U.S. Fish and Wildlife Service

Final Environmental Assessment

For Proposed Issuance of an Eagle Take Permit

for the

Rock Creek Wind Project

Atchison County, Missouri

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List of Acronyms and Abbreviations

Applicant	Rock Creek Wind Project LLC
Audubon	National Audubon Society
BBCS	Bird and Bat Conservation Strategy
BGEPA	Bald and Golden Eagle Protection Act
CBC	Christmas Bird Counts
CFR	Code of Federal Regulations
CRM	Collision Risk Model
EA	Environmental Assessment
ECP	Eagle Conservation Plan
ECPG	Eagle Conservation Plan Guidance
EMU	Eagle Management Unit
ESA	Endangered Species Act
FR	Federal Register
ITP or permit	Incidental Take Permit
LAP	Local Area Population
MBTA	Migratory Bird Treaty Act
MDC	Missouri Department of Conservation
MW	megawatt
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLCD	National Land Cover Database
NWR	National Wildlife Refuge
O&M	operations and maintenance
PEIS	Programmatic Environmental Impact Statement
Project	Rock Creek Wind Project
Service	United States Fish and Wildlife Service
USC	United States Code
USGS	US Geological Survey
WEG	Land-Based Wind Energy Guidelines

1 Introduction

1.1 Environmental Assessment Overview

The United States Fish and Wildlife Service (Service) has prepared this Final Environmental Assessment (EA) to analyze potential environmental impacts associated with the proposed issuance of a 30-year Incidental Take Permit (ITP or permit) for bald eagles (*Haliaeetus leucocephalus*) for the Rock Creek Wind Project (Project). The Project is operated by Rock Creek Wind Project, LLC (the Applicant) and is located in Atchison County, Missouri. The Applicant has prepared an Eagle Conservation Plan (ECP) using the Service's *Eagle Conservation Plan Guidance: Module 1 – Land-based Wind Energy* (ECPG; Service 2013). The Applicant's ECP (Appendix A) provides the background assessment conducted and conservation measures implemented in order to avoid and minimize impact to bald eagles to the maximum extent practicable. In response to the Applicant's application, the Service is evaluating the potential effects of issuing an ITP, which constitutes a discretionary federal action that triggers an EA, as required under the National Environmental Policy Act (NEPA CEQ: 40 Code of Federal Regulations [CFR] § 1502.4(a); 1508.23; 1502.14; 1502.5). Section 1.3 of this EA document describes the need for the action in additional detail. In this EA document, the Service explored alternative ways of meeting this need (Section 2). As discussed in Sections 4 and 5, not issuing this permit may result in take of eagles without any avoidance and minimization measures as described within the ECP. Overall, implementation of the Applicant's proposed ECP meets the tiering requirements, as laid out in the 2016 Programmatic Environmental Impact Statement (PEIS) that analyzes the revisions to the 2016 Eagle Rule (as discussed further in Section 1.5.3). Section 5 summarizes the factors we used to identify the Preferred Alternative over the No Permit Issued Alternative. Pursuant to 40 CFR § 102.2(E), we explored, and considered other alternatives for any unresolved conflicts as a result of our action. We did not identify any alternatives that address this, primarily because all mitigation and avoidance measures that are practicable were already taken and implemented through the pre-construction coordination between the Applicant and the Service and were incorporated in the Preferred Alternative.

As discussed in Section 1.5.3.2, annual take rates below 5% of the estimated bald eagle local area population (LAP) are considered compatible with the preservation of bald eagles under the PEIS (Service 2016). The Applicant is requesting a permit for the take of 546 bald eagles over the 30-year duration of a permit (18.17 bald eagles annually). The estimated annual take level under consideration for the Project, in addition to other permitted bald eagle take within the Project LAP, totals 18.61 bald eagles, which is approximately 2.19% of the total LAP of 849 bald eagles and is below the cumulative authorized take level of 5% of the LAP. Furthermore, the Service acknowledges that the estimated level of take is likely a conservative overestimate,

with the actual take level potentially being below or well below the estimated annual take level. This Final EA evaluates potential impacts that could result from the issuance of the ITP for bald eagles based on the Project's ECP or alternatives to the proposed issuance. It is intended to assist the Service in evaluating effects on the human environment and in assessing the significance of the impacts that could result from the alternatives analyzed. "Significance" under NEPA is defined by regulation at 40 CFR § 1508.27, and requires short-term and long-term consideration of both the context of a proposal and its intensity.

1.2 Project Background

1.2.1 Project General Description and Setting

The Applicant operates the Project in Atchison County approximately four miles east of the town of Tarkio, in northwest Missouri. The Project boundary is defined as the area within the minimum convex polygon of the Project turbines (Service 2016) and is comprised of 37,726 acres (Figures 1 and 2). The Applicant has received all permits necessary to construct and operate the Project from the county and state. Construction of the Project began in October 2016; the Project became operational at the end of December 2017.

The Project is located in the Western Corn Belt Plains Level III Ecoregion, with portions in the Steeply Rolling Loess Prairies and Rolling Loess Prairies Level IV Ecoregions (US Environmental Protection Agency 2013). This region generally has been converted to farmland and cropland, livestock production, and pasture lands. Topography in the area is flat to gently rolling.

The primary land cover within the Project boundary is cultivated agricultural land. According to the US Geological Survey National Land Cover Database (USGS NLCD 2006; Figure 2), the majority of land cover within the Project is cultivated crops (69.8%) and hay/pasture (20.1%). Other land cover types each account for less than 5% of the Project (Table 1).

1.2.1 Project Physical Components

The Project consists of 150 Vestas V110 2.0 megawatt (MW) wind turbines and associated infrastructure, which includes access roads, underground electric collection system, a Project substation, an operations and maintenance (O&M) building, and approximately 15 miles of new overhead transmission line from the Project substation to the Project's interconnection point to the electric grid.

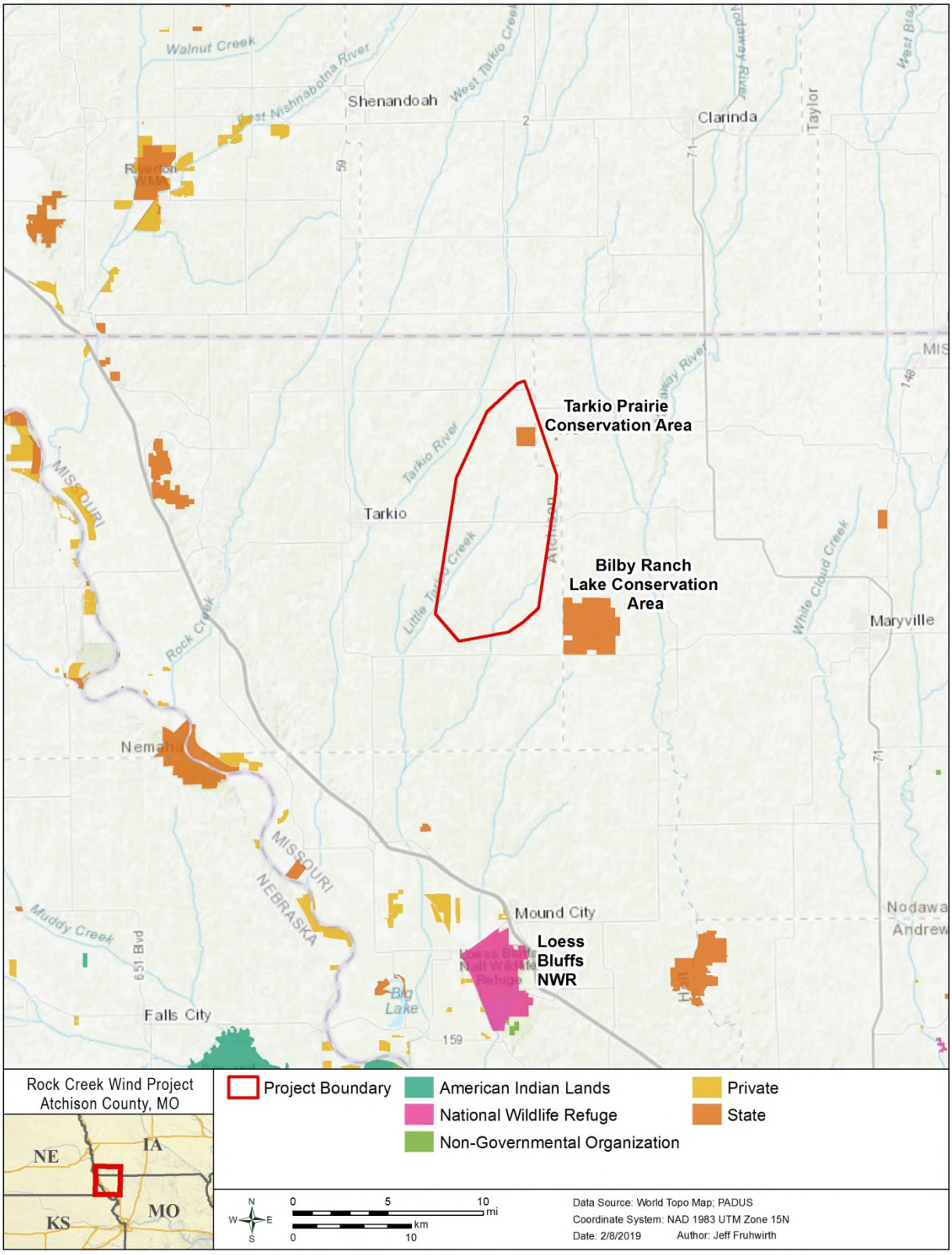

Figure 1. Location of the Rock Creek Wind Project.

