



Final Environmental Assessment

Elkhorn Valley Wind Facility

Eagle Incidental Take Permit

Prepared by

U.S. Fish and Wildlife Service
Migratory Birds and Habitat Program

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Abbreviations

Applicant	Telocaset Wind Power Partners, LLC (Telocaset)
CET	Cumulative Effects Tool
CFR	Code of Federal Regulations
CRM	Collision Risk Model
EA	Environmental Assessment
Eagle Act	Bald and Golden Eagle Protection Act
ECP	Eagle Conservation Plan
EMU	Eagle Management Unit
LAP	Local Area Population
MET	Meteorological Evaluation Towers
MW	Megawatts
NEPA	National Environmental Policy Act
PEIS	<i>Programmatic Environmental Impact Statement for the Eagle Rule Revision, December 2016</i>
Project	Elkhorn Valley Wind Facility
Service	U.S. Fish and Wildlife Service
SPUT	Federal Migratory Bird Special Purpose Utility Permit
WIRHS	Wildlife Incident Response and Handling System

Chapter 1.0 Introduction

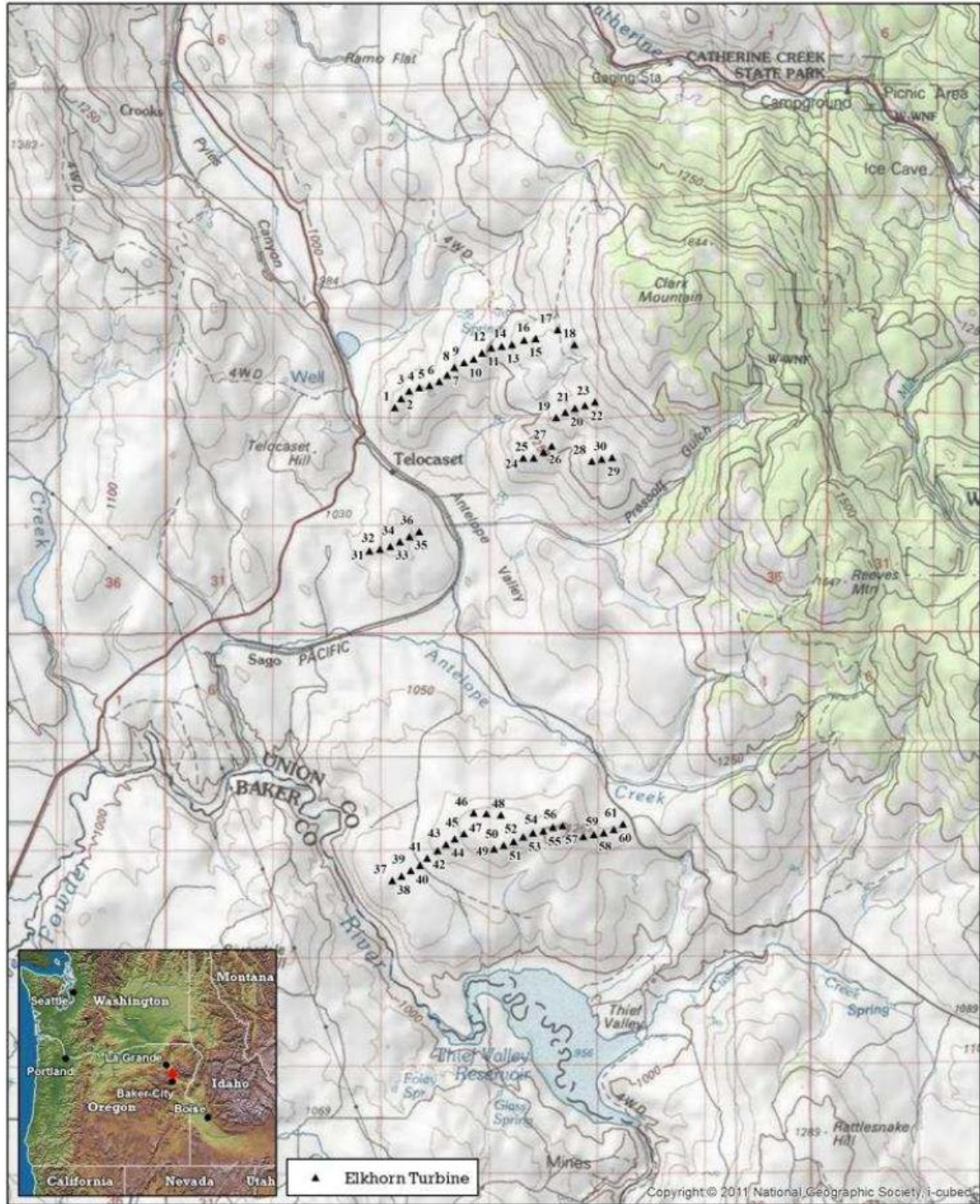
1.1. Environmental Assessment Overview

We, the U.S. Fish and Wildlife Service (Service), are proposing to issue an eagle incidental take permit (eagle take permit) under the Bald and Golden Eagle Protection Act (Eagle Act) (16 United States Code [U.S.C.] §§ 668–668d and 50 Code of Federal Regulations [CFR] 22.26) for take of eagles that is incidental to otherwise lawful operation of the Elkhorn Valley Wind Facility (Elkhorn Valley or Project). The Service’s proposal to issue an eagle take permit constitutes a discretionary Federal action that is subject to the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 et seq.). This Environmental Assessment (EA) is tiered to the Final Programmatic Environmental Impact Statement for the Eagle Rule Revision (PEIS; USFWS 2016b). Our proposed action and preferred alternative is Alternative 2 – to issue a 5-year permit to the Applicant based on their Eagle Conservation Plan (ECP; Appendix A) and other application materials. Two alternatives to the proposed action analyzed in this EA are to deny the issuance of the permit, also called the No Action Alternative (Alternative 1) and to issue a 30-year