Final Environmental Assessment

for

the Issuance of an Eagle Take Permit

for Red Pine Wind Project

Prepared by

U.S. Fish and Wildlife Service

Division of Migratory Birds, Interior Region 3

U.S. Department of the Interior

September 2022

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LIST OF ACRONYMS AND ABBREVIATIONS

ABPP	Avian and Bat Protection Plan
Applicant	Red Pine Wind Project, LLC
CET	Cumulative Effects Tool
CFR	Code of Federal Regulations
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
ECP	Eagle Conservation Plan
ECPG	Eagle Conservation Plan Guidance
EIS	Environmental Impact Statement
EMU	Eagle Management Unit
ESA	Endangered Species Act
ITP	incidental take permit
LAP	local area population
LWECS	Large Wind Energy Conversion System
MN DNR	Minnesota Department of Natural Resources
MOU	Minnesota Ornithologists' Union
MPUC	Minnesota Public Utilities Commission
MW	megawatt
NEC	National Eagle Center
NEPA	National Environmental Policy Act
O&M	operations and maintenance
OLE	Office of Law Enforcement
PEIS	Programmatic Environmental Impact Statement
Project	Red Pine Wind Project
Service	U.S. Fish and Wildlife Service
SOL	Office of the Solicitor
U.S.	United States
USC	United States Code

1 Introduction

This Environmental Assessment (EA) has been prepared to analyze the environmental consequences of the U.S. Fish and Wildlife Service (Service) issuing an incidental take permit (ITP) for the take of bald eagles (*Haliaeetus leucocephalus*) associated with the existing Red Pine Wind Project (or Project) pursuant to the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321–4347). Issuance of an eagle ITP by the Service for take that is incidental to otherwise lawful activities under the Bald and Golden Eagle Protection Act (Eagle Act) (16 USC 668–668d and 50 Code of Federal Regulations [CFR] 22.26) constitutes a discretionary Federal action that is subject to NEPA. This EA assists the Service in ensuring compliance with the NEPA, and in making a determination as to whether any "significant" impacts could result from the analyzed actions that would require preparation of an Environmental Impact Statement (EIS). This EA evaluates the effects of alternatives for our decision whether to issue an eagle ITP.

The Eagle Act authorizes the Service to issue eagle take permits only when the take is compatible with the preservation of each eagle species, defined (in Service 2016b) as "consistent with the goals of maintaining stable or increasing breeding populations in all eagle management units (EMUs) and the persistence of local populations throughout the geographic range of each species."

The applicant, Red Pine Wind Project, LLC (or the Applicant), is requesting Eagle Act take coverage for operational activities associated with the Project. This company is an affiliate of EDF Renewables Development, Inc. The Applicant has requested a 24-year ITP for bald eagles under the Eagle Act at the Project. The Applicant's Eagle Conservation Plan (ECP) (Attachment A; also available online: Eagle Conservation Plan) is the foundation of the permit application for the Project.

The Service is considering granting a permit for the take of up to 63 bald eagles over the 24-year duration of the permit (an average of 2.6 bald eagles per year, or 13 bald eagles every 5 years). To ensure that authorized take is not exceeded over the life of the permit, we would establish 5-year check-in periods. Based on the estimated annual take for the Project, the 5-year check-in benchmark would be 13 bald eagles (2.6 bald eagles per year over 5 years, rounded up to the next whole number). As discussed in additional detail in Section 4.1.1, we anticipate that the predicted level of take would be refined in precision as data from Project-specific monitoring is incorporated into the prediction as part of each 5-year check-in.

This EA evaluates whether issuance of the eagle ITP would have significant impacts to the existing human environment. "Significance" under NEPA is defined by regulation at 40 CFR § 1508.27, and requires short- and long-term consideration of both the context of a proposal and its intensity.

This proposal conforms with, and carries out, the management approach analyzed in, and adopted subsequent to, the Service's Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016 (PEIS; Service 2016c). Accordingly, this EA tiers from the 2016 PEIS.

The PEIS (Service 2016c) analyzed eagle take at a national level; Project-specific information has been considered in this EA as described below. Based on this Project-specific analysis, and our confirmation that the Project meets the tiering criteria provided in the PEIS (see Section 7.2 in Attachment A), we have determined that an EA is the appropriate level of review.

1.1 Purpose and Need

The need for this action is a decision on a bald eagle ITP application from Red Pine Wind Project, LLC. The decision must comply with all applicable regulatory requirements, and be compatible with the preservation of eagles.

1.2 Authorities

Service authorities are codified under multiple statutes that address management and conservation of natural resources from many perspectives, including, but not limited to the effects of land, water, and energy development on fish, wildlife, plants, and their habitats. This analysis is based on the Eagle Act (16 USC 668–668d) and its regulations (50 CFR Part 22). The PEIS (Service 2016c) has a full list of authorities that apply to this action (PEIS Section 1.6, pages 7–12), which are incorporated by reference here.

1.3 Background

The Project is owned and operated by Red Pine Wind Project, LLC. It is located on the eastern boundary of Lincoln County near the towns of Ivanhoe and Arco, Minnesota (Figure 1). The Project area encompasses about 44,650 acres.

The Project is permitted for operation by the State of Minnesota as an up to 200-megawatt (MW) wind energy facility, with 50 Vestas V100 2.0-MW turbines and 50 Vestas V110 MW 2.0-MW turbines. The Project also includes associated infrastructure (i.e., turbine pads, access roads, underground electric collection system), meteorological towers, a Project substation, operations and maintenance building, and a 345-kilovolt overhead line from the Project substation to the Project's interconnection point with the electric grid at the Hawk's Nest Lake substation (Figure 2). Project construction began in July 2017 and operations began in December 2017. For the purposes of our analysis, we consider the Project area to include the minimum convex polygon that encompasses the wind project facilities (e.g., the area around turbines and any associated infrastructure, including utility lines, out-buildings, roads; Service 2013).

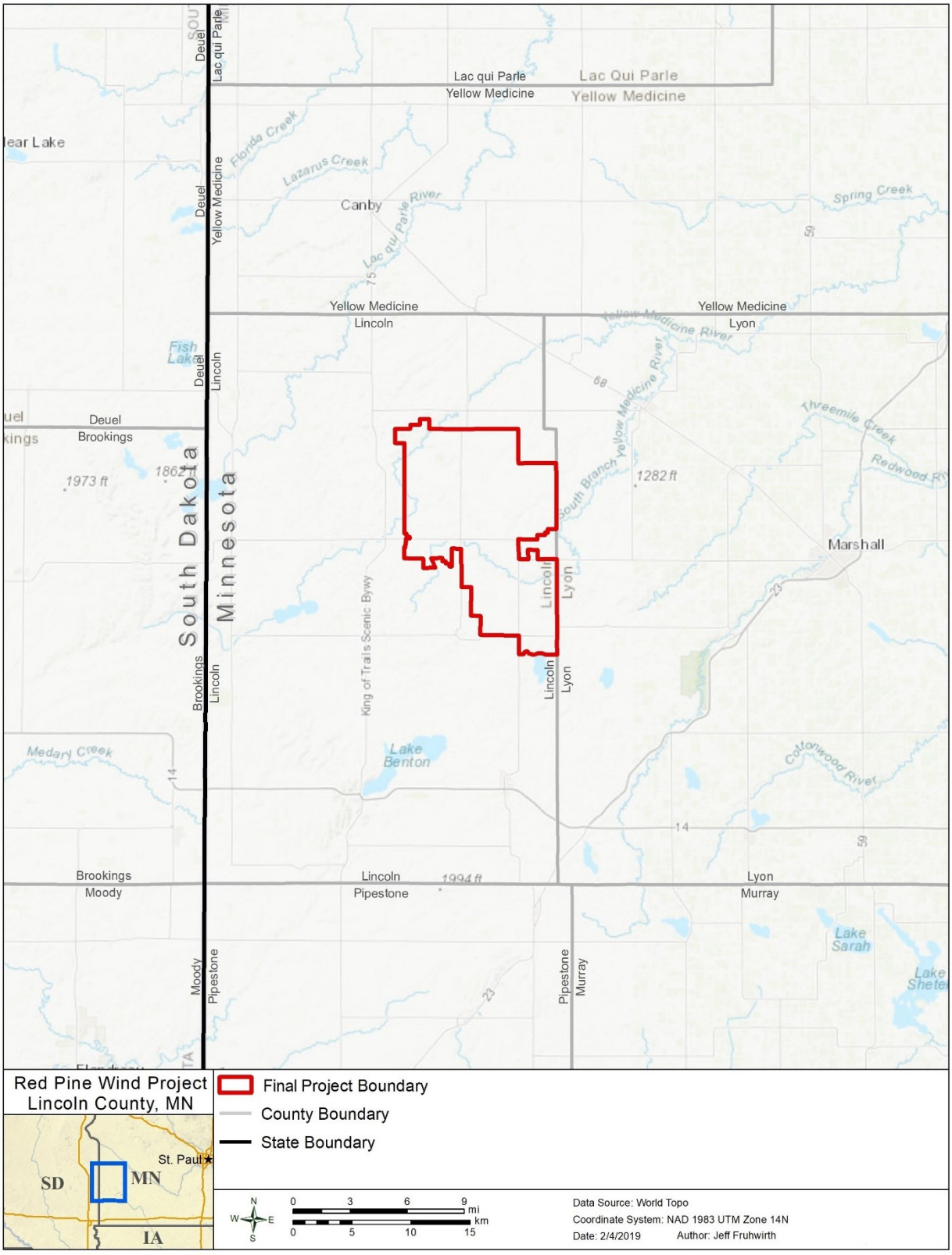

Figure 1. Location of the Red Pine Wind Project.

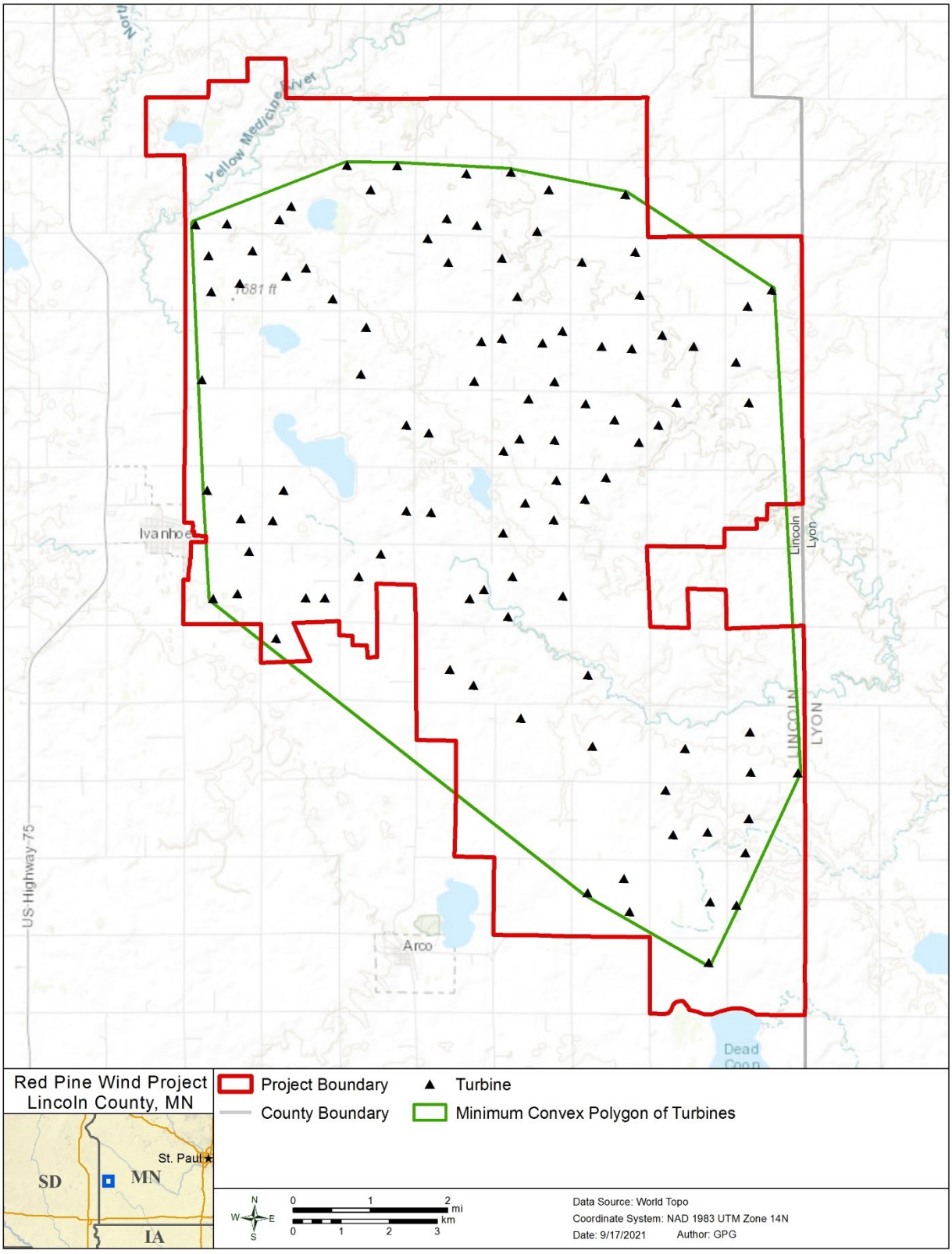

Figure 2. Turbine Layout within the Red Pine Wind Project

The Applicant received all federal, state, and local permits necessary to construct the Project (e.g., Section 404 of the Clean Water Act, Large Wind Energy Conversion System [LWECS] State Site Permit, Conditional Use Permit from Lincoln County).

1.4 Scoping, Consultation, and Coordination

Scoping: This EA incorporates by reference the scoping performed for the PEIS (Chapter 6, page 175). The Applicant worked closely with the Service to develop the ECP in support of its application to avoid, minimize, and mitigate adverse effects on eagles.