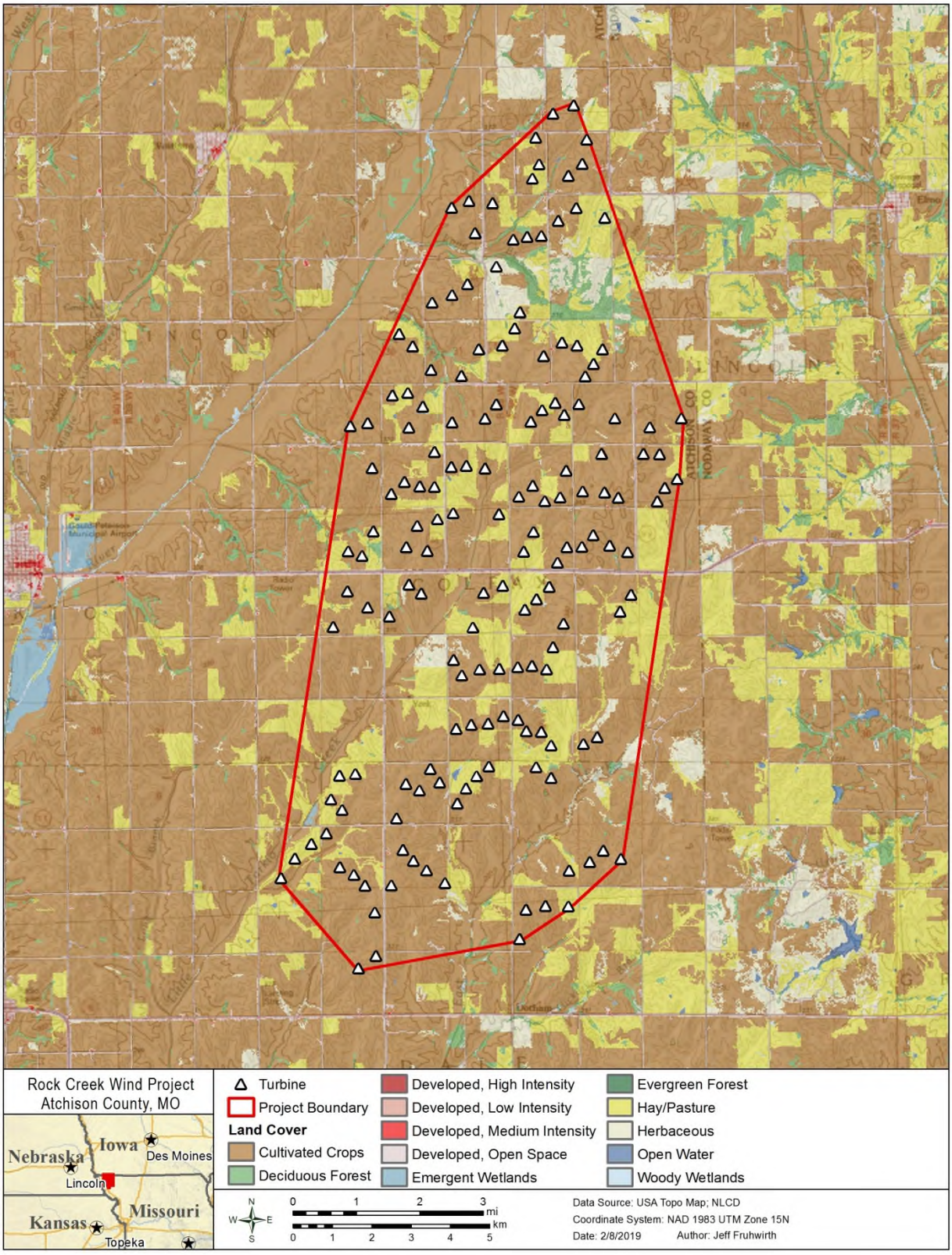

Figure 2. Rock Creek Wind Project facilities and land cover.

Table 1. Land use/cover types present within the Rock Creek Wind Project boundary.

Land Use/Cover	Project Acres	Percent Total
Cultivated Crops	26,326.3	69.8
Hay/Pasture	7,570.6	20.1
Developed, Open Space	1,512.2	4.0
Herbaceous	1,228.6	3.3
Deciduous Forest	938.5	2.5
Developed, Low Intensity	64.5	0.2
Woody Wetlands	41.6	0.1
Open Water	21.6	0.1
Emergent Herbaceous Wetlands	20.2	0.1
Developed, Medium Intensity	2.7	<0.1
Total	**37,726.8**	**100**

1.2.2 Operations and Maintenance

The Applicant operates and maintains the Project. Turbines, collection and communications lines, and the substation are operated, to the Service's knowledge, in accordance to standard industry operation procedures. Routine turbine maintenance is regularly performed to detect and prevent problems and to maximize performance. The Applicant has implemented the Avian Power Line Interaction Committee's suggested practices designed to minimize risk during construction of power poles associated with the generation tie-line (APLIC 2006). As a result, coverage of eagles associated with overhead transmission line electrocution was not requested as part of the Applicant's ITP application, and is therefore not assessed as part of this EA (Appendix D). As described further in Sections 1.3 and 1.5, the scope of this Final EA focuses on the potential effects of authorizing the take of bald eagles that may result from the operation of turbines, and therefore, no further discussion of Project operations or maintenance is necessary or included.

1.2.3 Eagle Conservation Plan

The Applicant has prepared an ECP through close coordination with the Service. In accordance with the ECPG (Service 2013), the ECP for the Project provides information on pre-construction eagle studies and agency coordination as well as project siting, design, construction, and operation measures that avoid and minimize the take of eagles to the point where remaining predicted take is unavoidable. It includes detailed analyses of risk, including estimation of anticipated levels of bald eagle take, and discusses conservation measures, adaptive management measures to ensure permit compliance. A copy of the ECP is included in Appendix A, and more discussion of the details within the Applicant's proposed ECP is included in the Alternatives discussion in Section 2.

1.2.4 Bird and Bat Conservation Strategy

The Applicant has prepared a Bird and Bat Conservation Strategy (BBCS) consistent with the Service's *Land-Based Wind Energy Guidelines* (WEG; Service 2012) and aspects of the ECPG (Service 2013) to voluntarily avoid and minimize potential impacts to birds and bats at the Project (see also 77 Federal Register [FR] 17496; March 26, 2012). The Applicant has completed Tier 1, 2, and 3 WEG studies (corresponding to stages 1 and 2 of the ECPG) and is conducting Tier 4 WEG studies (corresponding to stage 5 of the ECPG) in 2018 after the Project became operational.

Specific goals of the BBCS include: (1) demonstrate compliance with the WEG; (2) identify measures that will avoid and reduce potential impacts to birds and bats during construction, operation, maintenance, and decommissioning of the Project; (3) ensure the potential impacts to Endangered Species Act (ESA)-listed bat species are reduced to the point where take is unlikely; and (4) outline effective post-construction monitoring and adaptive management procedures to guide management actions for the life of the Project. This BBCS is a living document that the Applicant has voluntarily developed, and will evolve as needed in response to conditions throughout the life of the Project to minimize take to bats and birds.

1.3 Purpose and Need for the Action

1.3.1 Description of Federal Action

The federal action is the Service's decision to issue or deny an ITP that authorizes the take of bald eagles resulting from the operation of turbines within the Project footprint. The ITP holder would be the Applicant and the permit duration is 30 years.

1.3.2 Purpose and Need

The need for this action is to respond to Rock Creek Wind, LLC's request to obtain a 30-year take permit in compliance with the Bald and Golden Eagle Protection Act (BGEPA). This Final EA was prepared to review the potential impacts of issuing an ITP for incidental take of bald eagles during operation of the Project. The scope of this EA focuses only on the potential impacts associated with the potential impacts of issuing an ITP.

The Service is required to ensure compliance with BGEPA and continue to protect, conserve, and enhance the survival of eagles. The purpose of the federal action is to respond to the application submitted by Rock Creek, LLC (Applicant) to request the incidental take of 546 bald eagles over the course of 30 years that may result from the operation of the Applicant's commercial wind energy facility. The Service must make a decision on whether to authorize take of bald eagles while allowing the Applicant to produce and deliver renewable energy to the

power grid. Although recommended by the Service, incidental take of golden eagles was not requested as part of the Applicant's ITP application (Appendix D).