permit (Alternative 3). Denying the issuance of this eagle take permit (Alternative 1) would result in no requirement for monitoring or adaptive management to reduce impacts of the Project. Issuing a 5-year permit (Alternative 2) or a 30-year permit (Alternative 3) would come with a requirement for monitoring and adaptive management.

We received a completed application for a 30-year eagle take permit from Telocaset Wind Power Partners, LLC (Telocaset, or the Applicant) (a subsidiary of EDP Renewables North American, LLC) on June 16, 2014, requesting authorization of non-purposeful or “incidental” take of golden eagles and bald eagles under the Eagle Act for operational activities associated with the Project. We also received a request from the Applicant on October 5, 2020 to amend the eagle take permit application to reduce the requested permit tenure to a 5-year duration. The Applicant’s ECP (Appendix A) is the foundation of the permit application and is referenced frequently herein. The analyses in this EA consider the potential effects on the human environment under the two action alternatives as compared with the No Action Alternative.

1.2. Project Description

The Applicant owns and operates the Elkhorn Valley Wind Facility in Union County, Oregon, approximately 6 miles south of the town of Union, Oregon, and approximately 18 miles southeast of La Grande, Oregon (Figures 1 and 2). The Project is located on leased private land. The Project site was targeted for development in 1999 as part of a wind monitoring program by Oregon State University’s Energy Resource Research Lab, which sought to identify areas suitable for potential wind development, including the area near Pyles Canyon. In 2002, Zilkha Renewable Energy, a predecessor to Telocaset, installed the first meteorological evaluation tower (MET) at the Project and initiated the wildlife baseline study design. The Project was issued a Conditional Use Permit by Union County in 2005. Telocaset constructed the Project and it became operational in 2007. The Project comprises 61 wind turbines with a generating capacity of 101 megawatts (MW).



