuge, and 2) use the proposed project as a proof of concept to determine whether other areas on the Refuge and/or similar habitat in Northeastern Oklahoma would benefit from similar restoration approaches. Restoration goals will be achieved by taking the

Ozark Plateau NWR Restoration

Goals

- Restore a mosaic pattern of native forest including open woodland habitat on a 15.5-acre parcel in the Refuge.
- Serve as a pilot project to determine whether other areas on the Refuge and/or similar habitat in Northeastern Oklahoma would benefit from similar restoration approaches.

Objectives

- Restore forest overstory, understory, and ground cover more representative of Ozark Highlands open woodlands.
- Remove invasive species.
- Plant and/or seed native grasses and forbs.

following activities:

- Thin trees through hand removal and controlled fire
- Remove invasive species
- Plant and/or seed native grasses and forbs
- Monitor and adaptively manage restoration site

Activity 1: Tree Thinning

The Refuge manager will work with the local U.S. Department of Agriculture - Natural Resource Conservation Service (USDA - NRCS) to identify trees for removal. The Refuge Manager will contract with a company to remove trees and coordinate the controlled burn with a FWS burn unit, in accordance with FWS's prescribed burn policy. This project includes funding for a one-time thinning of identified trees and one controlled burn. The Refuge will fund additional burns as part of the burn plan outlined in the Refuge Comprehensive Conservation Plan (CCP; FWS, 2013).

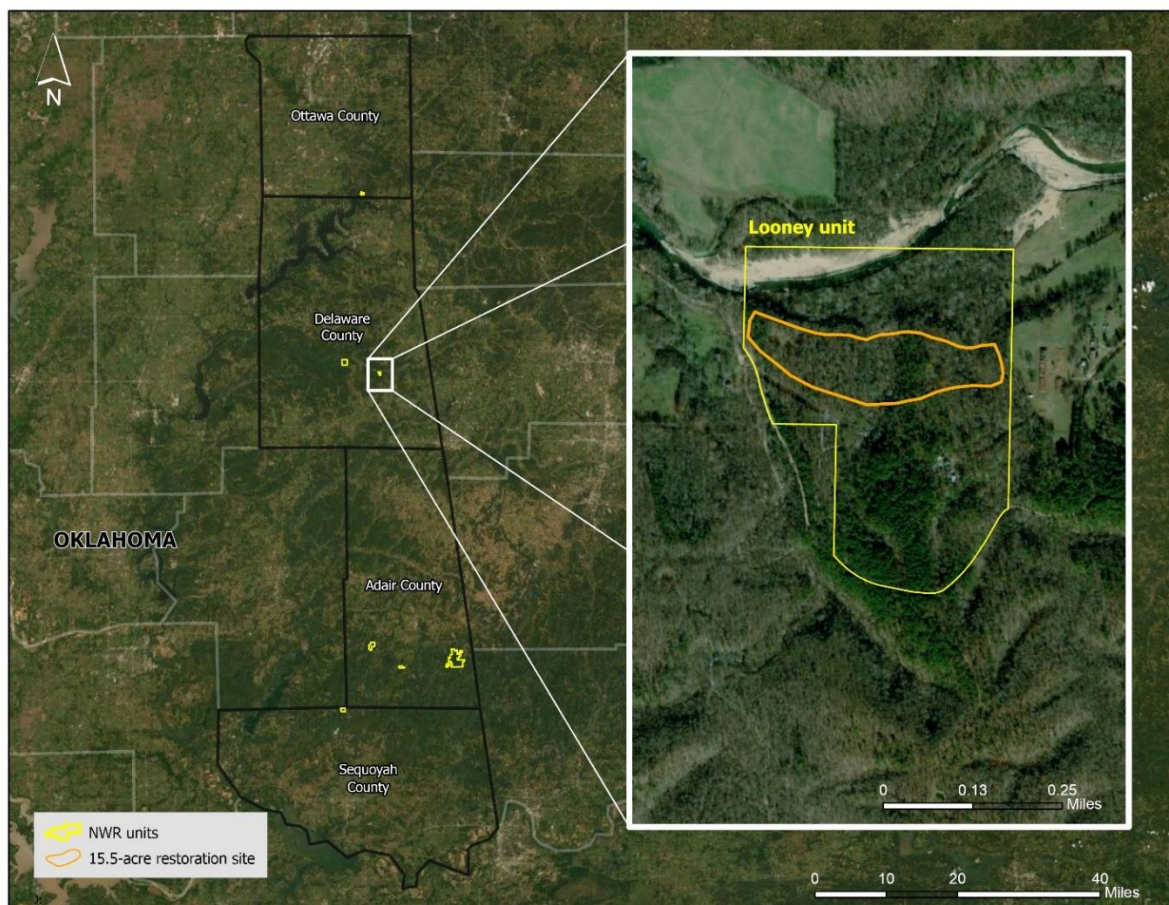


Figure 3. Location of the Looney Unit in Delaware County, Oklahoma. The inset shows the 15.5-acre parcel within the Refuge where the pilot restoration project will occur.

Activity 2: Remove invasive species

There are small patches of the invasive plant sericea lespedeza (*Lespedeza cuneate*) on the unit. To avoid use of pesticides, this project will use goats to remove the sericea lespedeza through grazing inside a fenced area (SARE 2005). Because sericea lespedeza is prolific, this technique may be employed at the beginning of each growing season for several years. Using an adaptive management approach, the FWS may use herbicides to control sericea lespedeza if mechanical and grazing methods are determined to be ineffective at controlling or eradicating sericea lespedeza, under the assumption that herbicide application is compatible within the treatment area. Herbicides will only be used when compatible with the CCP and applicable Refuge policies and practices. Herbicides will not be used to control or eradicate plants intended for restoration, gathering, and conservation purposes mentioned under Activity 3 and listed in the text box on page 30.

The Ozark National Wildlife Refuge analyzed herbicide use in the CCP (2013 - Appendix A), where herbicides may be used to spot-treat invasive flora species, including sericea lespedeza, that become a threat to important native plant and/or fauna species. The Ozark Plateau NWR CCP provides an analysis of on-Refuge herbicide application and is incorporated by reference herein.

Activity 3: Plant native grasses and forbs

The Refuge staff will gather a list of native grasses, forbs, and locally significant plants from sources such as the NRCS, local Tribes, and historical references. The text box on the next page provides a preliminary list of native, culturally significant plants that local Tribes have identified and shared with FWS. The FWS anticipates working with local Tribes to incorporate plants from this list into the restoration. The Refuge manager will work with the NRCS and local Tribes to develop a planting/seeding strategy based on the time of year, abundance of plants, and appropriate technique for each plant species. The Refuge manager will also arrange access (mentioned below) for Tribes to gather these plants when their populations are established. If baseline monitoring reveals that any of these plants are currently present, the Service will conserve and protect these species for future use.

Plants for Restoration, Gathering, and Conservation

- Watercress – *Rorippa nasturtium aquaticum*
- American Water Willow – *Justicia Americana*
- Cutleaf Coneflower – *Rudbeckia laciniata*
- River Cane/Giant Cane – *Arundinaria gigantea*
- Ozark Chinquapin Nuts – *Castanea Ozarkensis*
- Wild Honeysuckle – *Lonicera flara*
- Wild Onions – *Allium mutabile*
- Mushrooms – various species
- Mullein - *Verbascum thapsus*
- Ginseng – *Panax sp.*
- Ozark Chinquapin Tree – *Castanea Ozarkensis*
- Nuts – hickory (various species), walnut, pecan
- Berries/Fruits – wild grapes/possum grapes, elderberry, blackberry, mulberry, sumac berries, huckleberries, plums, persimmons, pawpaws, cherries

Resource Access and Use

The Refuge is closed to the public except for activities authorized by Special Use Permits. The FWS is currently engaged in a Compatibility Determination that would allow for the issuance of permits for the collection of plants and other natural resources within the Looney Unit, by members of federally-recognized tribes for cultural and/or educational purposes. As a part of this process, FWS has worked with local Tribes to create a description of the types of cultural activities that Tribes anticipate making requests for under a special use permit. These activities include permitted harvest, cataloguing, and planting of native culturally significant plants, and the harvest/collection of other items of Tribal cultural significance (such as turtle shells, non-migratory bird feathers, fungi, and spring water) for cultural or educational purposes.

Budget and Timeline

The cost of the proposed pilot restoration project is \$84,960, of which \$49,960 would come from TCTC settlement funds and \$35,000 would be provided in-kind by FWS. The estimated timeline for pilot project planning and implementation is approximately 24 months and involves the following activities:

- Contracting for tree removal (4 to 6 months)
- Site preparation, tree marking, initial removal of sericea lespedeza, thinning of trees by hand followed by prescribed fire (6 months to 1 year)
- Planting of grasses and forbs (assessment of grasses and forb diversity/re-growth after prescribed fire followed by seasonal plantings over one year)

In addition to pre-implementation monitoring activities, additional post-implementation monitoring will occur during years 1, 3, and, under the existing CCP (FWS 2013).

2.4.3 Alternative D: Fourmile Creek Streambank Stabilization Project – Planning and Design

The Fourmile Creek Streambank Stabilization Project focuses on stabilizing a severely eroded reach of streambank along Fourmile Creek to reduce further land loss and to restore the riparian habitat and cultural use of natural resources. The project site is within the Miami Tribe's

Reservation, outside of the NOMNRDAR Site, at a location used by Tribal members for cultural practices. Figure 2 shows the location of the Fourmile Creek restoration site.

Fourmile Creek Streambank Stabilization Project

Goals

- Identify the most appropriate and effective approach(es) to stabilizing and restoring the degraded streambank along Fourmile Creek.

Objectives

- Develop an engineering and design plan for stabilizing the Fourmile Creek restoration site.
- Estimate costs of implementing the streambank stabilization action(s).
- Develop a description of future work to implement streambank stabilization and riparian habitat restoration actions at the site (Phase 2).

The Miami Tribe is proposing a phased approach to this restoration, where engineering and design (E&D) occurs in Phase 1 and implementation occurs in Phase 2. This proposed project describes the approach to completing the E&D phase (Phase 1). Implementation of the streambank stabilization actions (Phase 2) would occur under a future phase of restoration, based on an evaluation of the detailed E&D plans and costs that are developed during Phase 1.

Site Description and Project Need

This project addresses streambank habitat in an area that has experienced extensive flood damage, and although the project location is outside the NOMNRDAR Site, the project does address similar streambank habitat to that which has been affected directly by released hazardous substances from the NOMNRDAR Site. Recent flooding has degraded the west bank of Fourmile Creek at the proposed project site. Figure 4 shows the degraded quality of the streambank of Fourmile Creek along the restoration reach. Soil loss has exposed extensive root systems, contributing to excess sedimentation in the creek, and threatening the stability of trees that create the riparian habitat.

In addition to degrading habitat quality and ecological services at the site, flooding and associated impacts have also limited the Miami Tribe's cultural use of the project area and its riparian resources. The Fourmile Creek site is a culturally significant area for the Miami Tribe. Tribal members use the site all summer for gathering plants, and the Tribe has mapped the locations of culturally significant plant species in the area. Walking trails along and near the creek also draw Tribal members to the site, and families gather

with children to recreate along the creek. A house that is approximately 150 feet from the project site has been converted into a youth language camp, providing an important learning space for Tribal youth. However, erosion continues to encroach on the house, and Tribal members are concerned about loss of land at the site.

Project Description

Phase 1 E&D activities will identify the most effective and appropriate method(s) for stabilizing the streambank (taking into account upstream hydrologic features and flow that may be influencing erosion at the site) and restoring riparian habitat and use of resources at this site by the Miami Tribe. Phase 1 activities will focus specifically on identifying design options that maximize use of natural materials.

The Miami Tribe will hire an engineer to identify streambank stabilization options and estimated costs, based on the initial site visit. Following initial consultation, the engineer will 1) develop a preliminary report that describes these options and their relative advantages, 2) survey the restoration reach and process the survey data, and 3) develop a final engineering design report based on the preferred option. Using the engineer's final E&D report as a guide, the Miami Tribe will develop a brief description of Phase 2 work to implement the streambank stabilization action.

Timeline and Budget

Phase 1 E&D activities will occur within the first year of receiving funding. Based on experience with similar E&D efforts, the Miami Tribe expects to receive the final E&D report within approximately three months of initiation of the project. The Miami Tribe will prepare the Phase 2 project description for Trustee Council consideration within three months after receiving all E&D materials from the engineer.

The expected cost for Phase 1 E&D work is \$14,656. Cost categories factored into this cost estimate include:

- Engineer's site visit
- Development of E&D report
- Site survey and survey data processing
- Final engineering design
- Development of Phase 2 project description



Figure 4. Severe erosion along the restoration reach of Fourmile Creek has exposed root systems (A) and caused channel incision (B).

2.4.4 Alternative E: Sycamore Creek Streambank Stabilization Project

This project focuses on stabilizing a severely eroded streambank of Sycamore Creek to reduce further land loss and to restore the riparian habitat and cultural use of natural resources. The overall goal of the project is to reduce further land loss along Sycamore Creek and restore the riparian zone along the southern end of the Wyandotte Nation's powwow grounds. The project is outside of the NOMNRDAR Site and is considered an off-site project.

Recent high rainfall events and subsequent flooding have degraded the streambank of Sycamore Creek at the proposed restoration site. The proposed restoration site has experienced severe erosion leading to visible sloughing of the steep bank (Figure 5) and alteration of the floodplain. Trees have fallen into the creek, and additional trees are at risk of falling off the deeply incised streambank and into the creek. As a part of their environmental monitoring program, the Wyandotte Nation have conducted water quality monitoring at the site for five years. Over the course of this regular monitoring, environmental staff have observed significant changes to the landscape at the site. The Wyandotte Nation estimates that, over the last five years, approximately 9,000 cubic feet of soil has eroded from the streambank.

Ecological impacts of the erosion include loss to streambank habitat, and degradation of aquatic habitat due to excessive sedimentation. Further, the loss of tree cover reduces shade cover over the creek and can lead to increases in water temperatures within a localized area and a decline in aquatic and riparian habitat quality for fish, turtles, beaver, muskrats, rabbits, deer, and other wildlife.

Sycamore Creek Restoration

Goals

- Stabilize the streambank to restore riparian habitat along Sycamore Creek and improve ecological services.
- Restore Tribal use of the streambank and the riparian area once the physical habitat is restored.

Objectives

- Reduce streambank erosion along approximately 180 feet of Sycamore Creek.
- Revegetate the streambank and plant a riparian buffer of native, culturally significant plants.

In addition to reducing further degradation of the streambank and restoring habitat and ecological services, this restoration project will also restore cultural use of the site. The Wyandotte Nation uses the land near the site for hunting and for gathering fruits and other plant parts. However, the unstable streambanks limit access to the riparian area, and erosion of the riparian area has led to losses of culturally significant trees and plants, including oaks (*Quercus* spp.), black walnuts (*Juglans nigra*), blackberries (*Rubus* spp.), honeysuckle, grapevines, and multiple species of native grasses. The site is also important for other activities, such as camping, and for youth education programs, where both Tribal youth and non-Tribal students learn about riparian ecosystems and macroinvertebrates in the creek. However, the Wyandotte Nation is concerned that the continued degradation of the site will limit access and cultural use, and any use in its current condition will cause further degradation. Because the site is within Wyandotte Nation lands, and is within the Tribal powwow grounds, the Wyandotte Nation will ensure appropriate and sustainable use of the restored habitat. An additional benefit of this restoration project will be a protected riparian area where the Wyandotte Nation can re-install continuous water monitoring equipment that was damaged in recent floods. Lastly, if the site is restored, the Wyandotte Nation intends to use it more frequently for cultural use because of its proximity to the circle where dancing takes place.

Project Description

Primary elements of the project include streambank stabilization, riparian buffer restoration and enhancement, and restoration monitoring. The Wyandotte Nation hired an engineer to assess the Sycamore Creek site and identify effective conceptual approaches for stabilizing the streambank and preventing further degradation of riparian habitat along a 180-foot stream reach. The Wyandotte Nation will obtain necessary permits and plan riparian buffer enhancements. Design of the streambank structure will utilize biotechnical stabilization techniques (Figure 6), where natural and biodegradable materials will be incorporated, to the extent practical, to provide temporary stabilization until natural stabilization of the bank can reoccur through vegetation establishment. Using a biotechnical stabilization approach also reduces the amount of hardened and riprapped banks that cause an increase in velocity and disconnect riparian functions.

After completing the streambank stabilization work, the Wyandotte Nation will plant vegetation

along riparian buffer along the stabilized bank. The riparian buffer will be approximately 180 feet long and approximately 20 feet wide. The Wyandotte Nation will plant rivercane (*Arundinaria gigantea*), native grasses, and approximately 500 seedlings in the buffer area. When restoration is complete, the Wyandotte Nation expects other native, culturally significant plants to return to the site over time, including blackberries, honeysuckle (*Lonicera sempervirens*), pecan (*Carya spp.*), and black walnut trees.

Wyandotte Nation Environmental Department staff will monitor the restoration site. A monitoring plan will include regular monitoring and post-storm event monitoring. Because staff visit the site regularly as part of their normal duties, the Department is not seeking additional funding for monitoring activities.

Timeline and Budget

The Wyandotte Nation expects that all associated project tasks can be completed within two years of receiving TCTC restoration funds. The estimated cost of design, construction, and permitting for the Sycamore Creek project is \$150,000. Fifty-five percent of this cost is needed for constructing 350 feet of toe wood, one J-hook structure, and two grade control structures, and 45% of this cost is needed for constructing and planting soil lifts, grading and planting slopes, planning terrace. The Wyandotte Nation anticipates \$25,000 is needed for two years of inspection, vegetation establishment, and small flood repairs following construction and \$22,500 will be needed to account for risks and uncertainty in planning and implementing the project. The total cost of implementing the Sycamore Creek stabilization project is \$197,500.



Figure 5. Severely eroding segment of restoration reach of Sycamore Creek; picture shows stream incision and risk of streambank trees falling into the creek.



Figure 6. Streambank restoration photos depicting restoration elements proposed for the Sycamore Creek streambank stabilization project. Images shown include: post-restoration condition of stream reach in Arkansas showing riffle, pool, and grade control using toe-wood and construction of vegetated flood plains (left panel); and construction and planting of soil lifts on toe-wood structure (right panel).

2.4.5 Alternative F: Survey of Mussel Habitat in Tributaries of the Spring and Neosho Rivers

Introduction

The release of hazardous substances into freshwater ecosystems in northeast Oklahoma has led to declines in aquatic biodiversity of certain ecologically and culturally important species. The Spring and Neosho rivers and tributaries have experienced water contamination and other natural resource injuries from mining activities in the TSMD, including injury to mussels. These injuries have resulted in both ecological and tribal service losses. Most of the information about mussel resources in these watersheds is based on surveys of mainstem river reaches, and less is known about mussels in the tributary streams. One survey (Branson 1966) showed that some tributaries had evidence of common mussels, but not all the tributaries of interest to the Trustees were sampled. Although the tributaries targeted in this study do not drain contaminated areas in the TSMD, any mussel populations in these tributaries may have experienced indirect impacts through loss of recruitment of juveniles from mainstem populations (which would have been carried upstream by host fish).

Alternative F evaluates whether mussels and potentially suitable mussel habitat are present inside tributaries of the Spring and Neosho rivers that are not directly affected by TSMD hazardous

substances (i.e., off-site locations). The project will also evaluate whether mussels were historically present in these side tributaries by recovering relic shells. The project will describe habitat features that may support mussels including substrate quality, bank stability, flow, water quality, and presence of host fish for mussel species of interest. Because certain fish species are hosts for mussel early life stages, fish surveys in the tributaries will also be conducted as a part of evaluating stream suitability. In selected reaches, habitat quality and suitability for mussels, including whether there is an adequate food base, will be tested by placing silos containing sub-adult mussels (described below) to observe mussel survival and growth.

The overall goals of Alternative F are to strengthen knowledge about mussel habitat conditions and the existence of mussel species past and present, and to inform potential future reintroduction of native mussel species.

Mussel Habitat Survey Project – Goals

- Document the historical and recent presence/absence of mussels within off-site tributaries of the Spring and Neosho Rivers that are not affected by TSMD metals contamination through field surveys
- Characterize and identify potentially suitable mussel habitat within off-site tributaries of the Spring and Neosho Rivers through field surveys.
- Characterize the fish communities of the tributaries and determine the presence or absence of host fish of mussel species of interest, which are necessary for mussel reproduction to occur.
- Determine whether water quality and food resources are sufficient to support mussel growth and reproduction within the side-tributaries, by caging sub-adult mussels on site and documenting their growth and survival.

Project Location

The project area and potential habitat survey sites are located along tributaries of the Spring and Neosho Rivers in northeastern Oklahoma, in off-site aquatic habitat. Spring River tributaries include Fivemile Creek, Warren Branch, Flint Branch, and Shawnee Branch. Neosho River tributaries include Fourmile Creek, Squaw Creek, Russell Creek, Mudd Creek, Cow Creek, Windy Creek, Coal Creek, and Sycamore Creek. The sites were selected based on best professional judgement, traditional knowledge about historic mussel habitat, and recent

observations of potentially suitable habitat conditions. Figure 2 shows the locations of Spring and Neosho Rivers and their tributaries. Based on recent observations of these streams, the project team expects that not all the listed streams will ultimately be included in the survey, in part because flows may be too low to support mussels in some of the streams. This project description scopes activities and estimates costs based on the assumption that work will occur in 12 streams, though the total number of streams may be lower depending on results of preliminary screening and site visits.

Mussel Habitat Survey Project – Objectives

- Survey existing mussel species, mussel habitat, and fish in approximately 12 off-site tributaries of the Spring and Neosho Rivers, and approximately four sites along each tributary.
- Place mussel silos (three silos at each of three sites in up to six streams) and monitor mussel survival and growth within the silos over a period of time, to evaluate whether water quality is adequate to support mussel survival. (This will occur in a subset of the side tributaries, to be identified based on the results of the field surveys.)
- Identify and summarize habitat features and locations based on the results of the field surveys and mussel silo study.