Public Comment: The draft EA as well as the ECP and other application materials, were made public for 30 days to solicit public comments. These materials were made available on the Service's Midwest Region NEPA Documents for Eagle Permits library collection, within the Red Pine Wind Facility Eagle Take NEPA Analysis documents on June 16, 2022. The Service sent out emails to 21 individuals within 13 entities to apprise them of the availability of the draft EA for review, and asked these individuals to pass the information along to any of their contacts who may be interested. The Service did not receive any comments on the draft EA during the public comment period. Therefore, the Service did not make any substantive changes to the final EA based on public comments.

Coordination: The Applicant worked closely with the Service and other Federal and state agencies, including the U.S. Army Corps of Engineers (Section 404 of the Clean Water Act permitting), Minnesota Department of Natural Resources (MN DNR; state environmental review and permitting), Minnesota Public Utilities Commission (MPUC; LWECS Site Permit), and Minnesota Department of Commerce (environmental review for LWECS Site Permit). This coordination helped to inform Project design and to develop conservation measures to avoid, minimize, and mitigate adverse effects on eagles; correspondence with federal and state agencies is included in Appendix A of the Avian and Bat Protection Plan (ABPP), which was developed for the Project in accordance with Section 7.5.1 of the LWECS Site Permit.

1.5 Tribal Coordination

In accordance with Executive Order 13175 and the Service's Native American Policy, the Service consults with Native American tribal governments whenever actions taken under authority of the Eagle Act may affect tribal lands, resources, or the ability to self-govern. This coordination process is also intended to ensure compliance with the National Historic Preservation Act (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).

The Service sent notification to four potentially impacted tribal entities (two in South Dakota and two in Minnesota) who have expressed interest in or have history with Lincoln County. This notification was sent via email and hard copy prior to posting of the draft EA for public comment with an invitation to provide comments.

This outreach to potentially impacted tribes and tribal interests is in addition to the tribal consultation and information on impacts to cultural resources already conducted for the PEIS and incorporated by reference.

The Service did not receive any comments or letters from tribal entities on the draft EA, and no substantive changes have been made to the final EA based on tribal coordination.

1.6 Endangered Species Act Consultation

The Service conducted an Intra-Service Section 7 consultation under the Endangered Species Act of 1973 (ESA; 16 USC §§ 1531–1599) during the internal review process and as part of the evaluation of the bald eagle ITP application (Attachment B; also available online: ITP Application Materials). The threatened northern long-eared bat (*Myotis septentrionalis*), the threatened Dakota skipper (*Hesperia dacotae*), and the candidate monarch butterfly (*Danus plexippus*) have the potential to occur within the Project area, and critical habitat for the endangered Topeka shiner (*Notropis topeka*) has been designated within Lincoln County. The issuance of a long-term bald eagle ITP would not have significant or negative impacts on federally listed, candidate species, or designated critical habitat. The Service's Intra-Service Section 7 Biological Evaluation (Attachment B) documents if and how issuance of the permit (and associated implementation of the ECP and permit conditions) would affect federally listed or candidate species. The Service determined that the Project would have no effect on the Dakota skipper, would not likely adversely affect the northern long-eared bat, would not likely jeopardize the continued existence of the monarch butterfly, and would not result in adverse modification of designated critical habitat for the Topeka shiner. A detailed discussion of occurrence and impacts to the Dakota skipper, northern long-eared bat, and monarch butterfly can be found below in Section 3.4; the Dakota skipper and northern long-eared bat are also discussed in detail in the Applicant's ABPP (see Section 2.1 of the ABPP). Additional information on federally listed species, candidate species, and designated critical habitat is described in Sections 3.4, 4.1.4, and 4.2.4, below.

If a bald eagle ITP is issued and future modifications to turbine operation or adaptive management are proposed, the Service may retain discretionary involvement with the Project. As a result, reinitiation of consultation would be required (50 CFR 402.16(a)) under certain conditions: (1) if new information reveals effects of the Project that may affect listed species or critical habitat in a manner or to an extent not previously considered; (2) if the Project is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence; or (3) if a new species is listed or critical habitat designated that may be affected by the Project.

2 Proposed Action and Alternatives

2.1 Proposed Action

Issuance: We propose to issue a 24-year permit to take up to 63 bald eagles (derived from our Collision Risk Model output [Attachment C; also available online: Collision Risk Model] of 2.6 bald eagles per year, or 13 bald eagles every 5 years) with associated conditions, as allowed by regulation.

Conditions: The Applicant would implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including two years of intensive post-construction mortality monitoring in accordance with the final LWECS Site Permit issued by the MPUC (2017), Applicant-committed measures described in the ECP (see Section 7 of Attachment A), and adaptive management. These measures are described in additional detail in Section 4.1, below.

Avoidance and Minimization Measures: A complete description of the avoidance and minimization measures is in the Applicant's ECP, Section 7 (Avoidance and Minimization of Risk and Compensatory Mitigation) and Section 9 (Adaptive Management). A summary of these measures is in Section 4.1, below.

Mitigation: Because the Project would not be permitted for a yearly take number above the Mississippi Flyway EMU threshold or greater than 5% of the local area population (LAP), compensatory mitigation would not be required by the Service.

Monitoring: Monitoring studies conducted to date as required by the LWECS Site Permit are detailed in the Applicant's ABPP and summarized in Section 3.2.1 of this EA. Proposed post-construction mortality monitoring to ensure permit compliance and measure impacts to bald eagles is detailed in Appendix C of the Applicant's ECP (Attachment A) and Section 4.1 of this EA.

Adaptive Management: Adaptive management to ensure permit compliance is included and detailed in Section 9 of the Applicant's ECP (Attachment A) and Section 4.1 of this EA.

2.2 Alternative 1: No-Action

Under the No-Action Alternative, we would take no further action on Red Pine Wind Project, LLC's permit application. As a practical matter, the Service must take action on the permit application, determining whether to deny or issue the permit. We consider this alternative because Service policy requires evaluation of a No-Action Alternative and it provides a clear comparison of any potential effects to the human environment from the Proposed Action.

The No-Action Alternative in this context analyzes predictable outcomes of the Service not issuing a permit. Under the No-Action Alternative, the Project would likely continue to operate without a bald eagle take permit being issued. Thus, for purposes of analyzing the No-Action Alternative, we assume that the Applicant would implement all measures required by other agencies and jurisdictions to conduct the activity at this site, including minimization measures in the LWECS Site Permit (Minnesota Department of Commerce Docket No. IP-6646/WS-16-618), and the Project-specific ABPP. However, the conservation measures proposed in the eagle ITP application package would not be required. The Applicant may choose to implement none, some, or all of those conservation measures. Under this alternative, we assume that the Applicant would take some reasonable steps to avoid taking eagles, but the Applicant would not be protected from enforcement for violating the Eagle Act should take of a bald eagle occur.

2.3 Other Alternatives Considered but Not Evaluated in this Environmental Assessment

The Service considered an additional alternative based on communication with the Applicant, but concluded that this alternative did not meet the purpose and need underlying the action because it is not consistent with the Eagle Act and its regulations. Therefore, the Service did not assess the potential environmental impacts of the alternative. Below is a summary of the alternative considered but eliminated from further review.

2.4 Alternative 2: Deny Permit

Under this alternative, the Service would deny the permit application because the Applicant falls under one of the disqualifying factors and circumstances denoted in 50 CFR 13.21, the application fails to meet all regulatory permit issuance criteria and required determinations listed in 50 CFR 22.26, or because we have determined that the risk to eagles is so low that a take permit is unnecessary.

Our permit issuance regulations at 50 CFR 13.21(b) set forth a variety of circumstances that disqualify an applicant from obtaining a permit. None of the disqualifying factors or circumstances denoted in 50 CFR 13.21 apply to the Applicant. We next considered whether the Applicant meets all issuance criteria for the type of permit being issued. For eagle ITPs, those issuance criteria are found in 50 CFR 22.26(f). Red Pine Wind Project, LLC's application meets all the regulatory issuance criteria and required determinations (50 CFR 22.26) for eagle take permits.

When an applicant for an eagle ITP is not disqualified under 50 CFR 13.21 and meets all the issuance criteria of 50 CFR 22.26, denial of the permit is not a reasonable option. Therefore, this alternative—denial of the permit—was eliminated from further consideration.

3 Affected Environment

This section describes the current status of the environmental resources and values that are affected by the Proposed Action and No-Action Alternative.

3.1 Bald Eagle

3.1.1 General Habitat Requirements

General information on the taxonomy, ecology, distribution, and population trends of bald eagles are provided in Section 3.2.1 of the PEIS (Service 2016a). In general, bald eagles are frequently found relatively (but not exclusively) near water or other sources of food such as carrion. Particularly in winter, bald eagles can be found near open water for foraging. During the breeding season (which is generally consider to be from February through August in the Project area),[1] adult eagles with nesting territories are not social and will defend their territory from other eagles.

3.1.2 Bald Eagle Populations in Minnesota

Bald eagle populations in Minnesota have steadily increased over the past 30 years, and populations increased by 28% between 2000 and 2005 (Baker and Monstad 2005). Breeding bald eagles occur with greater frequency in the northern portion of the state and along the Mississippi and Minnesota rivers. Due to the success and recovery of bald eagle populations in Minnesota and the United States, the MN DNR discontinued bald eagle nest surveys in 2005. We assume bald eagle populations in Minnesota continued to increase resulting in expanding ranges, shrinking territory sizes, and nesting in secondary habitats.

3.1.3 Bald Eagle Distribution in the Project Vicinity

To obtain information on eagle use in the general vicinity of the Project, we reviewed several citizen science databases available to the public. The eBird database (eBird 2021), Minnesota Ornithologists' Union (MOU; 2021), the National Audubon Society's Christmas Bird Count (National Audubon Society 2021) each include numerous bald eagle observations in Lincoln County, as described below.

- eBird – Between 2011 and 2021, 219 bald eagle records (consisting of one or more eagles observed per record) were submitted to eBird in Lincoln County; 204 of these records occurred during the breeding season (as defined by the Service as February through August; eBird 2021). These observations were primarily located near rivers and lakes.

[1] The Service's Collision Risk Model (Attachment C) defines the breeding period as March 1 through July 31. This abbreviated "breeding season" is used for the purpose of including seasonal stratification (accounting for variation in eagle abundance by season) in the collision risk model.

- MOU – Between 2011 and 2021, 190 bald eagle records (consisting of one or more eagles observed per record) were submitted to the Minnesota Ornithological Union in Lincoln County, the majority of which occurred during the breeding season (MOU 2021).
- Christmas Bird Count – Between 2011 and 2019, within the two Minnesota Christmas Bird Count circles closest to the Project (Marshall and Cottonwood circles), a total of 67 bald eagles have been observed (National Audubon Society 2021).

This review of publicly available data on bald eagle occurrence indicates that bald eagles regularly occur in the vicinity of the Project. Bald eagles are present throughout the year, although the majority of observations recorded occur during the breeding season (eBird 2021, MOU 2021).

3.1.4 Project-Specific Use and Distribution

Site-specific studies were conducted in and near the Project area to assess use and distribution of eagles and other bird species at the Project site, to further define potential eagle risks, and to inform siting and impact avoidance measures. These studies included avian use surveys in 2013/2014; eagle use surveys in 2015/2016; and raptor/eagle nest surveys in 2013, 2015, 2016, and 2017. A post-construction fatality monitoring program began in 2018 after the Project entered operation (a requirement of the LWECS Site Permit). Table 1 provides a summary of the eagle-focused surveys conducted in and near the Project.

Large bird/eagle use surveys were conducted at fixed-point locations distributed throughout the Project area for over two years, during which a total of 49 bald eagle observations were documented within the Project area.[2] Bald eagles were observed throughout the year (Table 2), although higher use (observations and minutes) was recorded in the fall compared to other seasons.

A total of 10 bald eagle nests were documented within about 10 miles of the Project during the 4 years of nest surveys (Figure 3; Table 3). Seven of these nests (Nests A through G) were in-use during at least one of the survey years, the nearest of which (Nests B and C) are 2.0 miles from the nearest turbine. The mean inter-nest distance for these 10 nests is 4.8 miles. The half mean inter-nest distance (which is the presumed territory of the resident eagles) associated with Nests B and C overlap with all three and one Project turbines, respectively. Additional information on these bald eagle nests is provided in Section 4, below, and in Appendix A of the Applicant's ECP (Attachment A).[3]

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[2] The eagle use information presented in this section includes only the survey data collected from fixed-point locations within the final Project boundary. Additional data were collected from survey points that were placed within the previous versions of the Project boundary; the results of both year 1 and year 2 eagle use surveys are provided in Section 5.2.2 of the ECP (Attachment A).

[3] In the Applicant's ECP, the results of the nest surveys are described using a modified naming convention: in-use nests are referred to as occupied active nests, and alternate nests are referred to as inactive nests.

Table 1. Summary of Eagle-focused Surveys in and near the Project

Type of Survey	Season [1]	Date	Duration	Frequency	Survey Area
Fixed-point Avian Use Survey [2]	Breeding, Fall, Winter	March 2013 – March 2014	60 minutes per survey	18 surveys during a 12-month period	20 fixed points, 15 of which are within the final Project footprint
Fixed-point Eagle Use Survey [2, 3]	Breeding, Fall, Winter	December 2015 – November 2016	60 minutes per survey	12 surveys during a 12-month period	34 fixed points, 26 of which are within the final Project footprint
Raptor Nest Survey	Breeding	May 15–17, 2013	3 days	1 ground-based survey	Project footprint plus 2-mile buffer
Raptor Nest Survey	Breeding	April 14, 2015	1 day	1 ground-based survey	Project footprint plus 2-mile buffer
Eagle Nest Monitoring [4]	Breeding, Fall	May 20, June 9, July 8, July 21, and August 7, 2015	6 hours per survey	5 surveys, totaling 30 observation hours	Eagle Nest A
Eagle Nest Monitoring [4]	Breeding	May 21 and June 10, 2015	6 hours per survey	2 surveys, totaling 12 observation hours	Eagle Nest B
Raptor Nest Survey	Breeding	March 29–30, 2016	2 days	1 aerial-based survey	Project footprint plus 10-mile buffer
Eagle Nest Monitoring [3]	Breeding	2016	Varied	4 surveys, totaling 18 observation hours	Eagle Nest C
Raptor Nest Survey [3]	Breeding	April 5–7, 2017	3 days	1 aerial-based survey	2-mile buffer surrounding final turbine locations
Post-construction Fatality Monitoring (required by state Site Permit [5])	Breeding, Fall, Winter	March 15 – November 15 2018	Varied depending on searcher speed and terrain	Cleared plot searches occurred four times per week; road and pad searches occurred one time per week	Cleared plot searches at 10 turbines and road and pad searches at 40 turbines (out of 100)
Post-construction Fatality Monitoring (required by state Site Permit [5])	Breeding, Fall	May 3 – October 29, 2021	Varied depending on searcher speed and terrain	Once per week from May 3 – July 11; twice per week from July 12 – September 11, once per week September 12 – October 29.	Cleared plot searches at 20 turbines and road and pad searches at 30 turbines (out of 100)

[1] Eagle use seasons as defined by the Service in its Collision Risk Model (Attachment C) include winter (November 1 – February 28), breeding (March 1 – July 31), and fall (August 1 – October 31).