WEST
 Data Source: USA Topo Maps 1:100,000; ESRI
 Projection: Universal Transverse Mercator
 Datum: North American Datum 1927
 Created By: J.R. Boehrs Date: 08/15/2012

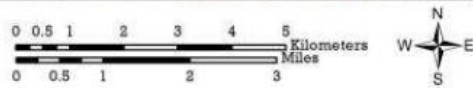


Figure 1. Elkhorn Valley Wind Project Location

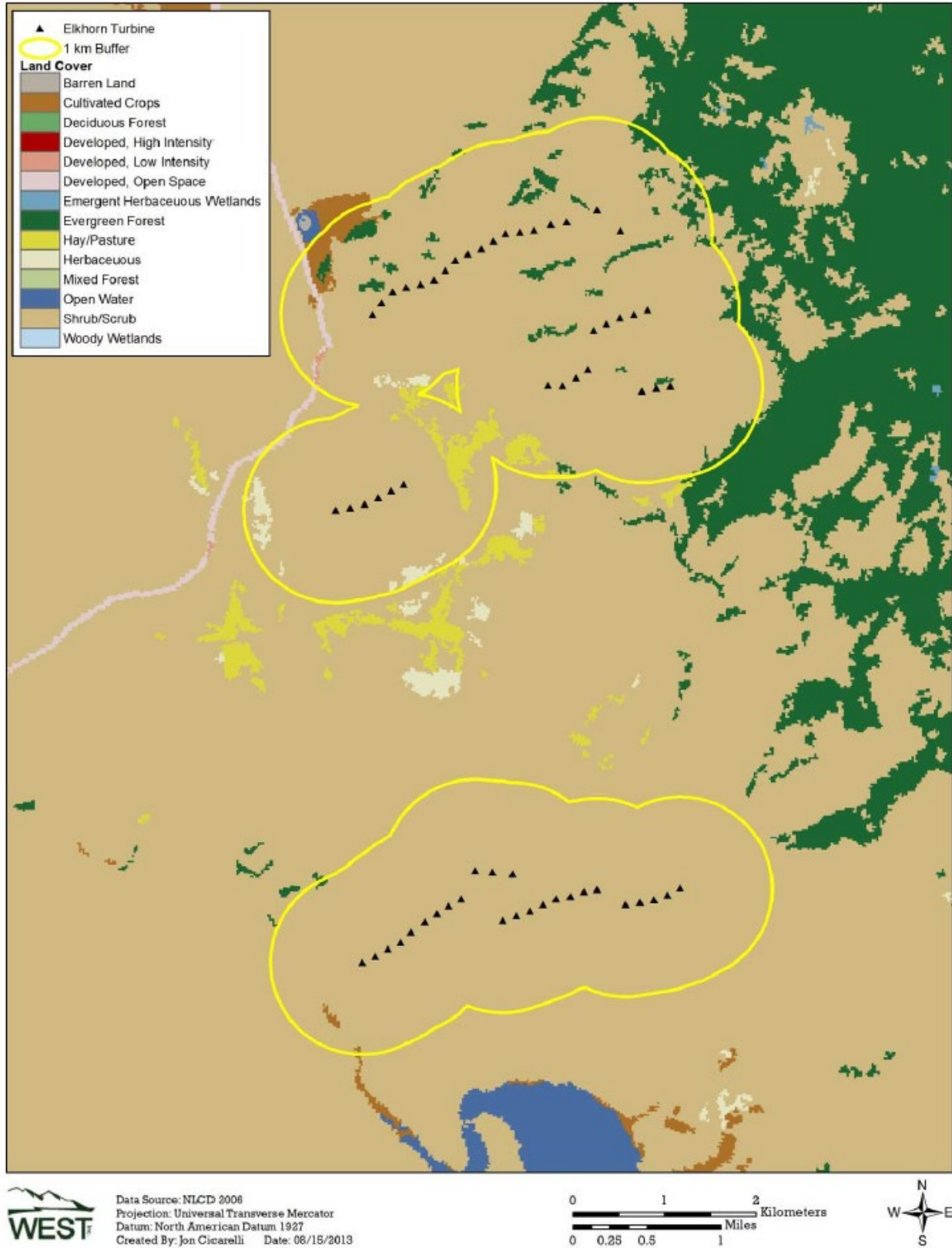


Figure 2. Land cover and land use at the Elkhorn Valley Wind Facility, Union County, Oregon.