This purpose and need establishes the basis for determining whether other viable alternatives may meet the intended purpose and reduce potential effects. Alternatives considered for this analysis are the: (1) No Permit Issued Alternative, and the: (2) Preferred Alternative – Issuance of an ITP for a 30-year permit term and implementation of the ECP.

1.4 Regulatory Setting, Authorities, and Guidance

1.4.1 Bald and Golden Eagle Protection Act

Bald and golden eagles are afforded legal protection under authority of the BGEPA (16 United States Code [USC] §§ 668–668d). The BGEPA prohibits the take, sale, purchase, barter, offer of sale, purchase, or barter, transport, export or import, at any time or in any manner of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof. Take is defined as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," (16 USC § 668c), and includes criminal and civil penalties for violating the statute.

On December 16, 2016, the Service issued a final rule that includes revised regulations for eagle take permits and eagle nest take permits (2016 Eagle Rule). The Service also issued a final PEIS analyzing the revisions. The changes were effective January 17, 2017, and include changes to permit issuance criteria, duration (including a maximum permit term of 30 years), compensatory mitigation standards, and permit application requirements. These regulations codify and further define the Service-approved protocols for pre-construction eagle use surveys and post-permit fatality monitoring requirements. The Applicant applied for a 30-year term of take coverage for the Project under the revised 2016 Eagle Rule on May 26, 2017.

To facilitate issuance of ITPs for wind energy facilities, the Service revised its ECPG in 2013. If eagle risk is identified at a project site, developers are encouraged to follow the ECPG. The ECPG describes specific actions that are recommended to comply with the regulatory requirements in BGEPA for an ITP, as described in 50 CFR § 22.26 and § 22.27. The ECPG provides a framework to assess and mitigate risk specific to eagles through development of ECPs and issuance of ITPs for eagles at wind facilities to assure that there will be no population-level effects to bald or golden eagles associated with the issuance of ITPs.

1.4.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) is the cornerstone of migratory bird conservation and protection in the US. The MBTA implements four treaties that provide international protection of migratory birds. The MBTA states, "Unless and except as permitted by regulations…it shall be

unlawful at any time, by any means, or in any manner to pursue, hunt, take, capture, kill…possess, offer for sale, sell…purchase…ship, export, import…transport or cause to be transported…any migratory bird, any part, nest, or eggs of any such bird….[The Act] prohibits the taking, killing, possession, transportation, import and export of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior…" (see 16 USC § 703). The word "take" is defined by regulation as "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect…" (see 50 CFR § 10.12). Bald and golden eagles are protected by the MBTA in addition to the BGEPA. The US Department of the Interior released a memorandum (M-37050) on December 22, 2017 interpreting the intention of the MBTA. This memorandum states that the MBTA only applies to "affirmative actions that have as their purpose the taking or killing of migratory birds" and does not prohibit the accidental or incidental take of migratory birds as a result of otherwise lawful activities, such as the operation of a wind facility.

1.4.3 National Environmental Policy Act

NEPA [42 USC § 4321 et seq.] establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within federal agencies. NEPA requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic approach. Issuance of an ITP by the Service constitutes a federal action and thus requires an assessment of the potential environmental impacts associated with the action and alternatives under NEPA.

1.4.4 Executive Order 13175

Executive Order 13175 (Consultation and Coordination with Tribal Governments) directs federal departments and agencies to "have an accountable process to ensure meaningful and timely input from tribal officials in the development of regulatory policies that have tribal implication." Federal agencies must consult with tribal officials to ensure that environmental analyses of federal actions required by NEPA or other established environmental review processes evaluate the effects of actions and agency plans on tribal sovereignty or cultural and religious values. Tribal participation is an integral part of NEPA and the National Historic Preservation Act (NHPA) process, as well as a key component of determining whether to issue an ITP.

1.4.5 National Historic Preservation Act

The NHPA is intended to preserve historical and archaeological sites in the U.S. Among other things, the NHPA requires federal agencies to evaluate the effects of all funds, grants, or permits (an undertaking) on historic properties through a process known as Section 106 review. Section 106 of the NHPA mandates that federal agencies undertake review of all undertakings

that will impact sites listed on, or eligible for listing on, the National Register of Historic Places. The NHPA requires that federal agency "take into account" the effect an undertaking may have on historic properties. It allows interested parties an opportunity to comment on the potential impact an undertaking may have on historic properties. Undertaking is defined as a "project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency, including those carried out by or on behalf of a Federal agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license or approval." 36 CFR § 800.16(y). The application of an ITP is likely to be considered an undertaking; however, if the undertaking is a type of activity that does not have the potential to cause effects on historic properties, assuming such historic properties were present, the Service has no further obligation under Section 106. 36 CFR § 800.3(a)(1). The issuance of an ITP is not required to operate the Project and the alternatives under consideration do not affect the Project footprint; therefore, issuance of an ITP does not have the potential to cause effects on historic properties. Accordingly, we have determined that the Service has no further obligations under Section 106 and no Section 106 review process is required.

1.5 Scope of the Environmental Assessment

This Final EA considers alternative actions in response to the permit application to take bald eagles during operation of the Rock Creek Project. It analyzes the effects of the Service's denial (Alternative 1) or issuance (*i.e.* Preferred Alternative: Alternative 2) of a 30-year ITP for bald eagles on the human environment and evaluates impacts over the 30-year duration of the Project. Applying for an ITP is a voluntary measure by the Applicant, although any incidental take of eagles at the Project without an ITP would be a violation of BGEPA. The Applicant has requested an ITP for take of bald eagles incidental to operation of the Project, and has implemented avoidance and minimization measures throughout the construction of the Project to reduce potential adverse effects to eagles and other wildlife, as described in the ECP (Appendix A). Therefore the scope of this Final EA focuses only on the potential effects of issuing an ITP for take that is incidental to otherwise lawful activities at the Project.

The human environment, as analyzed in this EA, includes bald eagle populations and tribal cultural practices. Other resources of the human environment were determined to not have the potential to be affected by the federal action, as described further in Section 3.

As referenced in the Council on Environmental Quality's NEPA regulations regarding the contents of an EA (40 CFR § 1508.9[b]), NEPA Section 102(2)(E) requires federal agencies to develop, study, and briefly describe reasonable alternatives to any proposed action with the potential to result in unresolved resource conflicts. This Final EA evaluates the effects of two alternatives:

- Alternative 1 (No Permit Issued): Operation of the Project without an ITP.
- Alternative 2 (Preferred Alternative): Issue Permit for Applicant's ECP for Incidental Take of 546 (18.17 per year) Bald Eagles Over 30-year Permit Term.

Each alternative's feasibility is evaluated for its ability to meet the BGEPA permit issuance criteria as described in Section 1.5.2.

1.5.1 Geographic Extent

The geographic scale of the analyses for this Final EA is the LAP level and the Eagle Management Unit (EMU) level. Although recommended by the Service, the Applicant does not believe that operating wind turbines at the Project poses a significant or material risk to golden eagles based on their review of available information, and they have therefore not elected to seek authorization for incidental take of golden eagles as part of this permit application (Section 3.1, Appendix D). Therefore, the geographic extent focuses only on the bald eagle LAP. The LAP for the bald eagle species is defined by the dispersal distance of young: 86 miles (Service 2016). The Project's LAP for bald eagles is primarily within the Mississippi Flyway EMU, with some portion falling in the Central Flyway EMU (Figure 3).

Consideration of the effects of an ITP on LAPs follows the 2016 Eagle Rule. The BGEPA permit issuance evaluation must also consider the take level of the Project in the context of the EMU take limit. The Project is located in the Mississippi Flyway EMU, so the Final EA discusses the Project's potential contribution to cumulative effects to the bald eagle populations in the context of the Services' take limits in this EMU.