Project Activities

This section describes the main project activities:

- Initial screening of Spring and Neosho River tributary sites
- Development of survey Sampling and Analysis Plan (SAP)
- Field survey of mussel, fish, and their habitats in Spring and Neosho River tributary sites
- Placement and monitoring of mussel silos on a subset of the surveyed tributaries
- Data interpretation and development of summary report for Trustees

Activity 1 – Initial screening of Spring and Neosho River tributaries

The project team will review the TCTC's existing research, literature, and relevant data and information about the characteristics of the tributaries and their potential as habitat for native mussel species. To help build a contextual understanding of the field sites, the team will review available information related to the stability of stream geomorphological features, water and

habitat quality, and presence of mussel species and fish in these tributaries. During this initial research phase, the team also may conduct field site visits to gain a stronger understanding of stream conditions.

Activity 2 – Development of survey Sampling and Analysis Plan

The project team will develop an SAP, accompanying protocols, a Quality Assurance Project Plan to guide the field survey of mussel habitat, a Health and Safety Plan, and other compliance documents. As a part of developing the SAP, the team may conduct additional field site visits to observe current stream conditions.

The SAP will describe field survey methods and data recording protocols, and will include the following general components:

- Tributary survey protocols
- Protocol for recording information about habitat features
- Protocol for recording information about existing mussels
- Protocol for fish surveys
- Protocol for mussel silos study
- Surface water and sediment quality testing protocols

Other activities that will take place during this preparatory work phase include organizing field teams, obtaining site access and collection permits, and procuring equipment.

Activity 3 – Field survey of Spring and Neosho River tributaries

During the second year of the project, the team will conduct the field work to assess tributary characteristics and determine mussel habitat suitability. The team will also survey mussel and fish species in these tributaries, as outlined in the SAP. The exact tributaries to be surveyed will be specified in the SAP, but the team anticipates surveying a maximum of 12 tributaries. The team will survey approximately four sites on each tributary, recording observations on stream conditions, water quality parameters, habitat characteristics, and presence of mussel species. Field work will take place from May to August, when conditions are most suitable for instream work.

Activity 4 – Placement and monitoring of mussel silos

Based on the results of the field survey, the field team will select a subset of tributaries for placement of mussel silos. The exact number of streams will be specified in the SAP, but the team anticipates that up to six streams will be targeted for silo placement. Placement of silos will occur at three locations on each stream, which the team will identify after initial stream reconnaissance. The exact locations will be selected based on the observations made during the mussel, fish, and habitat surveys. The purpose of placing mussel silos and cages in the streams is to assess whether stream water quality is adequate to support mussel growth and survival. Mussel silos will be stocked with up to 10 mm sub-adult mussels. The silos will be placed in the stream on gravel or cobble substrate in water deep enough to cover the top of the silo by 2-3 inches.

The field team will place silos at selected sites and will monitor them regularly over a period of 6 to 12 months. The field team will visit the silos monthly to photograph and measure mussel growth. At each visit the field team will open each silo, measure the individuals, record survival rate, and remove any dead mussels.

Activity 5 – Data interpretation and development of summary report

When field work is complete, the team will analyze results and develop a report summarizing the project findings. The report will present the observations from each survey site on each tributary, including mussel and fish observations, habitat features, and the results of the mussel silos study. The summary report will also synthesize findings across sites and incorporate expert recommendations about the most suitable potential mussel habitat.

Timeline and Budget

The project will occur over approximately three years, with preparatory work taking place during year 1, field surveys in year 2, and final reporting in year 3. Analysis of study results and preparation of the final report will begin in Year 2 and will be completed in Year 3.

The total cost of this project is \$330,615. The following list is cost breakdown by project activity and component:

- Labor - \$239,869
- Fuel for travel to site - \$1,000
- Equipment and supplies - \$30,496
- Water quality testing - \$42,300
- Sediment quality testing - \$16,950

2.4.6 Alternative G: Neosho Bottoms Habitat Protection and Restoration Project

The Neosho Bottoms Habitat Protection and Restoration Project (NBHPRP) focuses on acquiring, protecting, and restoring bottomland hardwood forest, eastern tall grass prairie, and wetland habitats in the Neosho Bottoms Habitat Protection Project Area (NBHPPA). The overall goal of this project is to address habitat injury and service loss resulting from releases of hazardous substances at or from the NOMNRDAR Site through acquisition, protection, and restoration of native forest, prairie, and wetland habitats in the NBHPPA.

Project Background

The NBHPPA is located at the northern and western extents of the vast Lower Mississippi Alluvial Valley bottomland hardwood forest. Further upstream, floodplain forests are less typical, with narrow riparian corridors being the norm. Historical data shows that the eastern tall grass prairie extended into the floodplain across the project area. Using detailed topographic and other data, ODWC has identified the appropriate land cover restoration across the entire

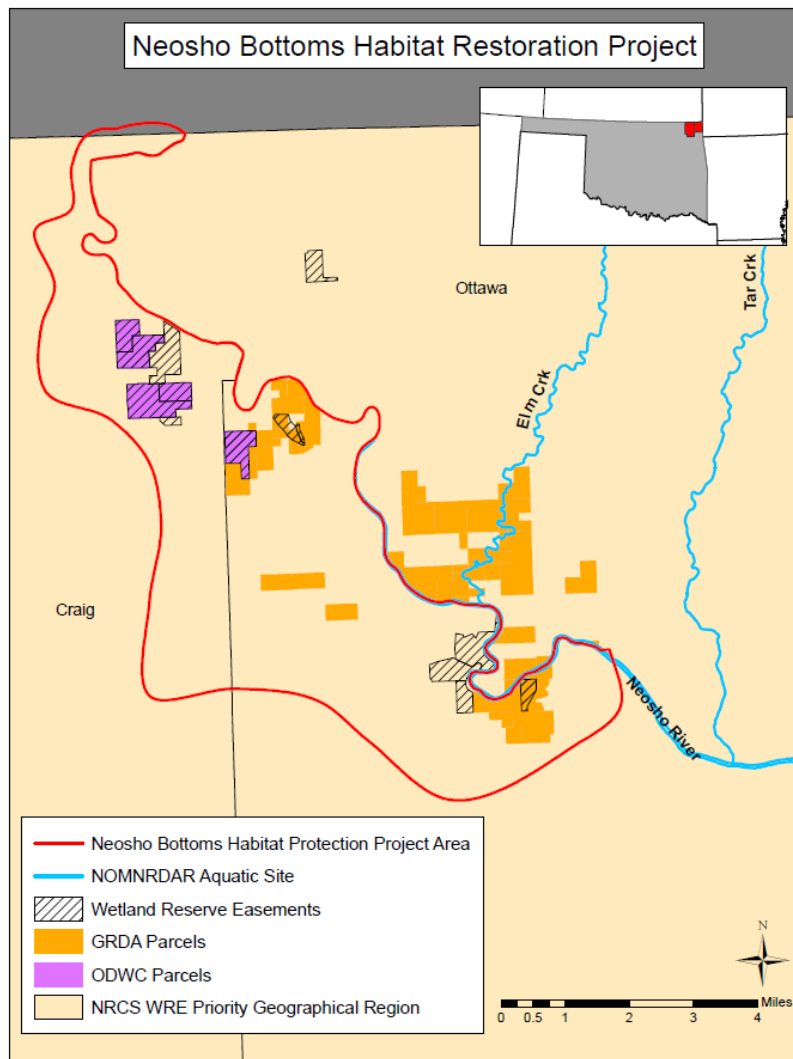


Figure 7. Neosho Bottoms Habitat Protection and Restoration Project Area. GRDA = Grand River Dam Authority; WRE = Wetland Reserve Easement

floodplain area of the NBHPPA. Almost 10,000 acres are classified as suitable locations for bottomland hardwood forest, of which more than 7,700 acres are currently in other land uses such as pasture, pecan orchards or cropland. Using the same detailed topographic data, ODWC also identified up to 4,300 acres of land that could be maintained or restored to eastern tall grass prairie habitat, and over 3,600 acres of potential wetland habitat. These acres include multiple types of wetland habitat, including open water within existing oxbows and remnant river scars; traditional moist soil waterfowl management units maximizing water depths between 6 and 24"; wet meadow prairie; and flooded bottomland hardwood timber.

The NBHPPA is located in northeastern Oklahoma and includes 13,381 acres in Craig and Ottawa Counties, Oklahoma. It is comprised of the floodplain and adjacent uplands along the Neosho River from the Kansas/Oklahoma state border

downstream approximately 19.4 river miles to the city of Miami (Figure 7). The project area partially overlaps with the NOMNRDAR Site (i.e., partially on-site).

Conservation Easement Enrollment and Surface Fee Acquisition

The specific parcels within the project area to be targeted for preservation and restoration are not yet known; therefore, this project will be implemented in a phased approach, governed by tiered TCTC decisions, referred to as Trustee Council Resolutions. Funds for individual parcels will then be released through parcel-specific Resolutions that tier from this Final Phase 1 RP/EA.

ODWC's objective is to initially enroll properties of willing landowners into USDA-NRCS Conservation Easement programs and acquire surface fees on approximately three quarters of

these acres to place into a state Wildlife Management Area (WMA). By acquiring surface fees and implementing restoration actions, ODWC aims to:

- Develop conservation plans for all enrolled acres
- Restore hydrology on easement acres, as appropriate
- Restore or enhance bottomland hardwoods or native prairie on easement acres, as appropriate

Neosho Bottoms Habitat Protection and Restoration Project

- **Goal 1:** Acquire land parcels from willing landowners within the NBHPPA through a combination of conservation easements and fee acquisition, for restoration and protection in perpetuity.
 - **Goal 2:** As appropriate, restore the acquired lands to their natural habitat, including bottomland hardwood forest, eastern tall grass prairie, and wetlands. For example, land that is currently in use as pasture, cropland, or orchards, but is suitable bottomland hardwood forest habitat, may be restored to this natural habitat. Functioning natural habitat may also be acquired for protection in perpetuity, to gain the benefit of averted loss.
-
- **Objective 1:** Enroll approximately 4,000 acres in NRCS conservation easements (CEs) within a five-year period, through the Wetland Reserve Enhancement (WRE) Program and Emergency Watershed Protection Program-Floodplain Easements (EWPP-FPE).
 - **Objective 2:** Protect approximately three quarters of this land in perpetuity (i.e., 3,000 of the 4,000 acres) through surface fee acquisition and incorporation into a state WMA.
 - **Objective 3:** Restore lands that have been enrolled in conservation easements or protected through surface fee acquisition, using methods such as planting native vegetation, removing invasive or non-native species, or performing other restoration activities, as appropriate.

Table 4. Neosho Bottoms Habitat Protection and Restoration Project-Specific Conditions.

Criterion Category	Description
Location	<ul style="list-style-type: none"> • Parcels must be located within the NBHPPA. • Land adjacent to already permanently protected public lands and Wetland Reserve Easement (WRE) tracks is preferred.
Habitat Types	<p>The following types of habitat are targeted:</p> <ul style="list-style-type: none"> • Bottomland hardwood forest • Eastern tall grass prairie • Wetland habitat
Willing Landowner	<ul style="list-style-type: none"> • Parcels must have a willing landowner. • Landowners who are willing to commit to a CE + surface fee acquisition are preferred over those who are interested in CE only. • To maintain a minimum balance between CE and surface fee acquisition, a cap of 1,000 easement-only acres would be self-assessed by ODWC. <ul style="list-style-type: none"> ○ For example, if a total of 1,000 acres is put in easement with no acquisitions completed, then no more easements would be pursued, without approval of the TCTC, until surface fee acquisition of those easements has been completed. ○ Notice would be given to the TCTC if a large landowner (i.e., greater than 1,000 acres) was progressing through the strategy and might skew the cap. The notice would include the expected timeframe of the surface fee closing.
Flooding Potential	<p>Seasonal flooding is a part of natural processes within the Neosho bottomland hardwood forest habitat. Accordingly, parcels under consideration for acquisition will either:</p> <ul style="list-style-type: none"> • Demonstrate (based on location, elevation, etc.) low risk of flooding, or • If flooding is anticipated within the parcel, flood conditions will be taken into consideration in the restoration planning. <ul style="list-style-type: none"> ○ For example, areas within the spatial extent of known/anticipated regular flooding would be restored to bottomlands, wetland and/or open water conditions, and not targeted for upland prairie restoration. <p>Land parcels will not be ruled out for acquisition based on the potential for flooding. Rather, the potential for flooding will be taken into consideration when determining the appropriate type of habitat restoration to be implemented.</p>

Project-Specific Conditions for Land Parcel Selection

Prior to releasing funds to ODWC for acquisition of CEs and surface fees, the TCTC will evaluate whether each parcel fulfills the Phase 1 RP/EA Restoration Evaluation Criteria and Project-Specific Conditions (Table 4). Upon submission of a parcel funding request to the TCTC, ODWC will describe how the proposed parcel meets the Project-Specific Conditions. Parcels that meet the Phase 1 RP/EA Restoration Evaluation Criteria and the Project-Specific

Conditions will be approved for funding by the TCTC.

Resource Access and Use

The ODWC intends to place approximately 3,000 of the 4,000 targeted acres within a WMA after acquisition via surface fee. Lands within the WMA will be accessible to the public, including Tribal members and citizens, for hunting, fishing, gathering of natural resources, and other activities, subject to all applicable federal, state, and local laws, rules, and regulations. These areas may provide cultural services to Tribal members and citizens, including serving as a setting for Tribal apprenticeship activities (Alternative B), and for individual gathering of natural resources for subsistence and cultural practices, subject to all applicable federal, state, and local laws, rules, and regulations.

Timeline and Budget

The Trustees, led by ODWC, will begin implementation of the NBHPRP soon after project funds become available. The project will be completed within a five-year project period. The ODWC will conduct long-term monitoring of restoration activities beyond the award period, and the USDA-NRCS will conduct easement monitoring, in accordance with the WRE Program, beyond the award period.

Implementation of habitat protection and restoration project activities will require expenditure of \$6,667,005 of TCTC settlement funds (Table 5). The ODWC and project partners intend to provide \$16,928,845 in matching funds. Project costs include land costs, transaction and due diligence costs, restoration costs, and management, indirect, and staff time costs. The ODWC intends to leverage TCTC funds with WRE funds totaling \$11,332,000 via a WRE Special Project. The TCTC funds would be matched by WRE Special Project at a 3:1 cost share basis. In addition, ODWC intends to commit Pittman-Robertson⁷ funds of approximately \$5.6 million for this project. The ODWC anticipates coordinating the land acquisitions with existing staff, in collaboration with Ducks Unlimited. The ODWC would hold title to fee acquisitions and would provide long-term stewardship and management.

Table 5. Costs associated with the Neosho Bottoms Habitat Protection and Restoration Project.

Project Component	Cost Breakdown			Total
	ODWC	USDA-NRCS	TCTC	
Land Acquisition and Protection	\$5,596,845	\$0	\$2,836,005	\$8,432,850
Habitat Restoration	\$0	\$11,332,000	\$3,831,000	\$15,163,000
Total Project Costs	\$5,596,845	\$11,332,000	\$6,667,005	\$23,595,850

⁷ The Pittman-Robertson Act (also known as Federal Aid in Wildlife Restoration Act) designates an excise tax on firearms, ammunition, and archery equipment to be used by states to fund wildlife restoration.

2.5 Tier II Alternatives

The Trustees are planning three additional preferred alternatives, referred to as Tier II Alternatives, which will be fully evaluated in a subsequent restoration plan (i.e., Phase 2) after additional restoration planning activities have been completed. Although these projects currently are not ripe for analysis in this Final Phase 1 RP/EA, all of them have been designed to provide benefits to one or more natural and cultural resource categories that were injured at or in the vicinity of the NOMNRDAR Site. All Tier 2 Alternatives are also compatible with restoration goals listed in Section 1.3. No analysis of the Tier II Alternatives is provided in this Final Phase 1 RP/EA, but these alternatives will be fully evaluated for compliance with the CERCLA NRDAR criteria, NEPA and other environmental laws, statutes, and regulations when the projects are ripe for analysis.

2.5.1 Alternative H: Restoration of Chat Bases to Restore and Enhance Terrestrial Habitat

The release of hazardous substances from historical mining activities has injured natural resources and habitats within the NOMNRDAR Site. These injuries have degraded ecological functions and services within these habitats. In some cases, mining chat piles have been removed from the landscape, but the contaminated chat base -- the area of land that was previously occupied by a chat pile -- still poses a risk to prairie habitats and environmental quality. A chat base exists on land owned by the Miami Tribe of Oklahoma. The area that contains the chat base consists of prairie and riparian habitat that provides ecological and Tribal services.

While the specific restoration actions to be taken are not yet finalized, this project would generally restore the chat base, potentially through soil rehabilitation or removal of contaminated materials and revegetation of prairie habitat once remediation or removal of contamination is completed in coordination with the Environmental Protection Agency (EPA). The project will deliver important benefits to the terrestrial prairie habitat by restoring or enhancing injured soil, and plant resources and their associated ecological and Tribal services and by enhancing habitat for native and migratory wildlife species.

2.5.2 Alternative I: Lost Creek Streambank Stabilization

The Lost Creek Streambank Stabilization project encompasses 30 acres of Eastern Shawnee Tribal land and is located on Tribal trust property. The site is open to Tribal members who wish to gather traditional plants for subsistence, including multiple plant species in the riparian zone. Trees along the stream are tapped for cultural sap gathering in the annual syrup boil. However, severe bank erosion makes access to the water, and to these resources, difficult. The tribe also uses the site for recreational purposes.

The proposed project includes four main components:

- Installing a new fish-friendly bridge to provide access to Eastern Shawnee Tribal lands

on the west side of the stream and protect restored streambank riparian habitat and reduce erosion from vehicles driving through stream.

- Stabilizing streambank riparian habitat through revegetation and placement of large rocks
- Revegetating streambank and establishing riparian forest buffers on the east and west banks, which involves converting pasture to forested habitat
- Monitoring and adaptive management

The Lost Creek Streambank Stabilization project will restore approximately 1,900 feet of the east streambank, where flooding has caused stream bank incision and undercut banks which threaten trees in the riparian zone (Figure 8). Within the restoration reach, large trees have detached from the streambank and are creating rock islands in the stream. The project will also protect streambank habitat through the installation of a bridge where vehicles currently drive through the creek, which historically has contributed to streambank erosion and instability along this reach of Lost Creek.

The Eastern Shawnee Tribe and the USDA-NRCS have identified an ecologically and culturally beneficial mix of tree species to plant in the riparian buffer zone, which may include black locust, burr oak (*Quercus macrocarpa*), pecan, black walnut, red mulberry (*Morus rubra*), and black cherry (*Prunus serotina*). NRCS technicians have assisted with the development of a riparian buffer conservation plan, where appropriate planting densities and arrangements, among other details, are included.



Figure 8. Severe bank erosion along Lost Creek has deeply incised the streambank (A), and trees have detached from the bank to form an island within the restoration reach (B).

2.5.3 Alternative J: Upland Prairie Habitat Enhancement and Restoration

Releases of hazardous substances to upland habitats within Ottawa County, Oklahoma have injured habitat of migratory songbirds and culturally important native upland birds. Areas within the Peoria Tribe of Indians of Oklahoma are proposed for restoration focusing on ecological needs of these birds. Effective bird habitat can be created, enhanced, and sustained by

modification of improved pasture or restoration of abandoned fields through removal of non-native plants and replacement with native grasses and forbs.

The Peoria Tribe proposed a restoration project concept to restore habitat for migratory birds injured by the releases of heavy metals from the TSMD on an 80-acre property they own (Figure 9). In addition to improving habitat for migratory birds, the property will be used by tribal members for cultural practices like hunting, plant gathering/harvesting, and bison/livestock grazing. The Peoria Tribe anticipate this project concept will benefit game species like bobwhite quail, deer, turkey, and numerous culturally significant plants that are important to the Peoria Tribe.

Currently, the project area is idle with no management occurring on the property. The property consists of one dilapidated homestead site (southern boundary), one intermittent stream, one hay meadow, and woody brush areas. Most of the property was historically farmed, as indicated by older terrace work on the northern half of the property.

A formal survey of current plant species (i.e., Floristic Quality Assessment (FQA)) will be conducted prior to initiation of any restoration work to determine the amount and type of work needed (e.g., herbicide application and selective tree thinning) and will be used as baseline for measuring improvements, using FQA in the future.

Bison/livestock grazing may be used to enhance vegetation structure and improve overall habitat quality. If grazing is included in the final project plan, a grazing plan (e.g., stocking rate and rotation regime) will complement restoration goals by leaving adequate migratory bird nesting cover (native bunch grass 8-12 inches tall) across the grazed area. The Peoria Tribe will consult the NRCS to develop a grazing plan for the area.

The property has an estimated 1.5 miles of dilapidated boundary fence that is not adequate for keeping livestock on the property or neighboring livestock off the property. Replacement of the boundary fence is a priority in this project to protect the area from trespassing livestock and overgrazing, even if tribal livestock is not included.

The Peoria Tribe, working with restoration partners, will develop a wildlife habitat management plan focused on three primary areas of the property. Recommendations (listed below) for the wildlife management plan are based on a site visit in June 2021 by Peoria Tribal staff, FWS biologists, and other stakeholders. The three primary areas include two abandoned fields and an area of intact riparian habitat.

Field One

Field One contains 14.0 acres of pasture which has a mixture of grasses dominated by fescue with some Bermuda grass and minimal native warm season grasses. Historically this field was used mainly for hay production. Currently this pasture does not provide optimal habitat for migratory birds or other species important to the Peoria Tribe.

The following enhancement practices should be implemented to improve area for desired goals:

- A chemical treatment to 14 acres of pasture should be applied to kill fescue and Bermuda grass.
- Prescribed fire should be used on 14 acres following successful chemical treatment and after undesirable grass species have been eradicated to remove dead vegetation.
- A firebreak approximately 10 to 12 feet wide should be installed around the 14-acre pasture using normal farm equipment such as tractor and disk.
- Once fescue and Bermuda grass has been removed from pasture, a mixture of native grasses/forbs/legumes should be added to the site, as determined by NRCS, Peoria Tribe, and other guidance.

Field Two

Field Two consists of 38 acres that was once farmed and still contains old terrace work across the site. After farming, the area was left fallow and now is dominated in elm, hackberry and eastern redcedar. Some of the small remaining open areas have native grasses present, which include little bluestem, switch and Indian grass. Currently, Field Two provides some habitat for the desired wildlife species but could be enhanced to improve habitat quality.