1.2.1. AVOIDANCE AND MINIMIZATION MEASURES (SITING, DESIGN, AND CONSTRUCTION)

As described in the ECP, Telocaset developed and implemented measures during the planning and construction of the Project to avoid and minimize adverse effects on eagles, other birds and bats, and their habitats. They were:

Siting/Design

- The Project used updated turbine technology at the time of initial construction, including tubular towers and slow-rotating rotors to limit the risk of avian collision,
- Electrical collector cabling and communication lines between turbines were buried whenever possible to reduce the potential for collision and electrocution risks to eagles and other avian species,
- All overhead power lines within ¼ mile of turbines were equipped with raptor perch guards to minimize perching by raptors, and overhead powerline conductors were spaced to minimize potential for raptor electrocution, and
- Turbine locations were modified (i.e., turbines were excluded from the initial design) to avoid or minimize impacts to raptors. Specifically, the Applicant avoided siting turbines in close proximity to identified sage grouse leks, which are a potential feeding ground for golden eagles.

Construction

- Particularly sensitive habitat areas such as raptor nests were flagged and designated as “off limits” to all construction personnel,
- Established and enforced driving speed limits (max. 25 mph) during construction to minimize potential for road kills,
- Properly stored and managed all wastes generated during construction,
- Required construction personnel to avoid driving over or otherwise disturbing areas outside the designated construction areas, and
- Designated an environmental monitor during construction to monitor construction activities and ensure compliance with mitigation measures (WMP at 7-8).

1.2.2. ONGOING MINIMIZATION MEASURES AND BEST MANAGEMENT PRACTICES (OPERATION AND MAINTENANCE)

Telocaset is implementing the following measures during operations and maintenance of the Project:

- Maintain facilities and grounds in a manner that reduces potential impacts to eagles by minimizing storage of equipment near turbines that may attract prey, and avoiding seeding forbs below turbines that may attract prey;

- The Applicant has an ongoing mitigation agreement with Oregon Department of Fish and Wildlife that requires continual seeding of a habitat mitigation site within the Project area,
- The Project operations team has removed weeds and brush from turbine pads by scraping them with a skid steer and grader, and
- Areas near turbines and along access roads are sprayed for noxious weeds each spring and fall.
- Avoid practices that attract/enhance prey populations and opportunities for scavenging within the Project area;
 - The Applicant provides an enclosed on-site trailer for disposal of any carcasses that may be identified on leased land, including carcasses identified during coyote baiting,
 - Although the Applicant indicated that they do not hold land rights to require the practice of coyote baiting to cease altogether, providing the enclosed trailer and removing the trailer to an off-site location for disposal has apparently reduced eagle scavenging activity, and
 - Project landowners do not conduct calving operations or place stillborn carcasses near turbines.
- Reduce vehicle collision risk to wildlife and remove carcasses from the Project area, such as deer, elk, and livestock;
 - The Applicant has entered into an agreement with a contractor to remove any identified carcasses from the Project area to reduce scavenging bald and golden eagles.
- The Applicant coordinates with Project landowners to ensure that carcasses (e.g., livestock), which can attract both bald and golden eagles, are removed from the Project area or covered to prevent scavenging by eagles as soon as possible;
- The speed limit on roads in the Project is 25 mph to minimize wildlife mortality from vehicle collisions; and
- Operational personnel receive training in WIRHS (Wildlife Incident Response and Handling System) protocols to ensure they understand the procedures if/when bird carcasses are discovered.

1.2.3. WILDLIFE INCIDENT REPORTING AND HANDLING

Telocaset maintains a WIRHS to standardize the actions taken by Project personnel in response to wildlife incidents discovered within the project boundary. Project Operations & Maintenance (O&M) staff conduct semiannual and annual maintenance visits to each turbine as well as incidental visits for unanticipated maintenance needs.