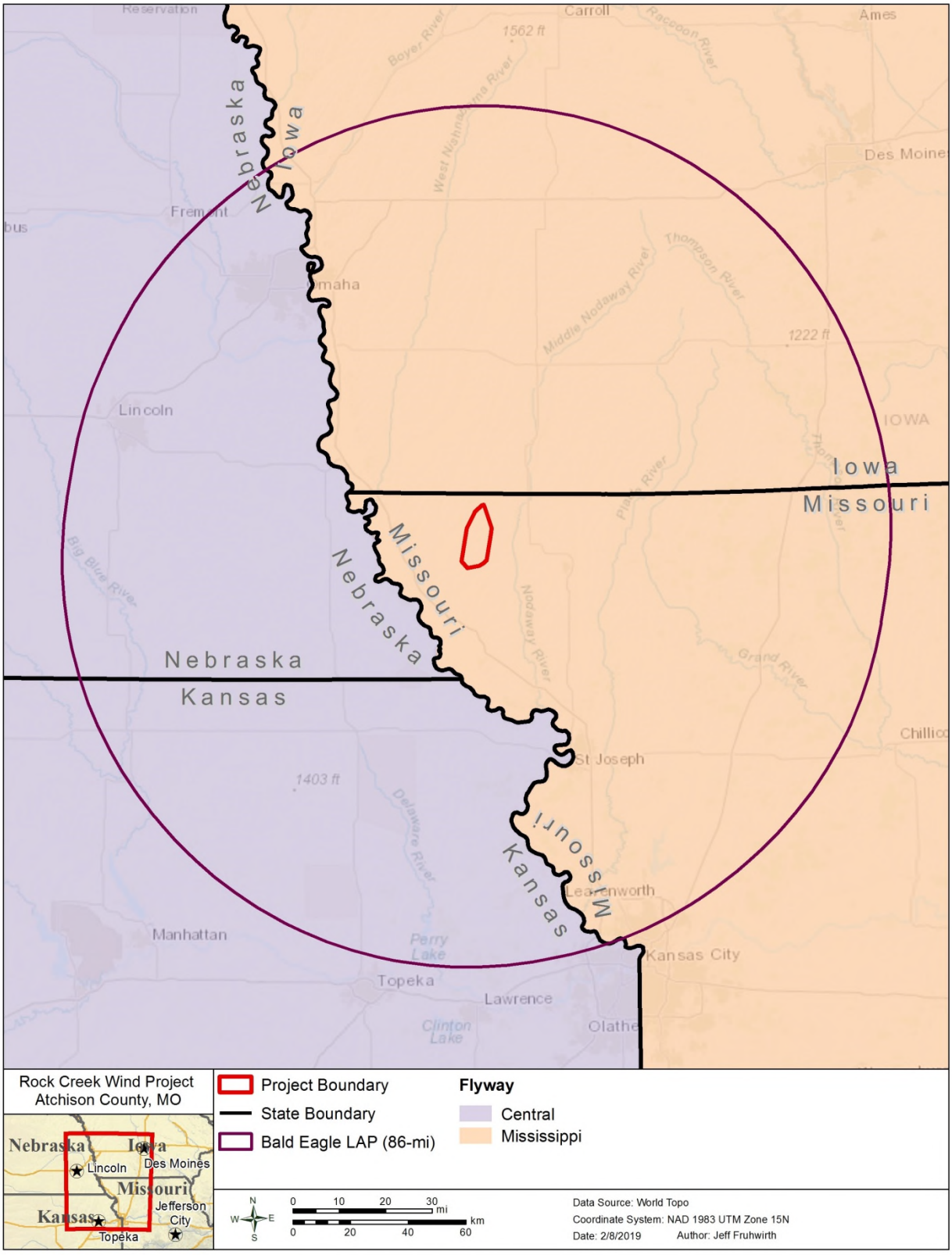

Figure 3. Bald eagle local area populations for the Rock Creek Wind Project.

1.5.2 Permit Issuance Criteria

In the analysis of alternatives, the Service considers whether each alternative will meet the permit issuance criteria for ITPs under 50 CFR § 22.26(f)(1–7). The Service may not issue an ITP unless the following issuance criteria are met:

1. The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting the eagle populations within the EMU and the LAP, are compatible with the preservation of bald eagles and golden eagles.
2. The taking is necessary to protect a legitimate interest in a particular locality.
3. The taking is associated with, but not the purpose of, the activity.
4. The applicant has applied all appropriate and practicable avoidance and minimization measures to reduce impacts to eagles.
5. The applicant has applied all appropriate and practicable compensatory mitigation measures, when required, pursuant to paragraph (c) of this section, to compensate for remaining unavoidable impacts after all appropriate and practicable avoidance and minimization measures have been applied.
6. Issuance of the permit will not preclude issuance of another permit necessary to protect an interest of higher priority as set forth in paragraph (e)(4) of 50 CFR § 22.26.
7. Issuance of the permit will not interfere with an ongoing civil or criminal action concerning unpermitted past eagle take at the project.

1.5.3 Tiering Criteria

The 2016 PEIS states that the Service anticipates tiering subsequent reviews for specific projects off of the PEIS, which would involve a streamlined review, including a summary of the issues discussed in the PEIS and incorporation by reference of appropriate analysis included in the PEIS (Service 2016). This tiering approach is stated as appropriate when a specific project meets the following three criteria:

a) The project “will not take eagles above the EMU take limits (unless it is offset)”
b) The project “will not result in cumulative authorized take within the Local Area Population exceeding 5%”
c) The project “will fulfill their compensatory mitigation requirements via methods that will offset the take”

Tiering to the PEIS eliminates repetitive discussions of recurring issues already analyzed in the PEIS, focusing the tiered document on site-specific unaddressed impacts.

1.5.3.1 EMU Take Limits

As stated above, another criterion for determining if a project can tier to the PEIS is that the project will not take eagles above the EMU take limit, which is based on a harvest threshold of 6% of the estimated EMU population. The official estimated bald eagle population in the Mississippi Flyway EMU, where the Project is located, is 27,334, with an associated allowable annual take limit of 1,640 bald eagles (Service 2016). The annual take level under consideration for the Project is 18.17 bald eagles attributed to the Mississippi Flyway EMU. At the time of this EA, the Service has permitted the take of 87.12 bald eagles in the Mississippi Flyway (Service 2018). Therefore an ITP for 18.17 bald eagles associated with the Project in the Mississippi Flyway would not exceed the Flyway's take limits.

1.5.3.2 Local Area Population Calculations

The Service has identified 5% of the LAP for bald eagles (defined as the number of resident eagles within 86 miles of Project turbines) as a permitting benchmark: permitted take levels below 5% of the LAP are considered compatible with the preservation of bald eagles (Service 2016). The 5% threshold is also one of the criteria considered when determining if a project can tier to the PEIS. For the Project, the LAP is estimated to be 849 bald eagles (results of the Service's Cumulative Effects Tool, Appendix C). This estimate utilized 2009 population data and is based on the median distance eagles disperse from the nest where they are hatched to where they settle to breed (Service 2016).Take rates between 1% and 5% of the estimated LAP size (for this Project, 8.5 and 42.5 bald eagles, respectively) are considered sustainable by the Service, with 5% being at the upper end of what might be appropriate under the BGEPA preservation standard (Service 2016). The annual take level under consideration for the Project is 18.17 bald eagles, which is approximately 2.1% of the LAP. However, the Service anticipates that this estimated level of take for the Project is likely a conservative overestimate.

As described further in Section 4.3, there are several existing wind projects within the Project's LAP, but at the time of this Final EA no authorizations have been granted for bald eagle take at any of these facilities. There are three project permits for eagle take located outside of the Project's 86-mile dispersal area, but located within 172 miles of the Project so that their associated LAPs overlap to a small degree with the Project's dispersal area. The Service estimates that the overlapping take associated with these three take permits amounts to 0.44 bald eagle per year within the Project's 86-mile LAP. Therefore, an ITP for 18.17 bald eagles associated with the Project together with the 0.44 bald eagle of other permitted take (a total of 18.61 bald eagles, or 2.19% of the LAP) would not reach a cumulative authorized take level of 5% (42.5 bald eagles) of the LAP.

1.5.3.3 Compensatory Mitigation

As stated above, the estimated annual take at the Project represents 2.1% of the total LAP of 849 bald eagles and is below the 5% sustainable annual take of the LAP; therefore, mitigation is not required for the Project (Service 2016). Furthermore, the Service anticipates that the estimated level of take for the Project of 18.17 bald eagles per year is likely a conservative overestimate. If an ITP is issued and the ECP and permit requirements are implemented, the actual level of take, as estimated through third-party post-construction monitoring, may be used to recalculate the Project's level of take at the first five-year interval, and the permitted level of take may be adjusted if the post-construction fatality data indicates that is appropriate.

In addition, as bald eagle populations continue to increase in the Mississippi Flyway EMU, the level of take for this Project is expected to stay within the sustainable threshold for the regional bald eagle population for the foreseeable future. Therefore, the Project meets the third criterion for tiering to the PEIS.

Because this Project meets the criteria for tiering to the PEIS, this Final EA incorporates by reference the relevant impacts analysis from the PEIS as if fully set forth herein, thereby narrowing the scope to focus on a project-specific description of the affected environment (Section 3) and the potential effects of the alternatives compared with the effects described in the PEIS (Section 4).

1.6 Internal Scoping

The Service engaged in an internal scoping process in the Midwest Region from June 2016 to November 2016. The Service worked with regional program leaders to determine the appropriate level of NEPA analysis for the ITP application, and to develop the scope of analysis to be included in the EA. When the Applicant indicated their plans to submit an updated application for an ITP under the 2016 Eagle Rule, the Service conducted additional internal scoping in January 2017 to determine whether the Project qualified for tiering to the PEIS, ultimately deciding that tiering under the PEIS was appropriate.