The following enhancement practices should be implemented to improve Field Two for desired goals:

- Implement “hack and squirt” herbicide application method in two areas where timber thinning would be beneficial during the growing season when trees are actively growing (April through August)
- Remove eastern red cedar by mechanical treatment methods. Trees should be removed at the base close as possible to ground level leaving no-green stems growing above ground.
- Prescribed fire should be conducted on Field Two three years after tree thinning and eastern red cedar treatment has been completed. The prescribed burn should be completed in early spring to remove eastern red cedar re-sprouts, brush piles, and dead standing trees killed by tree thinning treatment. Prescribed fire should be completed on this area every three years to maintain plant diversity.

Riparian Habitat

The remaining 22 acres on the property can be described as intact riparian habitat with reduced species diversity that can support wildlife. In the past, this area more than likely had timber harvest, since most of the hardwoods are dominated by hackberry and elm, with few prototypical riparian tree species present. An intermittent stream runs through this area and provides a water resource for wildlife using the property. If livestock are planned for the project, the stream corridor should be protected throughout the year and off-stream livestock water should be provided by using the rural water district and stock tanks.

The following conservation measures and minimization practices should be implemented in the riparian habitat area:

- Prescribed fire should be applied at least once every five years in riparian habitat to maintain existing conditions.
- Firebreaks should be installed using a dozer and should be completed during the non-nesting season for migratory birds (September through February). All firebreaks should be installed at least 20 feet wide and mowed each year at least one time to remove woody cover encroachment.
- Boundary and interior fence should be constructed, and construction should be completed just after the dozer is used to create firebreaks. The fence should be constructed in a wildlife-friendly manner, where there are five wires, with the bottom and top wires being barbless. The bottom wire should be located approximately 15 inches above ground and top wire should be around 48 inches in height.
- There is potential to create and/or enhance wetland habitat on the site. The Peoria Tribe may consult with the NRCS and FWS to help with project design and further needs to address this potential element of the project. Wetland design should consider soils, size of watershed, size of water control structure(s), and the amount dirt work to be completed.

If implemented, the project will be monitored for a minimum of five years after all conservation treatments have been completed. The monitoring approach will include both pre- and post-restoration activities, including evaluation of environmental attributes (e.g., wildlife use of habitat) at approximately four survey points within the project site. Adaptive management practices will be incorporated into the monitoring plan to address issues and aid in the success of the project. The total cost of all enhancement and construction practices as described in this plan are estimated at approximately \$50,000.

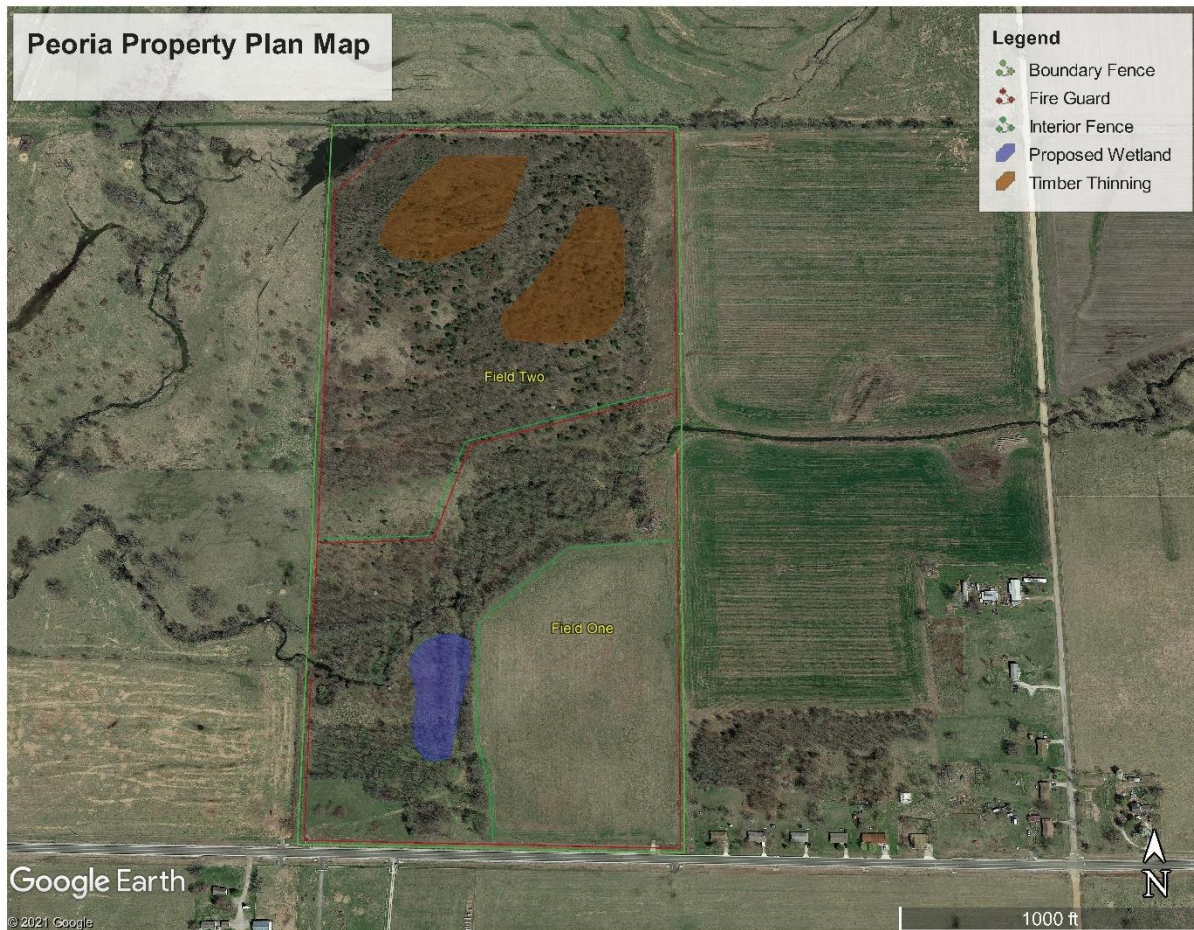


Figure 9. Map of upland prairie habitat enhancement project site on Peoria Tribal lands.

2.6 Non-Preferred Alternative

This section includes a project description for one additional restoration project developed by the TCTC. Although the project described below has been determined to be a Non-Preferred Alternative at this time, the TCTC will consider this project at a later time, as further described in Section 2.7.8.

2.6.1 Alternative K: Spring River Streambank Stabilization

The Spring River Streambank Stabilization project focuses on restoring a segment of the Spring River adjacent to the Peoria Tribe's Aquatic Facility. The Peoria Tribe has observed significant erosion along the streambanks of the Spring River, where approximately 3 to 4 acres of land have eroded during floods occurring over the last couple decades. Heavy rains and flooding have incised the banks of the Spring River along the proposed restoration reach and streambank erosion has exposed extensive root systems, threatening bank vegetation, including large, mature

trees (Figure 10).

The riparian area at the project site contains native and culturally significant vegetation, such as cottonwood trees, water-oak trees, persimmon trees, pawpaw trees, blackberry vines, and other woody and medicinal significant plants. Recent floods have washed out a grove of pawpaw trees where Tribal members used to gather fruits. The Peoria cemetery is also located next to the site, and Tribal members gather to picnic and swim here. However, because of severe erosion along the river, it is now too difficult to access the site, and Tribal members no longer use the area for gatherings.

The Peoria Tribe propose to restore approximately 0.25 miles of streambank that extends from the north boundary of the Peoria Aquatic Facility to the south boundary. The proposed restoration work involves three main activities:

- Construction of a temporary diversion to protect the restoration site during establishment
- Streambank revegetation with culturally significant species
- Monitoring and adaptive management

After constructing a temporary diversion structure, the Peoria Environmental Department plans to stabilize eroding streambanks by planting rivercane, an ecologically and culturally significant



Figure 10. Flooding has carved out the streambank and exposed root systems along the restoration reach of the Spring River.

riparian native plant species.

Rivercane creates a strong root mat that anchors soil and other vegetation along the streambank.

Rivercane was historically prevalent along the Spring River, and the Peoria Tribe used the rivercane to make baskets and other crafts, fishing poles, and weapons.

However, changes in land use, particularly agricultural activities, and flooding have destroyed much of the rivercane habitat. In addition to planting rivercane at the project site, the Peoria Environmental

Department also plans to revegetate the streambank with briars, pawpaw (*Asimina triloba*), blackberries, and persimmon (*Diospyros virginiana*).

2.7 CERCLA NRDAR Criteria Evaluations

As mentioned in Section 2.2.1, FWS and BIA have determined that the actions associated with Alternatives B, C, D, E, F, and G will not have significant individual or cumulative effects on the quality of the human environment and do not meet any of the extraordinary circumstances listed in 43 C.F.R. §46.215 or the Departmental Manual (DM) 516 8.5 A.2. In addition, the two DOI bureaus anticipate that actions associated with Alternative B, C, D, E, F, and portions of G will be covered by DOI or bureau-specific categorical exclusions. The full analysis of each alternative can be found in Tables 6, 7, and 8.

2.7.1. Conclusion on Alternative A

The No Action Alternative will not produce significant benefits to natural resources or resource services. In addition, the No Action Alternative does not meet all the Acceptability Criteria, does not support the purpose and need for restoration, and does not align with the stated restoration goals of the TCTC. Because of these factors, restoration of injured resources under the No Action Alternative was not considered further.

2.7.2 Conclusion on Alternative B

The Trustees found *Alternative B - Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services* to meet all the Acceptability Criteria (Table 6). The project is also compatible with additional Restoration Evaluation Criteria (Tables 7 and 8), where applicable. Alternative B is compatible with the Trustees' restoration goals identified in the Programmatic RP/EA and meets the purpose and need statement in Section 1.2 of this document. The Trustees anticipate Alternative B will 1) restore natural resources, such as upland prairie and riparian habitat, by contributing to the implementation of habitat and resource restoration projects and 2) restore lost Tribal services by teaching traditional practices and uses of natural resources. For these reasons, Alternative B is a selected alternative.

2.7.3 Conclusion on Alternative C

The Trustees found *Alternative C - Ozark Plateau National Wildlife Refuge Restoration Pilot Project* to meet all the Acceptability Criteria (Table 6). The project is also compatible with additional Restoration Evaluation Criteria (Tables 7 and 8). Alternative C is compatible with the Trustees' restoration goals identified in the Programmatic RP/EA and meets the purpose and need statement in Section 1.2 of this document. The Trustees anticipate Alternative C will restore a mosaic pattern of native forest, including open woodland habitat on a portion of the Ozark Plateau National Wildlife Refuge. For these reasons, Alternative C is a selected alternative.

2.7.4 Conclusion on Alternative D

The Trustees found *Alternative D - Fourmile Creek Streambank Stabilization Project – Planning and Design* to meet all the Acceptability Criteria (Table 6). The project is also compatible with

additional Restoration Evaluation Criteria (Table 7 and 8). Alternative D is compatible with the Trustees' restoration goals identified in the Programmatic RP/EA and meets the purpose and need statement in Section 1.2 of this document. The Trustees anticipate Alternative D will identify the most appropriate and effective approach(es) to stabilizing and restoring the degraded streambank along Fourmile Creek. For these reasons, Alternative D is a selected alternative.

2.7.5 Conclusion on Alternative E

The Trustees found *Alternative E - Sycamore Creek Streambank Stabilization Project* to meet all the Acceptability Criteria (Table 6). The project is also compatible with additional Restoration Evaluation Criteria (Table 7 and 8). Alternative E is compatible with the Trustees' restoration goals identified in the Programmatic RP/EA and meets the purpose and need statement in Section 1.2 of this document. The Trustees anticipate Alternative E will 1) stabilize the streambank to restore riparian habitat along Sycamore Creek and improve ecological services; and 2) restore Tribal use of the streambank and the riparian area. For these reasons, Alternative E is a selected alternative.

2.7.6 Conclusion on Alternative F

The Trustees found *Alternative F - Survey of Mussel Habitat in Tributaries of the Spring and Neosho Rivers* to meet all the Acceptability Criteria (Table 6). The project is also compatible with additional Restoration Evaluation Criteria (Tables 7 and 8). Alternative F is compatible with the Trustees' restoration goals identified in the Programmatic RP/EA and meets the purpose and need statement in Section 1.2 of this document. The Trustees anticipate Alternative F will strengthen knowledge about mussel habitat conditions, strengthen knowledge about existence of mussel species past and present, and inform potential future reintroduction of native mussel species in the Spring and Neosho Rivers and their tributaries. For these reasons, Alternative F is a selected alternative.

2.7.7 Conclusion on Alternative G

The Trustees found *Alternative G - Neosho Bottoms Habitat Protection and Restoration Project* to meet all the Acceptability Criteria (Table 6). The project is also compatible with additional Restoration Evaluation Criteria (Tables 7 and 8). The project is in alignment with the Trustees' restoration goals identified in Section 1.3 and in the Programmatic RP/EA. Alternative G also meets the purpose and need statement in Section 1.2. The Trustees anticipate Alternative G will restore, enhance, and protect acquired lands, including bottomland hardwood forest, eastern tall grass prairie, and wetlands, in the NBHPPA. The Trustees also anticipate the project will provide opportunities for members of the public, including Tribal members and citizens, to hunt, fish, and gather natural resources. For these reasons, Alternative G is a selected alternative.

2.7.8 Conclusion on Alternative K

The Trustees found *Alternative K – Spring River Streambank Stabilization* to meet all the Acceptability Criteria except for Actual or Planned Response Actions (Table 6). Alternative K is

compatible with the Trustees' restoration goals identified in the Programmatic RP/EA and meets the purpose and need statement in Section 1.2 of this document. However, the project cannot move forward at this time because the project location lies within Operable Unit 5, and remedial response decisions by EPA for this location are pending and have the potential to influence restoration project planning and implementation. For these reasons, Alternative K is a non-preferred alternative, but it may be considered again as an alternative in a subsequent TCTC restoration plan.

Table 6. Comparison of the Selected and Non-Preferred Alternatives against the Acceptability Criteria.

Acceptability Criteria	Alternative A (No Action)	Alternative B - Pilot Tribal Ecological and Cultural Apprenticeship Program	Alternative C – Ozark Plateau NWR Restoration Pilot Project	Alternative D – Fourmile Creek Streambank Stabilization
Addresses injured natural resource and services	Does not address injured natural resources and services identified in the Programmatic RP/EA.	Restores or enhances natural resources by contributing to the implementation of habitat and resource restoration projects; restores lost Tribal services identified in the Programmatic RP/EA by teaching traditional practices and uses of natural resources	Restores or enhances migratory bird habitat and associated services, both of which are identified in the Programmatic RP/EA.	This project will provide a restoration design that, if implemented, would restore or enhance aquatic and riparian habitat similar to injured habitats of the NOMNRDAR Site.
Compliance with applicable/relevant laws, policies, and regulations	Does not meet the requirements and goals of CERCLA NRDAR process to provide for compensation of lost resources and services.	Compliant with applicable/relevant laws, policies, and regulations.	Compliant with applicable/relevant laws, policies, and regulations.	Compliant with applicable/relevant laws, policies, and regulations.
Technically feasible	This alternative is technically feasible.	Project is technically feasible as demonstrated by other model projects.	Project is technically feasible as demonstrated by other similar projects in the Ozark Plateau Ecoregion; project incorporates peer-reviewed restoration practices.	Project funding will support engineering and design but not implementation. The project implementation phase is technically feasible.
Cost Effective	The No Action alternative is assumed to be less costly than if the Trustees were to pursue restoration under the Preferred Alternatives; however, the Selected Alternatives would address interim losses of natural resources and services, whereas the No Action alternative does not, and therefore it does not provide the same level of benefits.	Project has been developed to be cost-effective, as some resources will be shared across the seven Tribes.	Project has been developed to be cost-effective, as restoration elements, including tree thinning, prescribed burns, and invasive plant management, are habitat enhancement actions that have been shown to be relatively inexpensive and supported by best available information.	Project design will incorporate cost-effective techniques and a streambank stabilization approach supported by best available information.
Cost Benefit	The No Action alternative is assumed to be the least costly alternative. However, it also provides less benefits when compared to the Selected Alternatives over a similar period. The Selected Alternatives address interim losses of natural and cultural resources and services, whereas the No Action alternative does not. Therefore, the No Action alternative does not have a favorable benefit-to-cost ratio.	The Trustees anticipate favorable benefit-to-cost ratios given the success of other similar projects and that the project is focused on multiple resources and services. Benefits are clear and can be quantified.	The Trustees anticipate favorable benefit-to-cost ratios given the success of other similar projects within the ecoregion and that the project is focused on multiple resources and services. Project has clear goals and objectives, both of which are measurable.	The Trustees anticipate favorable benefit-to-cost ratios since the engineering and design work will ensure the project incorporates essential project elements, leading to a higher likelihood of project success.

Table 6. Continued.

Acceptability Criteria	Alternative A (No Action)	Alternative B - Pilot Tribal Ecological and Cultural Apprenticeship Program	Alternative C – Ozark Plateau NWR Restoration Pilot Project	Alternative D – Fourmile Creek Streambank Stabilization
Natural recovery period and the ability of resources to recover without restoration	The natural recovery period would likely take many decades, especially in areas where there is substantial metals contamination. In areas of lesser contamination, the natural recovery period is variable and dependent on site-specific factors. Where contamination can be transported (e.g., by water) or immobilized by natural process, the recovery period would be less. The No Action alternative would not address lost cultural/Tribal services.	The recovery period to restore or enhance natural resources and restore lost Tribal services would be less than recovery period for the No Action alternative.	The recovery period to restore or enhance open woodland habitat for migratory birds and associated ecological services would be less than recovery period for the No Action alternative.	N/A
Adverse impacts from project	Does not cause further injury but provides no benefit to offset interim losses.	Adverse impacts are not anticipated.	Majority of impacts are anticipated to be positive and long-term, although short-term adverse impacts are expected from forest management activities, such as prescribed fire. However, these short-term impacts are expected to be far outweighed by the longer-term benefits of this action.	No adverse impacts are associated with the design phase.
Public Health and Safety	The No Action alternative would not pose any public health and safety risks beyond the already occurring and ongoing risks of exposure and adverse effects to human health and the environment in areas contaminated by mine waste materials.	There are no anticipated health and safety risks associated with Alternative B.	The Trustees will follow all applicable best management practices, including Refuge-specific requirements, when conducting tree thinning and prescribed fire to minimize risk to public health and safety.	There are no anticipated health and safety risks associated with Alternative D.
Actual or Planned Response Actions	Any actual or planned response activities have no impact on the No Action alternative and vice versa.	There are no remedial response activities proposed that will affect implementation of Alternative B.	There are no remedial response activities proposed that will affect implementation of Alternative C.	There are no remedial response activities proposed that will affect implementation of Alternative D.

Table 6 continued.

Acceptability Criteria	Alternative E – Sycamore Creek Streambank Stabilization	Alternative F – Survey of Mussel Habitat in Spring and Neosho River Tributaries	Alternative G – Neosho Bottoms Habitat Protection and Restoration	Alternative K – Spring River Streambank Stabilization
Addresses injured natural resource and services	Restores or enhances aquatic and riparian habitat and associated services similar to injured habitats of the NOMNRDAR Site and identified in the Programmatic RP/EA.	Project focuses on characterization and identification of potentially suitable mussel habitat within off-site tributaries of the Spring and Neosho Rivers, potentially informing restoration of mussel populations	Restores and enhances natural resources, including bottomland hardwood forest, eastern tall grass prairie, and wetlands, and their associated services, all of which are habitat types identified in the Programmatic RP/EA.	Restores and enhances natural resources, including streambank vegetation and adjacent instream habitat, and their associated services, including tribal uses of the restored and enhanced area. Resource and habitat types of this project were identified in the Programmatic RP/EA.
Compliance with applicable/relevant laws, policies, and regulations	Compliant with applicable/relevant laws, policies, and regulations.	Compliant with applicable/relevant laws, policies, and regulations.	Compliant with applicable/relevant laws, policies, and regulations.	Although additional project planning is required, the Trustees would ensure that the project is compliant with applicable and relevant laws, policies, and regulations.
Technically feasible	Project is technically feasible as demonstrated by other similar projects; project incorporates peer-reviewed restoration practices.	Project is technically feasible and incorporates mussel expert recommendations.	Project is technically feasible; restoration approaches involve partnering with federal programs with established methods.	Project is technically feasible as demonstrated by other similar streambank stabilization/restoration projects.
Cost Effective	Project will incorporate cost-effective techniques and a streambank stabilization approach supported by best available information.	Project incorporates a cost-effective approach, supported by mussel expert peer-reviewers, and makes best use of available staff from the Peoria Tribe who are already engaged in mussel conservation efforts.	Project will incorporate cost-effective restoration approaches supported by stakeholders and best available science (e.g., Lower Mississippi Valley Joint Venture recommended practices). This alternative relies on state and federal government partnerships and leverages NRCS program and ODWC funds.	Project will incorporate cost-effective techniques and a streambank stabilization approach supported by best available information.
Cost Benefit	The Trustees anticipate favorable benefit-to-cost ratios once the project is completed given the success of other similar projects. Project has clear goals and objectives, both of which are measurable.	Trustees anticipate favorable benefit-to-cost ratios since the results will likely inform future mussel restoration efforts in northeastern Oklahoma. Project has clear goals and objectives, both of which are measurable.	The Trustees anticipate favorable benefit-to-cost ratios given the success of other similar projects and that the project is focused on multiple resources and services. Project has clear goals and objectives, both of which are measurable. This alternative relies on state and federal government partnerships and leverages NRCS program and ODWC funds.	The Trustees anticipate favorable benefit-to-cost ratios once the project is fully planned and completed given the success of other similar projects. Project will have clear goals and objectives -- both of which are measurable -- once fully designed.

Table 6. Continued.