[2] Indicates data from the survey was incorporated into the Collision Risk Model for the Project, which is described in Section 6.2 of the Applicant's Eagle Conservation Plan (Attachment A).

[3] See Appendix A of the Applicant's Eagle Conservation Plan (Attachment A).

[4] Eagle nest monitoring results from 2015 are included in the 2015 Raptor Nest Survey Report.

[5] Section 6.2 of the Minnesota Large Wind Energy Conversion System Site Permit (MN State permitting requirement) requires two years of avian mortality monitoring following commencement of the operational phase of the Project. While not eagle-focused, information on raptor persistence was collected as part of these surveys. The first year of avian and bat mortality monitoring was conducted from March through November 2018, and the second year from May through October 2021. The results of the state-required bird and bat post-construction monitoring surveys were not incorporated into the eagle take estimates for the Project; however, the results would be reviewed as part of the post-construction fatality monitoring analysis at the first 5-year review of the permit.

Table 2. Bald Eagle Observations and Minutes by Season during Fixed-point Surveys

Eagle Use Season[1]	Eagle Observations	Eagle Minutes (all)[2]	Eagle Risk Minutes (for model)[3]	Survey Effort (hours)
Winter (November 1 – February 28)	**23**	**40**	**11**	**140**
Year 1	3	8	2	58
Year 2	20	32	9	82
Breeding (March 1 – July 31)	**13**	**166**	**29**	**208**
Year 1	5	71	4	112
Year 2	8	95	25	96
Fall (August 1 – October 31)	**13**	**104**	**50**	**153**
Year 1	0	0	0	82
Year 2	13	104	50	71
Total	**49**	**310**	**90**	**501**

[1] The bald eagle observations during fixed point surveys were incorporated into the Service's Collision Risk Model (Attachment C), which defines the breeding period as March 1 through July 31. Therefore. The observations during the abbreviated "breeding season" are presented in this table, rather than the broader breeding season of February through August. This shorter season is used in the model for the purpose of including seasonal stratification (accounting for variation in eagle abundance by season).

[2] Includes all eagle minutes recorded during survey periods at any distance or height; can include flying or perching eagles.

[2] Includes minutes where bald eagle flights were observed within 800 meters (2,625 feet) of the observer and below 200 meters (656 feet) in height, as defined in the Eagle Conservation Plan Guidance (Service 2013); used in the Collision Risk Model.

Table 3. In-use and Alternate Bald Eagle Nests near the Project Documented during Raptor Nest Surveys between 2013 and 2017

	Nest Status				Distance from Nearest
Nest	2013	2015	2016	2017	Turbine (miles)
A	Not observed	In-use	In-use	In-use	2.4
B	Not observed	In-use	In-use	In-use	2.0
C	Not observed	Not observed	In-use	In-use	2.0
D	N/A	N/A	In-use	In-use	2.8
E	N/A	N/A	In-use	N/A	7.2
F	N/A	N/A	In-use	N/A	7.9
G	N/A	N/A	In-use	N/A	9.1
H	N/A	N/A	Alternate	N/A	4.5
I	N/A	N/A	Alternate	N/A	3.7
J	N/A	N/A	Alternate	N/A	7.0

N/A Nest located outside of the area surveyed.

Note: Status checks of these nests have not occurred since 2017 and the current status of all nests is unknown.

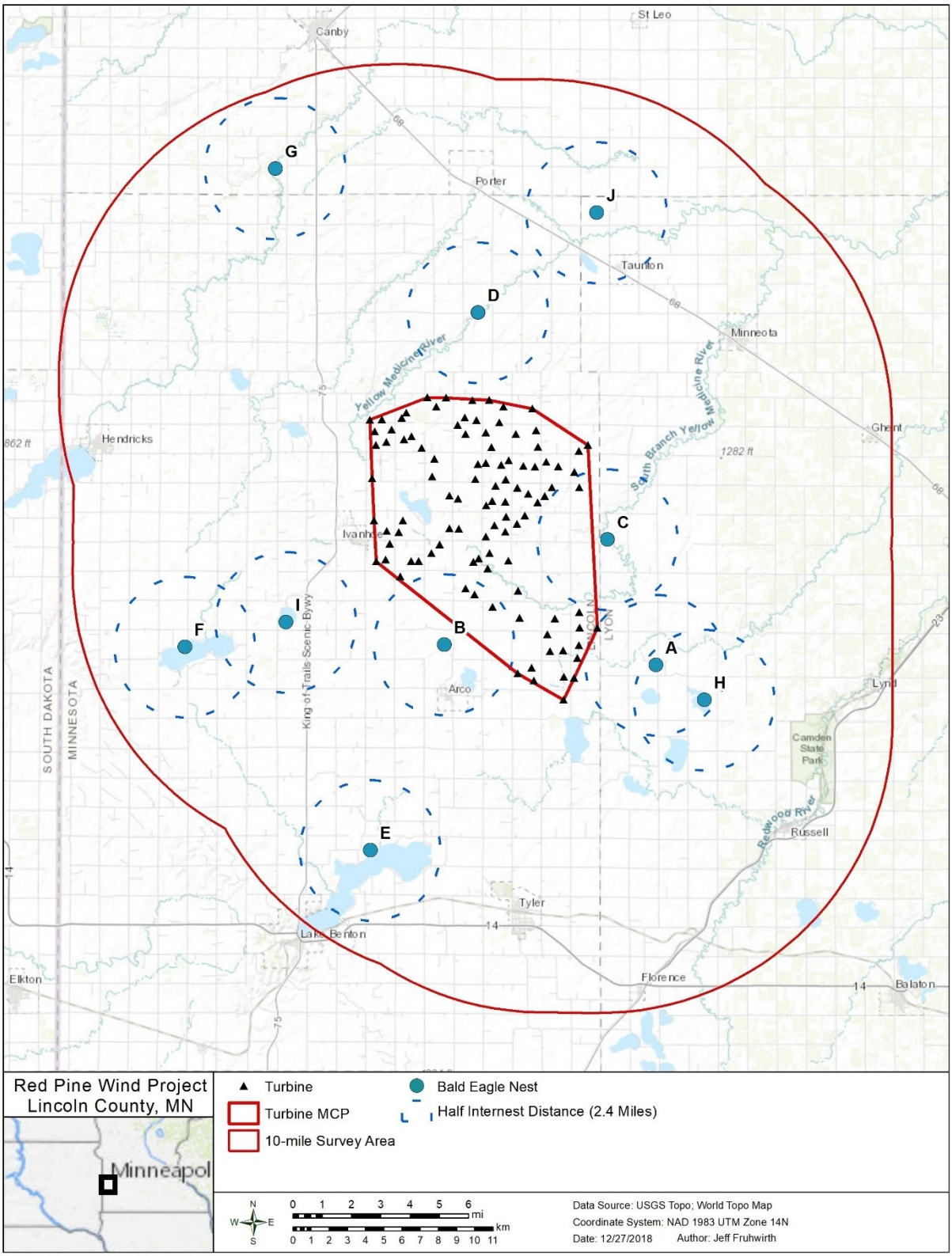

Figure 3. Half-mean Inter-nest Distance from Nests Documented during 2016 and 2017 Surveys and Turbine Layout at the Red Pine Wind Project (MCP = minimum convex polygon that encompasses the Project turbines)

3.1.5 Bald Eagle Mortality Associated with Human Development

The four leading anthropogenic causes of injury and mortality for bald eagles likely include poisoning (25.6%), trauma (22.9%), electrocution (12.5%), and shooting (10.2%; Russell and Franson 2014). Based on the Service's Cumulative Effects Tool (CET), which analyzes unpermitted eagle take within 2 times the LAP around the Project footprint, the leading human causes of bald eagle injury and mortality between 2011 – 2021 were classified as unknown causes (29%), followed by collision with a vehicle (21%) and trauma (18%; Service 2018a). More detailed information can be found in Section 4.1.5, below. The Service's CET was run on August 4, 2021, and pulls data from the Service's Injury and Mortality Database. The CET follows methods outlined in Appendix F of the Eagle Conservation Plan Guidance (ECPG; Service 2013).

3.1.6 Bald Eagle Injuries and Mortalities Associated with Wind Energy Development

Pagel et al. (2013) published a report of six substantiated bald eagle fatalities or injuries at wind energy facilities within the U.S. The Service is aware of more bald eagle deaths at wind farms than this, but details of these mortalities are not yet publically available due to ongoing investigations. The Service intends to undertake a comprehensive review of bald eagle deaths at windfarms and will provide the findings when available.

3.2 Golden Eagle

The Service does consider the potential impacts to golden eagles as part of the EA, and as described below, finds that the Project is located in an area where golden eagles would not be expected to occur in high numbers and would generally be rare migrants. The Applicant assessed regional and site-specific records of golden eagles, and coordinated with the Service on potential risk to golden eagles. Given the low (and seasonal) occurrence of golden eagles in Minnesota, and because no golden eagles were detected during Project surveys, the Applicant and the Service agreed that the Project poses low risk to golden eagles and take coverage is not warranted at this time.

The Service would assess the need for golden eagle monitoring, studies, and take permitting if golden eagles are thought to expand their winter range into the Project area. Conservation measures implemented for bald eagles would benefit golden eagles; however, the Applicant would not be protected from enforcement for violating the Eagle Act should take of a golden eagle occur.

3.2.1 General Habitat Requirements

Golden eagles occur frequently in eastern North America, primarily as winter migrants from breeding areas in Canada (Morneau et al. 2015). The estimated population of golden eagles in eastern North America, including eastern Canada and U.S., is 5,000 (Dennhardt et al. 2015). Additional information on the taxonomy, ecology, distribution, and population trends (including stressors and sources of mortality) of golden eagles are provided Section 3.3.1 of the PEIS (Service 2016c).

Golden eagles in Minnesota and other Midwestern states, are typically observed in dense forests within the blufflands of the major rivers, often foraging in the open, upland prairies (National Eagle Center [NEC] 2017c). Golden eagles prey mostly on squirrels, rabbits, and rodents, but will eat other mammals, birds, reptiles, and some carrion. This species prefers open terrain for hunting such as grasslands, savannahs, and early successional stages of forest and shrub habitats (Zeiner et al. 1990).

3.2.2 Golden Eagle Population in Minnesota

Low numbers of golden eagles can be observed in the spring, fall, and winter in most counties within Minnesota (MOU 2018). Golden eagles generally migrate through and winter in Minnesota between October and mid-April, with a peak migration period in December and January (MOU 2018). Tracking data from three golden eagles fitted with transmitters in Minnesota and tracked by the NEC indicate that these birds migrate to and from breeding areas in northcentral Canada (NEC 2017b). Golden eagles have not been documented nesting in Minnesota (NEC 2017a); the nearest population of breeding golden eagles is in North Dakota.

A wintering population of golden eagles inhabits the coulees and bluffs of the Mississippi River in southeast Minnesota, northeast Iowa, and west-central Wisconsin. The NEC and Audubon Minnesota have conducted an annual wintering survey of golden eagles along the Mississippi River since 2009. This wintering survey is conducted annually on one day in January at various routes throughout out the survey area. Golden eagles recorded during the wintering surveys in the three-state area from 2009 through 2016 ranged from 44 (2017) to 149 (2016), with an average of 104 golden eagles observed over the 10-year survey period (NEC 2018). The Project site is located over 175 miles from this wintering population of golden eagles.

3.2.3 Golden Eagle Distribution in Project Vicinity

Wintering golden eagles could occur within the Project area; however, no golden eagles were observed within the Project footprint during the two years of large bird/eagle use surveys. Similarly, the MOU (2021), eBird (2021), and National Audubon Society's Christmas Bird Count (National Audubon Society 2021) do not include observations of golden eagles within

Lincoln County since 2011. The closest reported observations of a golden eagle occurred in 2003; a single golden eagle was observed 14 mi east of the Project in Lyon County (eBird 2021).

Given the low and seasonal occurrence of golden eagles in Minnesota, and the lack of golden eagle observations during Project surveys, the current likelihood of take of this species appears to be very low. The Project area provides limited foraging habitat. Grasslands in and near the Project could provide some foraging opportunities for those golden eagles passing through the area.

3.3 Migratory Birds

The Project is located within the western portion of the Mississippi Flyway. The bald eagle LAP (86-mile buffer surrounding the Project) includes both the Central Flyway to the west and the Mississippi Flyway within the Project and to the east (Figure 4). It is estimated that almost half the migrating birds that pass through contiguous North American states/provinces and up to 40 percent of waterfowl pass through the Mississippi Flyway. More than 325 avian species have been documented within the Mississippi Flyway (Audubon 2020). Avian species that migrate through the Central and Mississippi flyways are diverse and utilize variable habitats, and will use wetlands (seasonal and permanent) for stopover habitat, along with grasslands, forested patches, and riparian corridors. Birds that breed in Minnesota also use these habitats during nesting season.