1.7 Tribal Trust Coordination

In accordance with Executive Order 13175 and the Service's American Indian Policy, the Service consults with American Indian tribal governments whenever actions taken under authority of the BGEPA may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the NHPA (54 USC § 300101 et seq., 1966), the American Indian Religious Freedom Act (42 USC 1996, 1978), and Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments, 2000). To coordinate with tribes regarding potential issuance of an ITP, the Service sent official letters on August 7, 2017,

to four tribes that were identified to have potential interests or resources near the Project. Comments were welcomed, but no responses were received.

1.8 Public Comments

The Service published the Draft EA on the Midwest Region's Eagle Permit website on December 7, 2018, opening a 30-day comment period. One submission was received; the Missouri Department of Conservation (MDC) provided a response on January 9, 2019. The MDC noted some general concern with the potential for cumulative effects from wind projects on bald eagles in the area (EMU, LAP, and Project-scale), and indicated that issuing an ITP for the Project would be useful for the additional information that will be gathered through monitoring and reporting of eagle take at the Project. The MDC response letter is provided in Appendix E.

1.9 Federally Listed Species

The Service conducted an intra-agency consultation under Section 7(a) of the ESA during the internal scoping process and as part of the evaluation of the ITP application. As described further in Section 3.1, the issuance of the ITP (or the Preferred Alternative) is not expected to result in significant adverse impacts to ESA-listed species. The Service's Intra-service Section 7 Biological Evaluation (Appendix B) documents the anticipated effects of the overall Project (regardless of whether an ITP is granted or not) on listed species, with the following effect determinations: No Effect on the listed bird, fish and plant species described in Section 3.1, a May Affect but Not Likely to Adversely Affect for Indiana bat, and May Affect and Likely to Adversely Affect for northern long-eared bat. Regarding northern long-eared bat, there are no anticipated effects beyond those previously disclosed in the Service's programmatic biological opinion for the final 4(d) rule dated January 5, 2016, and therefore, the programmatic biological opinion satisfies the Service's responsibilities under ESA Section 7(a)(2) relative to the northern long-eared bat for this Project. See Section 3.1 and Appendix B for more information.

1.10 US Fish and Wildlife Service Consultation

The Applicant has communicated on a regular basis with the Service and the Missouri Department of Conservation (MDC) regarding studies and impact avoidance measures since the early planning stages of the Project. In-person meetings, phone calls and emails between the Applicant and its technical consultants, the Service, and MDC have guided project development studies and impact avoidance decisions. The Applicant will continue to coordinate with the agencies during the permit application and review process, as well as for the life of the Project as described in the Applicant's ECP. Table 2 of the ECP (Appendix A) provides a chronological list of correspondence between the Applicant, agencies, and consultants beginning in the summer of 2008 up to the most recent conference calls and meetings in 2017.

2 Alternatives

2.1 Introduction

The Council on Environmental Quality's NEPA regulations (40 CFR § 1508.9[b]) require EAs to develop, study, and briefly describe a reasonable range of alternatives to a federal action and evaluate how those alternatives can resolve resource conflicts. This chapter describes the alternatives the Service considered during preparation of this EA.

2.2 Description of Alternatives Carried Forward for Detailed Analysis

2.2.1 Alternative 1 – No Permit Issued – Operation of the Project without an Incidental Take Permit

Under Alternative 1, the Service would deny the permit application and would not issue an ITP. The Service could deny the permit application because it fails to meet one or more of several issuing criteria under 50 CFR § 22.26, or because the Service has determined that the risk to eagles is so low that a take permit is unnecessary. Should Alternative 1 be selected, the Project would operate without the Service issuing a take permit. The Applicant would voluntarily follow the BBCS under this alternative, which would involve avian and bat fatality monitoring during the first two years of operation. The Applicant could also elect to implement certain measures defined in the ECP at their own discretion and would likely take actions to avoid and minimize the potential to take eagles, which would be considered unpermitted take in violation of BGEPA under this alternative. However, under Alternative 1, no ITP would be issued and there would be no requirement for the Applicant to implement any part of the ECP.

2.2.2 Alternative 2 – Preferred Alternative – Issue Incidental Take Permit per the ECP for Average Annual Take of Up to 546 Bald Eagles Over 30-Year Permit Term

Under this Alternative, which is the preferred alternative, the Service would issue a 30-year permit to take up to 546 bald eagles (an average of 18.17 per year) under the Applicant's implementation of the proposed ECP with associated conditions, pursuant to 50 CFR § 22.26(f). The permit would incorporate all conservation, avoidance, and minimization commitments described in the ECP (Appendix A). Under this alternative, the Applicant's proposed adaptive management process and fatality monitoring would be implemented as outlined in their ECP (Appendix A). Two to three years of third-party monitoring would occur in the first five years of the ITP under this alternative, with the third year of monitoring conducted if triggered by the

adaptive management framework. Third-party monitoring will also occur at five year intervals for the operational life of the Project (Years 5, 10, 15, 20 and 25). In the years when third-party monitoring is not conducted, operations staff will visit each turbine regularly; during visits, the staff will inspect roads, pads and any other cleared area in the immediate vicinity of turbines visible from their vehicle. Any eagle carcasses that are discovered by operations staff or incidentally observed will be reported. Through coordination with the Service, the adaptive management approach and monitoring commitments have been designed to be able to adequately monitor the level of actual take at the Project. Every five years the Applicant and Service will meet to ensure compliance with the terms and conditions of the permit and implementation of all applicable adaptive management measures specified in the permit (Service 2016).

3 Affected Environment

This chapter provides background on the environmental resources that are evaluated in the context of the federal action and alternatives. Specifically, this chapter describes bald eagles and tribal cultural practices. The initial section of the chapter discusses resources that were dismissed from further analysis as they have no consequence on the decision derived from this EA.

3.1 Resources Dismissed from Further Evaluation

Based on the alternatives under consideration, the Service has determined that a number of resources will not be impacted by either alternative. Because wind project operators are not legally required to seek or obtain an ITP (i.e., the ITP does not authorize the Project), the Applicant has the option of continuing Project operations without filing an ITP application. Additional, this Project is already built and operational. As the Service is only evaluating whether or not to issue an ITP for existing Project operation, which includes full consideration of all the required determinations by the Service before an ITP can be issued, we have concluded that a number of resources would not be impacted by either Alternative. The resources that the Service has concluded will not be impacted by the Preferred or No Permit Issued alternatives include: air quality/ climate, environmental justice, fisheries, geology and soils, human health and safety, land use, noise, surface waterbodies and floodplains, vegetation, visual resources, wetlands, social and economic values, historic and archaeological resources, migratory birds, bats, and other wildlife.

3.1.1 Federally Listed Species

There are two bat species (northern long-eared bat [*Myotis septentrionalis*] and Indiana bat [*Myotis sodalist*]), three bird species (piping plover [*Charadrius melodus*], least tern [*Sternula antillarum*], and red knot [*Calidris canutus*]), one fish (pallid sturgeon [*Scaphirhynchus albus*]), and one plant (western prairie fringed orchid [*Platanthera praeclara*]) listed under the ESA with the potential to occur in the general Project area. Regarding bats, the Applicant has conducted multiple studies to determine the presence of and potential risk to listed bat species at the Project, and has voluntarily committed to monitoring and adaptive management measures to avoid and minimize impacts to these species, as described in the BBCS. The Applicant has committed to feathering turbines (reducing the speed of rotating blades during low wind periods) below cut-in speeds from sunset to sunrise during all bat-active seasons (spring, summer and fall) to minimize impacts to all bat species. Additionally, the adaptive management framework developed as part of the BBCS documents that the Applicant will confer with the Service should an ESA-listed species be documented to be affected by the Project. The Service's

Intra-service Section 7 Biological Evaluation (Appendix B) documents the anticipated effects of the overall Project (regardless of whether an ITP is granted or not) on listed species, with the following effect determinations: No Effect on the listed bird, fish and plant species, May Affect but Not Likely to Adversely Affect for Indiana bat, and May Affect and Likely to Adversely Affect for northern long-eared bat. However, as Appendix B states, there are no anticipated effects for the northern long-eared bat beyond those previously disclosed in the Service's programmatic biological opinion for the final 4(d) rule dated January 5, 2016. Any taking that may occur incidental to this Project is not prohibited under the final 4(d) rule (50 CFR §17.40(o)). This Project is consistent with the description of the proposed action in the programmatic biological opinion, and the 4(d) rule does not prohibit incidental take of the northern long-eared bat that may occur as a result of this Project. Therefore, the programmatic biological opinion satisfies the Service's responsibilities under ESA Section 7(a)(2) relative to the northern long-eared bat for this Project.