Acceptability Criteria	Alternative E – Sycamore Creek Streambank Stabilization	Alternative F – Survey of Mussel Habitat in Spring and Neosho River Tributaries	Alternative G – Neosho Bottoms Habitat Protection and Restoration	Alternative K – Spring River Streambank Stabilization
Natural recovery period and the ability of resources to recover without restoration	The recovery period to restore or enhance aquatic and riparian habitat and associated services would be less than recovery period for the No Action alternative.	N/A	The recovery period to restore and enhance natural resources, including bottomland hardwood forest, eastern tall grass prairie, and wetlands, and their associated services would be less than the recovery period for the No Action Alternative.	The recovery period to restore and enhance natural resources, including streambank vegetation and adjacent instream habitat, of the Spring River would likely be less than the recovery period for the No Action Alternative.
Adverse impacts from project	Majority of impacts are anticipated to be positive and long-term, although short-term adverse impacts are expected from streambank construction activities, such as disturbance to aquatic biota.	No adverse impacts are anticipated from the surveys.	Majority of impacts are anticipated to be positive and long-term, although short-term adverse impacts are expected from habitat management activities, such as herbicide applications.	Majority of impacts are anticipated to be positive and long-term, although short-term adverse impacts are expected from streambank construction activities, such as disturbance to aquatic biota and trampling of vegetation.
Public Health and Safety	There are no anticipated health and safety risks associated with Alternative E. The project will provide for safer access to Sycamore Creek by tribal citizens.	There are no anticipated health and safety risks associated with Alternative F.	There are no anticipated health and safety risks associated with Alternative G.	There are no anticipated health and safety risks associated with Alternative K. The project will provide for safer access to Spring River by tribal citizens.
Actual or Planned Response Actions	There are no remedial response activities proposed that will affect implementation of Alternative E.	There are no remedial response activities proposed that will affect implementation of Alternative F.	There are no remedial response activities proposed that will affect implementation of Alternative G.	Remedial response decisions by EPA for Operable Unit 5, which overlaps with the proposed restoration project area, are pending and have the potential to influence restoration project planning and implementation.

Table 7. Comparison of the Selected and Non-Preferred Alternatives against the Natural Resource and Services Criteria.

Natural Resource and Services Criteria	Alternative A (No Action)	Alternative B - Pilot Tribal Ecological and Cultural Apprenticeship Program	Alternative C – Ozark Plateau NWR	Alternative D – Fourmile Creek Streambank Stabilization
Injured resources and services restored by project	Does not provide for restoration, replacement, enhancement, or acquisition of resources that were injured from releases of hazardous substances.	Direct nexus to injured resources and services. Project benefits multiple natural resources and services.	Direct nexus to injured resources and services. Project benefits multiple natural resources and services.	Direct nexus to injured resources and services. Project, once implemented, will benefit aquatic and riparian resources and services.
Proximity of project to injured resources and services	N/A	Project locations will include other Selected Alternative restoration project areas, which focus on off-site natural resources and services. Project directly benefits services injured or lost as a result of on-site releases of hazardous substances.	Project will focus on off-site resources and services of the same kind as those injured from releases of hazardous substances.	Project will focus on off-site resources and services of the same types as those injured from releases of hazardous substances.
Benefits to resources and services	Benefits from natural recovery can be quantified, however the benefits are minimal compared to the other proposed alternatives.	The expected benefits and success of the project can be quantified through implementation of an evaluation framework.	The expected benefits can be quantified through monitoring activities, and the success of the project can be determined by analysis of monitoring data and collecting feedback from Tribal citizens using the project area for cultural purposes.	The expected benefits and success of the project can be quantified through evaluation of the contractual agreement(s) and performance of the contractor.
Equity and Environmental Justice	Does not provide benefits to low-income and Native Americans in proportion to the impacts to these populations.	Project has a high likelihood of benefiting low-income and Native Americans in proportion to the impacts to these populations.	Project has the potential to benefit low-income and Native Americans, assuming travel distance is not a barrier to access. If tribal uses are deemed compatible and a special use permit is applied for and granted, the project will allow for access by members of federally-recognized tribes for cultural and/or educational purposes.	Project has a high likelihood of benefiting low-income and Native Americans in proportion to the impacts to these populations.
Cost effective and established technologies	The No Action alternative is the lowest cost alternative but would not provide comparable benefits relative to the Selected Alternatives.	Project has a high ratio of expected benefits to costs and the approach is based on established models and supported by other similar tribal apprenticeship programs.	Project has a high ratio of expected benefits to costs given the success of other similar projects within the ecoregion.	Project has a high ratio of expected benefits to costs given the success of other similar projects within the region. Project design will incorporate cost-effective techniques and a streambank stabilization approach supported by best available information.
Monitoring plans	Does not require monitoring plans.	Project includes an evaluation framework which will be used to determine how the pilot program met its goals and objectives.	Project monitoring plan to be completed following publication of Final Phase 1 RP/EA.	A monitoring plan is not a component of the design phase but will be required as part of the post-implementation phase.

Table 7 continued.

Natural Resource and Services Criteria	Alternative E – Sycamore Creek Streambank Stabilization	Alternative F – Survey of Mussel Habitat in Spring and Neosho River Tributaries	Alternative G – Neosho Bottoms Habitat Protection and Restoration	Alternative K – Spring River Streambank Stabilization
Injured resources and services restored by project	Direct nexus to injured resources and services. Project will benefit aquatic and riparian resources and services.	Direct nexus to injured resources and services. Project will likely inform future mussel restoration efforts, ultimately supporting multiple natural resource services.	Direct nexus to injured resources and services. Project will benefit aquatic, terrestrial, and wetland resources and services.	Direct nexus to injured resources and services. Project will benefit aquatic and riparian resources and services.
Proximity of project to injured resources and services	Project will focus on off-site resources and services of the same types as those injured from releases of hazardous substances.	Project will focus on off-site tributaries of the Spring and Neosho Rivers of the same type as those injured from releases of hazardous substances.	Project will focus on off-site resources of the Neosho River watershed of the same type as those injured from releases of hazardous substances.	Project will focus on on-site resources and services of the same types as those injured from releases of hazardous substances.
Benefits to resources and services	The expected benefits can be quantified through monitoring activities, and the success of the project can be determined by analysis of monitoring data and collecting feedback from Tribal citizens using the project area for cultural or other purposes.	The expected benefits and success of the project can be quantified through data interpretation and completion of a summary report, which can be used to inform the Trustees about the most suitable potential mussel habitat locations.	The expected benefits can be quantified through monitoring activities, and the success of the project can be determined by analysis of monitoring data and collecting feedback from Tribal citizens using restored/protected areas for cultural or other purposes.	The expected benefits can be quantified through monitoring activities, and the success of the project can be determined by analysis of monitoring data and collecting feedback from Tribal citizens using the project area for cultural or other purposes.
Equity and Environmental Justice	Project has a high likelihood of benefiting low-income and ethnic populations Native Americans in proportion to the impacts to these populations.	N/A	Project has the potential to benefit low-income and Native Americans, assuming travel distance is not a barrier to access. Project allows for resource access and cultural activities, such as individual gathering of natural resources for subsistence and cultural practices, subject to all applicable federal, state, and local laws, rules, and regulations.	Project has a high likelihood of benefiting low-income Native Americans in proportion to the impacts to these populations.
Cost effective and established technologies	Project has a high ratio of expected benefits to costs given the success of other similar projects. Project will incorporate cost-effective techniques and a streambank stabilization approach supported by best available information.	Project has a high ratio of expected benefits to costs given the success of other similar projects. Project incorporates a cost-effective approach, using established techniques, and will be supported by mussel experts who are familiar with the proposed techniques.	Project has a high ratio of expected benefits to costs given the success of other similar projects. This alternative relies on state and federal government partnerships and leverages NRCS program and ODWC funds.	The project is early in the planning phase, but the Trustees anticipate a high ratio of expected benefits to costs given the success of other similar projects. Project will incorporate cost-effective techniques and a streambank stabilization/restoration approach supported by best available information.
Monitoring plans	Project monitoring plan to be completed following publication of the Final Phase 1 RP/EA.	N/A	Project includes long-term monitoring of restoration activities and easement monitoring,	Project monitoring plan to be completed following publication of complete project details and evaluation in a subsequent restoration plan.

Table 8. Comparison of the Selected and Non-Preferred Alternatives against the Implementation Criteria.

Implementation Criteria	Alternative A (No Action)	Alternative B - Pilot Tribal Ecological and Cultural Apprenticeship Program	Alternative C – Ozark Plateau NWR	Alternative D – Fourmile Creek Streambank Stabilization
Timing of restoration completion	N/A	Two-year project completion timeframe is reasonable.	Two-year project completion timeframe is reasonable.	Engineering and design activities will be completed within one year.
Land manager (if applicable)	N/A	N/A	Long-term land manager is the FWS National Wildlife Refuge System.	N/A
Accessibility	N/A	N/A	If tribal uses are deemed compatible and a special use permit is applied for and granted, the project will allow for access by members of federally-recognized tribes for cultural and/or educational purposes.	Project design phase does not consider site access.
Matching funds	N/A	Matching funds from the seven Tribes is 30% of the total project cost.	Matching funds from USFWS is 41% of the total project cost.	N/A
Provides benefits not being provided by other projects/programs	Does not provide benefits in the near-term and does not address interim losses.	Project is unique and provides services not currently supported by other programs, including lost interim services.	Other projects of its kind are not being planned or implemented on the Refuge.	Trustees are not aware of other projects of its kind being planned or implemented along Fourmile Creek.
Implementation proficiency of restoration projects	N/A	Project has been developed based on other similar programs and incorporates an evaluation framework to ensure project goals and objectives are met.	Project uses techniques that have been effective in the Ozark Plateau and Missouri Ozarks.	Project design will incorporate elements and techniques common to other successful streambank stabilization projects.

Table 8 continued.

Implementation Criteria	Alternative E – Sycamore Creek Streambank Stabilization	Alternative F – Survey of Mussel Habitat in Spring and Neosho River Tributaries	Alternative G – Neosho Bottoms Habitat Protection and Restoration	Alternative K – Spring River Streambank Stabilization
Timing of restoration completion	Two-year project completion timeframe is reasonable.	Three-year project completion timeframe is reasonable.	Five-year timeframe for project completion of relatively large restoration program is feasible.	Time to complete project implementation is likely less than two years and feasible, although additional project planning, including engineering and design, will reduce timing uncertainty.
Land manager (if applicable)	Wyandotte Nation owns and manages the property.	N/A	Land management will occur according to terms of parcel-specific conservation easements; acquired parcels will be managed by ODWC.	The Peoria Tribe owns and manages the property.
Accessibility	Site will be accessible to Wyandotte Tribal members and others may be provided access, such as through the tribal hunting program, or for students engaged in youth programs.	N/A	Lands will be accessible to the public, including Tribal members and citizens, for hunting, fishing, gathering natural resources, and other activities, subject to all applicable federal, state, and local laws, rules, and regulations.	Site will be accessible to Peoria Tribal members. The site will be accessible to recreational boating or fishing from the river.
Matching funds	N/A	N/A	Approximately 2.5:1 match is being provided by ODWC and its partners.	To be determined if the project is fully described and evaluated in a subsequent restoration plan.
Provides benefits not being provided by other projects/programs	Trustees are not aware of other projects of its kind being planned or implemented along Fourmile Creek.	No other survey of this kind has been proposed or would occur without the use of Trustee funds.	Trustees are not aware of other projects of its kind being planned or implemented in proximity of the NOMNRDAR Site.	Trustees are not aware of other projects of its kind being planned or implemented along the Spring River.
Implementation proficiency of restoration projects	Project will incorporate elements and techniques common to other successful streambank stabilization projects.	Survey methods have been peer-reviewed and are appropriate.	Project uses techniques that have been effective in other similar habitat types.	Project will incorporate elements and techniques common to other successful streambank stabilization projects.

3.0 Environmental Assessment

This section describes the Affected Environment (Section 3.1 *et seq.*) and evaluates the Environmental Consequences (Section 3.3 *et seq.*) of Alternative G. The Environmental Consequences section focuses on the evaluation of both the potential beneficial and adverse consequences of implementing the proposed alternative(s) on the environment. Information pertaining to the Affected Environment and Environmental Consequences in the Programmatic RP/EA is incorporated by reference in subsections below.

The purpose of this section is to evaluate the potential environmental impacts of the proposed restoration alternatives that compensate the public for natural resource injuries and associated losses resulting from releases of hazardous substances from the NOMNRDAR Site. The environmental consequences of the No Action Alternative and Alternative G are assessed to determine whether implementation of either of these alternatives may significantly affect the quality of the human environment, particularly with respect to physical, biological, socio-economic, or cultural environments. The Trustees believe the Tier Selected Alternative projects (Alternatives B – F) are covered by NEPA categorical exclusions found in either 516 DM 8.5, 516 DM 10.5, or 43 C.F.R. § 46.210 and thus are not included in this EA. Alternative G is partially comprised of land acquisition activities and actions proposing to use herbicides, both of which are activities currently not covered by DOI categorical exclusions. Lastly, the Trustees make a conclusion at the end of the evaluation for each alternative identifying whether it is a selected alternative and should be implemented in the event the DOI bureaus issue a Finding of No Significant Impact.

The following definitions will be used to characterize the nature of the various environmental consequences evaluated in this Final Phase 1 RP/EA:

- *Short-term or long-term impacts.* In general, short-term impacts are those that would occur only with respect to an activity or for a finite period. Long-term impacts are those that are more likely to be persistent and chronic. All timeframes should be reasonably foreseeable.
- *Negligible, minor, moderate, or major impacts.* These relative terms are used to characterize the magnitude of an impact. Negligible impacts are generally not quantifiable and do not have perceptible impacts on the human environment. Minor impacts are generally those that might be perceptible but, in their context, are not amenable to measurement because of their relatively inconsequential effect. Moderate impacts are those that are more perceptible and, typically, more amenable to quantification or measurement. Major impacts are those that, in their context and due to their intensity (severity), have the potential to meet the thresholds for significance set forth under NEPA (40 C.F.R. § 1508.27) and, thus, warrant heightened attention and examination for potential means for mitigation to fulfill the requirements of NEPA in an Environmental Impact Statement.
- *Adverse or beneficial impacts.* An adverse impact is one having unfavorable or undesirable outcomes on the man-made or natural environment. A beneficial impact is

one having positive outcomes on the man-made or natural environment. A single act might result in adverse impacts on one environmental resource and beneficial impacts on another resource.

3.1 Affected Environment

This Final Phase 1 RP/EA evaluates restoration options to compensate the public for the natural resource injuries and associated losses in ecological and cultural services resulting from exposure to NOMNRDAR Site-related hazardous substances. As part of the evaluation, the Trustees assessed the current physical, biological, socio-economic, and cultural resources of the area within which restoration of Alternative G will occur (i.e., in proximity to the Neosho Bottoms WMA). This information will ensure that potential restoration projects are designed to maximize ecological benefits while minimizing or eliminating project-related adverse environmental consequences.

3.1.1 Physical and Biological Environment and Resources

Physical and biological resources associated with the NOMNRDAR Site have been summarized at a programmatic level in Chapter 4 of the Programmatic RP/EA. This information in the Programmatic RP/EA is incorporated by reference herein; however, since only some of the information applies to the project area of Alternative G, Neosho Bottoms Habitat Protection and Restoration Project, the following text provides additional information not included in the Programmatic RP/EA.

The Neosho River and its tributaries flow from Kansas into Oklahoma. Streams in the Neosho River watershed are typical of prairie streams, with cool to moderate temperature, moderate to high turbidity, lower gradient, and with gravel to muddy sediments. The Neosho River watershed has several tributaries such as Tar and Elm creeks that originate in Kansas and flow south through Oklahoma to the Neosho River.

The Central Irregular Plains ecoregion in northeastern Oklahoma is dominated by tallgrass prairie with forests of post oak, blackjack oak, and black hickory native to rocky hilltops (Johnson et al. 2010). The topography consists primarily of rolling plains with steep bluffs occurring in some valleys. Land cover is a mix of rangeland, grassland, forest and farmland, and cropland is extensive on nearly level plains. Cottonwood, willow, pecan, sycamore, hackberry, oaks, and elm dominate the riparian forests along streams. Eastern red cedar is encroaching onto range and forestlands where fire has been excluded. Rivers and streams typically have low gradients, slowly moving water, and muddy banks, and they tend to meander in wide valleys.

The predominant ecological site classifications across the NBHPPA are Heavy Bottomland and Loamy Bottomland, together representing over 70% of the Neosho Bottoms project area. The remaining areas within the project area belong to Claypan Prairie, Loamy Prairie, Shallow Prairie (Eastern), Eroded Loamy Prairie, and Shallow Savannah ecological sites. Ecological site

descriptions (ESDs) were developed by the USDA-NRCS based on soil map units. They are classes of land defined by recurring soil, landform, geological, and climate characteristics. Ecological sites recur on similar soil components within climate/physiographic regions. The ESD classification provides biophysical properties, vegetation, and surface soil properties that represent pre-European conditions.

The NBHPPA is the only tract among 13 significant tracts of bottomland hardwood forest in eastern Oklahoma identified by the ODWC and FWS, which has not had any significant conservation action taken toward its protection or restoration (Brabander et al. 1985). The project area encompasses 24,100 acres of floodplain and uplands along the Neosho River. In 2010, Oklahoma Forestry Services identified Neosho Bottoms as one of Oklahoma's Forest Legacy Areas through the Forest Legacy Program. Forest Legacy Areas are defined as landscapes containing significant forest resources with elevated land conversion threats. Designation as a Forest Legacy Area qualifies a tract for funding from the USDA Forest Service for land protection efforts.

Existing hardwood forest stands in the project area are a small fraction of what is believed to have been present in the past. Division of the land into smaller ownership parcels, along with the forestland being converted to agricultural parcels for grazing and farming, especially pecan orchards, has left fragmented stands of remnant habitat. Land-use changes have resulted in the loss of forest stands, reduced quality wildlife habitat, and reduced water quality and overall ecosystem health (Johnson et al. 2010). Despite all these changes, the project area is still considered important for wildlife resources and has been identified as the fifth highest quality bottomland hardwood area remaining in eastern Oklahoma (Brabander et al. 1985). It has been identified as high priority for forest sustainability and health, water quality, and forest economics/marketing (Johnson et al. 2010).

Forest habitat within the project area is classified into two forest types: oak-hickory and bottomland (Johnson, et al. 2010). The Lower Mississippi Valley Joint Venture (LMVJV) Forest Conservation Working Group developed a set of guidelines (Desired Forest Conditions or DFC) to manage bottomland forests in a manner that will provide habitat capable of supporting sustainable populations of all forest-dependent wildlife (LMVJV Forest Conservation Working Group, 2007). Desired Forest Conditions refers to the establishment and maintenance of suitable habitat conditions for priority wildlife species (LMVJV Forest Conservation Working Group, 2011). White-tailed deer, squirrel, songbirds, waterfowl, furbearers, and to a lesser extent, turkey, are considered the priority species in the Neosho Bottoms project area (Brabander et al. 1985). DFC is accomplished by creating and managing the forest's vertical and horizontal structural diversity in terms of tree species, size, age and growth, and involves retaining more large trees; developing and retaining deadwood and snags; developing understory and midstory; maintaining diversity in tree species present; and enhancing regeneration of shade-intolerant species. Table 9 contains a list of forest native plant species associated with the NBHPPR.

Two hydric soil types are present throughout the project area. Lightning soils are poorly drained, loamy, or clayey alluvium. Osage soils are poorly drained, clayey alluvium. Eighty-nine percent of the non-upland portion of the project area is at least partially hydric. The predominant

classifications across the project area are Heavy Bottomland and Loamy Bottomland, together representing over 70% of the Neosho Bottoms project area.

As part of ODWC's restoration planning efforts for the NBHPRP, restoration needs were identified across appropriate land cover types within the project area. Almost 10,000 acres were identified as suitable locations for bottomland hardwood forest, of which over 7,700 acres are currently in other land uses such as pasture, pecan orchards, or cropland. Nearly one quarter of the NBHPPA is currently pecan orchards. There also exists an opportunity to restore up to 4,300 acres of eastern tall grass prairie habitat within the project area. In addition, over 3,600 acres of managed wetland habitat has been identified which could be restored. These acres include multiple types of wetland habitat, including open water within existing oxbows and remnant river scars; traditional moist soil waterfowl management units maximizing water depths between 6 and 24"; wet meadow prairie; and flooded bottomland hardwood timber.

According to the FWS (<http://www.fws.gov/southwest/es/oklahoma/>) and the ODWC (<http://www.wildlifedepartment.com/wildlife-diversity/threatened-and-endangered>), federally-listed or candidate species that may occur in Ottawa County or near the project area include:

- candidate Arkansas darter (*Eostomas cragini*)
- threatened Neosho madtom (*Noturus placidus*)
- threatened Ozark cavefish (*Amblyopsis rosae*)
- candidate Neosho mucket (*Lampsilis rafinesqueana*)
- endangered gray bat (*Myotis grisescens*)
- endangered Ozark big-eared bat (*Plecotus townsendii ingens*)
- endangered Interior Least Tern (*Sterna antillarum*)
- threatened Piping plover (*Charadrius melodus*)

State-listed threatened and endangered species in the area include all federally-listed species above and the endangered Neosho mucket (*Lampsilis rafinesqueana*).

Table 9. Forest native plant species associated with the Neosho Bottoms Habitat Protection and Restoration Project. (From Brabander et al. 1985)

Overstory Trees	Understory Seedlings, Saplings, Shrubs and Vines
American elm (<i>Ulmus americana</i>)	American elm (<i>Ulmus americana</i>)
Sugarberry (<i>Celtis laevigata</i>)	Sugarberry (<i>Celtis laevigata</i>)
Green elm (<i>Fraxinus pennsylvanica</i>)	Poison ivy (<i>Toxicodendron radicans</i>)
Pecan (<i>Carya illinoensis</i>)	Virginia creeper (<i>Parthenocissus quinquefolia</i>)
Pin oak (<i>Quercus palustris</i>)	Trumpet creeper (<i>Campsis radicans</i>)
Shumard oak (<i>Quercus shumardii</i>)	Greenbriers (<i>Smilax</i> spp.)
Box elder (<i>Acer negundo</i>)	Coralberry (<i>Symphoricarpos orbiculatus</i>)
Pignut hickory (<i>Carya cordiformis</i>)	Giant cane (<i>Arundinaria gigantea</i>)
Red mulberry (<i>Morus rubra</i>)	Roughleaf dogwood (<i>Cornus drummondii</i>)
Silver maple (<i>Acer saccharinum</i>)	Boxelder (<i>Acer negundo</i>)

The Neosho Bottoms project area also falls within two bird conservation regions (BCRs) identified by North American Bird Conservation Initiative: Eastern Tallgrass Prairie (BCR 22) and Central Hardwoods (BCR 24). Bird species of concern potentially occurring within the project area include Prothonotary warbler (*Protonotaria citrea*), rusty blackbird (*Euphagus carolinus*), trumpeter swan (*Cygnus buccinator*), Louisiana waterthrush (*Paruline hochequeue*), Kentucky warbler (*Geothlypis formosa*), worm-eating warbler (*Helmitheros vermivorum*), wood thrush (*Hylocichla mustelina*). Other species of concern potentially occurring within the project area include alligator snapping turtle (*Macrochelys temminckii*), Neosho mucket mussel (*Lampsilis rafinesqueana*), Western fanshell (*Cyprogenia aberti*), elktoe mussel (*Alasmidonta marginata*), gray bat (*Myotis grisescens*), Arkansas darter (*Etheostoma cragini*), redspot chub (*Nocomis asper*), wedgespot shiner (*Notropis greeniei*), Ozark minnow (*Notropis nubilus*), cardinal shiner (*Luxilus cardinalis*), stippled darter (*Etheostoma punctulatum*), Neosho midget crayfish (*Orconectes macrus*), Oklahoma salamander (*Eurycea tynesensis*), grotto salamander (*Eurycea spelaea*), cave salamander (*Eurycea lucifuga*), and northern long-eared bat (*Myotis septentrionalis*).