Several areas likely to provide suitable habitat for migratory birds are present near the Project, including one unit of the Northern Tallgrass Prairie National Wildlife Refuge (located adjacent to the eastern Project boundary), Camden State Park to the southeast, Wildlife Protection Areas located to the east and south, and several MN DNR Wildlife Management Areas and U.S. Department of Agriculture Conservation Reserve Enhancement Program parcels (see Figure 1 in the ECP; Attachment A). In addition, two global-priority Important Bird Areas are approximately 30 miles from the Project, and three state-priority Important Bird Areas are located approximately 5 to 10 miles from the Project.

The Applicant conducted pre-construction avian surveys at the Project, as detailed in Section 2.2 of the ABPP, including breeding bird grassland transect surveys, raptor nest surveys, and general avian use surveys. Bird use appeared to be relatively evenly dispersed throughout the Project without any apparent spatial pattern. Project-specific surveys indicated that the Project appears to be representative of a typical agricultural/grassland landscape setting in the Midwest and that the Project does not appear to have any large or unusual populations of breeding resident birds. A detailed description of migratory bird use in and around the Project area can be found in the Applicant's ABPP.

3.4 Federally Listed and Candidate Species

In accordance with Section 7 of the ESA (16 USC 1531–1599), actions that have a Federal nexus such as involvement of Federal land, Federal funding, or a Federal action (such as the decision on whether to issue a permit under the Eagle Act) necessitate consultation with the Service if the action may affect a listed endangered or threatened species. Because the Service is the lead agency in the review of the permit application for the Project, an Intra-Service Section 7 consultation was conducted to determine if and how issuance of the permit (and associated implementation of the ECP and permit conditions) or denial of the permit would affect federally listed or candidate species with the potential to occur in the Project area (Attachment B).

Here we discuss federally listed species that have the potential to occur in the Project area (including known records), and a summary of how this permit issuance would impact these species. There are two species listed under the ESA with the potential to occur in the general Project area, including the northern long-eared bat and the Dakota skipper. Additionally, the monarch butterfly, a candidate for listing under the ESA, has the potential to occur in the Project area. Due to uncertainty of actual population numbers of many listed species, it is not feasible to definitively assess a LAP size of these listed species.

Critical habitat for the Topeka shiner (*Notropis topeka*) has been designated within Lincoln County (two stream segments within the Medary Creek Complex, and two stream segments within the Flandreau Creek Complex; 69 FR 44736–44770), all of which are located approximately 15 miles southwest of the Project within the Big Sioux River Watershed. Because operation of the Project is not expected to impact instream habitat for this species, and due to the distance between the Project and designated critical habitat, the species is not carried forward for further analysis.

3.4.1 Northern Long-eared Bat

The northern long-eared bat is a federally threatened species that roosts and forages in upland forests during spring and summer, hibernates in caves and mines in the winter, and migrates between foraging areas and hibernacula during the fall. Potential roosting and foraging habitat within the Project is limited due to the lack of forest (515 acres, or 1% of the total Project area). The closest documented northern long-eared bat hibernaculum is located in eastern Nicollet County about 105 miles east of the Project (MN DNR and Service 2019). There are no known maternity roost trees in or near the Project area.

A detailed summary of pre-construction bat survey work conducted in and around the Project can be found in Sections 2.2.5 and 2.2.6 of the Applicant's ABPP. No northern long-eared bat were verified in the Project area during acoustic analysis or captured during mist-netting presence/absence surveys. Based on the results of these site-specific bat surveys, it appears that northern long-eared bat likely do not occur in the Project area during the summer months;

however, this species could potentially occur at the site during the migration season. Post-construction bird and bat mortality monitoring was conducted from March through November 2018 and from May through October 2021; no northern long-eared bat mortalities were documented, based on publicly available data from the quarterly avian and bat reports submitted to the MPUC.

3.4.2 Dakota Skipper

The Dakota skipper is a federally threatened species that is restricted to high quality native mixed and tallgrass prairie (Service 2019a). Suitable habitat is limited within the Project; however, designated critical habitat (DS MN Unit 12) occurs within the northwest portion of the final Project boundary, northwest of the Yellow Medicine River. No turbines or Project infrastructure was placed in or adjacent to this critical habitat unit, with the nearest turbine and access road located approximately 0.5 mile southeast, in a cultivated field. A detailed summary of the pre-construction grassland desktop analysis and field surveys can be found in the Applicant's Prairie Protection and Management Plan (Westwood 2017). Based on the results of the desktop analysis, field surveys, and documented occurrences of the Dakota skipper, we have determined that the Dakota skipper is not likely to occur within the Project (see Appendix A of the Applicant's ABPP).

3.4.3 Monarch Butterfly

The monarch butterfly is currently a candidate species for listing under the ESA, after a 2020 finding that listing of this species is warranted, but precluded by work on higher-priority listing actions. This status will be reviewed each year until it is no longer a candidate (USFWS 2022). Internal Service policy directs the Service to consider their action's effect on candidate species as though proposed for listing to ensure actions undertaken by the Service do not jeopardize the species.

Monarch butterflies lay their eggs exclusively on milkweeds (primarily *Asclepias* spp.) and larvae feed on milkweed leaves until pupation. Adult monarchs have a wide diet breadth and feed on nectar from a variety of flowers (Monarch Joint Venture 2021). The Service has identified threats to monarchs as loss and degradation of habitat, continued exposure to insecticides, and effects of climate change (Service 2020). The eastern population of the monarch butterfly has potential to occur within the Project boundary. While the majority of the Project consists of cultivated agricultural lands, there is the possibility for patchy areas of milkweed and nectar resources within the Project area that could support monarchs (e.g., roadsides, ditches, agricultural field margins). However, there are no proposed Project actions that would result in any habitat alteration that may impact potential existing monarch resources. We do not anticipate the issuance of a bald eagle ITP (and associated conditions) to appreciably

change the existing habitat available to monarch butterflies, and therefore is not likely to jeopardize their continued existence as a species.

3.5 Federally Listed Species Not Addressed

The Service has addressed impacts of our Proposed Action to all federally listed species known to, or having potential to occur within the Project area. Should new information become available that shows the likelihood of additional listed species in the Project area, or the status of a species changes, the Service would assess whether these changes warrant additional Section 7 analysis.

3.6 Cultural and Socioeconomic Interests

Cultural: Impacts to cultural values were addressed in the PEIS (Section 3.7, page 117 in Service 2016a) and is incorporated here by reference. No additional cultural concerns were raised during the analysis for this EA.

Socioeconomic: Agricultural use provides an economic value, as crops and livestock produced on these lands are sold. Operation of the Project would continue under all alternatives, making economic impacts the same among all alternatives. None of the alternatives under consideration would affect these social values or the economic base of the area. Therefore, social and economic values will not be further analyzed in this EA.

3.7 Climate Change

Climate change was considered in the PEIS (Section 3.9, page 144 in Service 2016a) and is incorporated by reference here. Issuance of a permit may incrementally increase vehicle emissions, which include greenhouse gas emissions, during onsite eagle monitoring operations. However, greenhouse gases generated from eagle monitoring operations would be minor, temporary, and are not anticipated to affect climate change on a local, regional, or global level. Therefore, climate change will not be further analyzed in this EA.

4 Environmental Consequences

This section summarizes the effects on the environment of implementing the Proposed Action or the No-Action Alternative.

The discussion of overall effects of the eagle ITP program is provided in the PEIS (Service 2016c) and is incorporated by reference here. This section of this EA analyzes only the effects that were not analyzed in the PEIS and that may result from the issuance of an eagle ITP for this specific project.

4.1 Proposed Action

In determining the significance of effects of the Project on eagles, we screened the Proposed Action against the analysis provided in the PEIS (Service 2016c) and the *Bald and Golden Eagles: Population demographics and estimation of sustainable take rates in the United States, 2016 update* (Service 2016a). We also used our eagle-risk analysis (Appendix D in Service 2013), and Cumulative Effects Analysis (Appendix F in Service 2013) to quantify eagle fatality risk and cumulative local population level effects.

4.1.1 Bald Eagle

Permitted Take: Under the Proposed Action, we estimate that an average of 2.6 bald eagles may be taken annually (13 bald eagles over each 5-year interval), or up to 63 bald eagles over the life of the 24-year permit. This prediction is based on a conservative approach that may overestimate annual and cumulative take at the outset of the permit. The Service's Collision Risk Model summary can be found in Attachment C. We anticipate that the predicted level of take would be refined in precision as data from Project-specific post-construction eagle mortality monitoring is incorporated into the prediction. The Applicant's proposed conservation measures include adaptive management, which could also result in additional monitoring and/or operational adjustments that would affect the take prediction. Evidence of Absence, or another approved estimator, would be used to develop an estimate of eagle fatalities based on the results of monitoring (see Adaptive Management below and Attachment A).

Avoidance and Minimization: A complete description of the proposed avoidance and minimization measures is included in the Applicant's ECP, Section 7 (Stage 4 - Avoidance and Minimization of Risk and Compensatory Mitigation; Attachment A). A summary of these measures is as follows:

- Avoidance
  - General Project Siting – Modification of the Project boundary to avoid areas in Lyon County where eagle use appeared to be higher.
  - Turbine Siting and Setbacks
    - Modification of the Project layout to increase the setbacks from bald eagle nests and areas of higher eagle use.
    - Siting turbines on cultivated agricultural fields set back from forest patches, wetlands, and riparian corridors as much as possible.
    - Siting turbines at least two miles from bald eagle nests identified during the 2016 nest survey.
  - Habitat Disturbances – Wooded and untilled grassland habitat were avoided during construction.

  - Avoid Structures that are Attractive to Birds for Perching – Turbines with monopoles (non-lattice structures) were used to avoid attracting birds for perching or nesting.
  - Meteorological Towers – Permanent meteorological towers are free-standing.
- Minimization
  - Overhead Transmission Line – Length of the overhead transmission line was minimized to the extent feasible.
  - Power Line Burial – Onsite electrical collection system was installed underground to minimize the risk for bird collisions or electrocutions.
  - Landowner Outreach – The Applicant would provide information to participating and neighboring landowners to reduce or limit harmful wildlife interactions and minimize attracting scavenging bald eagles into the Project area.
  - Carrion Monitoring/Removal – The Applicant and/or its contractors would conduct operation staff training to monitor, report, and remove livestock or wildlife carcasses in the vicinity of Project turbines to avoid attracting eagles. For deer carcasses in particular, if the Project is ever within a designated management zone for chronic wasting disease, handling and disposal of deer remains would follow MN DNR guidelines in effect and applicable to Lincoln County with regards to managing chronic wasting disease.
  - Nest Monitoring – If a new bald eagle nest is identified within 1 kilometer (0.6 mile; Attachment A) of Project turbines when the Project is operational, coordination with the Service and MN DNR would occur and the nest would be monitored by trained biologists for at least two years and by on-site personnel for the life of the Project.

Adaptive Management: The proposed conservation measures include adaptive management that could result in additional monitoring and operational adjustments. All Applicant-committed conservation measures and adaptive management requirements are described in Section 9 of the ECP (Attachment A), and would be incorporated into permit conditions.

The Service is considering granting a permit for a take threshold of 63 bald eagles over the 24-year permit term. While this averages to 13 bald eagles every 5 years, a take estimate above 13 bald eagles at the 5-year check-in would not cause non-compliance with the permit conditions. Rather, a higher than expected take estimate would trigger an adaptive management response, based on the step-wise approach outlined in Table 4. The Applicant and the Service intend this approach to be flexible, with the potential for more than one level to be carried out in response to a single trigger event or for levels to be skipped if the response is not situation-appropriate. All response actions in the table below would be undertaken based on coordination between the Applicant and the Service using best available science and all Project-specific information collected to date. Furthermore, we do not expect the level of take from the Project to remain static over time, as the results of monitoring would continue to be incorporated into the take estimation and appropriate adaptive management would be implemented to ensure the Project stays within permit compliance and impacts to bald eagles are minimized.

Table 4. Adaptive Management Guidelines for the Red Pine Wind Project

Level	Threshold or Trigger	Adaptive Management Response
1	For years 1 to 5, an estimate[1, 2] of 8 or fewer bald eagle fatalities within the first 5-year period. For years 6 to 24, an estimate [1, 2] of 9 or fewer bald eagle fatalities within a 5-year period.	• Continue implementation of ECP.
2	For years 1 to 5, an estimate[1, 2] of 9 to 10 bald eagles within the first 5-year period. For years 6 to 24, an estimate[1, 2] of 10 to 12 bald eagle fatalities within a 5-year period. For all years, if 3 actual bald eagle injuries or carcasses are found in any one year.	• Continue implementation of ECP. • Review the pattern and rate of estimated eagle fatalities to determine whether the permit limit is likely to be exceeded, based on the percentage of the take limit up to that time. If the total estimated take over the prior 5-year periods is below 70% of the take limit based on 2.605 eagles per year, no additional adaptive management response is required. For example, at the 2nd 5-year period, and the estimate is 17 eagles total, then 2.605 x 10 years = 26.05 eagles, and 17 eagles is 65.3% of the take limit, so no additional adaptive management response is required. • Evaluate cumulative monitoring effort to date to assess confidence in mortality estimates. If evaluation suggests that take estimate is unreliable due to limitations in survey design, additional efforts or modifications to the mortality monitoring regime may be warranted. • Assess the cause or likely contributing risk factor(s) to the eagle fatalities and whether additional management response is warranted and feasible. • Develop a timeline and benchmarks for management response.
3	For years 1 to 5, an estimate[1, 2] of 11 to 13 bald eagle fatalities within a 5-year period. For years 6 to 24, an estimate[1, 2] of 13 to 14 bald eagle fatalities within a 5-year period. For all years, if 4 or 5 actual bald eagle injuries or carcasses are found in any one year.	• Continue implementation of the ECP. • Evaluate cumulative monitoring effort to date to assess confidence in mortality estimates. • Coordinate with the Service to help determine if: immediate response or management action or monitoring is needed, and • If mutually agreed upon by the Service and Project owner, add at least one year of third-party monitoring to the monitoring effort planned in the following check-in monitoring period (other actions that result in an equivalent increase to the overall monitoring detection probability may be used instead if agreed to by the Project and the Service). • Develop a timeline for each management response, including check-ins and benchmarks, as well as measures to determine if the adaptive management response has been successful.