The BBCS will be voluntarily implemented regardless of whether an ITP is issued or denied. Because no ground-disturbance would occur as a result of the authorization of take of eagles and associated implementation of the ECP, no effects to the sturgeon or the prairie orchid would be anticipated as a result of the federal action under consideration. Potential adaptive management techniques discussed in the BBCS and ECP include curtailment during nighttime and/or daylight hours. Nighttime curtailment of specific turbines identified as high-risk to protected bat species during defined seasons or periods, as discussed in the BBCS, is likely to result in a reduced risk to bats, including migratory tree bats. Nighttime curtailment is not expected to affect the risk of migratory bird species. Conversely, the ECP identifies detect-and-curtail systems as a potential adaptive management measure to identify at-risk eagles and shut down or slow turbine operations in response, likely during daylight hours. Detect-and-curtail systems would not be expected to affect risk to bats. The three listed bird species may infrequently occur within the Project boundary, but have not been observed during use studies and the relatively small difference in operation time that may result from any curtailment that occurs from implementation of the ECP would not be expected to significantly affect the risk to these species. Therefore, the alternatives under consideration in this Final EA would not be expected to directly affect listed species, and they are not carried forward for detailed analysis.

3.1.2 Golden Eagles

A small number of golden eagles may winter in northwest Missouri; golden eagles are not known to breed in the area. The closest observations of golden eagles recorded by eBird in the vicinity of the Project were recorded at the Loess Bluffs National Wildlife Refuge (NWR) in Holt County in 2013, 2012, 2011, 1997, and 1968 (eBird 2015). Another observation was made at the Nodaway Valley Conservation area in October of 2014 (eBird 2015). All observations were made between October and April, with no observations recorded during the summer months. These

observations are the closest recorded golden eagle occurrences in the eBird database and all are over 15 miles south of the Project.

As part of the eagle use studies that occurred at the Project, four golden eagle observations were made during the 564 survey hours conducted between December 2014 and March 2016, accounting for less than one percent of the total eagle observations at the Project. Two golden eagles were observed in winter 2014/2015, and two were observed in winter 2015/2016.

Although recommended by the Service, the Applicant does not believe that operating wind turbines at the Project poses any significant or material risk to golden eagles based on their review of available information, and it has therefore not elected to seek authorization for incidental take of golden eagles as part of this permit application (Appendix D). As part of this federal action, risk to golden eagles would not increase. Under the Preferred Alternative avoidance and minimization measures may further reduce the potential risks to golden eagles. Should a golden eagle fatality be discovered during post-construction monitoring, the Applicant will initiate consultation with the Service.

3.2 Resources Evaluated and Brought Forward for Detailed Analysis

The following resource areas have the potential to be impacted by the alternatives under consideration and are presented below, with potential effects evaluated in Chapter 4 of this EA:

- Bald Eagles
- Tribal Cultural Practices

3.2.1 Bald Eagles

General information on the taxonomy, ecology, distribution, and population trends of bald eagles are given Section 3.2.1 of the PEIS (Service 2016). The rest of this section deals more specifically with bald eagle populations in the vicinity of the Project. In Missouri, eagle nests have been reported in 91 out of the total 114 counties. During the most recent nest survey (2011) 166 bald eagle territories were classified as “active” by the state. Far larger numbers of eagles, several thousand, migrate through or winter in Missouri (MDC 2012).

The number of bald eagles that winter in Missouri has been generally increasing, with winter counts in 2005/2006 recording 2,060 eagles, and 2,661 bald eagles recorded in 2011/2012 (MDC 2012). Areas with known high winter use include Eagle Bluffs Conservation Area in Boone County, Lake of the Ozarks, several areas along the Mississippi River, Swan Lake NWR north of the Missouri River, the Schell Osage Conservation Area along the Osage River, Table Rock Lake south of Branson, and Loess Bluffs (formerly Squaw Creek) NWR, which is located approximately 12 miles south of the Project.

3.2.1.1 Project Vicinity Distribution

The Project is approximately 10 to 15 miles east of the Missouri River, which serves as a major migration corridor and provides suitable nesting habitat for bald eagles. The eBird database shows several bald eagle observations along the Missouri River and several more within Atchison County, including one observation less than two miles west of the Project (eBird 2016). The eBird database is housed and managed by the Cornell Laboratory of Ornithology and is currently the largest inventory of geospatial data on birds in the world and provides an unparalleled resource for the analysis of bird distributional patterns over time and space for most of North America (Sullivan et al. 2009).

In addition to the eBird database, the Audubon Christmas Bird Counts (CBC) can be a useful resource for evaluating avian use and wintering activity. The CBC is administered by the National Audubon Society (Audubon) and provides information on wintering bird abundance throughout the US. Bird occurrence data is gathered annually by volunteer observers at a series of 15-mile diameter circles on a single day within two weeks of Christmas. The CBC is the longest-running citizen science bird project, with the program originating in 1900, and currently being conducted at over 2,300 circles across North and South America. The Maryville CBC Circle is closest to the Project (about 14 miles east) and has had surveys completed every year since 2003. Bald eagles have been reported at the Maryville CBC circle each year between 2003 and 2013, with a 10-year average of 0.6271 bald eagles per party hour reported (Audubon 2016).

As noted above, the Loess Bluffs NWR is known for wintering bald eagle populations and is located 12 miles south of the Project. From October through April, bald eagles were documented every year in relatively high numbers between 1992 through 2016, ranging from 513 observations (winter of 1997/1998) to 1,765 observations in 2006/2007, and averaging 1,034 bald eagle observations over this time period (J. Ledwin, Service, personal communication 2017).

3.2.1.2 Project-Specific Use and Distribution

The Applicant conducted an aerial survey for raptor nests in late March 2015 with additional follow-up nest monitoring from the ground in mid-April 2015. Two active and occupied bald eagle nests and five potential bald eagle nests were identified within a five- to seven-mile buffer around the Project boundary. The two occupied bald eagle nests were located more than five miles from the Project boundary. Two of the unoccupied, potential bald eagle nests were located in the northwestern portion of the Project; the remaining three potential bald eagle nests were located five or more miles away to the northeast, relatively near the Nodaway River. In 2016, an aerial survey was conducted in March. Five occupied and active bald eagle nests, one bald eagle nest that was not active but was likely an alternative nest in an occupied territory, and two unoccupied nests that were consistent with bald eagle nest characteristics

were documented in the March survey. One occupied and active nest was located within the Project (near the Tarkio River at the edge of the Project boundary), with the remaining documented outside of the Project. Follow up monitoring of this nest from the ground occurred during May. There were no eggs, chicks, or eagles observed at or near the nests, and it was considered to be a failed or inactive nest in 2016. Additional details on aerial and ground monitoring of eagle nests are include in Section 5 of the ECP (Appendix A).

During construction of the Project in 2017, a new bald eagle nest was observed by construction personnel in mid-April along Tarkio River, approximately 1,600 feet west of the closest turbine. The Applicant coordinated with the Service after the nest was observed, and contracted biologists to monitor the nest for 68 hours on 13 visits from May 31 through August 25, 2017. One eaglet successfully fledged the nest, and all observed eagle flight paths were documented and digitized. Overall, eagle flights associated with this nest were concentrated in the vicinity of the nest and Little Tarkio Creek, within the Project boundary. Eagles were relatively frequently observed flying in the vicinity of the six turbines within 1,600 feet of the nest (turbines G-7 through G-12), with fewer flightpaths observed near six other turbines located farther away (G-4, G-5, G-6, G-7, H-10 and H-11). More details on the activity observed in the 2017 nest monitoring can be found in Appendix B of the Applicant's ECP (Appendix A).

Pre-construction eagle use surveys occurred at the Project for 15 months, from December 13, 2014 through March 16, 2016. Surveys were initially conducted at 24 point counts, and then expanded to 36 point counts to adjust for changes to the Project boundary, and to address comments from the Service. Appendix A contains the full methodology for the use surveys; at every point, the number of individuals, sex and age class (if possible), distance from plot center when first observed, closest distance, altitude above ground, activity (behavior), flight direction and height, and habitat(s) were recorded for each eagle observation. A total of 564 hours of eagle use surveys were conducted. The survey protocol conducted at the Project deviates from some of the requirements that were promulgated in the 2016 Eagle Rule, but the Applicant coordinated the survey approach with the Service who, prior to the publication of the 2016 Eagle Rule agreed it would be sufficient to gather data on eagle use at the Project. On December 1, 2017, the Service issued a Memorandum signed by Assistant Director Jerome Ford (2017) which lists three categories of projects that qualify for a waiver (Service 2017). One of these categories includes projects that were not operational prior to January 1, 2017. The Service intends to issue a waiver for the Project, as meeting this category.

During the survey, 479 bald eagles were observed at all points, for a total of 754 flight minutes within the rotor-swept zone (below 200 meters). Within the current Project footprint, 523 bald eagle minutes were recorded under 200 meters.

The results of the use survey indicate generally even spatial distribution of eagle use throughout the Project, with seasonal use varying; use appears to be highest in winter

(December through March) compared to the rest of the year. Additional details on the results of the eagle use surveys can be found in the ECP (Appendix A). The Service notes that the new nest that was observed in April 2017 likely changes the use pattern and risk profile for the Project. As a result, the Applicant will monitor nest activity in addition to other PCM, as outlined in the ECP.