Primary threats within the project area include conversion of oak-hickory forest to non-forest uses such as pastures, loss of habitat, development (primarily retirement and secondary homes) and construction of power lines and water pipelines, although this list is not exhaustive. Exotic and/or invasive species including sericea lespedeza, autumn olive, Chinese privet and Japanese honeysuckle that have become established in hardwood forests are displacing native understory vegetation and altering native plant communities and habitat conditions. Runoff from mining has

degraded water quality and affected aquatic biota in local streams. The highest priority impairments for the Neosho River watershed are nutrients (evidenced by low dissolved oxygen/eutrophication), sediment (silt), and bacteria. The banks of the Neosho River are experiencing significant streambank erosion just upstream in Kansas (Grand Lake Watershed Plan, 2008).

3.1.2 Demographics and Socioeconomic Trends

The largest industries in Ottawa County, OK are health care and social assistance (2,002 people), manufacturing (1,687 people), and retail trade (1,347 people), and the highest paying industries are mining, quarrying, and oil & gas extraction, transportation, warehousing, and utilities (based on U.S. Census Bureau ACS 5-year estimate). The largest industries in Craig County, OK are health care and social assistance (1,077 people), retail trade (728 people), and education services (520 people), and the highest paying industries are utilities, transportation, warehousing, and utilities.

There are at least two known commercial wood processing facilities near the NBHPPA, having relevance to both the restoration of the project area (since tree harvest is part of the management strategy) and the regional economy. The two known facilities include Prater Sawmill in Wyandotte, OK (approx. 20 miles distance) and Johnson Lumber Company in Spavinaw, OK (approx. 40 miles distance). Both advertise that they purchase hardwood trees.

A summary of demographic data is provided in Table 10. Data for minority and low-income population in the project area is used to inform agency policies, programs, and activities as they relate to NEPA and addressing environmental justice concerns.

Table 10. Neosho Bottoms Habitat Protection and Restoration Project area demographics by county.

Demographic Category	Craig County	Ottawa County
Population (2014 - 2018 estimate) ^a	14,493	31,566
Percent people of color ^{a, b}	36%	35%
Percent population in poverty ^c	18.2%	18.5%
Low income population (% of total) ^{a, d}	47%	49%
Households ^a	5,433	11,965
Population per square mile ^a	19	67

^a Statistics generated using 2014 - 2018 U.S. Census Bureau data and EPA's Environmental Justice Screening and Mapping Tool (Version 2020) <https://ejscreen.epa.gov/mapper/>

^b state average is 34%

^c based on 2010 Census Bureau estimates

^d state average is 37%

3.1.3 Environmental Justice

Executive Order 12898 (Feb 11, 1994) requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. In a memorandum to heads of departments and agencies that accompanied Executive Order 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states that “each federal agency shall analyze the environmental effects, including human health, economic and social effects, of federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA]” and emphasizes the importance of NEPA’s public participation process in particular, directing that “each federal agency shall provide opportunities for community input in the NEPA process.” The Council on Environmental Quality has oversight of the federal government’s compliance with Executive Order 12898 and NEPA.

For the purpose of evaluating environmental justice issues associated with implementation of the Alternative G, demographic data were obtained from the U.S. Census Bureau and the State of Oklahoma. In this analysis, a county is considered to have a minority population if its non-white population is greater than 50 percent or is meaningfully larger than the general (statewide) non-

white population. Low-income areas are defined as a county in which the percentage of the population below poverty status exceeds 50 percent or is meaningfully greater than the general population (average statewide poverty level).

To make a finding that disproportionately high and adverse effects would likely fall on minority or low-income populations, three conditions must be met simultaneously:

- There must be a minority or low-income population in the impact zone.
- A high and adverse impact must exist.
- The impact must be disproportionately high and adverse on the minority or low-income population.

Based on the census data for Craig and Ottawa Counties, the condition of being classified as having a low-income population in the project area is arguably met since the low-income population is 10% (for Craig County) or greater (for Ottawa County) than the state average, although both counties do not exceed the 50 percent threshold for population below the poverty line. Environmental justice concerns related to Alternative G are discussed in Section 3.3.1.

3.1.4 Recreational Services

The Neosho Bottoms WMA and nearby areas currently offer a variety of recreational activities for residents and visitors. Popular activities include hunting (turkey, waterfowl, deer, and quail), fishing, boating, canoeing/kayaking, water sports, bird watching, and photography.

3.1.5 Cultural and Historic Resources

An overview of cultural resources associated with the NOMNRDAR Site have been summarized at a programmatic level in Chapter 4.5 of the Programmatic RP/EA. For purposes of this Final Phase 1 RP/EA, the Trustees acknowledge that tribes historically and currently hunt, gather, and provide educational opportunities on cultural practices, and recreate in woodland, prairie, and riparian locations within the NOMNRDAR Site. This information in the Programmatic RP/EA is incorporated by reference herein; however, since the Programmatic RP/EA did not include any information about historic resources in proximity to Alternative G, Neosho Bottoms Habitat Protection and Restoration Project, the list below provides a summary of the historic sites in Ottawa County which are in proximity to the project area for Alternative G. Although there are historic sites located in Craig County, which are listed in Oklahoma's National Register Handbook, none of these are in proximity to the project area for Alternative G.

The following historic sites (National Register Information System assigned number in parentheses) in Ottawa County are listed in Oklahoma's National Register Handbook and located in Miami, OK, which is in proximity to the project area for Alternative G:

- Coleman, George L., Sr., House (83002113)
- Coleman Theater (83002114)
- Commerce Building-Hancock Building (83002115)

- Dobson Family House (11000340)
- Miami Downtown Historic District (09000357)
- Miami Marathon Oil Company Service Station (95000041)
- Ottawa County Courthouse (04000122)
- Riviera Courts-Holiday Motel (04000524)

3.2 Evaluation of Alternative A: No Action/Natural Recovery Alternative

An evaluation of the No Action/Natural Recovery Alternative, including potential impacts to terrestrial, aquatic, and tribal cultural resources, among other impacts, is described in Section 5.2 of the Programmatic RP/EA. This evaluation is incorporated by reference herein.

3.2.1 Conclusion on Alternative A

The No Action Alternative will produce no significant benefits to natural resources or resources services. In addition, it does not support the use of recovered settlement funds to restore, rehabilitate, replace, and/or acquire the equivalent of the impacted resources (43 C.F.R. Part 11). Because of these factors, restoration of injured resources under the No Action Alternative was not considered further under this analysis of alternatives.

3.3 Evaluation of Alternative G

3.3.1 Environmental Consequences of Alternative G

Environmental consequences associated with implementation of the Alternative G, Neosho Bottoms Habitat Protection and Restoration Project, have been partially evaluated at a conceptual level, as summarized in Table 6 (page 42 - 44) of the Programmatic RP/EA. Evaluation of socioeconomic factors and climate change as they related to the potential impacts of a project type similar to Alternative G is provided in Section 5.3.1 and 5.3.2 of the Programmatic RP/EA. These evaluations in the Programmatic RP/EA are incorporated by reference herein. The text that follows tiers from and expands upon the analysis in the Programmatic RP/EA to a project-specific level.

Burning, thinning, or pesticide use to effect habitat structure and control invasive species may have short-term negative consequences for some species. However, the long-term benefits to fish and wildlife species that depend on habitats having a high percentage of native plant species would far outweigh the short-term impacts. The Trustees would ensure that the implementing entity, whether it be a governmental, private, or non-governmental organization, would follow BMPs when implementing habitat management, including proper use of pesticides; and burning or forest thinning would meet health and safety guidelines and habitat enhancement recommendations recommended or approved by the Trustees.

Regarding herbicide usage to control invasive species, such actions could cause direct, short-term, moderate adverse impacts to soils, water, air, biological resources, and land use and recreation. These impacts would result from the potential for lethal effects on soil biota and the short-term loss of shading and habitat for prey species provided by the invasive plant. The potential impacts to birds, aquatic organisms, and terrestrial organisms will be mitigated by using the least toxic herbicides, surfactants, and spray pattern indicators available, but sub-lethal impacts are possible. Potential impacts to non-target plant species are reduced when proper application methods are prescribed and followed, but rainfall and wind may cause herbicides to leach into the surrounding soil or to be transported to non-invasive plants, causing unintentional damage. BMPs, including use of a certified applicator, using herbicides approved for application within wetlands, and placement of straw wattles or similarly functioning materials to trap sediment, would be employed when herbicides are used. A project area may be treated several times per year, often for multiple years, to control regrowth of invasive plants. Where feasible, the area will be regularly monitored for regrowth of the target or new invasive species. Generally, use of herbicides in project areas would be conducted according to established protocols for the locality, as determined by a licensed herbicide applicator. Such protocols would include information and guidelines regarding the appropriate chemical to be used, as well as the timing, amounts, application methods, and safety procedures relevant to the herbicide application.

Purchases of parcels within the NBHPPA have the potential to result in minor, short-term, direct, beneficial impacts to the sellers of such lands and thus to the local economy if the sellers live and reside in or in the vicinity of the NBHPPA. Permanent public open space areas may also have the effect of increasing nearby residential land values -- although increases would likely be small -- and increases in recreational activity in the NBHPPA may result in increased local sales in food service, hospitality, and recreation-related industries. Thus, the economic impacts of proposed land acquisitions under Alternative G are expected to be long-term, both direct and indirect, and both minor and beneficial.

Alternative G may result in new or improved access to bottomland hardwood forest, Eastern tall grass prairie, wetland habitat, and other nearby habitats within the NBHPPA. Approximately 3,000 acres will be acquired and placed within the Neosho Bottoms WMA, which will allow for access by the public, including Tribal members and citizens, for hunting, fishing, gathering natural resources, and other activities, with the appropriate conservation passport, license, and/or permit. Lands within the NBHPPA may provide cultural services to Tribal members and citizens, including the possibility of serving as a setting for Tribal apprenticeship activities (Alternative B), and for individual gathering of natural resources for subsistence and cultural practices, subject to all applicable federal, state, and local laws, rules, and regulations. Land acquired under Alternative G will be managed to ensure long-term protection of wildlife habitat, particularly those beneficial to migratory birds, state-managed species, and sensitive species, and associated multi-purpose uses of the habitat, including recreation and cultural uses. Depending on the plans for different management units or areas, new or improved access to resource-based recreational activities, such as walking or hiking through prairie habitat, or access to bottomland hardwood forest wetlands, could occur. Currently, it's unclear what recreation-based actions could be taken on the parcels outside of management activities needed to reduce invasive species. These

management actions might include the removal of dead, diseased, or dying trees, if warranted; and address other situations where threats could reduce ecological value of the properties. In addition to management actions, such as those mentioned above, ODWC and their restoration partners (e.g., USDA-NRCS) will be able to implement monitoring and long-term stewardship activities meant to ensure existing natural resource services and aesthetic values are conserved into the future. Land acquisition and subsequent recreational use on protected properties is anticipated to result in long-term, beneficial impacts to recreation. A conservation easement on specific properties will prohibit the use or any activity impinging upon or interfering with preservation of the habitat located on the properties in their present or restored conditions. Such prohibitions may include, without limitation, creation of roads; placement of fill material; storage or disposal of trash, debris, or abandoned equipment; placement of billboards or signs; and actions or uses detrimental or adverse to water conservation and purity, and fish, wildlife, or habitat preservation.

Depending on the land management plans applicable to the restoration parcels and other factors, the interest and ability of the public to access these areas for human use activities may be enhanced and increased, resulting in minor increases in traffic in the vicinity of the future restoration sites. It is currently unknown at this time, but new or improved public access to restoration areas may result in new or improved roads. Because of the rural nature of potential restoration areas in proximity to populated areas, however, any increase in site-specific recreational use is expected to be minor.

Additional minor impacts to land-based transportation in the vicinity of Alternative G are expected during periods of construction activities, such as dirt moving or hauling. Trucks would be used to transport in or remove necessary equipment and materials necessary to perform prairie, wetland, and riparian restoration activities. Vehicles would also be needed to transport workers to restoration areas. Existing transportation networks, instead of constructing new roads or paths, would be utilized as much as possible. Accordingly, transportation impacts would be short-term, episodic, indirect, adverse, and minor.

Alternative G will not have a disproportionately high and adverse effect on minority or low-income populations. However, the Trustees believe there is a high likelihood of the project benefiting low-income, minority, and Tribal populations living in the vicinity of the proposed project, primarily in the form of increased recreation access (e.g., hunting), subsistence fishing, and gathering of plants and other natural products.

In summary, the long-term beneficial impacts associated with Alternative G are anticipated to outweigh any adverse impacts described above.

3.3.2 Conclusion on Alternative G

The Trustees anticipate this alternative to have primarily beneficial direct and indirect long-term impacts in the form of natural resource preservation, habitat restoration and enhancement, increased access for recreation and cultural uses, and improved land management activities that enhance wildlife populations and recreation opportunities. For these reasons, Alternative G is a

selected alternative.

4.0 Selected Alternatives

In summary, after conducting the CERCLA and NEPA analyses, the selected alternatives include Alternatives B – G. Alternatives H, I, J, and K are not included as part of the selected alternatives but may be considered later as part of subsequent restoration planning and implementation efforts.

5.0 Restoration Monitoring

Monitoring is an essential component of all phases of habitat restoration for several reasons:

- To gain an understanding of the site’s natural resource services, values, and challenges before restoration begins, and also to serve as a point of comparison for subsequent monitoring to determine the extent to which restoration of these values has occurred (pre-project baseline monitoring).
- To determine if the restoration effort was implemented properly, which focuses on the field techniques used and informs contract specifications and management plans (implementation monitoring).
- To determine the performance and effectiveness of restoration measures during and immediately following completion of project activities (3-5 years). This follow-up monitoring documents changes in habitat and wildlife use as the area matures, and also provides early warning of emerging problems that can undermine the success of the project so that they can be addressed effectively and economically (short-term implementation and effectiveness monitoring).
- Over the longer term (5+ years), to determine if the restoration has replaced the natural resource values that were lost due to the injury that initiated the NRDAR process, and to track and document the progress of restoration objectives such as increasing the number of migratory birds nesting on the site. This monitoring also serves to identify emerging management issues so they can be responded to early and effectively (long-term validation monitoring).

The restoration goals for each of the selected alternatives stem from the overall goals of the Programmatic RP/EA (2017, namely to “to restore, rehabilitate, replace, and/or acquire the equivalent of the injured natural resources and their services” at or in the vicinity of the NOMNRDAR Site). Restoration goals and objectives associated with each selected alternative are listed in Section 2.4.1 through Section 2.4.6 above. Among these alternatives, the TCTC has determined it is appropriate for restoration monitoring plans to be developed for Alternatives C, E, and G, since these are the only alternatives described in this plan that can be evaluated using ecological restoration monitoring approaches. Alternative B will be assessed using an evaluation framework (described in Section 2.4.1). Alternative D is in the engineering and design phase and will need a monitoring plan developed after the implementation phase has been approved in a subsequent restoration plan. Alternative F is of a project type (habitat survey) that is not

conducive for monitoring.

Restoration monitoring plans for Alternatives C, E, and G will be developed between now and the expenditure of restoration implementation funds (e.g., funds used for tree planting). A generic monitoring framework (Table 11) will be used to guide development of project-specific monitoring plans. Monitoring plans will stem from, and incorporate, pre-restoration monitoring data that have been collected at restoration projects sites. For example, the Wyandotte Nation have prior year water quality and riparian condition data for Sycamore Creek that can be used to characterize pre-restoration conditions. Existing site vegetation monitoring data may be used to document extant plant communities and to identify areas where invasive/noxious vegetation needs to be treated to reduce the weed seed bank before restoration starts. Monitoring plans may also be coordinated with other monitoring efforts at restoration sites, such as periodic migratory bird monitoring that is being conducted at Ozark Plateau National Wildlife Refuge or invasive plant surveys at Neosho Bottoms WMA.

Table 11. Generic monitoring framework for Alternatives C, E, and G.

Essential Monitoring Plan Components	Monitoring Step			
	Pre-Project (Baseline) Monitoring	Implementation Monitoring	Effectiveness Monitoring (3-5 years)	Validation Monitoring (5+ years) - optional
OBJECTIVE:	Document pre-construction conditions.	Document if the project implementation occurred according to design plans	Document if the main ecological or human-use outcomes were achieved	Document if the main ecological or human-use outcomes persist into the future
PERFORMANCE CRITERIA:	For each monitoring step, include at least one specific performance criterion to evaluate success as monitoring progresses.			
ORGANIZATIONS:	For each monitoring step, record the person or organization that is responsible for conducting the monitoring as well as any related assessment or analysis of monitoring data.			
SCHEDULE:	For each monitoring step, outline a schedule for completion of monitoring tasks, including when it occurs in the overall process, and when it occurs seasonally.			

6.0 Budget Summary for the Tier 1 Selected Alternatives

The TCTC anticipates spending \$7,992,334 of NRDAR settlement funds to support restoration planning, implementation, and monitoring efforts associated with the Selected Alternatives (Table 12).

Table 12. Summary of NRDA, in-kind, and matching funds needed to support planning, implementation, and monitoring of the Selected Alternatives. N/A = Not Available

Alternative/Project Name	NRDA Funds Requested	In-Kind and/or Matching Funds
Alternative B: Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services	\$732,598	\$313,970
Alternative C: Ozark Plateau National Wildlife Refuge Restoration Pilot Project	\$49,960	\$35,000
Alternative D: Fourmile Creek Streambank Stabilization Project – Planning and Design	\$14,656	N/A
Alternative E: Sycamore Creek Streambank Stabilization Project	\$197,500	N/A
Alternative F: Survey of Mussel Habitat in Tributaries of the Spring and Neosho Rivers	\$330,615	N/A
Alternative G: Neosho Bottoms Habitat Protection and Restoration Project	\$6,667,005	\$16,928,845
Total	\$7,992,334	At least \$17,277,815

7.0 Agencies, Organizations, and Parties Consulted for Information

Michael Ramming, USDA-NRCS, District Conservationist for Adair, Cherokee, Delaware, Ottawa & Sequoyah Counties

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9.0 Summary of Revisions in the Final Phase 1 RP/EA

- Figure 1 was modified to reflect comments received during the comment period.
- Figure 2 was modified to reflect comments received during the comment period.
- Minor changes to text in the Introduction were made to reflect comments received during the comment period and to describe the public participation process.
- Appendices were added to provide comments received from the public and the Trustees' responses to public comments on the Draft Phase 1 RP/EA; include NHPA consultation letters and responses; and provide a copy of the NEPA compliance checklist completed by the U.S. Fish and Wildlife Service

Appendix A: Response to Public Comments on the Draft Phase 1 Restoration Plan/Environmental Assessment (RP/EA)

The Trustees received two sets of electronic comments via email on the Draft RP/EA that are summarized and responded to below. Copies of original comment letters are available upon request.

Comments of Support:

- S Comment 1: Commenter expressed delight in seeing the TCTC's efforts to secure funds for restoration of injured lands and development of the Restoration Plan.
- S Comment 2: Commenter expressed support for each of the Tier 1 and Tier 2 proposed projects, including inclusion of projects to help address lost cultural resources for affected Tribes.

General Comments:

- G Comment 1: Commenter acknowledges the cost and complexity of the non-preferred Spring River streambank stabilization alternative and encourage the TCTC to keep the project in mind as additional funds may become available.
Response: The TCTC will continue to evaluate the Spring River streambank stabilization project and will include the project in a future restoration plan should the project meet the criteria described in the Phase 1 RP/EA and the TCTC support the project for implementation.
- G Comment 2: Commenter recommended that the TCTC maintain an ongoing conversation with the public about possible restoration ideas. Commenter offered assistance with facilitating conversations with the public.
Response: The TCTC intends to solicit restoration project ideas from the public as part of Phase 2 restoration project planning, similar to the process used for Phase 1 project planning. The TCTC appreciates the commenter's offer to provide assistance with facilitating discussions with the public.
- G Comment 3: Commenter suggested the TCTC captures before-and-after conditions of the restoration sites with photographic and video monitoring. Commenter mentioned the desire to coordinate with the TCTC to produce a book documenting progress of the Phase 1 projects.

Response: The TCTC intends to capture baseline information and post-implementation project conditions for all restoration projects where monitoring has been described in Section 2 and 5 of this RP/EA. Information may include photo or video documentation of

project area conditions. The TCTC appreciates the commenter's offer to provide assistance with documenting Phase 1 projects.

- G Comment 4: The Quapaw Nation, or its jurisdiction is not mentioned in the Draft Plan. Although the Quapaw Nation withdrew from the Tar Creek Trustee Council, it does not release Federal Agencies from their trust responsibilities to the Quapaw Nation. This includes the responsibility to protect the interests of all tribal Nations potentially affected by federal actions. To not even mention the Quapaw Nation, and the potential effect of the proposed projects on the Quapaw Nation, in this document is a blatant dereliction of this responsibility.