Table 4. Adaptive Management Guidelines for the Red Pine Wind Project (cont'd.)

Level	Threshold or Trigger	Adaptive Management Response

4	For years 1 to 5, an estimate[1, 2] of 14 or more bald eagle fatalities within a 5-year period.
	
	For years 6 to 24, an estimate[1, 2] of 15 or more bald eagle fatalities within a 5-year period.
	
	For all years, if 6 or more actual eagle injuries or carcasses are found in any one year.
		• Continue implementation of the ECP.
		• Evaluate cumulative monitoring effort to date to assess confidence in mortality estimates.
		• Add at least one year of third-party monitoring to the monitoring effort planned in the following check-in monitoring period (other actions that result in an equivalent increase to the overall monitoring detection probability may be used instead if agreed to by the Project and the Service); and
		• Consult with Service to help determine if:
		  • immediate response or management action is needed; and/or
		  • a longer term action plan or management response plan should be developed, including whether the take limit for the Project should be adjusted and the permit amended.
		• As appropriate, implement targeted additional carcass removal or landowner carcass disposal outreach efforts to minimize the presence of eagle attractants within the Project.
		• As appropriate, temporarily implement and test the effectiveness of additional conservation measures (such as use of biomonitors, targeted operational minimization, eagle deterrents, or nest removal permits if appropriate, as discussed further in Section 7.1 of the ECP) to further avoid or minimize risk to eagles.
		• Develop a timeline for each management response, including check-ins and benchmarks, as well as measures to determine if the adaptive management response has been successful.

[1] For the purposes of determining if an adaptive management threshold or trigger has been met, estimated values would be rounded up to nearest whole number when evaluating triggers (e.g., if the estimate at Year 10 for the previous five years is 9.4 bald eagles, the fatality estimate would be rounded up to 10 bald eagles, corresponding to Level 2).

[2] Evidence of Absence, or another statistically sound estimator, would be used to develop an estimate of eagle fatalities based on the results of post-construction mortality monitoring at 5-year check-ins. The adaptive management response and triggers would also be initiated (within the same season) following the discovery of any eagle remains documented onsite. For example, if two bald eagle remains are documented during third-party or operations and maintenance staff monitoring, in addition to reporting the remains to the Service, the responses and processes as described in Level 1 would be followed, regardless of when the next 5-year check-in would occur.

If Levels 1 or 2 of the adaptive management threshold described in Table 4 are reached, the Applicant would continue to implement the avoidance and minimization measures described in Section 7.1.2 of the ECP (Attachment A) and would internally assess the patterns, cause, or likely contributing risk factors to estimated bald eagle fatalities as well as whether a management response is warranted. If Levels 3 or 4 of adaptive management threshold are reached, the Service and the Applicant would discuss additional measures to implement to reduce risk to eagles at the site. Such measures would be implemented in a manner that specifically addresses the root cause(s) of take. For example, if take has only been documented during the winter months or in one area of the site, additional measures may only be implemented during the winter months or in the area where take has occurred at the site.

In addition to providing yearly reports and unscheduled meetings if eagle remains are found over the life of the 24-year permit term, the Applicant and Service would meet every 5 years to ensure compliance with the terms and conditions of the permit and implementation of all applicable adaptive management measures specified in the permit (Service 2016b). During each 5-year check-in, the adaptive management strategy would be reviewed; conservation measures that were once deemed effective may become obsolete and be replaced by more effective measures. Should the implementation of additional conservation measures above what the Applicant has committed to in Section 7.1 of the ECP (Attachment A) be necessary, and/or should more effective measures be identified that would further reduce risk to bald eagles, the Applicant and Service may revise the adaptive management strategy. Additionally, the Applicant would evaluate the cumulative monitoring effort to date to assess confidence in mortality estimates at Levels 2, 3, and 4 of the adaptive management framework.

Implementation of the adaptive management measures described above and in Table 4 is intended to contribute to compliance with the eagle ITP, and could also result in decreased eagle fatalities over the 24-year permit term (i.e., less than 63 bald eagles). This anticipated decline cannot be quantified at this time, but would have the potential to reduce the 24-year total take to less than 63 bald eagles; the monitoring and compliance checks that would occur as part of the 5-year check-in would provide more information on the actual fatalities.

Mitigation: The Proposed Action incorporates measures to avoid and minimize impacts to the maximum extent practicable, as required by regulation. To ensure that regional bald eagle populations are maintained consistent with the preservation standard, our regulations require that any take that cannot practicably be avoided and is above the EMU take limit or greater than 5% of the LAP must be offset by compensatory mitigation. Based on the Final Environmental Assessment, Proposal to Permit Take as Provided under the Bald and Golden Eagle Protection Act (Service 2009) and the thresholds described in the Eagle Conservation Plan Guidance (Service 2013), the Service has determined that compensatory mitigation targeted to offset estimated mortality would not be required for the Project (Service 2016a). The population in Minnesota has increased over the past 20 to 25 years (MN DNR 2019), and as a result, the predicted take of 63 eagles over the 24-year permit term would not be expected to exceed the

level that can be sustained by the LAP. The authorized take remains below the EMU take limit and no compensatory mitigation is needed to meet the Eagle Act preservation standard.

Monitoring: Monitoring is a critical component of adaptive management. The eagle mortality monitoring associated with the Proposed Action (described in Appendix C of the ECP; Attachment A) would be used to generate estimates of facility-wide eagle mortality and used as an indicator of permit compliance or of reaching a take level that would trigger the need for adaptive management response.

The monitoring schedule and bias trials under the Proposed Action are presented in Table 5. Under the Proposed Action, the Applicant would intensively monitor eagle fatalities using independent, third-party monitors that report directly to the Service during Years 1 and 2 of the permit term. During Years 3 – 7 of the permit term, lower intensity eagle mortality monitoring would be completed at each turbine four times per year (quarterly), either by operations personnel or by third-party monitors. For the remaining 17 years of the permit term, intensive third-party monitoring would occur during Years 8, 14, and 19. In the years when intensive third-party monitoring is not conducted, lower intensity monitoring would be conducted by either operations staff or third-party monitors. During lower intensity monitoring, each turbine would be visited quarterly; during visits, the individual would inspect roads, pads, and any other cleared area in the immediate vicinity of turbines visible from their vehicle. Permit compliance monitoring is described in additional detail in the Post-Construction Monitoring Plan for the Project (Appendix C of the Applicant's ECP [Attachment A]) and in Section 5.2 of this EA, below. The need for additional post-construction mortality monitoring or other alternative methods may be discussed if estimated take approaches or is above the predicted levels (see Table 4), or if high uncertainty exists regarding take estimates.

Table 5. Proposed Monitoring Schedule and Bias Trials at the Red Pine Wind Project

Permit Year	3rd Party Intensive Monitoring – monthly at all 100 turbines	Lower Intensity Monitoring – quarterly at all 100 turbines	Measuring Operations and Maintenance Searcher Efficiency	Measure Carcass Persistence
1	X	X[1]	X[1]	X
2	X	X[1]	X[1]	X
3 to 7		X		
8	X	X[1]	X[1]	X
9 to 13		X		
14	X	X[1]	X[1]	X
15 to 18		X		
19	X	X[1]	X[1]	X
20 to 24		X		

[1] If third-party monitors are used for lower intensity surveys, quarterly surveys and operations and maintenance searcher efficiency trials would not occur in these third-party intensive monitoring years. Instead, trials would occur periodically during the lower intensity monitoring years to obtain data on the third-party monitor searcher efficiency.

Significance Criteria: Under the Proposed Action, the Service recognizes that the Project is already built and would be operating in a lawful manner at the time of permit issuance. Additionally, all Applicant-committed measures and adaptive management requirements as outlined in the ECP (Attachment A of this EA) and permit conditions have been or would be fulfilled. As described in Section 1.5.2 of the PEIS (Service 2016c), the Project meets the tiering criteria.

4.1.2 Golden Eagle

Permitted Take: The Proposed Action does not involve take authorization for golden eagles at the Project. No golden eagles have been observed within the Project area during surveys or incidentally. Given the low (and seasonal) occurrence of golden eagles in Minnesota, the current likelihood of take of this species appears to be low. After coordinating with the Service, the Applicant opted not to seek coverage for golden eagles based on the low presumed risk of take. Based on the regional and site-specific records, we agree the risk of golden eagle take is low and that take coverage is not warranted at this time.

We ran the Service's Collision Risk Model for golden eagles based on presumed seasonal use of the Project site and using non-site-specific exposure priors, assuming golden eagles were only present on site (and therefore only at risk) from October through April. The model estimated a take of 0.0062 golden eagle per year (80^{th} Confidence Interval from the Collision Risk Model), or 0.1488 golden eagle over the 24-year life of the permit. This is well below the annual one percent LAP benchmark for golden eagles (1.26 golden eagles based on the Services CET run on August 4, 2021) and no overlapping permitted projects are known within the golden eagle LAP for the Project. Additionally, the golden eagle take estimate is likely a conservative overestimate and actual golden eagle take may be lower. As stated in Section 3.2, the Service and the Applicant would refine the estimated take number based on Project-specific fatality monitoring data throughout the life of the permit.

Avoidance and Minimization: Measures proposed by the Applicant to avoid or minimize impacts on bald eagles could also be effective for golden eagles. However, these effects would be expected to have a negligible impact on golden eagles due to their rarity in the area.

Adaptive Management: Applicant-committed conservation measures and adaptive management requirements detailed for bald eagles that would be implemented in compliance with the ECP under the Proposed Action would also serve to minimize risk to golden eagles. If additional information becomes available on golden eagle presence in or near the site area, the project proponent and the Service would discuss appropriate action, as described in Section 4.1 of the ECP.

Mitigation: Offsetting mitigation would not be conducted, as take is not being requested.

Monitoring: The Service would consider the need for golden eagle monitoring, studies, minimization measures, and take permitting if golden eagles are documented in the Project area. Post-construction mortality monitoring for bald eagles (detailed in Section 4.1.1) would help to find any golden eagles that may be taken at the Project. If an unpermitted golden eagle injury or fatality were to occur, the Applicant would follow the recovery and notification protocol outlined in the ECPG (Service 2013) and outlined in Section 9.4 of the ECP. The Service would work with the Applicant in conjunction with the Office of Law Enforcement (OLE) and the Office of the Solicitor (SOL) to determine next steps. If appropriate, the stepwise approach to adaptive management described in Table 1 may be applied. If approved by OLE and SOL, the Service would work with the Applicant to determine the need to amend the ECP and ITP to include golden eagles. Amending the permit to include golden eagles would require compensatory mitigation and additional NEPA analysis. Amending the ITP to include golden eagles would likely also trigger additional eagle mortality monitoring.

Significance Criteria: The Applicant is not requesting take for golden eagles at this time; no significant impacts to golden eagle populations are anticipated under the Proposed Action.

4.1.3 Migratory Birds

Under the Proposed Action, all Applicant-committed minimization measures, fatality monitoring, and adaptive management processes as described in the ABPP would be followed (see Sections 1.2, 3.0, 4.0, and 6.0 of the ABPP). No direct adverse impacts are expected on migratory birds from the issuance of an eagle ITP.

While wind facilities in general can have negative impacts on migratory birds, the issuance of a bald eagle ITP is not anticipated to increase these impacts. Additionally, implementation of the avoidance and minimization measures and the adaptive management framework outlined in the Applicant's ECP would also be expected to minimize impacts to migratory birds for the life of the Project. Examples include regular removal of livestock and road kill carcasses and reducing speed limits on access roads.

Through implementation of the ABPP and ECP, the Proposed Action is compatible with the significance criteria listed in Section 3.5.2.1 of the PEIS (Service 2016c) for evaluating effects on migratory birds that would be anticipated to occur.

4.1.4 Federally Listed and Candidate Species

Issuance of an ITP for bald eagles and implementation of the ECP under the proposed action would likely not have significant impacts on the northern long-eared bat. While wind facilities in general have negative impacts on bats, we do not anticipate that the issuance of a bald eagle ITP would increase or decrease this impact. No impacts to forested habitat are anticipated under the Proposed Action, and no federally listed bat species were found as fatalities during the post-

construction mortality monitoring conducted from March through November 2018 and from May through October 2021. There are no proposed permit conditions or adaptive management actions that would result in habitat alternation. Under the Proposed Action, all Applicant-committed minimization measures, fatality monitoring, and adaptive management processes described in the ABPP would be followed. Additionally, the impacts of permit issuance on the northern long-eared bat (anticipated to not be significant) from implementation of the minimization measures and the adaptive management process outlined in the ECP would be realized for the life of the Project. Adaptive management as part of eagle take permit conditions may include daytime turbine curtailment. Should changes in operational conditions be proposed as part of the bald eagle ITP adaptive management, the Service would assess if re-initiation of this Section 7 consultation is appropriate, as detailed in Section 1.6 of this EA.As documented in the ABPP, the Applicant has developed multiple measures during the siting and design (Sections 1.2.1, 1.2.2, and 3.1 of the ABPP), construction (Section 3.2 of the ABPP), and operation of the Project (Section 1.2.3 of the ABPP) to avoid and minimize impacts to wildlife, including the northern long-eared bat.

The Project is already operational and no ground disturbance is being authorized under either of the alternatives considered in this EA, and no suitable habitat for the Dakota skipper or monarch butterfly would be impacted by the issuance of an ITP for bald eagles. Furthermore, the Dakota skipper is not expected to occur within the Project area (see Section 3.4.2 of this EA). As such, the issuance of an ITP for bald eagles and implementation of the ECP under the Proposed Action would not have a significant impact on the Dakota skipper. The monarch butterfly has the potential to occur within the Project area; however, there are no proposed actions that would result from the issuance of the bald eagle ITP or associated permit conditions that would alter habitat or otherwise impact potential monarch resources.