3.2.2 Tribal Cultural Practices

There are no tribal trust lands in the Project. Neither of the alternatives under consideration would result in ground disturbing activities that could directly affect archaeological resources; additionally, none of the alternatives would affect the visual resources in the Project area (i.e., the turbines would be in the same locations no matter the alternative). Therefore, the alternatives under consideration in this Final EA would not be expected to directly affect tribal trust land or archaeological resources. However, eagles and their feathers are sacred in many American Indian traditions. Section 3.7.1 of the PEIS describes the spiritual significance of eagles to American Indians.

4 Environmental Consequences

4.1 Introduction

The 2016 PEIS presented analyses of potential impacts to eagles as a result of issuing ITPs as described in Section 1.5.3. The following section includes a summary of the PEIS analyses, as well as Project-specific details and how they fall within the effects already analyzed in the PEIS. This section also discusses the potential contribution to cumulative effects of the alternatives under consideration.

4.2 Assessment of Alternatives

The alternatives listed below are evaluated on the basis of the 30-year Project lifespan and permit term.

- Alternative 1 (No Permit Issued): Operation of the Project without an ITP
- Alternative 2 (Preferred Alternative): Issue Permit for Applicant's ECP for Incidental Take of 546 (18.17 per year) Bald Eagles Over 30-year Permit Term

In determining the significance of effects on eagles, the Service evaluated each alternative against BGEPA's Permit Issuance Criteria (Section 1.5.2). The effects were also assessed in the context of the impacts analyses included in the PEIS. The Service has also used some qualitative analysis based on knowledge of the wind resource area and studies of local eagle populations, as well as site-specific eagle use information as provided by the Applicant (ECP, Appendix A).

4.2.1 Bald Eagles

4.2.1.1 Alternative 1: No Permit Issued

Under this Alternative, the Service would deny the permit issuance. Under this Alternative, direct impacts of the Project on the bald eagle population would be quantified through fatality monitoring during the first two years of operation, which the Applicant proposes to voluntarily conduct in accordance with the BBCS.

Under this Alternative, the Project would operate without an ITP. It is expected that the Applicant would take measures to minimize and avoid the take of bald eagles at the Project if no ITP is issued in order to minimize the risk of violating BGEPA. However, these measures would be voluntary. The monitoring commitments and adaptive management measures described in the ECP would not be required or legally enforceable.

Should the Project result in the take of bald eagles under this Alternative, the Applicant would be in violation of BGEPA. The BGEPA prohibits unpermitted take of eagles which is defined as, "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb" (50 CFR 22.3)."

4.2.1.2 Alternative 2: Preferred Alternative

Under this alternative, all Applicant-committed measures and adaptive management requirements will be fulfilled, as described in the ECP. As derived from Appendix C, up to an estimated 546 (18.17 per year) bald eagles may be taken over the 30-year permit duration from operation of the Project.

As described in Section 1.5.3, the Project meets the PEIS tiering criteria (Service 2016). As documented in Section 3.2.2 of the PEIS, the Service has determined that take levels like those predicted at the Project (which result in a cumulative authorized take of less than 5% of LAP and do not exceed the EMU take limit) will not result in significant impacts to bald eagle populations, and are compatible with BGEPA. The two to three years of third-party post-construction monitoring that will occur in the first five years as a requirement of the ITP under this alternative will be designed to document the actual take of bald eagles at the facility, allowing the Service to refine the modeled take predictions to be more accurate. The continued implementation of monitoring and adaptive management measures described in the ECP (Appendix A) throughout the remaining term of the ITP under this alternative will allow the Service to track the take at the Project and ensure that adequate measures are followed to keep the take level at or below permitted levels.

The Service has independently assessed the risk to bald eagles based on the Project-specific use data (Appendix C). The Service's Collision Risk Model (CRM) indicates an estimated annual average take of 18.17 bald eagles at the upper 80-percentile credible interval (Appendix C). Based on knowledge of documented bald eagle mortalities at wind projects in the Mississippi Flyway, 18.17 is likely to be a conservative estimate of take at the Project. As described in the 2016 PEIS, it is the Service's intention to use the results of the post-construction monitoring at the first five-year permit review to reevaluate the estimated take of the Project for the remaining 25 years of the permit.

In order to address the potential change in risk profile that was introduced by the new nest that was observed in April 2017, the nest will be monitored during spring throughout the first two to three years of post-construction monitoring in order to document adult bald eagle use, indication of nesting attempt and number of fledglings produced. Based on the intensity and context of the effects on bald eagles, Alternative 2 is not expected to result in significant adverse effects to the bald eagle population at the LAP or EMU Flyway Level.

4.2.2 Tribal Cultural Practices

4.2.2.1 Alternative 1: No Permit Issued

Section 3.7.2.1 of the PEIS, page 129, describes the potential negative impacts to American Indians if the permit issuance is perceived as desecration of something sacred. Under this alternative, eagle remains found at the Project and reported to the Service will be sent to the National Eagle Repository and made available for American Indian cultural practices. Denial of the ITP under this alternative would not hinder the ability of American Indian tribes to obtain eagles or eagle parts for traditional religious purposes.

4.2.2.2 Alternative 2: Preferred Alternative

Issuance of an ITP to the Project is not expected to interfere with cultural practices related to eagles or the use of eagle parts. Similarly to the No Permit Issued alternative, any eagle remains found at the Project will be sent to the National Eagle Repository and made available for American Indian cultural practices. Implementation of post-construction monitoring under this alternative would promote detection of eagle carcasses in a timely manner, while feathers and parts are still in good condition. The potential adverse spiritual impacts described in the PEIS would still have the potential to occur under this Alternative. However, as described above, the monitoring and adaptive management that would occur for the life of the Project under this alternative would have the potential to decrease the overall number of bald eagles taken at the Project compared to the No Permit Issued alternative, therefore reducing this potential adverse effect.

4.3 Cumulative Effects

This section evaluates cumulative effects on eagles as required by NEPA (CFR § 1508.8) and BGEPA's permitting regulations. As part of its permit application review process (50 CFR § 22.26 (f)(1) and Service 2016), the Service is required to evaluate and consider effects of ITPs on eagle populations at three scales: (1) the EMU, (2) local area, and (3) project area. The Service's evaluation also considers cumulative effects. Most of the cumulative effects of ITPs on national and regional eagle populations were analyzed in the PEIS, which this Final EA tiers to. Therefore the EA's cumulative effects analysis is focused on other known permitted take within the LAP and EMU, with a qualitative discussion of other sources of unpermitted take.

The purpose of this cumulative effects evaluation is to identify situations where take, either at the individual project level or in combination with other present or foreseeable future actions and other limiting factors at the LAP and EMU scales, may be approaching levels that are biologically problematic or which cannot reasonably be offset through compensatory mitigation.

As noted in Section 1.5.3, the Service has permitted the take of 87.12 bald eagles in the Mississippi Flyway EMU at the time of this EA. Therefore an ITP for 18.17 bald eagles associated with the Project would not exceed the cumulative Mississippi Flyway EMU take limit of 1,640. Furthermore, as described in Section 1.5.3, the estimated annual take of 18.17 bald eagles predicted at the Project does not exceed the 5% LAP threshold. At the time of this EA, no other wind project within the LAP has obtained or is applying for an ITP and the other permitted take that have overlapping LAPs amount to a cumulative overlapping take of only 0.44 bald eagle per year, so the cumulative permitted take level including the Project's (18.61 bald eagles) is still below 5% of the LAP. Although there are no other wind projects with eagle take permits in the LAP, there are multiple operating wind projects, and it is possible that the other wind projects in the LAP are incidentally taking bald eagles.

As described in the PEIS, there are other sources of eagle mortality than industrial-scale wind projects; in fact, lead-poisoning, electrocutions and traffic collisions have been shown to have higher mortality levels on bald eagles than wind projects to date. The exact number of bald eagles taken by these other anthropogenic sources within the LAP is unknown. However, the Service examined the information that is known on unpermitted take within 172 miles of the Project (i.e., a distance that would capture overlapping LAPs), based on instances of dead or injured bald eagles that have been reported to the Service (results of the Service's Cumulative Effects Tool, run October 16 2018 at 14:21). Between the years of 2001 and 2018, there were 109 records of bald eagles taken without permits in this area, averaging to 6.1 bald eagles per year. The main causes of death of these reported eagles were poisoning and shootings, with collisions (traffic, overhead lines, and others) also contributing. It is important to note that many of these bald eagle take instances occurred in counties that are outside of the Project's LAP (Figure 4), with only small sections of overlapping take. Therefore the corresponding cumulative level of recorded unpermitted take within the Project's LAP would be expected to be significantly lower than 6.1 per year.