1.2.4. REPORTING

Currently, Telocaset notifies the Service within 24 hours upon positive identification by a qualified biologist of an eagle injury or remains of an eagle. As described in the ECP, Telocaset has committed to report all future observed eagle injuries and fatalities to our Office of Law

Enforcement and Migratory Bird Permit Office. We expect this reporting will continue to be implemented during O&M of the Project regardless of the alternative we select.

1.2.5. DECOMMISSIONING

Decommissioning is outside the scope of the action being evaluated. The Project will eventually reach a point where it is no longer economical to continue operation. Decommissioning or repowering of the Project may have impacts to the human environment. The specific details of a decommissioning or repowering effort at the Project are not known. However, this action is outside of Telocaset's take authorization request and would occur regardless of the alternative we select.

Chapter 2.0 Purpose and Need

2.1. Purposes and Need for Federal Action

The Federal action considered in this EA is the issuance of an eagle take permit (50 CFR 22.26) in response to a permit application submitted by Telocaset in accordance with the regulations implementing the Eagle Act (50 CFR Part 22). Upon receipt of a complete application, we are required by regulation to make a decision regarding issuance of an eagle take permit (50 CFR 13.21). This decision is a federal action. Our purposes are to ensure that our decision on the application is consistent with: a) the Eagle Act and implementing regulations (50 CFR 22.26), b) our general permit issuance criteria (50 CFR Part 13), and c) other legal authorities.

2.2. Decision to be Made

This EA evaluates three alternatives regarding issuance of a permit to authorize the take of golden eagles and bald eagles incidental to the operation of the Elkhorn Valley Wind Facility. In order to issue an eagle take permit, we must determine whether the activity meets the permit issuance criteria and requirements (50 CFR 13.21, 50 CFR 22.26), and is consistent with the eagle incidental take permit regulation (50 CFR 22.26). Upon receipt of a complete permit application (as defined in 50 CFR 22.26(d)), the Service must issue the permit unless one or more of the following disqualifying factors exists (50 CFR 13.21), or one or more of the following determinations cannot be made (50 CFR 22.26(f)).

2.2.1. DISQUALIFYING FACTORS (50 CFR 13.21):

- The applicant has been assessed a civil penalty or conviction related to the application activity,
- The applicant has failed to disclose material information required, or has made false statements as to any material fact, in connection with this application,
- The applicant has failed to demonstrate a valid justification for the permit and a showing of responsibility,

- The authorization requested potentially threatens a wildlife or plant population,
- The Director finds through further inquiry or investigation, or otherwise, that the Applicant is not qualified,
- Failure to pay fees, and
- Failure to submit timely, accurate, or valid reports.

2.2.2. REQUIRED DETERMINATIONS (50 CFR 22.26(F)):

- The direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affecting the eagle populations within the eagle management unit (EMU) and the local area population (LAP), are compatible with the preservation of golden eagles and bald eagles,
- Take is necessary to protect an interest in a particular locality,
- Take is associated with, but not the purpose of, the activity,
- The applicant has applied all appropriate and practicable avoidance and minimization measures to reduce impacts to eagles,
- The applicant has applied all appropriate and practicable compensatory mitigation measures, when required, to compensate for remaining unavoidable impacts after all avoidance and minimization measures have been applied,
- Issuance of the permit does not preclude issuance of another permit necessary to protect an interest of higher priority, and
- Issuance of the permit will not interfere with an ongoing civil or criminal action concerning unpermitted past eagle take at the project.

The permit tenure (i.e., length of time for which the permit is valid) will be selected by the Service as authorized under 50 CFR 22.26(h). The duration of a permit (up to 30 years) is selected based on the following criteria (50 CFR 22.26(h)):

- The duration of the proposed activities,
- The time period for which take will occur,
- The level of impacts to eagles, and
- The nature and extent of mitigation measures incorporated into the terms and conditions of the permit.

The Service may also take into account the permit term requested by the applicant. Eagle take permits issued for projects that are likely to take eagles over long and indeterminate periods of time (e.g., wind generation facilities) are issued for at least 5 years in duration.