The Service's Intra-Service Section 7 Biological Evaluation documents if and how issuance of the permit (and associated implementation of the ECP and permit conditions under either Action Alternative). Based on this evaluation, the Service determined that the Project May Affect, but is Not Likely to Adversely Affect the northern long-eared bat and would have No Effect on the Dakota skipper (Attachment B). Additionally, the issuance of this ITP is not likely to jeopardize the monarch butterfly.

If the status of the northern long-eared bat changes to endangered, existing exemptions would no longer apply (final 4(d) rule (50 CFR 17.40(o))), and if a northern long-eared bat were to be found as a fatality, the Project could be subject to enforcement action. Should new information become available that shows the likelihood of additional listed species in the Project area, or the status of a species changes, the Applicant would coordinate with the Service to determine Project risk and whether any additional measures are recommended, such as operational minimization during high risk periods and/or coverage for take of federally listed species under Section 10 of the ESA through development and implementation of a Habitat Conservation Plan.

We do not find any significant impacts to known listed species in the Project area (northern long-eared bat and Dakota skipper), or the candidate species monarch butterfly through implementation of the Proposed Action.

4.1.5 Cumulative Effects of the Proposed Action

Take of eagles has the potential to affect the larger eagle population. Accordingly, the 2016 PEIS analyzed the cumulative effects of permitting take of bald eagles in combination with ongoing unauthorized sources of human-caused eagle mortality and other present or foreseeable future actions affecting bald eagle populations. As part of the analysis, the Service determined sustainable limits to permitted take within each EMU. The take that would be authorized by this permit does not exceed the EMU take limit, so the take would not significantly impact the EMU eagle population. The avoidance and minimization measures that would be required under the eagle ITP, along with the implementation of the Applicant's adaptive management framework, are designed to further ensure that the permit is compatible with the preservation of the bald eagle at the regional EMU population scale.

Additionally, to ensure that eagle populations at the local scale are not depleted by cumulative take in the local area, the Service analyzed in the PEIS (Service 2016c) the amount of take that can be authorized while still maintaining LAP of eagles. In order to issue a permit, cumulative authorized take must not exceed 5% of a LAP unless the Service can demonstrate why allowing take to exceed that limit is still compatible with the preservation of eagles. The eagle ITP regulations require the Service to conduct an individual LAP analysis for each permit application as part of our application review.

We, therefore, considered cumulative effects to the LAP surrounding the Project to evaluate whether the take to be authorized under this permit, together with other sources of permitted take and unpermitted eagle mortality, may be incompatible with the persistence of the Project LAP. We incorporated data provided by the Applicant, our data on other eagle take authorized and permitted by the Service, and other reliably documented unauthorized eagle mortalities to estimate cumulative impacts to the LAP. Our cumulative effects analysis examined permitted and unpermitted take within an 86-mile radius (the natal dispersal distance of female bald eagles) of the final Project boundary, which we are considering the Project LAP (Figure 4). In order to look at the cumulative impact of our proposed permitted take on this LAP, we expanded our search to two times the Project LAP (172 miles); this enabled us to examine the LAPs of permitted take where they overlap with the Project LAP, and to consider a larger area of unpermitted take. We conducted our cumulative effects analysis as described in the Service's ECP Guidance (Appendix F in Service 2013).

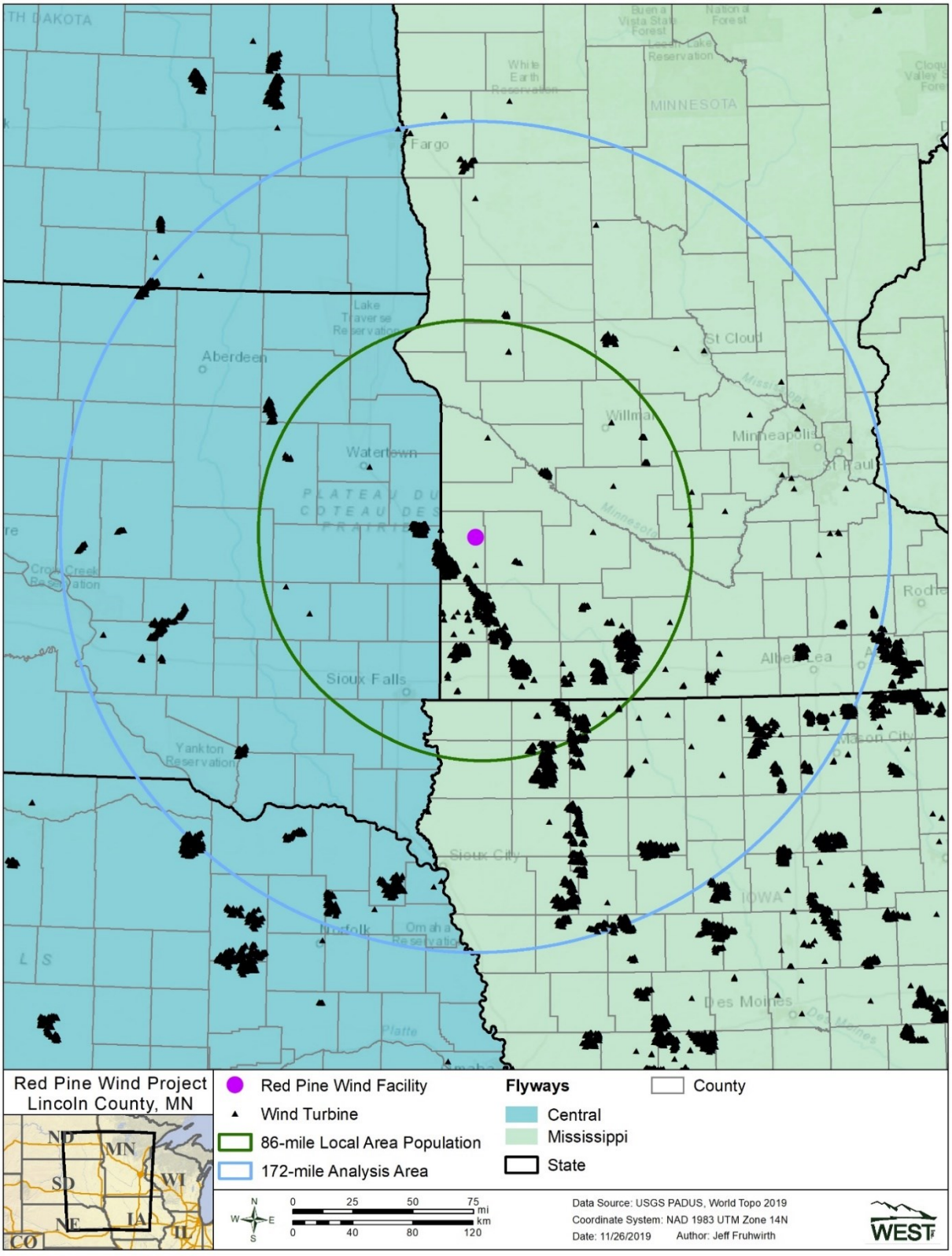

Figure 4. Other Wind Farms with Overlapping Local Area Populations for Bald Eagles

4.1.5.1 Project Permit Proposed Take

We are proposing to issue a permit with a take of up to 63 bald eagles over the 24-year permit term, derived from our Collision Risk Model output of 2.6 eagles per year. The majority of the Project LAP occurs within the Mississippi Flyway EMU (as defined in the 2016 PEIS), but the western portion of the Project LAP extends into the Central Flyway EMU. Prior to the 2016 Eagle Rule, the Service managed bald eagles using different EMUs (defined in the 2009 Eagle Rule) that were smaller, geographically; as shown in the 2016 PEIS, the Project's LAP falls mostly within the Great Lakes Region with the western portion extending into the Rocky Mountains and Plains Region according to these 2009 EMUs. Because the 2016 PEIS (Service 2016) analyzed both the 2009 and 2016 EMUs, we used the bald eagle densities associated with the more site-specific Eagle Density Units for the Great Lakes Region EMU that was proposed in the 2016 draft PEIS for the LAP analysis, rather than the average bald eagle densities for the entire Mississippi or Central Flyway EMUs.

We note that the modeling conducted for this Project was specific and should not be considered as guidance for future projects. Portions of the data were collected prior to the ECPG (Service 2013), and thus may not be fully representative of bald eagle use or risk in the area. In order to address this uncertainty, we have considered the predicted take estimate at the upper 80th Confidence Interval from the Collision Risk Model, would conduct annual 5-year check-ins with the Applicant, and would employ adaptive management (Table 4) as appropriate.

4.1.5.2 Local Area Population Benchmarks

As discussed in the Service's 2016 PEIS, if existing permitted eagle take exceeds 1 percent of the estimated population size within the LAP, additional take is of concern. If take exceeds 5 percent of the estimated population size within the LAP, additional take is considered inadvisable unless the permitted activity would actually result in a lowering of take levels.

We estimate the number of bald eagles within the Project LAP to be 872.85 eagles. Eagle density by EMU is provided in Table 6. The 1 percent and 5 percent benchmarks for the Project LAP are provided in Table 7.

Table 6. Estimated Number of Bald Eagles within 86 miles of the Project (Project LAP)

Project LAP by Eagle Management Unit	Estimated Number of Eagles within Project LAP
Great Lakes	845.24
Rocky Mountains and Plains	27.61
Project LAP (total)	**872.85**

Table 7. Benchmarks for Sustainable Take within 86 miles of the Project (Project LAP)

Benchmark Take	Number of Eagles
1% Project LAP Benchmark	8.73
5% Project LAP Benchmark	43.64

The PEIS analyzed take of up to 5 percent of the LAP benchmark; take higher than this can be permitted but would require additional NEPA analysis and additional mitigation if necessary to maintain the persistence of local eagle populations throughout their geographic range.

To evaluate cumulative impacts to bald eagles, we followed the guidance provided in Appendix F of the ECPG (Service 2013). To quantify cumulative impacts of our permit issuance, we used the Service's CET run on August 4, 2021. The CET calculates the LAP of bald eagles for an activity or project under consideration for a permit (focal project), and then summarizes existing and ongoing take that may affect the same LAP. This includes all known sources of bald eagle permitted take and bald eagle unpermitted take within the LAP and areas surrounding the LAP. The analysis allows for a contextual assessment of cumulative impacts on the LAP of bald eagles associated with the focal project, and provides a scientifically defensible decision process for determining the allowable levels of bald eagle take that can be permitted sustainably under each permit.

Because the number and location of bald eagle permitted take is precisely known in relation to the Project LAP, it can be quantified with a higher level of accuracy than bald eagle unpermitted take, which is based on opportunistic or incidental reports. For this reason, bald eagle permitted take and bald eagle unpermitted take are discussed separately in the sections below.

Bald Eagle Permitted Take

We ran the Service's Cumulative Effects Tool (CET) on August 4, 2021, using the most current data available on permitted take. The CET identified 23 permitted projects that had overlapping LAPs with the Project LAP. The majority of these were nest disturbance permits. The total overlapping take for one year was 6.19 bald eagles per year (0.71 percent of the LAP; Table 8). Overlapping take is estimated by taking the LAP of existing permitted projects and determining percent overlap with the Project LAP, and multiplying the authorized take by that percentage. If the Project is permitted to allow take of 2.6 bald eagles per year, this would be a cumulative impact of 8.79 bald eagles per year (1.01 percent of the Project LAP). This percentage of the Project LAP is just above the 1 percent threshold and below the 5 percent threshold; the effects of which have been analyzed in the PEIS and found to be within the preservation standard of bald eagles.

Table 8. Combined Existing Overlapping Permitted Take with Proposed Annual Take within the Project LAP

Results	Number of Eagles	Percent of Project LAP
Total Overlapping Take	6.19	0.71
Project Predicted Take	2.60	0.30
Project + Total Overlapping Take	**8.79**	**1.01**

Bald Eagle Unpermitted Take

In order to analyze unpermitted take, we used data from the Service's proprietary Injury and Mortality Database, accessed through the CET on August 4, 2021. These eagle mortality records represent the best available data on unpermitted eagle deaths. However, most records were obtained opportunistically or through incidental reporting, and not from systematic survey efforts to detect eagle mortalities using a statistically valid protocol or sampling methodology. For most records, no searcher efficiency or carcass persistence trials were associated with the record, so a bias correction factor could not be applied. Some industries that impact eagles self-report eagle mortalities at a higher rate than other industries, and some types of eagle mortalities lend themselves better to discovery and reporting (e.g., road collisions). Finally, some recent eagle fatality records may not be available in the database due to on-going investigations by the Service's Office of Law Enforcement or backlog in entering mortality data. We recognize the inherent bias associated with these data and recommend this analysis be viewed with a qualitative, rather than quantitative lens.

We analyzed known eagle deaths within the period of 2011–2021. Data were examined on a temporal (year) scale. We looked at the overlap of the Project LAP and the LAP of the bald eagle unpermitted take; thus, some bald eagle unpermitted take may have occurred within the distance of up to two times the Project LAP (172 miles; to account for the cumulative impact of overlapping LAPs; Figure 4).

Between 2011 and 2021, there were 76 reported eagle deaths with an LAP that overlapped with the Project LAP. Averaged over the 11-year period, this yields 6.91 eagle deaths per year, which represents 0.79 percent of the Project LAP at a maximum. The bald eagle unpermitted take analysis does not provide percent overlap with the Project LAP.

We examined bald eagle unpermitted take by suspected cause between 2011 and 2021 (i.e., anthropogenic, natural causes, and undetermined). The largest source of unpermitted take was anthropogenic causes; collision with a vehicle (16 bald eagles) and trauma (14 bald eagles) accounted for 39.5 percent of the total unpermitted take between 2011 and 2021. The level of anthropogenic unpermitted take does not rise to a level that would require additional analysis, which the Service's 2016 PEIS identified as 10 percent of the LAP. Identifying types of

unpermitted take allows for focus of future conservation efforts, if needed, within the Project LAP (e.g., lead abatement, vehicle-collision public information campaigns).