Response: The draft Phase 1 Restoration Plan and Environmental Assessment was developed to inform the public of the types and amount of restoration the Tar Creek Trustee Council, which is working under a Trustee Council MOU, proposes to implement with funds recovered in the ASARCO Bankruptcy and Peabody Settlement. The Quapaw Nation also independently resolved natural resource damage claims associated with these matters but to date the Quapaw have not coordinated with the Tar Creek Trustee Council regarding utilization of recovered damages. The Trustee Council has recently invited the Quapaw Nation to two meetings, a meeting between the Trustee Council and the Quapaw Nation, which was extended to the Quapaw Nation on January 28th by the Lead Administrative Trustee for the Trustee Council, and a second meeting with the Trustee Council in June 2022 to discuss restoration planning efforts for Phase 2. Regarding this Draft Plan, the Trustee Council has modified the Phase 1 RP/EA to address the Quapaw's previous involvement on the Tar Creek Trustee Council and the Draft Plan provides an analysis of the potential effects of selected restoration projects on all tribal lands. In addition, the Trustee Council extended the comment period for an additional 30-days at the request of the Quapaw Nation, providing a 60-day total extension for review of the Draft Plan when accounting for the first 30-day extension provided in November at the request of the L.E.A.D. agency. Finally, DOI sent a formal consultation invitation to the Quapaw Nation on December 1, 2021 via certified mail.

- G Comment 5: There is no mention of consultation with the Quapaw Nation. These projects would have a much better chance of success in consultation with the Quapaw Nation. The Quapaw Nation has extensive experience in remediation and restoring the environment in historic mining areas. The Tar Creek Trustee Council would be wise to take advantage of this experience. Furthermore, the Quapaw Nation deserves consultation when proposed projects are adjacent to the Quapaw Reservation and involve natural resources that are shared with the Trustees.

Response: Please see the response above. DOI sent a formal consultation invitation to the Quapaw Nation on December 1, 2021. DOI also sent similar letters to the other Tribes, including those on the Trustee Council and those Tribes that are not a part of the Trustee Council, but who are located near the Northeast Oklahoma Mining Natural Resource Damage and Restoration Site. Before finalization of the Phase 1 RP/EA, the Trustees will have met with the Quapaw Nation on February 17, 2022, to discuss the

proposed restoration projects in the Draft Phase 1 RP/EA and representatives of the Quapaw Nation are also invited to a June 2022 Trustee Council meeting to discuss restoration planning efforts for Phase 2. After the meeting in February, a representative from the Quapaw stated that no further consultation was required on the Phase 1 Draft RP/EA. Finally, the Phase 1 RP/EA has included an analysis of the potential effects of selected restoration projects on all tribal lands.

- G Comment 6: None of the proposed projects are within the current boundaries of the Tar Creek Superfund site. It is recognized that Natural Resource Damages (NRD) are damages that remain after remediation is concluded. Accordingly, there are areas within the Tar Creek site where remediation is complete and where natural resources have not been restored. Therefore, NRD restoration projects could be conducted in these areas. Specifically, stream bank stabilization and erosion control projects would be more appropriate in the upper reaches of Tar Creek and Lytle Creek where effects would benefit downstream areas. It would make much more sense (both technically and public perception-wise) to implement NRD restoration projects within the Superfund site that is the origin of the vast amount of contamination. Notably, the State of Oklahoma faced intense public criticism approximately 20 years ago for conducting a “Tar Creek” NRD (bat habitat) restoration project outside of Ottawa County.

Response: The Trustee Council stated in its publicly reviewed 2017 Programmatic Restoration Plan and Environmental Assessment, that the Trustees do not foresee implementing on-site aquatic projects (e.g., stream bank stabilization) until after remedial actions for OU5 are finalized to prevent recontamination of implemented restoration projects.

The Trustee Council published its Invitation to Submit Restoration Projects for the Phase 1 RP/EA on October 27, 2019, with a deadline to submit proposals by January 6, 2020. Despite public notice and an invitation to submit project proposals, all project proposals submitted to the Trustee Council were provided by Trustee Council members. The Trustee Council did not receive any proposals from either the public or any non-participating, proximately located Tribes, including the Quapaw Nation, for this first phase of restoration activities. Consistent with CERCLA and the 2017 Programmatic Restoration Plan and Environmental Assessment, the Trustee Council evaluated and selected projects for the Phase 1 RP/EA to expend recovered restoration funds in order to restore, replace, rehabilitate, or acquire the equivalent of the injured natural resources and their services.

When the Phase 1 RP/EA has been finalized and projects have begun implementation, the Trustee Council will be providing interested parties, including the Quapaw Nation, with the opportunity to submit project proposals for restoration in Phase 2.

- G Comment 7: Why is the Quapaw Nation excluded from the “Pilot Tribal Apprenticeship Program”. This seem to be unnecessary discrimination against the citizens (especially the Tribal Youth) of the Quapaw Nation.

Response: Please see the responses above. The Pilot Tribal Apprenticeship Program (Apprenticeship Program) was formally submitted to the Trustee Council as a project proposal by the seven Tribes who are participating in the Tar Creek Trustee Council, on behalf of their respective Tribes. When the proposal period ended, the Trustee Council evaluated the Apprenticeship Program and unanimously approved the project for the seven Tribes who prepared the proposal, respectively, for their Tribes. As discussed above, the Quapaw Nation did not submit any projects for consideration during the proposal process for Phase 1, nor did the Quapaw Nation reach out to any member of the Trustee Council, including members from the State, Seven Tribes, and the Department of Interior, to coordinate with the Trustee Council on the utilization of recovered damages.

By way of further background, the Apprenticeship Program has two funding sources. The Apprenticeship Program would use: (1) the NRD settlement funds recovered from the joint ecological claim asserted by the State of Oklahoma and the US DOI on behalf of itself and behalf of the Cherokee Nation, the Eastern Shawnee Tribe of Oklahoma, the Miami Tribe of Oklahoma, the Seneca-Cayuga Tribe of Oklahoma, the Wyandotte Nation, the Peoria Tribe of Indians of Oklahoma, and the Ottawa Tribe of Oklahoma (the Seven Tribes) in the ASARCO LLC bankruptcy and (2) the NRD settlement funds received by the Seven Tribes in the Peabody Energy Corporation bankruptcy for loss of cultural use specific to the Seven Tribes. This combination of funding resulted in unanimous approval by the Trustee Council to move forward on implementation of the Apprenticeship Program as a part of a collection of restoration projects selected for implementation in the Phase 1 RP/EA.

As indicated above, the period for submittal of Phase 1 projects ended on January 6, 2020. Looking forward, the Trustee Council intends to begin Phase 2 of restoration after finalization of the Phase 1 RP/EA. At that point, the Trustee Council will once again formally request project proposals to be submitted to the Trustee Council. As was the case in Phase 1, the proposals received in Phase 2 will be reviewed and evaluated by the Trustee Council. Since the period for submittal of Phase 1 projects has closed, no new project proposals are being accepted for Phase 1. Members of the public, including the Quapaw Nation, will once again have the opportunity to submit project proposals during the period for submittal of Phase 2 project proposals.

Appendix B: NHPA Consultation Letters and Responses



United States Department of the Interior
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Division of Environmental and
Cultural Resources Management

Ms. Crystal Lightfoot
Tribal Historic Preservation Officer
Apache Tribe of Oklahoma
P.O. Box 1330
Anadarko, OK 73005

Dear Ms. Lightfoot,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

Alternatives B-F would be categorically excluded from analysis under the National Environmental Policy Act (NEPA). However, Alternative G (Neosho Bottoms Habitat Protection and Restoration Project) would require an Environmental Assessment, which is the purpose of the PEA. This Alternative is preferred as the Tar Creek Trustee Council (comprised of Federal, State, and seven Tribal entities) anticipate the alternative to have primarily beneficial direct and indirect long-term impacts in the form of natural resources preservation, habitat restoration and enhancement, increased access for recreation and cultural use, and improved land management activities that enhance wildlife populations and recreation opportunities.

The BIA seeks your guidance and input with regarding the PEA, which can be accessed at <https://www.fws.gov/southwest/es/oklahoma/nrdar.htm>. Please review the document and provide the EORO with any comments.

If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



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Division of Environmental and
Cultural Resources Management

Ms. Tamara Francis-Fourkiller
Tribal Historic Preservation Office
Caddo Nation of Oklahoma
P.O. Box 487
Binger, OK 73009

Dear Ms. Francis-Fourkiller,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



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Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Elizabeth Toombs
Tribal Historic Preservation Office
Cherokee Nation
P.O. Box 948
Tahlequah, OK 74465

Dear Ms. Toombs,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



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Division of Environmental and
Cultural Resources Management

Mr. Max Bear
Tribal Historic Preservation Office
Cheyenne and Arapaho Tribes
P.O. Box 145
Concho, OK 73022

Dear Mr. Bear,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

Alternatives B-F would be categorically excluded from analysis under the National Environmental Policy Act (NEPA). However, Alternative G (Neosho Bottoms Habitat Protection and Restoration Project) would require an Environmental Assessment, which is the purpose of the PEA. This Alternative is preferred as the Tar Creek Trustee Council (comprised of Federal, State, and seven Tribal entities) anticipate the alternative to have primarily beneficial direct and indirect long-term impacts in the form of natural resources preservation, habitat restoration and enhancement, increased access for recreation and cultural use, and improved land management activities that enhance wildlife populations and recreation opportunities.

The BIA seeks your guidance and input with regarding the PEA, which can be accessed at <https://www.fws.gov/southwest/es/oklahoma/nrdar.htm>. Please review the document and provide the EORO with any comments.

If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



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Division of Environmental and
Cultural Resources Management

Mr. Paul Barton
Tribal Historic Preservation Office
Eastern Shawnee Tribe of Oklahoma
70500 E 128 Road
Wyandotte, OK 74370

Dear Mr. Barton,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

Alternatives B-F would be categorically excluded from analysis under the National Environmental Policy Act (NEPA). However, Alternative G (Neosho Bottoms Habitat Protection and Restoration Project) would require an Environmental Assessment, which is the purpose of the PEA. This Alternative is preferred as the Tar Creek Trustee Council (comprised of Federal, State, and seven Tribal entities) anticipate the alternative to have primarily beneficial direct and indirect long-term impacts in the form of natural resources preservation, habitat restoration and enhancement, increased access for recreation and cultural use, and improved land management activities that enhance wildlife populations and recreation opportunities.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



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Division of Environmental and
Cultural Resources Management

Ms. Diane Hunter
Tribal Historic Preservation Office
Miami Tribe of Oklahoma
P.O. Box 1326
Miami, OK 74355

Dear Ms. Hunter,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Jessica Mullin
Tribal Historic Preservation Officer
Modoc Nation of Oklahoma
22 N. Eight Tribes Trail
Miami, OK 74854

Dear Ms. Mullin,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Dr. Kary Stackelbeck
State Archaeologist
Oklahoma Archaeological Survey
111 Chesapeake Street
Norman, Oklahoma 73019-5111

Dear Dr. Stackelbeck,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Dr. Andrea Hunter
Tribal Historic Preservation Office
Osage Nation
627 Grandview Avenue
Pawhuska, OK 74056

Dear Dr. Hunter,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Rhonda Hayworth
Tribal Historic Preservation Office
Ottawa Tribe of Oklahoma
13 S. 69A
Miami, OK, 74354

Dear Ms. Hayworth,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Charla K. EchoHawk
Tribal Historic Preservation Office
Peoria Tribe of Indians of Oklahoma
P.O. Box 1527
Miami, Ok 74355

Dear Ms. EchoHawk,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Mr. Everett Bandy
Tribal Historic Preservation Office
Quapaw Nation
P.O. Box 765
Quapaw, OK 74363-0765

Dear Mr. Bandy,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

Eastern Oklahoma Region

Eastern Oklahoma Regional Office

P.O. Box 8002

Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Mr. William Tarrant
Tribal Historic Preservation Office
Seneca Cayuga Tribe of Oklahoma
P.O. Box 45322
Grove, OK 74345

Dear Mr. Tarrant,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Tonya Tipton
Tribal Historic Preservation Office
Shawnee Tribe of Oklahoma
29 South Highway 69 A
Miami, OK 74354

Dear Ms. Tipton,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Lynda Ozan
Deputy State Historic Preservation Officer
Oklahoma State Historic Preservation Office
Oklahoma History Center
800 Nazih Zuhdi Drive
Oklahoma City, Oklahoma 73105-7917

Dear Ms. Ozan,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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If there are any questions, please contact William Brant, Regional Archaeologist, Division of Environmental and Cultural Resources Management, EORO, at (918) 616-2444 or at William.brant@bia.gov.

Respectfully,

ACTING Regional Director



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

Eastern Oklahoma Region

Eastern Oklahoma Regional Office

P.O. Box 8002

Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Whitney Warrior
Tribal Historic Preservation Officer
The United Keetoowah Band of Cherokees
18627 W. Keetoowah Circle
Tahlequah, OK 74464

Dear Ms. Warrior,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Mr. Gary McAdams
Tribal Historic Preservation Office
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear Mr. McAdams,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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Respectfully,

ACTING Regional Director



United States Department of the Interior
BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Region
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Division of Environmental and
Cultural Resources Management

Ms. Sherri Clemons
Tribal Historic Preservation Office
Wyandotte Nation
5 Council Fire Rd.
Wyandotte, OK 74370

Dear Ms. Clemons,

The Bureau of Indian Affairs (BIA), Eastern Oklahoma Regional Office (EORO) is requesting your review of the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site, in Northeast, Oklahoma (PEA). The PEA includes a No-Action Alternative (Alternative A), six Preferred Alternatives (Alternatives B-G), and additional alternatives (Alternatives H-K) that will be further developed and evaluated during Phase II.

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Respectfully,

ACTING Regional Director



Oklahoma Historical Society
State Historic Preservation Office

Founded May 27, 1893

Oklahoma History Center • 800 Nazih Zuhdi Drive • Oklahoma City, OK 73105-7917
(405) 521-6249 • Fax (405) 522-0816 • www.okhistory.org/shpo/shpom.htm

ML 22-0121
received
1-5-22

December 28, 2021

Mr. Jessie Durham, Acting Regional Director
BIA Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402

RE: File #0532-22; BIA Proposed Restoration & Environmental Assessment Plan for the Oklahoma Portion of the Tri-State Mining District

Dear Mr. Durham:

We have reviewed the Draft Phase I Restoration and Environmental Assessment Plan to the Programmatic Restoration Plan and Environmental Assessment of the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site in Northeast Oklahoma (PEA), via the link you provided to the Fish and Wildlife Service website (<https://www.fws.gov/southwest/es/oklahoma/nrdar.htm>).

We have the following comment:

Page 64 of this document states "Compliance with the NHPA would be undertaken through consultation with the Michigan State Historic Preservation Officer." This should be corrected to "Oklahoma."

Thank you for the opportunity to review this document. If you have any questions, please call Kristina Wyckoff, Historical Archaeologist, at 405/521-6381. Please reference the above underlined file number when responding. Thank you.

Sincerely,

Lynda Ozan
Deputy State Historic
Preservation Officer

LO:pm

REC'D BIA-REG.DIRECTOR
JAN 5 '22 AM 11:55

Appendix C: NEPA Compliance Checklist and Endangered Species Act Intra-Service Section 7 Biological Evaluation

NEPA COMPLIANCE CHECKLIST

State: Oklahoma Federal Financial Assistance Grant/Agreement/Amendment Number:

Grant/Project Name: Tar Creek - Phase I Restoration Plan and Environmental Assessment

This proposal ☒ is; ☐ is not completely covered by categorical exclusion 8.5 (A.2, B.1, B.3, B.4, B.5, B.6, and B.8) and 10.5 M3 in 516 DM 2, Appendix ; and/or 516 DM 6, Appendix _____ and 43 C.F.R. § 46.210(e).
(check (✓) one) (Review proposed activities. An appropriate categorical exclusion must be identified before completing the remainder of the Checklist. If a categorical exclusion cannot be identified, or the proposal cannot meet the qualifying criteria in the categorical exclusion, or an extraordinary circumstance applies (see below), an EA must be prepared.)

Extraordinary Circumstances:

Will This Proposal (check (✓) yes or no for each item below):

- | Yes | No | |
|--------------------------|-------------------------------------|---|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 1. Have significant adverse effects on public health or safety. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 2. Have significant adverse effects on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds (Executive Order 13186); and other ecologically significant or critical areas under Federal ownership or jurisdiction. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 3. Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA Section 102(2)(E)]. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 4. Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 5. Have a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 6. Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 7. Have significant adverse effects on properties listed or eligible for listing on the National Register of Historic Places as determined by either the bureau or office, the State Historic Preservation Officer, the Tribal Historic Preservation Officer, the Advisory Council on Historic Preservation, or a consulting party under 36 CFR 800. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 8. Have significant adverse effects on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant adverse effects on designated Critical Habitat for these species. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 9. Have the possibility of violating a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment. |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 10. Have the possibility for a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 11. Have the possibility to limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007). |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 12. Have the possibility to significantly contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112). |

(If any of the above extraordinary circumstances receive a "Yes" check (✓), an EA must be prepared.)

☒ Yes ☐ No This grant/project includes additional information supporting the Checklist.**Concurrences/Approvals:**

Project Leader: KENNETH COLLINS

Digitally signed by KENNETH COLLINS
Date: 2022.04.26 13:45:42 -05'00'

Date: April 26, 2022

State Authority Concurrence: _____ Date: _____

(with financial assistance signature authority, if applicable)

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statutes, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the grant/agreement/amendment:

- ☐ is a categorical exclusion as provided by 516 DM 2, Appendix 1 and/or 516 DM 2, Appendix 1. No further NEPA documentation will therefore be made.
- ☐ is not completely covered by the categorical exclusion as provided by 516 DM 2, Appendix 1 and/or 516 DM 2, Appendix 1. An EA must be prepared.

Service signature approval:

RO or WO Environmental Coordinator: _____ Date: _____

Staff Specialist, Division of Federal Assistance: _____ Date: _____

(or authorized Service representative with financial assistance signature authority)



NOTICE

In accordance with the Paperwork Reduction Act (44 U.S.C. 3501et seq.), please be advised that:

1. The gathering of information from potential grant recipients is authorized by The National Environmental Policy Act (NEPA, 42 U.S.C. 4321-4347). NEPA requires that a number of items be considered prior to any activity under a grant.
2. The submission of requested information is required for entities competing for federal assistance grants . This completed checklist is a record that these NEPA issues were considered prior to commencing grant activity.
3. You are not required to respond to a collection of information unless it displays a currently valid OMB control number.
4. This information collection has been approved by OMB and assigned clearance number 1018-0110.
5. The requested information may be subject to disclosure under provisions of the Freedom of Information Act (5 U.S.C. 552).

The public reporting burden for the information collected on this form is 30 minutes. This burden estimate includes time for reviewing instructions, gathering data, and completing and reviewing form. Comments on this form should be mailed to the Information Collection Officer, Mail Stop 222, Arlington Square, U.S. Fish and Wildlife Service, Washington, DC 20240. Thank you.



FINDING OF NO SIGNIFICANT IMPACT

ISSUANCE OF A PHASE 1 RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT FOR THE TAR CREEK SUPERFUND SITE

Pursuant to the National Environmental Policy Act of 1969 (NEPA), we reviewed the Draft Phase 1 Restoration Plan and Environmental Assessment (RP/EA), which tiers from the *Natural Resource Programmatic Restoration Plan and Environmental Assessment for the Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site in Northeast, OK* (Programmatic RP/EA) to evaluate specific restoration alternatives. This Finding of No Significant Impact (FONSI) was prepared specifically for Alternative G of the Draft Phase 1 RP/EA. Alternatives B through F of the Phase 1 Draft RP/EA all meet the criteria for a categorical exclusion. The Draft Phase 1 RP/EA was prepared by the Trustees, including the U.S. Department of the Interior (DOI), acting through the U.S. Fish and Wildlife Service and the Bureau of Indian Affairs; the State of Oklahoma, acting through the Oklahoma Secretary of Energy and Environment, the Oklahoma Department of Wildlife Conservation, and the Oklahoma Department of Environmental Quality; the Cherokee Nation; the Eastern Shawnee Tribe of Oklahoma; the Miami Tribe of Oklahoma; the Ottawa Tribe of Oklahoma; the Peoria Tribe of Indians of Oklahoma; the Seneca-Cayuga Nation; and the Wyandotte Nation. In the Draft Phase 1 RP/EA, the Trustees reviewed, evaluated, and selected a suite of restoration projects that offsets the natural resource and lost service injuries to be funded with approximately \$7.8 million in settlement funds, including the project described in Alternative G of the Draft Phase 1 RP/EA.

Selected Alternative G: Neosho Bottoms Habitat Protection and Restoration Project

Alternative G focuses on acquiring, protecting, and restoring bottomland hardwood forest, eastern tall grass prairie, and wetland habitats in the Neosho Bottoms Habitat Protection Project Area. Implementation of Alternative G is expected to increase habitat quality and quantity, potentially promote habitat connectivity, and restore, enhance, and protect acquired lands, consistent with the project goals identified in the Programmatic RP/EA. The Trustees also anticipate that Alternative G will provide opportunities for members of the public, including Tribal members and citizens, to hunt, fish, and gather natural resources.

The Trustees evaluated the project according to restoration screening and evaluation criteria in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Natural Resource Damage Assessment and Restoration regulations (NRDAR), 43 C.F.R. §11.81(d)(2), and analyzed the environmental consequences of the restoration projects pursuant to NEPA. The Trustees concluded that Alternative G is unlikely to have significant adverse impacts on the environment under NEPA. This alternative also meets the mandates under the NRDAR regulations to restore and replace natural resources and services injured by releases of hazardous substances and is consistent with the goals and objectives of the Programmatic RP/EA.

Tier II Projects:

The Trustees are planning three additional preferred alternatives, referred to as Tier II Alternatives, which will be fully evaluated in a subsequent restoration plan (*i.e.*, Phase 2) after additional restoration planning activities have been completed. Although these projects currently are not ripe for analysis in this Final Phase 1 RP/EA, all of them have been designed to provide benefits to one or more natural and cultural resource categories that were injured at or in the vicinity of the NOMNDAR Site¹. All Tier 2 Alternatives also are compatible with the restoration goals listed in Section 1.3. No analysis of the Tier II Alternatives is provided in the Final Phase 1 RP/EA, but these alternatives will be fully evaluated for compliance with the CERCLA NRDAR criteria, NEPA and other environmental laws, statutes, and regulations when the projects are ripe for analysis.