2.3. Tiered EA

This EA tiers to the Service's PEIS, December 2016 (USFWS 2016b). The PEIS analyzed five alternatives for updating eagle management objectives and permit regulations. In developing the PEIS, the Service anticipated that future project-specific actions would be able to tier to it and provided criteria that must be met for any tiered analysis to be consistent with it. The criteria are:

- Projects will not take eagles above the eagle management unit (EMU; defined in Section 2.5) take limit unless the take is offset by compensatory mitigation,
- The project will not result in cumulative authorized take within the local area population (LAP; defined in section 2.5) that exceeds 5%, and
- If compensatory mitigation is required (bullet 1), it is implemented by methods that will offset all projected take, and for which the necessary metrics to calculate the achievement of that offset have been analyzed and established.

Based upon this project-specific analysis and application of the criteria provided in the PEIS, we have determined that tiering to the PEIS is appropriate and that an Environmental Assessment is the appropriate level of NEPA review. This EA incorporates the PEIS by reference.

2.4. Authorities and Statutory and Regulatory Framework

The Service has jurisdiction over a broad range of fish and wildlife resources. 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. One of those statutes administered by the Service is the Eagle Act (16 U.S.C. § 668 et seq.). Eagle Act regulations (50 CFR Part 22) include a provision to authorize the incidental take of golden eagles and bald eagles when certain conditions are met. The Service reviews applications and issues permits to applicants that meet all required issuance criteria.

The PEIS has a full list of authorities that apply to this action (PEIS Section 1.6, pages 7-12) which are incorporated by reference here.

Under the Endangered Species Act (ESA; 16 U.S.C. § 1531–1544) all federal agencies shall seek to conserve endangered and threatened species and shall utilize their authorities in furtherance of the purposes of the ESA, 16 U.S.C. § 1531(c)(1). Federal action agencies must consult with the Service under Section 7 of the ESA to ensure that “any action authorized, funded, or carried out by such an agency... is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of habitat of such species. Each agency shall use the best scientific and commercial data available.” 50 U.S.C. § 1536(a)(2). To that end, we evaluated the effects of permit issuance alternatives on listed threatened or endangered species and their designated critical habitat.

2.5. Scope of Analysis

This EA considers and analyzes the effects of three alternatives on the natural and human environment. The primary focus of the analysis is the effects of the issuance of a take permit on golden eagles and bald eagles. However, the EA also addresses the effects of permit issuance on other elements of the natural and human environment as appropriate (see Chapter 4).

Telocaset has requested authorization to take eagles incidental to the otherwise lawful operation of the 61 wind turbines at the Elkhorn Valley Wind Facility. Their application did not request authorization for take at other project infrastructure (e.g., substations or power lines) associated with the Project, or from maintenance activities associated with that infrastructure.

2.5.1 GEOGRAPHIC EXTENT

The analysis of effects on golden eagles and bald eagles for each alternative is conducted at two geographic scales (USFWS 2016b). The Service uses these scales to evaluate potential impacts to eagle populations.

1. **Eagle management unit (EMU)** – The EMU is the largest geographic scale over which permitted take is regulated to meet our management objective (USFWS 2016b). EMUs for both species are defined, with some modifications, by the four administrative flyways used by State and Federal agencies to administer migratory bird resources: the Atlantic, Mississippi, Central, and Pacific Flyways. For bald eagles, the Pacific Flyway is divided into three EMUs: southwest (south of 40 degrees N latitude), mid-latitude (north of 40 degrees to the Canadian border), and Alaska. For golden eagles, the Mississippi and Atlantic Flyways are combined as one EMU. (USFWS 2016b). For bald eagles in this analysis, we are evaluating effects in the Pacific Flyway, mid-latitude EMU. For golden eagles in this analysis, we are evaluating effects in the Pacific Flyway EMU.
2. **Local-area population (LAP)** – The LAP is the population of eagles within a set distance from the Project footprint. This distance is different for each species and is based on each species' natal-dispersal distance. Details on the selection of these distances can be found in USFWS (2016b). The distances assigned for each species are 138 km (86 miles) for bald eagles and 175 km (109 miles) for golden eagles. Thus, for bald eagles in this analysis, the LAP area is the area within 86 miles of the Project footprint. For golden eagles in this analysis, the LAP area is the area within 109 miles of the Project footprint.