4.1.5.3 Cumulative effects not analyzed in the Service's Cumulative Effects Analysis

Minnesota contains many operational wind farms, as well as windfarms that will be operational in the coming years. The Project LAP contains 112 records of operational wind farms, consisting of over 2,984 turbines (Hoen et al. 2019 [v4.3 January 14, 2022]), as well as several wind farms that will be operational in the coming years. It is feasible that eagles within the Project LAP may pass through areas containing these wind turbines. The anticipated mean build-out for wind power in Minnesota from 2016–2030 is 2,030 MW (U.S. Department of Energy 2021). Based on the concentration of existing wind facilities in the southwestern portion of the state, there will likely be additional turbines constructed within the Project LAP.

Within a 172-mile radius of the Project (two-times the Project LAP, which is the extent to which another project's LAP may overlap with this Project LAP) there are 121 additional wind facility records totaling 4,463 additional turbines, for a total of 233 wind facilities and 7,447 turbines (Hoen et al. 2019 [v4.3 January 14, 2022]). It is feasible that the impacts to eagles from operation of the various wind farms could overlap, contributing to a cumulative landscape level impact. However, without site-specific information from eagle-related impacts of these projects, we cannot accurately assess the impact of this potential cumulative take.

Currently there are no pending long-term eagle permit applications that may be issued within the Project LAP prior to potential issuance of this permit. Impacts from the Red Pine Wind Project would be analyzed as part of the permitted take analysis for any future permit applications that have an LAP overlapping with the Red Pine Wind Project's LAP. The Service anticipates future receipt of applications for disturbance and nest removal within the Project LAP. However, these permits tend to be short-term in duration (1–3 years), and we anticipate the level of impact from these permits will stay consistent every year. Currently, the amount of take from short-term disturbance and nest removal permits within the Project LAP is 25.27 eagles per year, with an overlapping impact of 0.48 percent of the LAP. Even with the anticipated impact of issuance of future long-term permits and yearly issuance of short-term disturbance and nest removal permits, the Service's LAP and EMU take limits are not expected to be exceeded.

While existing unpermitted wind developments, additional future wind developments, and other activities may increase take within the Project LAP during the 24-year permit term, the Service cannot reasonably predict the resulting impacts to eagles of such projects when important aspects (e.g., size, location, configuration, lifespan, and site-specific risk to eagles) are currently unknown. There is no reasonable basis to consider such speculative impacts in this EA.

As described in Section 3.1.4, two bald eagle nests (Nests B and C) have been documented within 2.0 miles of Project turbines (Table 3, Figure 3). Nest B was first observed in 2015, and

was documented as in-use in 2015, 2016, and 2017. Follow-up ground nest monitoring surveys were conducted at this nest in 2015, but successful fledging was not documented. Nest C was first observed in 2016, and was documented as in-use in both 2016 and 2017. Follow-up ground nest monitoring surveys were conducted at this nest in 2016, and successful fledging was not documented. No further monitoring of Nest B or C is proposed; however, if a new bald eagle nest is identified within 1 kilometer (0.6 miles; Attachment A) of Project turbines when the Project is operational, coordination with the Service and MN DNR would occur and the nest would be monitored by trained biologists for at least two years and by on-site personnel for the life of the Project (see Section 7.1.2 in Attachment A). Given the increasing bald eagle population in the LAP, it is not expected that the impact to this specific nesting pair would be significant over the long-term.

4.1.5.4 Golden Eagle

As described in Section 4.1.2, because golden eagles were not observed during pre-construction avian surveys at the Project, documented occurrences in the vicinity of the Project are low, and the Project area provides limited foraging habitat and no suitable nesting sites for this species, projected take of golden eagles is low. As such, the Project's contribution to cumulative impacts would be negligible. However, if golden eagles were to occur in the area, risk could potentially be minimized by implementation of conservation measures that would be adopted by the Proposed Action outlined in the Applicant's ECP (Section 7.1 of Attachment A). The Service's Collision Risk Model estimated a take of 0.1488 golden eagles over the 24-year permit term (Section 4.1.2).

4.1.5.5 Migratory Birds

As noted above in Section 4.1.3, fatality monitoring was conducted during the first year of operation and the second year of fatality monitoring was completed in October 2021, with analysis currently ongoing as part of compliance with the state LWECS permit, which did not indicate potential significant impacts to migratory bird populations, and no more than nine carcasses were found of any bird species during the first or second year of monitoring (Trana et al. 2019 and public data from the quarterly avian and bat reports submitted to the MPUC; available online: Red Pine Wind Project LWECS Docket). The Proposed Action would include implementation of conservation measures outlined in the Applicant's ECP (Section 7.1 of Attachment A), which may further reduce impacts to migratory birds. As a result, the Proposed Action's contribution to cumulative impacts on migratory birds are expected to be minor.

4.1.5.6 Federally Listed and Candidate Species

As described in Section 4.1.4, the issuance of an ITP for bald eagles and implementation of the ECP would not have a significant or negative impact on the northern long-eared bat or Dakota skipper. Additionally, the issuance of the ITP is not anticipated to jeopardize the continued

existence of the candidate monarch butterfly. If northern long-eared bats were to occur in the Project area, risk could potentially be minimized by implementation of some of the conservation measures that would be adopted by the Proposed Action outlined in the Applicant's ECP. Because the Dakota skipper is not likely to occur at the Project (see Section 3.2.4 and the ABPP) and no ground disturbance is expected under the Proposed Action, cumulative impacts to the Dakota skipper are expected to be minor.

4.1.6 Significance of Impacts

The take that would be authorized by this permit for the Project does not exceed 5 percent of the Project's bald eagle LAP and would not significantly impact the Project LAP. Known unpermitted take within the Project LAP does not exceed 10 percent and does not appear concentrated by region or type of take. Granting the 24-year permit would meet the purpose and need by permitting potential eagle take through operation of the Project and is consistent with the preservation standard as identified in the Service's 2016 Eagle Rule Revision.

4.1.7 Purpose and Need

The Proposed Action meets the purpose and need by issuing a bald eagle take permit to Red Pine Wind Project, LLC. The survey protocol conducted at the Project deviates from some of the requirements 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 (FWS/AMB/067089) which lists three categories of projects that qualify for a waiver. One of these categories includes projects that were not operational prior to January 1, 2017, but for which construction schedules and/or contractual obligations prior to January 17, 2019 prevented the Project from completing a full two years of survey that meet all of the requirements of the Eagle Rule. The Service intends to issue a waiver for the Project, as meeting this category. The Applicant has met all the permit issuance criteria. This action complies with all applicable regulatory requirements, and is compatible with the preservation of eagles.

4.2 Alternative 1 – No-Action

Even though we would take no action on the permit application under the No-Action Alternative, the Project would likely continue to operate without authorization for take of bald eagles. Under this alternative, we assume that the Applicant would take some reasonable steps to avoid taking bald eagles, but the Applicant would not be protected from enforcement for violating the Eagle Act should take of a bald eagle occur. Because offsetting mitigation is not required for this permit, the total number of bald eagles taken under this Project would likely remain the same. However, the lack of requirements for the Applicant to follow the ECP, monitor the take of bald eagles over the life of the Project, and/or implement an adaptive management plan in response to unexpected levels or take or changes in the bald eagle population outside of the context of a

permit would result in less certainty over the effect of the Project compared to the Proposed Action.

4.2.1 Bald Eagle

Under the No-Action Alternative, the Service would take no action on the permit application and would not issue a permit. Direct impacts of the Project to the bald eagle population would be quantified through reporting of incidental observations (e.g., eagle injury or mortality, an eagle roost, a new eagle nest) for the life of the Project and through two years of post-construction mortality monitoring during the initial years of operation, in accordance with the LWECS Site Permit and as described in the ABPP. The first year of post-construction mortality monitoring occurred between March and November 2018; the second year of mortality monitoring was conducted from May through October 2021, and analysis is currently ongoing. No bald eagle fatalities were documented during the two years of state-required fatality monitoring.

Under this alternative, direct impacts of the Project on the eagle population over the 24-year life of the Project are expected to be 63 bald eagles (2.6 eagles per year). This take would not be offset by compensatory mitigation, nor would any adaptive management measures be triggered should take exceed that level.

Given the estimated effects of this alternative (presumed use of some voluntary avoidance and minimization measures to reduce risk), it is likely that the take of bald eagles associated with the No-Action Alternative would be similar to what is estimated for the Proposed Action and is, therefore, not expected to result in significant effects to the bald eagle population. However, the lack of requirements for the Applicant to implement the measures described in the ECP (e.g., monitoring the take of eagles over the life of the Project, implementing adaptive management measures based on estimated take of bald eagles) outside of the context of a permit would result in less certainty of the Project's impact.

4.2.2 Golden Eagle

Under the No-Action Alternative, the Service would take no action on the permit application (for take of bald eagles) and no permit would be issued. Under this alternative, direct impacts of the Project on the golden eagle population would be quantified based on the two years of post-construction mortality monitoring required by the LWECS Site Permit. As stated above for bald eagles, we assume the Applicant would take some reasonable steps to avoid taking golden eagles, but the Applicant would not be protected from enforcement for violating the Eagle Act should take of an eagle occur. Also, the lack of monitoring associated with issuance of an eagle take permit would result in additional uncertainty of the Project's impacts to golden eagles.

Although the current risk to golden eagles at this Project is unknown due to a lack of golden eagle observations in the Project-specific data, the conservative priors-only Collision Risk Model estimate of 0.0062 golden eagle per year provides a baseline mortality that could be expected under the No-Action Alternative. As stated above, this take estimate is likely a conservative

overestimate, based on no golden eagles having been observed during pre-construction surveys and no golden eagle fatalities being recorded during post-construction monitoring. Golden eagle risk may increase in the future should the golden eagle population increase (either in the EMU or LAP), and without implementation of eagle mortality monitoring associated with the Proposed Action, increased risk to golden eagles may go undocumented.

4.2.3 Migratory Birds

Under the No-Action Alternative, all Applicant-committed measures regarding minimizing risk to migratory birds as described in the ABPP (see Sections 3, 4, and 6 of the ABPP) would be followed, absent the issuance of a permit for the taking of eagles. Direct impacts associated with operation of the Project on migratory bird populations would be quantified through state-mandated two years of mortality monitoring, in compliance with the ABPP. Under the No-Action Alternative, although an incidental reporting process would be implemented throughout the life of the Project in accordance with the LWECS Site Permit, mortality monitoring would likely cease after the completion of the two years of monitoring the Applicant has committed to and is in the process of conducting. Impacts to migratory birds under the No-Action Alternative are assumed to be similar to those under the Proposed Action.

4.2.4 Federally Listed and Candidate Species

Under the No-Action Alternative, all Applicant-committed minimization measures, fatality monitoring, and adaptive management processes described in the ABPP would be followed, although a permit would not be issued for the taking of bald eagles. Direct impacts associated with operation of the Project on the northern long-eared bat would be quantified through two years of mortality monitoring, in compliance with the ABPP and the LWECS Site Permit. Although an incidental reporting process would be implemented throughout the life of the Project in accordance with the LWECS Site Permit, mortality monitoring would likely cease after the completion of the two years of monitoring required by the State.

As noted above in Section 3.5, should new information become available that shows the likelihood of additional listed species in the Project area, or the status of a species changes, the Applicant would coordinate with the Service to determine Project risk and whether any additional measures are recommended, such as operational minimization during high risk periods and/or coverage for take of federally listed species under Section 10 of the ESA through development and implementation of a Habitat Conservation Plan.

Impacts to federally listed species (northern long-eared bat and the Dakota skipper) and the candidate monarch butterfly under the No-Action Alternative are assumed to be similar to those under the Proposed Action.

4.2.5 Cumulative Effects

The cumulative effects of the No-Action Alternative are similar to that of the Proposed Action; the Project would continue to be operational and bald eagle take would likely be the same or similar. However, under the No-Action Alternative the adaptive management guidelines described in Table 4 to address changes or uncertainty in take levels would not be required, nor would implementation of the avoidance measures described in Section 4.1.1 and in the ECP (see Section 7 in Attachment A); therefore, take of bald eagles may be higher under the No-Action Alternative than under the Proposed Action. Predicted take of eagles at the Project would likely be sustainable at both the LAP and EMU levels, and therefore complies with the preservation standard set forth in the Eagle Act. However, any eagle take that occurs would not be authorized. Additionally, collision risk predictions could not be updated and refined with mortality data and there would be less certainty of the Project's impact.

The cumulative effects of the No-Action Alternative on golden eagles, migratory birds, and the northern long-eared bat and Dakota skipper would be similar to that of the Proposed Action. Because we assume take of golden eagles is unlikely, cumulative impacts would be negligible. Similarly, state-mandated bird and bat fatality monitoring conducted during 2018 and 2021 did not indicate potential significant impacts to migratory bird populations, and no more than nine carcasses were found of any bird species during the one year of post-construction mortality monitoring conducted to date (Trana et al. 2019 and public data from the quarterly avian and bat reports submitted to the MPUC). Therefore, cumulative impacts to migratory birds are expected to be minor. Because northern long-eared bats likely do not occur in the Project area during the summer months, impacts to this species would be limited to the migration season; post-construction mortality monitoring did not document mortality of the northern long-eared bat (Trana et al. 2019 and public data from the quarterly avian and bat reports submitted to the MPUC). With the continued implementation of the ABPP, cumulative impacts to this species are expected to be minor. Because the Dakota skipper is not likely to occur at the Project (see Section 3.4.1 above, and the ABPP) and no ground disturbance is expected under the No-Action Alternative, cumulative impacts to the Dakota skipper and monarch butterfly are expected to be minor.

4.2.6 Significance of Impacts

Under the No-Action Alternative, the Service would take no action on the permit application and no permit would be issued. Under this alternative, direct impacts of the Project on the bald eagle population would occur, and would likely be the same as or similar to the Proposed Action. As described above, implementation of the avoidance measures and adaptive management guidelines described in the Applicant's ECP would not be required under the No-Action Alternative, although the Applicant would likely take measures to minimize and avoid the take of bald eagles at the Project in order to minimize the risk of violating the Eagle Act. The take estimate for the 24-year life of the Project is up to 63 bald eagles (13 eagles between each 5-year check-in). Similar to the Proposed Action, the No-Action Alternative would likely be compatible

with the preservation of bald eagles, both within the EMU as well as the LAP. Based on the intensity and context of these effects and consideration of the elements associated with this alternative, the No-Action Alternative is not expected to result in significant adverse effects to the bald eagle population. However, because post-construction mortality monitoring would not be required, there would be greater uncertainty around the actual number of eagles taken by the Project, and the Service would lose the ability to refine the Collision Risk Model with post-construction mortality data, as well as respond to changing conditions through adaptive management.