Public Comment

Beginning on December 11, 2021, the Draft Phase 1 RP/EA was made available for review and public comment for a 30-day period following publication of a public notice in the Tulsa World and Joplin Globe newspapers. The Trustees granted a request from an interested party for a 30-day extension, extending the comment period until January 10, 2022. A second 30-day extension to the comment period was requested by another interested party; this extension was granted by the Trustees, and the comment period was then extended to February 28, 2022. During the public review period, the Trustees received several comments on the Draft Phase 1 RP/EA. Public comments and the Trustees' responses may be found in the Appendix of the Final Phase 1 RP/EA. After reviewing and responding to public comments and making appropriate changes, the Trustees determined it is appropriate to proceed with the Selected Alternatives.

Determination

Based upon information and analysis contained within the Draft Phase 1 RP/EA, we have determined the activities of Alternative G are not a major Federal action that would significantly affect the quality of the human environment within the meaning of NEPA 42 U.S.C. § 4332(2)(c). Effects to physical, biological, socio-economic, and cultural resources are identified in the Draft Phase 1 RP/EA and are minor or beneficial. This action is not an action that would require the development of an Environmental Impact Statement (EIS). Accordingly, preparation of an EIS on the proposed action is not warranted.

It is my decision to issue the Final Phase 1 Restoration Plan and Environmental Assessment and begin implementation.

AMY LUEDERS
Digitally signed by AMY LUEDERS
 Date: 2022.07.20 11:48:25 -06'00'

Regional Director/DOI Authorized Official

July 20, 2022
 Date

¹ Oklahoma Portion of the Tri-State Mining District Natural Resource Damage Assessment and Restoration Site in Northeast, OK.

INTRA-SERVICE SECTION 7 BIOLOGICAL EVALUATION FORM

Tar Creek Natural Resource Damage Assessment and Restoration Site – Phase I Restoration Plan and Environmental Assessment

Originating Person: Suzanne Dunn

Telephone Number: 918-521-5879

Date: 4/19/2020

I. Region: FWS Region 2

II. Service Activity (Program): Ecological Services – Natural Resource Damage Assessment and Restoration

III. Pertinent Species and Habitat: See attached Official Species list

A. Listed species and/or their critical habitat within the action area:

Gray Bat *Myotis grisescens*

Indiana Bat *Myotis sodalis*

Northern Long-eared Bat *Myotis septentrionalis*

Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens*

Piping Plover *Charadrius melodus*

Red Knot *Calidris canutus rufa*

American Burying Beetle *Nicrophorus americanus*

Neosho Mucket *Lampsilis rafinesqueana*

Neosho Mucket Critical Habitat

B. Proposed species and/or proposed critical habitat within the action area:

None

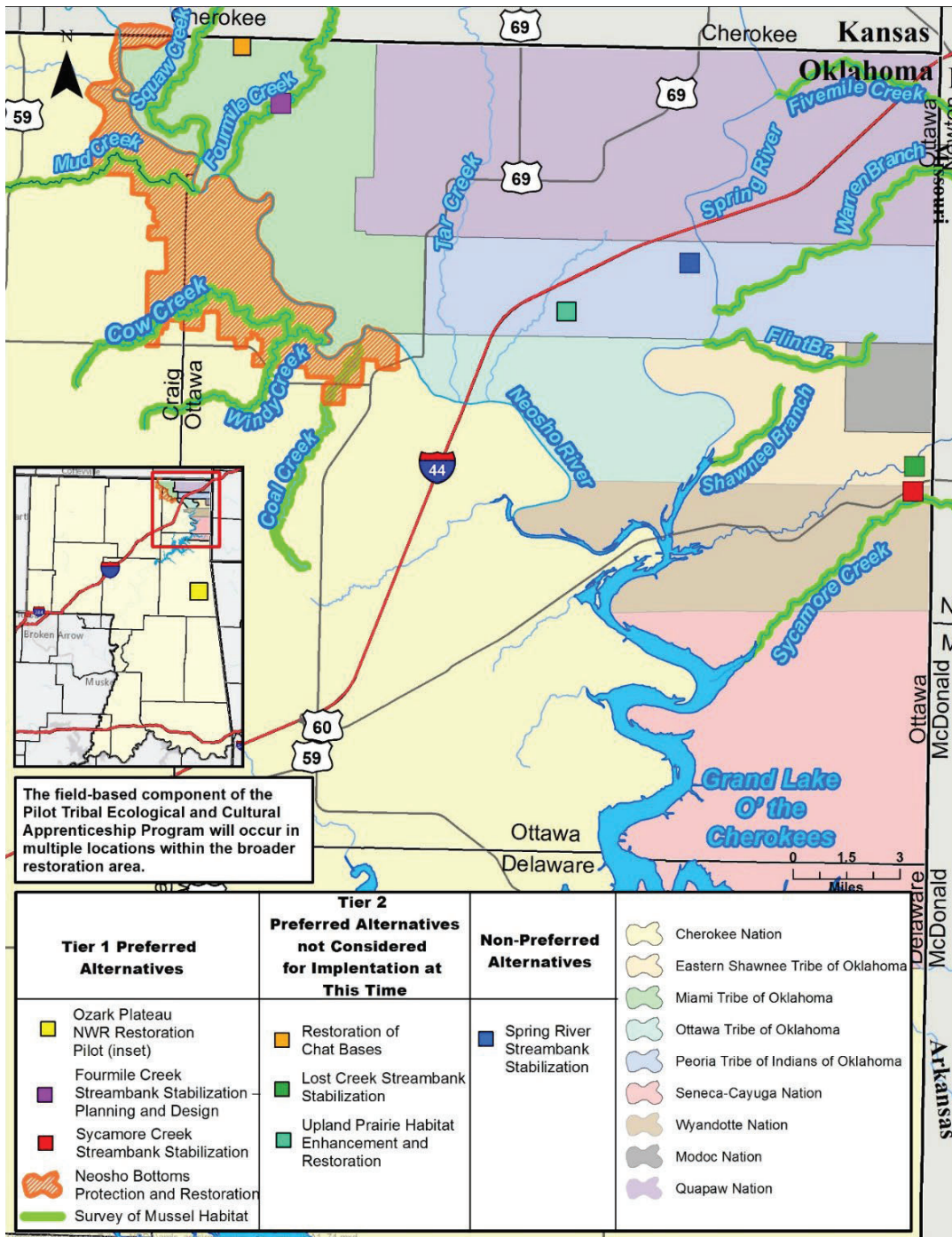
C. Candidate species within the action area:

Monarch Butterfly *Danaus plexippus*

D. Include species/habitat occurrence on a map:

IV. **Geographic area or station name and action:** These projects are located in Northeast Oklahoma

V. **Location (attach map):**



A. Ecoregion Number and Name¹:

40d - Cherokee Plains, 39a - Springfield Plateau, 39b - Dissected Springfield Plateau/ Elk River Hills

B. County and state: Ottawa and Delaware counties

C. Section, township, and range (or latitude and longitude): Numerous project locations. See map and attached project descriptions.

D. Distance (miles) and direction to nearest town: Numerous project locations. See map and attached project descriptions.

E. Species/habitat occurrence:

Mammals

Gray Bat *Myotis grisescens*, Indiana Bat *Myotis sodalist*, Northern Long-eared Bat *Myotis septentrionalis*. Ozark Big-eared Bat *Corynorhinus (Plecotus) townsendii ingens* – occurrences documented in project area

Birds

Piping Plover *Charadrius melodus*, Red Knot *Calidris canutus rufa* - No occurrences identified. All species are migratory birds and potentially would only use the identified location as stopover habitat.

Fishes

Neosho Madtom *Noturus placidus*, Ozark Cavefish *Amblyopsis rosae* - Presence assumed.

Insects

American Burying Beetle *Nicrophorus americanus*, Monarch Butterfly *Danaus plexippus* - Presence assumed.

Clams

Neosho Mucket *Lampsilis rafinesqueana* — occurrences documented in project area

Critical habitats

Neosho Mucket *Lampsilis rafinesqueana* – occurrences documented in project area

VI. Description of proposed action (attach additional pages as needed):

See attached description of projects

¹ http://ecologicalregions.info/data/ok/ok_eco_pg.pdf

VII. Determination of Effects:

A. Explanation of effects of the action on species and critical habitat in items III., A, B, and C (attach additional pages as needed):

No effects are anticipated on Piping Plover (*Charadrius melodus*) and Red Knot (*Calidris canutus rufa*) due to timing of the projects and minimal habitat disturbance expected.

May affect but not likely to adversely affect the Gray Bat, Indiana Bat, Northern Long-eared bat, Ozark Big-eared bat, American Burying Beetle, Neosho Madtom, Ozark Cavefish and Neosho Mucket due to the limited habitat disturbance (e.g., soil disturbance to establish plants in riparian and/or upland areas) and timing (e.g., tree removal would occur only from November 15th - March 30th).

B. Explanation of actions to be implemented to reduce adverse effects:

These projects will have an overall benefit to all identified Federally-listed and Candidate species and their supporting habitats. The terrestrial projects will increase distribution and abundance of native plants and provide habitat diversity for foraging for birds, and bats. The riparian enhancement project will improve habitat for mussels by reducing erosion into the stream from degraded stream banks, decrease water temperatures from tree shade, and provide a filter for runoff.

VIII. Determination of Effects:

<u>Determination T&E species</u>	<u>Response Requested</u>
--------------------------------------	---------------------------

No effect:

Piping Plover and Red Knot

Not Requested

Is not likely to adversely affect:

Gray Bat, Indiana Bat, Northern Long-eared bat,
Ozark Big-eared bat, American Burying Beetle, and
Neosho Madtom, Ozark Cavefish Neosho Mucket

Y Concurrence (Y/N)

<u>Determination Candidate species</u>	<u>Response Requested</u>
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Is not likely to adversely affect:

Monarch Butterfly *Danaus plexippus*

Y Concurrence (Y/N)

<u>Determination Critical Habitat</u>	<u>Response Requested</u>
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No adverse modification:

Neosho Mucket

Y Concurrence (Y/N)

Signature KENNETH COLLINS  Digitally signed by
KENNETH COLLINS
Date: 2022.04.19 16:25:49
-05'00' **Date**

Field Supervisor, Oklahoma Ecological Services Field Office, Tulsa, OK

IX. Concurrence: (note: Concurrence/Signature is not required for the following determinations: no effect; may affect, not likely to adversely affect; and, not likely to jeopardize [for proposed and candidate species]):

A. Formal consultation required: _____

B. Conference required _____

C. Remarks (attach additional pages as needed):

Signature

Date

The Phase 1 Restoration Plan and Environmental Assessment (RP/EA) has been developed by the natural resource Trustees for the Tar Creek Natural Resource Damage Assessment and Restoration (NRDAR) Site to address natural resources, including cultural uses and services and ecological resources and services, injured, lost or destroyed due to releases of hazardous substances at or from the Tri-State Mining District. The Phase I RP/EA evaluated a number of proposed projects and identified six projects for funding: 1) Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services, 2) Ozark Plateau National Wildlife Refuge Restoration Pilot Project, 3) Fourmile Creek Streambank Stabilization Project – Planning and Design, 4) Sycamore Creek Streambank Stabilization Project, 5) Survey of Mussel Habitat in Tributaries of the Spring, and 6) Neosho Rivers, Neosho Bottoms Habitat Protection and Restoration Project. Out of these six projects, three of them (Ozark Plateau National Wildlife Refuge Restoration Pilot Project, Sycamore Creek Streambank Stabilization Project and Neosho Rivers, Neosho Bottoms Habitat Protection and Restoration Project) may have impacts to Threatened and Endangered Species (T&E). These projects are described below.

Ozark Plateau NWR Restoration

Ozark Plateau NWR Restoration

Goals

- Restore a mosaic pattern of native forest including open woodland habitat on a 15.5-acre parcel in the Refuge.
- Serve as a pilot project to determine whether other areas on the Refuge and/or similar habitat in Northeastern Oklahoma would benefit from similar restoration approaches.

Objectives

- Restore forest overstory, understory, and ground cover more representative of Ozark Highlands open woodlands.
- Remove invasive species.
- Plant and/or seed native grasses and forbs.

Since European settlement, suppression of the natural fire regime has led to overcrowded forest conditions and allowed forests to encroach on areas that were once more open native woodland and savanna habitats. In general, woodlands can be distinguished from forests by a relatively open understory and the presence of sun-loving ground flora species. Areas that historically were open woodlands with an abundance of native grasses and forbs in the ground flora have become closed forests with diminished ground flora. Many of the remaining forest areas consist primarily of exceedingly high densities of even-aged stands with an excessive fuel load and a lack of well-developed understory. Current conditions not only lead to unnatural and uncontrollable wildfires, but they are also unfavorable for native vegetation and native wildlife. Habitat restoration measures that mimic the historic fire regime and maintain a natural mosaic of native plant communities will reduce the risk of unplanned, high-intensity wildfires while also supporting a greater diversity of native flora and fauna. (FWS, 2013).

Dominant ecological sites associated with the area of interest include a combination of Low-Base Chert Upland Woodland, Loamy Terrace Forest, and Ultic Chert Upland Pinery Woodland (ESD, 2011). These ecological sites describe an area with an oak-hickory-pine forest with an overstory dominated by a variety of trees including post oak, black oak, blackjack oak, black hickory, short-leaf pine, an understory of dogwood trees, and a rich ground flora with native grasses and forbs species (ESD, 2011).

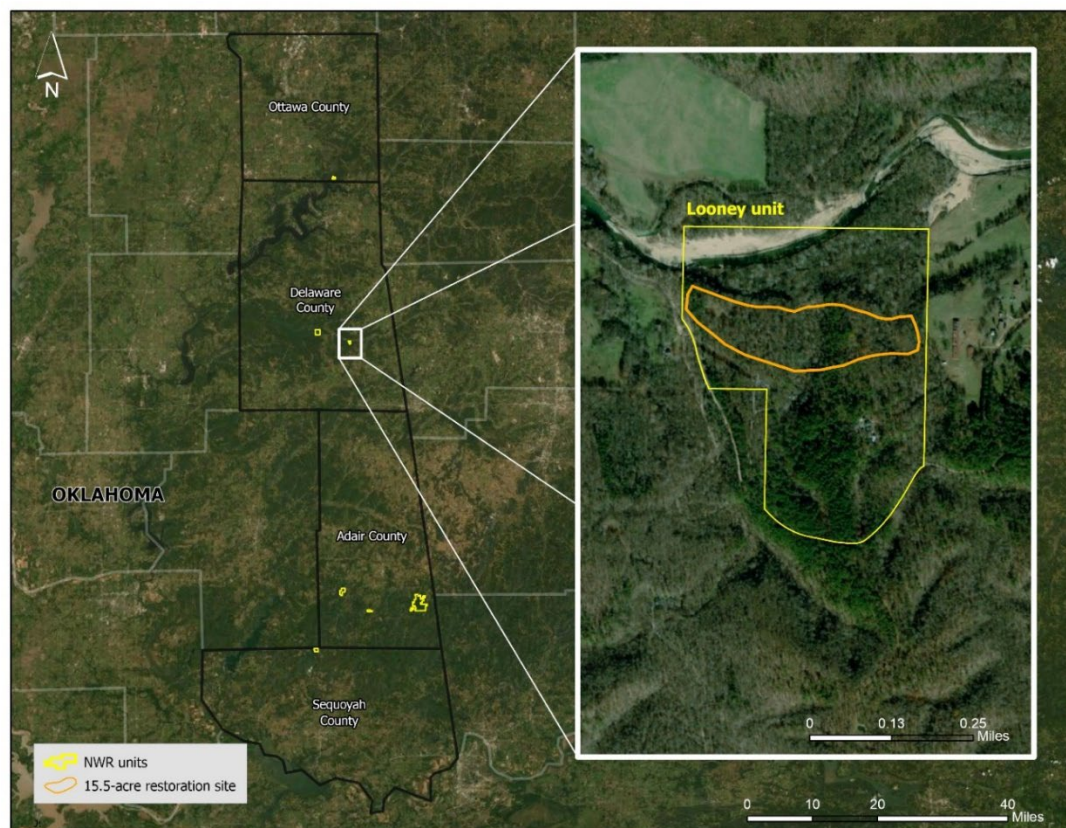
The primary goals of the project are to 1) restore a mosaic pattern of native forest including open woodland habitat on a 15.5-acre parcel in the Refuge, and 2) use the proposed project as a proof of concept to determine whether other areas on the Refuge and/or similar habitat in Northeastern Oklahoma would

benefit from similar restoration approaches. Restoration goals will be achieved by taking the following activities:

- Thin trees through hand removal and controlled fire
- Remove invasive species
- Plant and/or seed native grasses and forbs
- Monitor and adaptively manage restoration site

Activity 1: Tree Thinning

The Refuge manager will work with the local U.S. Department of Agriculture - Natural Resource Conservation Service (USDA - NRCS) to identify trees for removal. The Refuge Manager will contract with a company to remove trees and coordinate the controlled burn with a FWS burn unit, in accordance with FWS's prescribed burn policy. This project includes funding for a one-time thinning of identified trees and one controlled burn. The Refuge will fund additional burns as part of the burn plan outlined in the Refuge Comprehensive Conservation Plan (CCP; FWS, 2013).



Location of the Looney Unit in Delaware County, Oklahoma. The inset shows the 15.5-acre parcel within the Refuge where the pilot restoration project will occur.

Activity 2: Remove invasive species

There are small patches of the invasive plant sericea lespedeza (*Lespedeza cuneate*) on the unit. To avoid use of pesticides, this project will use goats to remove the sericea lespedeza through grazing inside a fenced area (SARE 2005). Because sericea lespedeza is prolific, this technique may be employed at the beginning of each growing season for several years. Using an adaptive management approach, the FWS may use herbicides to control sericea lespedeza if mechanical and grazing methods are determined to be ineffective at controlling or eradicating sericea lespedeza, under the assumption that herbicide application

is compatible within the treatment area. Herbicides will only be used when compatible with the CCP and applicable Refuge policies and practices. Herbicides will not be used to control or eradicate plants intended for restoration, gathering, and conservation purposes mentioned under Activity 3 and listed in the text box on page 30.

The Ozark National Wildlife Refuge analyzed herbicide use in the CCP (2013 - Appendix A), where herbicides may be used to spot-treat invasive flora species, including sericea lespedeza, that become a threat to important native plant and/or fauna species. The Ozark Plateau NWR CCP provides an analysis of on-Refuge herbicide application and is incorporated by reference herein.

Activity 3: Plant native grasses and forbs

The Refuge staff will gather a list of native grasses, forbs, and locally significant plants from sources such as the NRCS, local Tribes, and historical references. The text box on the next page provides a preliminary list of native, culturally significant plants that local Tribes have identified and shared with FWS. The FWS anticipates working with local Tribes to incorporate plants from this list into the restoration. The Refuge manager will work with the NRCS and local Tribes to develop a planting/seeding strategy based on the time of year, abundance of plants, and appropriate technique for each plant species. The Refuge manager will also arrange access (mentioned below) for Tribes to gather these plants when their populations are established. If baseline monitoring reveals that any of these plants are currently present, the Service will conserve and protect these species for future use.

Plants for Restoration, Gathering, and Conservation

- Watercress – *Rorippa nasturtium aquaticum*
- American Water Willow – *Justicia Americana*
- Cutleaf Coneflower – *Rudbeckia laciniata*
- River Cane/Giant Cane – *Arundinaria gigantean*
- Ozark Chinquapin Nuts – *Castanea Ozarkensis*
- Wild Honeysuckle – *Lonicera flara*
- Wild Onions – *Allium mutabile*
- Mushrooms – various species
- Mullein - *Verbascum thapsus*
- Ginseng – *Panax sp.*
- Ozark Chinquapin Tree – *Castanea Ozarkensis*
- Nuts – hickory (various species), walnut, pecan
- Berries/Fruits – wild grapes/possum grapes, elderberry, blackberry, mulberry, sumac berries, huckleberries, plums, persimmons, pawpaws, cherries

Resource Access and Use

The Refuge is closed to the public except for activities authorized by Special Use Permits. The FWS is currently engaged in a Compatibility Determination that would allow for the issuance of permits for the collection of plants and other natural resources within the Looney Unit, by members of federally-recognized tribes for cultural and/or educational purposes. As a part of this process, FWS has worked with local Tribes to create a description of the types of cultural activities that Tribes anticipate making requests for under a special use permit. These activities include permitted harvest, cataloguing, and planting of native culturally significant plants, and the harvest/collection of other items of Tribal cultural

significance (such as turtle shells, non-migratory bird feathers, fungi, and spring water) for cultural or educational purposes.

Sycamore Creek Streambank Stabilization Project

Sycamore Creek Restoration

Goals

- Stabilize the streambank to restore riparian habitat along Sycamore Creek and improve ecological services.
- Restore Tribal use of the streambank and the riparian area once the physical habitat is restored.

Objectives

- Reduce streambank erosion along approximately 180 feet of Sycamore Creek.
- Revegetate the streambank and plant a riparian buffer of native, culturally significant plants.

This project focuses on stabilizing a severely eroded streambank of Sycamore Creek to reduce further land loss and to restore the riparian habitat and cultural use of natural resources. The overall goal of the project is to reduce further land loss along Sycamore Creek and restore the riparian zone along the southern end of the Wyandotte Nation's powwow grounds. The project is outside of the NRDAR Site and is considered an off-site project.

Recent high rainfall events and subsequent flooding have degraded the streambank of Sycamore Creek at the proposed restoration site. The proposed restoration site has experienced severe erosion leading to visible sloughing of the steep bank (See Figure next page) and alteration of the floodplain. Trees have fallen into the creek, and additional trees are at risk of falling off the deeply incised streambank and into the creek. As a part of their environmental monitoring program, the Wyandotte Nation have conducted water quality monitoring at the site for five years. Over the course of this regular monitoring, environmental staff have observed significant changes to the landscape at the site. The Wyandotte Nation estimates that, over the last five years, approximately 9,000 cubic feet of soil has eroded from the streambank.

Ecological impacts of the erosion include loss to streambank habitat, and degradation of aquatic habitat due to excessive sedimentation. Further, the loss of tree cover reduces shade cover over the creek and can lead to increases in water temperatures within a localized area and a decline in aquatic and riparian habitat quality for fish, turtles, beaver, muskrats, rabbits, deer, and other wildlife.