The geographic scope of the analysis of effects on other resources addressed in this EA (see Chapter 4) is based on what is biologically meaningful for each resource in the context of the potential effects from issuance of the take permit and implementation of related conservation measures.

2.6. Tribal Trust Coordination

Nine federally recognized Indian Tribes (Table 1), because of their proximity to the Project, might have interests that could be affected by this permit decision. We sent letters to seven of these tribes on January 28, 2016 (excluding the Confederated Tribes of the Colville Reservation and Spokane Tribe based on the distance of the Project), to inform them about the eagle take permit application, and to provide the opportunity to review the application and consult on the potential issuance of an eagle take permit. No tribes requested consultation with us regarding the Project’s eagle take permit application. To ensure that all interested tribes were notified, we expanded our original outreach efforts from 140 miles (outdated estimate of golden eagle natal dispersal distance) to 218 miles from the Project (2x the most recent estimate of golden eagle natal dispersal distance). We sent emails updating all nine tribes of the status of the permit review on June 29, 2021. We invited all tribes in the region to an annual regional eagle summit on July 15, 2021 to provide updated information on the eagle take permit program and discuss current eagle issues. We also invited all nine of these tribes to review and comment on this EA. We received no project-specific comments or requests for additional information from Tribes.

Table 1. Tribes contacted for comment on the Service permit decision.

Tribe	Tribe
Burns Paiute Tribe	Confederated Tribes of the Umatilla Indian Reservation
Coeur D’Alene Tribe	Confederated Tribes of Warm Springs Reservation of Oregon
Confederated Tribes and Bands of the Yakama Nation	Nez Perce Tribe
Confederated Tribes of the Colville Reservation	Spokane Tribe of the Spokane Reservation
Shoshone-Bannock Tribe	

2.7. Public Participation

We posted this EA for 30 days, requesting comment on the content and scope of the analysis in the EA, available at: <https://www.fws.gov/pacific/migratorybirds/library/wpanalyses.html>. At the same time, we solicited comment by direct email from multiple parties potentially interested in this proposed action. We received a total of one written comment: from the Oregon Department of Fish and Wildlife (ODFW). ODFW’s comments are summarized and addressed below. We thank ODFW for their thoughtful comments.

COMMENT:

ODFW encouraged the Service to select Alternative 3. They pointed out that Alternative 3 better aligns with the duration and scale of project impacts to eagles and requires an adaptive management plan that includes a requirement for installation of deterrence technology. ODFW expressed concern that, under Alternative 2, adaptive management mortality counts would “start over” with each subsequent permit issued. They also expressed concern that the issuance of multiple 5-year permits, which may occur if the Service elects to issue subsequent permits after the expiration of the 5-year permit in Alternative 2, would authorize more take in the long-term than would the issuance of a single 30-year permit. Finally, they expressed concern, under both Alternatives 2 and 3, that the Service is only planning to require one year of searcher efficiency and carcass persistence trials.

RESPONSE:

As ODFW points out, Alternative 3 better aligns with the duration and scale of the Project’s impact to eagles. Indeed, under Alternative 3, a 30-year permit would equal or exceed the expected life of the Project. Additionally, Telocaset would be required to implement an adaptive management plan that applies for the life of the project. Conversely, under Alternative 2, a 5-year permit would expire prior to the end of the expected life of the Project. And the adaptive management table would operate on a shorter 5-year timeline.

However, should Telocaset apply for a renewal(s) or an additional permit(s) after the expiration of the 5-year permit under Alternative 2, the Service would use the best available information to re-evaluate the level of authorized take that would be anticipated. Additionally, permit conditions could differ under any future renewal or new permits.