4.2.7 Purpose and Need

The No-Action Alternative does not meet the purpose and need for the action because, by regulation (50 CFR § 13.21), when in receipt of a complete application, the Service must either issue or deny a permit to the Applicant.

No additional alternatives were evaluated in detail in this EA.

4.3 Comparison of Effects of Alternatives

The effects of the Proposed Action and No-Action Alternative are compared in Table 9.

Table 9. Comparison of the Proposed Action and No-Action Alternative

	Proposed Action – Issue Permit	No-Action Alternative Do Not Issue Permit
Eagle Take Levels	63 bald eagles over 24 years (an average of 13 eagles over each 5-year interval)	1. 63 bald eagles over 24 years (an average of 13 eagles over each 5-year interval) 2. No ability to update collision risk estimates 3. Uncertainty over actual take levels
Avoidance and Minimization[1]	1. Landowner outreach to reduce or limit harmful wildlife interactions and minimize attracting bald eagles 2. Operation staff training to monitor, report, and remove livestock or wildlife carcasses in the vicinity of Project turbines to avoid attracting eagles 3. New bald eagle nests identified within one kilometer (0.6 mile; Attachment A) of turbines would be monitored for at least two years post nest discovery by a biologist and by on-site personnel for the life of the Project	1. None required 2. Eagle roosts and/or new nests within 1 mile of turbines will be reported to the Service in accordance with the state Site Permit and monitored for two years by a biologist 3. Project proponent would likely implement some, but not all measures 4. Service would have no reports as to efficacy of avoidance and minimization measures
Monitoring	1. Two years of post-construction avian and bat mortality monitoring by a third-party in accordance with the state Site Permit 2. Minimum of five years of intensive post-construction eagle mortality monitoring by a third-party at 100% of turbines (additional years of third-party monitoring may be required based on adaptive management framework)[2] 3. Lower intensity monitoring would be conducted by either third-party monitors or operations staff to visually inspect the area surrounding each turbine at least four times per year for the life of the Project, focused on eagle mortality monitoring 4. Searcher efficiency trials for bias correction conducted for third-party and monitors, and for operations staff monitors if conducting searches, during years when third-party monitors are on site	1. Two years of post-construction avian and bat mortality monitoring by a third-party in accordance with the state Site Permit 2. Operations staff would be trained to look for carcasses incidentally near turbines and report incidental observations for the life of the Project, but no bias trials would be conducted
Compensatory Mitigation	None Required[3]	None provided
Unmitigated Eagle Take	No mitigation required for predicted take of 63 bald eagles over 24 years[5]	63 bald eagles over 24 years

Table 9 (Cont'd.). Comparison of the Proposed Action and No-Action Alternative

	Proposed Action – Issue Permit	No-Action Alternative Do Not Issue Permit
Adaptive Management	1. 8 or fewer (years 1-5) or 9 or fewer (years 6-24) estimated bald eagle fatalities within 5-year period; continue implementation of the Eagle Conservation Plan (ECP) 2. 9-10 (years 1-5) or 10-12 (years 6-24) estimated bald eagle fatalities within 5-year period or 3 actual bald eagles found in any one year; continue ECP implementation, review pattern of estimated eagle fatalities to determine if permit limit is likely to be exceeded, evaluate monitoring results to assess if take estimate is unreliable due to limitations in survey design, assess cause or risk factors for eagle fatalities, and develop timeline and benchmarks for action 3. 11-13 (years 1-5) or 13-14 (years 6-24) estimated bald eagle fatalities within 5-year period or 4-5 actual bald eagles found in any one year; continue ECP implementation, evaluate monitoring results to date, coordinate with the Service, implement additional monitoring if appropriate, and develop timeline and benchmarks for action 4. 14 or more (years 1-5) or 15 or more (years 6-24) estimated bald eagle fatalities within 5-year period or if 6 or more actual bald eagle injuries or fatalities are found in any one year; continue ECP implementation, evaluate monitoring results to date, add at least one year of third-party monitoring to the following 5-year period, coordinate with the Service, implement additional carcass removal or landowner outreach, temporarily implement and test the effectiveness of additional conservation measures, and develop timeline and benchmarks for action	None
Data Collected by Service	1. Throughout the life of the Project, the Applicant shall file the following in accordance with the state Site Permit:[4] * annual audit of Avian and Bat Protection Plan practices * quarterly incident report * reporting of dead or injured eagles within 24 hours of discovery 2. An annual report would be submitted to the Service summarizing the data obtained through monitoring for every year the permit is valid, as well as raw data collected through any systemic monitoring (e.g., O&M staff). * During years when third-party mortality monitoring occurs the annual report of fatalities would be submitted by third-party monitors, as well as all raw data collected. 3. The Service would analyze all systemic data collected to update and refine collision risk estimate.	1. Throughout the life of the Project, the Applicant shall file the following in accordance with the state Site Permit:[4] * annual audit of Avian and Bat Protection Plan practices * quarterly incident report * reporting of dead or injured eagles within 24 hours of discovery Original collision risk estimate will not be updated by the Service.

Table 9 (Cont'd.). Comparison of the Proposed Action and No-Action Alternative

	Proposed Action – Issue Permit	No-Action Alternative Do Not Issue Permit
Company Liability for Bald Eagle Take	No (if in compliance with permit conditions)	Yes

[1] A number of pre-construction avoidance and minimization measures were implemented, but because, the Project has already been constructed we are only examining operational avoidance and minimization.

[2] Under the Proposed Action, the Applicant would conduct a total of 5 years of intensive post-construction eagle mortality monitoring at the Project using third-party monitors approved by the Service, which would occur during years 1, 2, 8, 14, and 19 of the permit term.

[3] Offsetting mitigation is not required because requested take is within threshold limits and supports the preservation standard.

[4] Reporting requirements relating to eagles are described in additional detail in Section 7.5 of the state Site Permit.

5 Mitigation and Monitoring

5.1 Mitigation

Bald Eagles: The Proposed Action incorporates measures to minimize and avoid impacts to bald eagles to the maximum degree practicable, as required by regulation. To ensure that regional bald eagle populations are maintained consistent with the preservation standard, our regulations require that any take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation. In this case, authorized take would remain below the EMU take thresholds and no compensatory mitigation would be needed to meet the Eagle Act preservation standard.

For golden eagles: The Applicant is not requesting take of golden eagles in this permit application. However, the Proposed Action incorporates measures to minimize and avoid impacts to the bald eagle to the maximum degree practicable, as required by regulation, which may also benefit golden eagles. To ensure that regional eagle populations are maintained consistent with the preservation standard, regulations require that any golden eagle take that cannot practicably be avoided and is above EMU take limits must be offset by compensatory mitigation at a 1.2 to 1 ratio. As golden eagle take limits for all EMUs were determined to be zero (Service 2016a), compensatory mitigation would be necessary to offset any authorized take of golden eagles. No golden eagle mitigation would be provided under this action; therefore, no offsetting mitigation for golden eagles is required.

5.2 Monitoring

The LWECS Site Permit requires two years of post-construction avian and bat mortality monitoring. The first year of state-required avian and bat mortality monitoring occurred from March 2018 through November 2018, and included conducting cleared plot searches four times per week at 10 turbines as well as road and pad searches once per week at 40 turbines (as described in Section 4.1 of the ABPP). Based on the results of the first year of avian and bat monitoring, the Applicant coordinated with state agencies regarding the approach and methodology for the second year of avian and bat mortality monitoring required by the LWECS Site Permit; the second year of monitoring was conducted from May through October 2021. The second year of avian and bat monitoring included full, cleared plot searches at 20 turbines and road and pad searches at the remaining 30 turbines, and data analysis is ongoing. No federally or state-listed species were found as fatalities during the two years of state-required fatality monitoring. The data collected during the two years of post-construction mortality monitoring associated with the LWECS Site Permit may be incorporated into our Collision Risk Model at the 5-year check-in, if appropriate. No eagles have been documented as injuries or fatalities during the post-construction mortality monitoring conducted at the Project to date.

After issuance of the bald eagle ITP, a minimum of 5 years of intensive eagle mortality monitoring would be conducted by a third-party monitor over the 24-year permit term, using the protocols described in Appendix C of the ECP (Attachment A). In other words, if Levels 3 or 4 of the adaptive management framework are triggered, additional years of intensive third-party monitoring may occur in addition to the 5 years that are planned for intensive third-party monitoring (Tables 4 and 5).

As detailed in Appendix C of the Applicant's ECP (Attachment A), also summarized in Section 4.1.1 and Table 5 of this EA, intensive mortality monitoring would be conducted by independent, third-party monitors that report directly to the Service during Years 1, 2, 8, 14, and 19 of the permit term. During the years when intensive third-party mortality monitoring occurs (Years 1, 2, 8, 14, and 19 of the permit term), all 100 Project turbines would be checked once per month. The third-party monitor would visually scan the area around each turbine to a distance of 100 meters (328 feet; see Appendix C of the Applicant's ECP [Attachment A]) in areas with less than 6 inches of ground cover. For turbines with limited visibility due to vegetation exceeding 6 inches or topography, searches would be conducted by walking either straight transects back and forth across the plot or by walking two or more circular transects at different distances from the turbine. If straight transects are conducted, transect spacing would be adjusted based on visibility. If circular transects are conducted, the number of circular transects would similarly be adjusted based on visibility conditions. The Applicant anticipates that shorter crops such as soybeans could be searched throughout the growing season, but crops or vegetation 30 inches or higher would not be searched.

Searcher efficiency trials and carcass persistence trials would occur during the intensive third-party monitoring years in order to provide sufficient statistical data to estimate the number of eagle fatalities. Searcher efficiency would be measured for the third-party monitors and for the operations staff only if operations staff are proposed to conduct the lower intensity monitoring (see below). The raptor carcass persistence times observed during the years of intensive third-party eagle mortality monitoring would be used in the fatality estimates generated using the results of lower intensity monitoring throughout the life of the Project. Additional details regarding intensive third-party monitoring can be found in Appendix C of the ECP (Attachment A).

Either operations and maintenance staff or third-party contractors would conduct standardized, lower intensity eagle fatality monitoring during all years when intensive third-party monitoring is not being conducted, in coordination with the Service. This lower intensity monitoring could include: 1) eagle scans by either operations and maintenance staff or third-party consultants from a vehicle using binoculars; 2) nacelle eagle scans by operations and maintenance staff during routine nacelle inspections; or 3) eagle scans conducted using drones or other technology. Additional details for each of these lower intensity eagle scan methods can be found in Appendix C of the ECP (Attachment A). As stated above, searcher efficiency trials of the

operations and maintenance staff would be conducted, if needed, during the years when third party monitors are on-site, and carcass persistence rates measured during third-party monitoring years would be used to estimate eagle fatality numbers for these lower intensity monitoring periods. No bias trials are proposed during years when third-party monitors are not on site; if eagle remains are found by operations and maintenance staff, either during standardized searches or during routine maintenance activities, they would be reported to the Service and coordination would occur to determine if any additional action may be appropriate.

The total number of eagle fatalities would be estimated by the Service using the Evidence of Absence fatality estimator (Huso et al. 2015, Dalthorp et al. 2017), or another estimator that is suitable for rare-event estimation. The Applicant would provide all raw data to the Service, who would analyze the data to determine confidence of fatality estimates and generate updated fatality predictions. The fatality estimator would use the data collected during monitoring (e.g., observed number of carcasses, carcass persistence rates, searcher efficiency rates, and search area adjustment) to evaluate the range of potential outcomes for take permits given an assumed take rate, permitted take number, and eagle detection probability (see detailed discussion in Appendix C of the ECP; Attachment A).

At 5-year intervals, the Service would review the eagle fatality data and other pertinent information, including information provided annually by the Applicant and the reports provided by independent third-party monitors, assessing whether the Applicant is in compliance with the terms and conditions of the ITP and has implemented all applicable adaptive management measures specified in the permit. The Service would use this review to ensure that eagle take has not exceeded the amount predicted within that time frame. Further, we would update fatality predictions, authorized take levels, and compensatory mitigation, as needed, for future years of the permit. If predicted take levels for the period of review are exceeded in a manner or to a degree not addressed in the adaptive management conditions of the permit, based on the observed levels of take using approved protocols for monitoring and estimating total take, the Service may require additional actions including, but not limited to: adding, removing, or adjusting avoidance, minimization, or compensatory mitigation measures; modifying adaptive management conditions; modifying monitoring requirements; and suspending or revoking the permit.

6 List of Preparers

U.S. Fish and Wildlife Service

Margaret Rheude, Minnesota/Wisconsin Field Office, Interior Region 3
Deanne Endrizzi, Migratory Birds Permits Office, Interior Region 3
Tom Cooper, Migratory Birds Chief, Interior Region 3

Western EcoSystems Technology, Inc.

Janelle Rieland, Environmental Assessment Project Manager
Joyce Pickle, NEPA Reviewer
Alaini Schneider Cossette, Biologist
David Klein, Technical Editor

Applicant

Red Pine Wind Project, LLC (affiliate of EDF Renewables Development, LLC)
15445 Innovation Drive
San Diego, CA 92128

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Attachment A
Eagle Conservation Plan

Available online at:
https://www.fws.gov/media/red-pine-wind-facility-eagle-take-nepa-analysis

Attachment B
Intra-Service Section 7 Biological Evaluation

Available online at:
https://www.fws.gov/media/red-pine-wind-facility-eagle-take-nepa-analysis

Attachment C
Eagle Collision Risk Model

Available online at:
https://www.fws.gov/media/red-pine-wind-facility-eagle-take-nepa-analysis