Further, as described in the PEIS, the LAP and EMU take thresholds were designed to incorporate these other sources of baseline take, so that the permitted thresholds (which this Project meets) would still meet BGEPA's preservation standard.

The bald eagle take at the Project does not exceed 5% of the LAP; therefore, mitigation is not required under BGEPA.

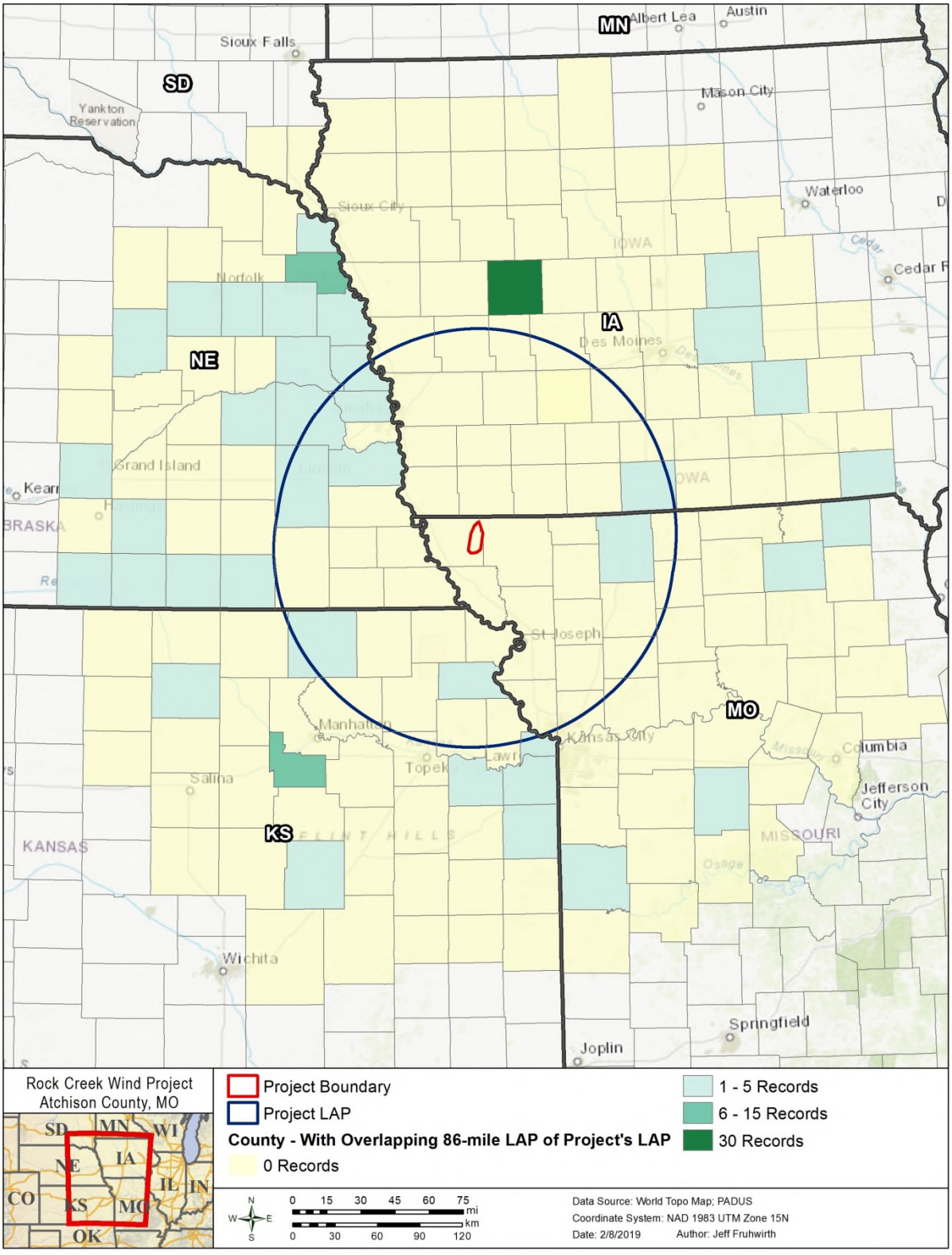

Figure 4. General location (by county) of recorded unpermitted take of bald eagles within 172 miles of the Rock Creek Wind Project.

4.4 Assessment of Alternatives

In assessing whether there is a "significant" impact, the Service has considered both the context and intensity of the action and its effects (40 CFR § 1508.27). Context refers to the affected environment in which the proposed action takes place and may include the socioeconomic, legal, and political situation surrounding an action. Intensity refers to the severity of the proposed action's impact on the environment and may consider environmentally beneficial actions, public health, unique characteristics of the geographic area, controversy, uncertainty, precedent-setting elements, cumulative effects, cultural resource effects, effects on endangered species, and consistency with environmental laws (40 CFR § 1508.27[b]). In the case of the Proposed Action—issuance of an ITP – the Service has determined that the context is the take of eagles as a result of operation of an approved wind energy facility. Consideration of intensity addresses the relative severity of effects on eagles and the efficacy of the action in mitigating adverse cumulative effects.

4.4.1 Alternative 1: No Permit Issued

Under this Alternative, the Service would not issue a permit. The Applicant would not be required to follow the terms and conditions outlined within the ECP, including monitoring or adaptive management. Without regular monitoring, the Service would be unable to assess the actual level of take, and therefore, would be unable to manage the impacts of the Project on the local and national bald eagle population.

Under this Alternative, the Project would operate without a take permit. Should the Project result in the take of eagles under this Alternative, the Applicant would be in violation of BGEPA and would thereby be subject to investigation and possible prosecution by the Service's Office of Law Enforcement and the US Department of Justice.

4.4.2 Alternative 2: Permit Issuance (Preferred Alternative)

Under this alternative all Applicant-committed measures and adaptive management requirements as outlined in the ECP (Appendix A) will be fulfilled. The Service estimates that up to 18.17 eagles will be taken annually, for a total of up to 546 bald eagles over the 30-year permit duration at the site from the operation of the Project.

If the estimated level of take triggers an adaptive management response, conservation measures would be implemented as described in Section 4.2.1.2 of the ECP. Implementation of conservation measures would be expected to result in a subsequent decrease in bald eagle fatalities. Additionally, as described in Section 4.2.1.2, the results of post-construction monitoring are expected to show that actual take at the Project will be lower than the

estimated take. Therefore, it is possible that at the first five-year check in, the post-construction monitoring data may be used to recalculate a more accurate permitted take number.

Alternative 2 meets issuance criteria for ITPs under BGEPA as required in 50 CFR § 22.26(f)(1–7) and described in Section 1.5.2.

5 Summary and Conclusion

In the Service's NEPA analysis, two alternatives were considered:

- Alternative 1 (No Permit Issued): Operation of the Project without an ITP
- Alternative 2 (Preferred Alternative): Issue Permit for Applicant's ECP for Incidental Take of 546 (18.17 per year) Bald Eagles Over 30-year Permit Term

The alternatives were narrowly defined because the ITP is a voluntary permit for the Project and the Project is expected to be operated regardless of whether an ITP is granted. Furthermore, this Final EA tiers to the 2016 PEIS which analyzes the potential effects of ITPs to eagle populations at the EMU level; therefore this Final EA focuses on the Project or the LAP level. Both alternatives have similar environmental effects—namely the estimated level of bald eagle take, which meets both the criteria to tier to the PEIS analysis (Section 1.5.3) and the permit issuance criteria (Section 1.5.2). Both alternatives are based on a set of underlying assumptions. Under the Preferred Alternative, the Service would validate those assumptions through ECP implementation and monitoring as required by 40 CFR 1505.3; 1505.2(c). The Preferred Alternative (Issue Permit for Applicant's ECP) is more protective of eagles than Alternative 1 (No Permit Issued) because there will be more opportunity to directly monitor the take of bald eagles and implement adaptive management measures to decrease take if the documented take approaches permitted levels.

Under the Preferred Alternative (Alternative 2), the Service will be able to address future possible take through implementation of adaptive management measures that require increasing levels of effort to reduce eagle mortalities if the permitted take thresholds are approached. These adaptive management measures and monitoring requirements ensure that adverse effects on eagles are avoided, minimized, and mitigated consistent with the requirements under 50 CFR § 22.26, and such that the Action Alternative (Alternative 2: Issue Permit) is compatible with the preservation of bald eagles.

Neither alternative would hinder the ability of American Indian tribes to obtain eagles or eagle parts for traditional religious purposes; therefore, no significant impacts to tribal cultural practices are anticipated.

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Appendices

- A: Eagle Conservation Plan
- B: Intra-Service Section 7 Biological Evaluation
- C: Service's Bayesian Model Outputs
- D: Applicant Memorandum

Appendix A: Eagle Conservation Plan

Appendix B: Intra-Service Section 7 Biological Evaluation

Appendix C: Service's Bayesian Model Output

Appendix D: Applicant Memorandum

Appendix E: Missouri Department of Conservation Public Comment Response Letter