In addition to reducing further degradation of the streambank and restoring habitat and ecological services, this restoration project will also restore cultural use of the site. The Wyandotte Nation uses the land near the site for hunting and for gathering fruits and other plant parts. However, the unstable streambanks limit access to the riparian area, and erosion of the riparian area has led to losses of culturally significant trees and plants, including oaks (*Quercus* spp.), black walnuts (*Juglans nigra*), blackberries (*Rubus* spp.), honeysuckle, grapevines, and multiple species of native grasses. The site is also important for other activities, such as camping, and for youth education programs, where both Tribal youth and non-Tribal students learn about riparian ecosystems and macroinvertebrates in the creek. However, the Wyandotte Nation is concerned that the continued degradation of the site will limit access and cultural use, and any use in its current condition will cause further degradation. Because the site is within Wyandotte Nation lands, and is within the Tribal powwow grounds, the Wyandotte Nation will ensure appropriate and sustainable use of the restored habitat. An additional benefit of this restoration project will be a protected riparian area where the Wyandotte Nation can re-install continuous water monitoring equipment that was damaged in recent floods. Lastly, if the site is restored, the Wyandotte

Nation intends to use it more frequently for cultural use because of its proximity to the circle where dancing takes place.

Project Description

Primary elements of the project include streambank stabilization, riparian buffer restoration and enhancement, and restoration monitoring. The Wyandotte Nation hired an engineer to assess the Sycamore Creek site and identify effective conceptual approaches for stabilizing the streambank and preventing further degradation of riparian habitat along a 180-foot stream reach. The Wyandotte Nation will obtain necessary permits and plan riparian buffer enhancements. Design of the streambank structure will utilize biotechnical stabilization techniques (See Figures next page), where natural and biodegradable materials will be incorporated, to the extent practical, to provide temporary stabilization until natural stabilization of the bank can reoccur through vegetation establishment. Using a biotechnical stabilization approach also reduces the amount of hardened and riprapped banks that cause an increase in velocity and disconnect riparian functions.



Severely eroding segment of restoration reach of Sycamore Creek; picture shows stream incision and risk of streambank trees falling into the creek.

After completing the streambank stabilization work, the Wyandotte Nation will plant vegetation along riparian buffer along the stabilized bank. The riparian buffer will be approximately 180 feet long and approximately 20 feet wide. The Wyandotte Nation will plant rivercane (*Arundinaria gigantea*), native grasses, and approximately 500 seedlings in the buffer area. When restoration is complete, the Wyandotte Nation expects other native, culturally significant plants to return to the site over time, including blackberries, honeysuckle (*Lonicera sempervirens*), pecan (*Carya* spp.), and black walnut trees.

Wyandotte Nation Environmental Department staff will monitor the restoration site. A monitoring plan will include regular monitoring and post-storm event monitoring. Because staff visit the site regularly as part of their normal duties, the Department is not seeking additional funding for monitoring activities.



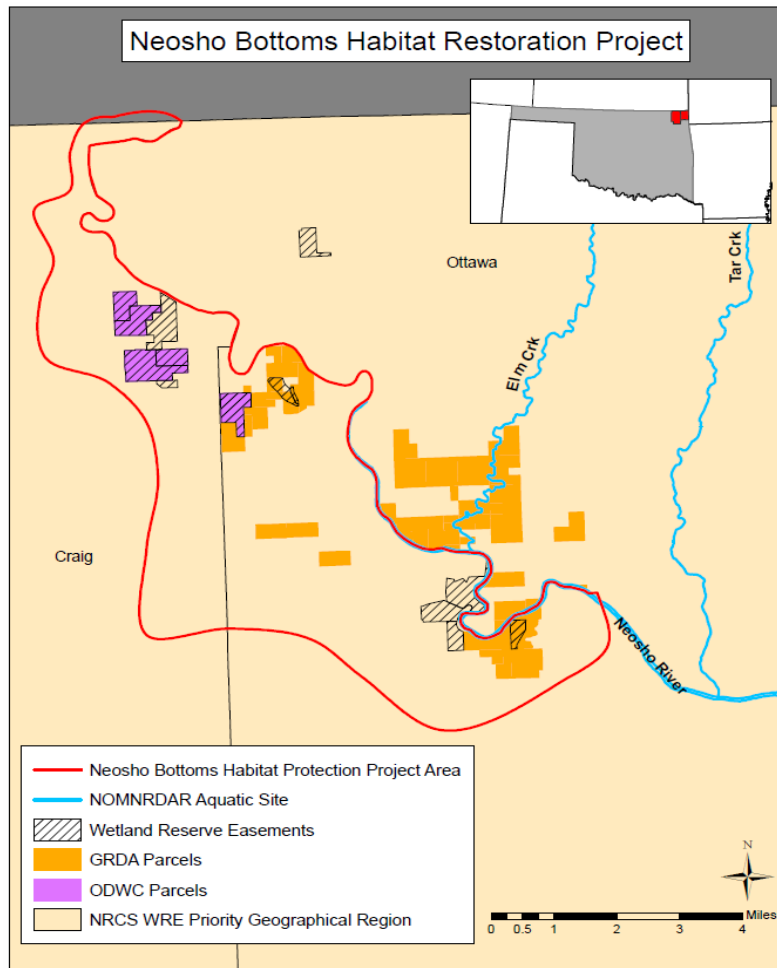
Streambank restoration photos depicting restoration elements proposed for the Sycamore Creek streambank stabilization project. Images shown include post-restoration condition of stream reach in Arkansas showing riffle, pool, and grade control using toe-wood and construction of vegetated flood plains (left panel); and construction and planting of soil lifts on toe-wood structure (right panel).

Neosho Bottoms Habitat Protection and Restoration Project

The Neosho Bottoms Habitat Protection and Restoration Project (NBHPRP) focuses on acquiring, protecting, and restoring bottomland hardwood forest, eastern tall grass prairie, and wetland habitats in the Neosho Bottoms Habitat Protection Project Area (NBHPPA). The overall goal of this project is to address habitat injury and service loss resulting from releases of hazardous substances at or from the NRDAR Site through acquisition, protection, and restoration of native forest, prairie, and wetland habitats in the NBHPPA.

Project Background

The NBHPPA is located at the northern and western extents of the vast Lower Mississippi Alluvial Valley bottomland hardwood forest. Further upstream, floodplain forests are less typical, with narrow riparian corridors being the norm. Historical data shows that the eastern tall grass prairie extended into the floodplain across the project area. Using detailed topographic and other data, ODWC has identified the appropriate land cover restoration across the entire floodplain area of the NBHPPA. Almost 10,000 acres are classified as suitable locations for bottomland hardwood forest, of which more than 7,700 acres are currently in other land uses such as pasture, pecan orchards or cropland. Using the same detailed topographic data, ODWC also identified up to 4,300 acres of land that could be maintained or restored to



Neosho Bottoms Habitat Protection and Restoration Project Area. GRDA = Grand River Dam Authority; WRE = Wetland Reserve Easement

yet known; therefore, this project will be implemented in a phased approach, governed by tiered TCTC decisions, referred to as Trustee Council Resolutions. Funds for individual parcels will then be released through parcel-specific Resolutions that tier from this Final Phase 1 RP/EA.

ODWC's objective is to initially enroll properties of willing landowners into USDA-NRCS Conservation Easement programs and acquire surface fees on approximately three quarters of these acres to place into a state Wildlife Management Area (WMA). By acquiring surface fees and implementing restoration actions, ODWC aims to:

- Develop conservation plans for all enrolled acres
- Restore hydrology on easement acres, as appropriate
- Restore or enhance bottomland hardwoods or native prairie on easement acres, as appropriate

eastern tall grass prairie habitat, and over 3,600 acres of potential wetland habitat. These acres include multiple types of wetland habitat, including open water within existing oxbows and remnant river scars; traditional moist soil waterfowl management units maximizing water depths between 6 and 24"; wet meadow prairie; and flooded bottomland hardwood timber.

The NBHPPA is located in northeastern Oklahoma and includes 13,381 acres in Craig and Ottawa Counties, Oklahoma. It is comprised of the floodplain and adjacent uplands along the Neosho River from the Kansas/Oklahoma state border downstream approximately 19.4 river miles to the city of Miami (See Figure). The project area partially overlaps with the NRDAR Site (i.e. partially on-site).

Conservation Easement Enrollment and Surface Fee Acquisition

The specific parcels within the project area to be targeted for preservation and restoration are not

Resource Access and Use

The ODWC intends to place approximately 3,000 of the 4,000 targeted acres within a WMA after acquisition via surface fee. Lands within the WMA will be accessible to the public, including Tribal members and citizens, for hunting, fishing, gathering of natural resources, and other activities, subject to all applicable federal, state, and local laws, rules, and regulations. These areas may provide cultural services to Tribal members and citizens, including serving as a setting for Tribal apprenticeship activities (not discussed in this consultation), and for individual gathering of natural resources for subsistence and cultural practices, subject to all applicable federal, state, and local laws, rules, and regulations.

Neosho Bottoms Habitat Protection and Restoration Project

- **Goal 1:** Acquire land parcels from willing landowners within the NBHPPA through a combination of conservation easements and fee acquisition, for restoration and protection in perpetuity.
 - **Goal 2:** As appropriate, restore the acquired lands to their natural habitat, including bottomland hardwood forest, eastern tall grass prairie, and wetlands. For example, land that is currently in use as pasture, cropland, or orchards, but is suitable bottomland hardwood forest habitat, may be restored to this natural habitat. Functioning natural habitat may also be acquired for protection in perpetuity, to gain the benefit of averted loss.
-
- **Objective 1:** Enroll approximately 4,000 acres in NRCS conservation easements (CEs) within a five-year period, through the Wetland Reserve Enhancement (WRE) Program and Emergency Watershed Protection Program-Floodplain Easements (EWPP-FPE).
 - **Objective 2:** Protect approximately three quarters of this land in perpetuity (i.e., 3,000 of the 4,000 acres) through surface fee acquisition and incorporation into a state WMA.
 - **Objective 3:** Restore lands that have been enrolled in conservation easements or protected through surface fee acquisition, using methods such as planting native vegetation, removing invasive or non-native species, or performing other restoration activities, as appropriate.

References

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United States Department of the Interior

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<http://www.fws.gov/southwest/es/Oklahoma/>



In Reply Refer To:

April 06, 2022

Project Code: 2022-0029028

Project Name: Phase I Tar Creek Restoration Plan and Environmental Assessment

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)).

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
 - USFWS National Wildlife Refuges and Fish Hatcheries
 - Migratory Birds
 - Wetlands
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Oklahoma Ecological Services Field Office

9014 East 21st Street

Tulsa, OK 74129-1428

(918) 581-7458

Project Summary

Project Code: 2022-0029028
Event Code: None
Project Name: Phase I Tar Creek Restoration Plan and Environmental Assessment
Project Type: Management Plans Land Management/Restoration
Project Description: The Phase 1 Restoration Plan and Environmental Assessment (RP/EA) has been developed by the natural resource Trustees for the Tar Creek Natural Resource Damage Assessment and Restoration (NRDAR) Site to address natural resources, including cultural uses and services and ecological resources and services, injured, lost or destroyed due to releases of hazardous substances at or from the Tri-State Mining District (TSMD). The Phase I RP/EA evaluated a number of proposed projects and identified six projects for funding: 1) Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services, 2) Ozark Plateau National Wildlife Refuge Restoration Pilot Project, 3) Fourmile Creek Streambank Stabilization Project – Planning and Design, 4) Sycamore Creek Streambank Stabilization Project, 5) Survey of Mussel Habitat in Tributaries of the Spring, and 6) Neosho Rivers, Neosho Bottoms Habitat Protection and Restoration Project. Out of these six projects, three of them (Ozark Plateau National Wildlife Refuge Restoration Pilot Project, Sycamore Creek Streambank Stabilization Project and Neosho Rivers, Neosho Bottoms Habitat Protection and Restoration Project) may have impact to Threatened and Endangered Species (T&E).

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@36.64856925,-94.67293636182785,14z>



Counties: Craig , Delaware , and Ottawa counties, Oklahoma

Endangered Species Act Species

There is a total of 11 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Gray Bat <i>Myotis grisescens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat <i>Myotis sodalis</i> There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened
Ozark Big-eared Bat <i>Corynorhinus (=Plecotus) townsendii ingens</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered

Birds

NAME	STATUS
Piping Plover <i>Charadrius melodus</i> Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot <i>Calidris canutus rufa</i> There is proposed critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Fishes

NAME	STATUS
Neosho Madtom <i>Noturus placidus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2577	Threatened
Ozark Cavefish <i>Amblyopsis rosae</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6490	Threatened

Clams

NAME	STATUS
Neosho Mucket <i>Lampsilis rafinesqueana</i> There is final critical habitat for this species. Your location overlaps the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3788	Endangered

Insects

NAME	STATUS
American Burying Beetle <i>Nicrophorus americanus</i> Population: Wherever found, except where listed as an experimental population No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/66	Threatened
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

NAME	STATUS
Neosho Mucket <i>Lampsilis rafinesqueana</i> https://ecos.fws.gov/ecp/species/3788#crithab	Final

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

The following FWS National Wildlife Refuge Lands and Fish Hatcheries lie fully or partially within your project area:

FACILITY NAME	ACRES
OZARK PLATEAU NATIONAL WILDLIFE REFUGE https://www.fws.gov/refuges/profiles/index.cfm?id=21645	157.516

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Aug 31
Bobolink <i>Dolichonyx oryzivorus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31

NAME	BREEDING SEASON
Eastern Whip-poor-will <i>Antrastomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Kentucky Warbler <i>Oporornis formosus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
Lesser Yellowlegs <i>Tringa flavipes</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prothonotary Warbler <i>Protonotaria citrea</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability Of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee

was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

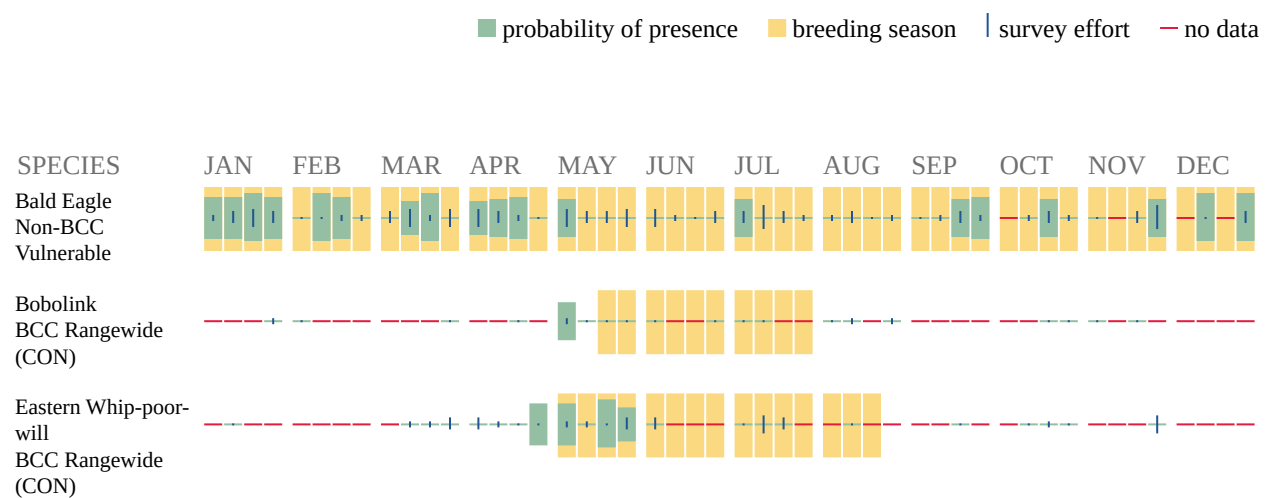
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
 2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
 3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).
-

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

Due to your project's size, the list below may be incomplete, or the acreages reported may be inaccurate. For a full list, please contact the local U.S. Fish and Wildlife office or visit <https://www.fws.gov/wetlands/data/mapper.HTML>

FRESHWATER FORESTED/SHRUB WETLAND

- [PFO1/EM1A](#)
- [PFO1A](#)
- [PFO1/SS1Ah](#)
- [PFO1C](#)
- [PFO1/SS1A](#)
- [PFO1/SS1C](#)
- [PFO1Ax](#)
- [PFO1Ah](#)
- [PFO1/SS1Ch](#)

FRESHWATER EMERGENT WETLAND

- [PEM1Cx](#)
- [PEM1Ax](#)
- [PEM1Fh](#)
- [PEM1/SS1Ch](#)
- [PEM1Ch](#)
- [PEM1F](#)
- [PEM1Ah](#)
- [PEM1C](#)
- [PEM1Cd](#)
- [PEM1Fx](#)
- [PEM1A](#)

LAKE

- [L1UBH](#)
-

- [L2USCh](#)
- [L1UBHh](#)

IPaC User Contact Information

Agency: Fish and Wildlife Service

Name: Suzanne Dunn

Address: 9014 E. 21 Street

City: Tulsa

State: OK

Zip: 74137

Email: suzanne_dunn@fws.gov

Phone: 9183824521



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Oklahoma Ecological Services Field Office
9014 East 21st Street
Tulsa, OK 74129-1428
Phone: (918) 581-7458 Fax: (918) 581-7467
<http://www.fws.gov/southwest/es/Oklahoma/>

In Reply Refer To:

April 06, 2022

Project code: 2022-0029028

Project Name: Phase I Tar Creek Restoration Plan and Environmental Assessment

Subject: Verification letter for 'Phase I Tar Creek Restoration Plan and Environmental Assessment' project under the October 15, 2020, Programmatic Biological Opinion on Final 4(d) Rule for the American burying beetle and Activities Excepted from Take Prohibitions (50 CFR § 17.47(d), Federal Register Citation 85 FR 65241).

Dear Suzanne Dunn:

The U.S. Fish and Wildlife Service (Service) received on **April 06, 2022** your effect determination(s) for the 'Phase I Tar Creek Restoration Plan and Environmental Assessment' (the Action) using the American burying beetle (*Nicrophorus americanus*) determination key within the Information for Planning and Consultation (IPaC) system.

This determination key assists users in determining whether a Federal action is consistent with the activities analyzed in the Service's October 15, 2020, Programmatic Biological Opinion (PBO). The PBO addresses activities excepted from incidental "take"^[1] prohibitions applicable to the American burying beetle under the Endangered Species Act of 1973 (Act) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, the Action is consistent with activities analyzed in the PBO. The Action may affect the American burying beetle; however, any incidental take that may occur as a result of the Action is not prohibited under the Act Section 4(d) rule adopted for this species at 50 CFR §17.47(d). **Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the PBO satisfies and concludes your responsibilities for this Action under Act Section 7(a)(2) with respect to the American burying beetle.**

Please report any changes to the information about the Action that you submitted in IPaC, the results of any American burying beetle surveys conducted in the Action area, and any dead, injured, or sick American burying beetles that are found during Action implementation. If the Action is not completed within one year of the date of this letter, you must update and resubmit the information required in the IPaC key.

This IPaC-assisted determination allows you to rely on the PBO for compliance with Act Section 7(a)(2) only for the American burying beetle.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (Act, Section 3(19)).

This letter covers only the American burying beetle. It **does not** apply to the following ESA-protected species that also may occur in the Action area:

- Gray Bat *Myotis grisescens* Endangered
- Indiana Bat *Myotis sodalis* Endangered
- Monarch Butterfly *Danaus plexippus* Candidate
- Neosho Madtom *Noturus placidus* Threatened
- Neosho Mucket *Lampsilis rafinesqueana* Endangered
- Northern Long-eared Bat *Myotis septentrionalis* Threatened
- Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* Endangered
- Ozark Cavefish *Amblyopsis rosae* Threatened
- Piping Plover *Charadrius melodus* Threatened
- Red Knot *Calidris canutus rufa* Threatened

If your project may affect additional listed species, you must evaluate additional DKeys for other species, or submit a request for consultation for the additional species to your local Ecological Services Field Office.

Action Description

You provided to IPaC the following name and description for the subject Action.

1. Name

Phase I Tar Creek Restoration Plan and Environmental Assessment

2. Description

The following description was provided for the project 'Phase I Tar Creek Restoration Plan and Environmental Assessment':

The Phase 1 Restoration Plan and Environmental Assessment (RP/EA) has been developed by the natural resource Trustees for the Tar Creek Natural Resource Damage Assessment and Restoration (NRDAR) Site to address natural resources, including cultural uses and services and ecological resources and services, injured, lost or destroyed due to releases of hazardous substances at or from the Tri-State Mining District (TSMD). The Phase I RP/EA evaluated a number of proposed projects and identified six projects for funding: 1) Pilot Tribal Ecological and Cultural Apprenticeship Program to Restore Natural Resources and Tribal Services, 2) Ozark Plateau National Wildlife Refuge Restoration Pilot Project, 3) Fourmile Creek Streambank Stabilization Project – Planning and Design, 4) Sycamore Creek Streambank Stabilization Project, 5) Survey of Mussel Habitat in Tributaries of the Spring, and 6) Neosho Rivers, Neosho Bottoms Habitat Protection and Restoration Project. Out of these six projects, three of them (Ozark Plateau National Wildlife Refuge Restoration Pilot Project, Sycamore Creek Streambank Stabilization Project and Neosho Rivers, Neosho Bottoms Habitat Protection and Restoration Project) may have impact to Threatened and Endangered Species (T&E).

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@36.64856925,-94.67293636182785,14z>



Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

Yes

2. Have you determined that the proposed action will have “no effect” on the American burying beetle? (If you are unsure select "No")

No

3. Will your activity **purposefully take** American burying beetles?

No

4. Is your project wholly inside the 4d rule Analysis Area? For areas of your project occurring inside the Analysis Area (New England, Northern Plains, Southern Plains), your project may qualify for exemptions. For areas of your project occurring outside the Analysis Area, all incidental take is exempted according to the ABB 4d Rule.

Automatically answered

No

5. Is American burying beetle [suitable habitat](#) present within the action area?

Yes

6. Will suitable habitat be affected by the proposed action? Suitable habitat may be impacted if the action involves soil disturbance, use of vehicles or heavy equipment, artificial lighting, vegetation removal, use of herbicides, pesticides, other hazardous chemicals.

Yes

Project Questionnaire

Please select the activity that best matches your proposed action.

12. Soil disturbance related to wildlife management

If you chose 13 above, please describe below. If you did not choose 13 above, please type "0".

0

Estimate the total acres of suitable American burying beetle habitat that may be affected.

10000

Please estimate the total number of acres of **temporary impacts** to American burying beetle habitat. See definitions

10000

Please estimate the total number of acres of **permanent impacts** to American burying beetle habitat. See definitions

0

IPaC User Contact Information

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