The Service cannot guarantee that Telocaset will apply for any renewal(s) or additional permit(s) that would ensure conservation measures for eagles after 5 years. However, this EA illustrates that Alternative 2 meets the Service’s population management objectives and other permit issuance criteria. Therefore, the issuance of a permit under Alternative 2 is consistent with regulatory requirements and with Telocaset’s requested permit tenure.

Should Telocaset in the future apply for an eagle take permit for a duration equal to or longer than 5 years, as we have and will continue to encourage them to do, we will use the best available information to update the permit take limits and permit terms. These updates could include a) improvement of permit conditions (if necessary), considering the effectiveness and feasibility of any avoidance and minimization measures, b) updated adaptive management triggers and measures, and c) additional requirements for searcher efficiency and carcass persistence trials. Of course, any new analysis and any new requirements will depend on Telocaset applying for a new eagle take permit.

Should Telocaset not elect to apply for a renewal or subsequent take permits, or should they fail to meet permit issuance criteria in any renewal request or subsequent permit application, any eagle take that occurs after expiration of their permit (or exceeding what is authorized under any current permit) would be a violation of the Eagle Act and subject to any penalties outlined therein.

Chapter 3.0 Alternatives

3.1. Introduction

This chapter describes alternatives to our proposed action and alternatives that were considered but eliminated from detailed analysis. For those alternatives considered in detail, we evaluate each alternative for its ability to meet the regulations governing permit issuance, and impacts to the environment, including eagles, described herein.

3.2. Key Elements of Alternatives

We analyze two action alternatives in this EA. The primary elements of each alternative are: a) predicted eagle take, b) avoidance and minimization measures (including BMPs), c) post-construction fatality monitoring, d) reporting, and e) adaptive management. As described in more detail in the PEIS (USFWS 2016b), the Service has set a preservation standard under the Eagle Act. This standard requires the Service to manage golden eagles and bald eagles to maintain stable or increasing breeding populations of both species. To achieve this standard, the Service established take thresholds for golden eagles and bald eagles at the EMU scale. Eagle fatalities caused by activities in place prior to September 11, 2009, are accounted for in the baseline conditions that were analyzed in the PEIS and used to set EMU thresholds. As such, any permitted take at projects that were operational prior to September 11, 2009, do not need to be deducted from the EMU take thresholds and, do not require compensatory mitigation unless cumulative authorized take as a result of the issuance of this permit would exceed 5% of the LAP. Since the Project became operational in 2007, we do not include an assessment of compensatory mitigation for this Project.

A summary of some of the above elements for each alternative is provided in Table 2, and detailed descriptions of the alternatives are provided in Section 3.3 of this EA.

Table 2. Key components of the alternatives.

	Alternative 1 - No Action, Deny Permit	Alternative 2 - Issue 5-Year Permit Based on ECP	Alternative 3 - Issue 30-Year Permit
Predicted Annual Take	3.18 golden eagles and 0.25 bald eagles	Same as Alt 1	Same as Alt 1
Predicted Take during permit tenure	N/A	16 golden eagles and 2 bald eagles	96 golden eagle and 8 bald eagles
Predicted Take requiring mitigation	N/A	none	none

	Alternative 1 - No Action, Deny Permit	Alternative 2 - Issue 5-Year Permit Based on ECP	Alternative 3 - Issue 30-Year Permit
Avoidance and Minimization Measures	None/Minimal	See Section 3.3.2.1	Same as Alt 2, but with a 30-year duration
Fatality Monitoring	Incidental observations only	Walk transects, not to exceed 20m width, within a 220m x 220m search plot, for 24 consecutive months. Such monitoring must be performed at least once per month at all 61 turbines. Searcher efficiency and carcass persistence trials must occur for at least one complete year concurrent with fatality monitoring efforts.	Achieve an average site-wide probability of detection of ≥ 0.35 over every 5-year period. Searcher efficiency and carcass persistence trials must occur for at least one complete year during every 5-year review period.
Adaptive Management	N/A	Triggered conservation measures, including: <ul style="list-style-type: none"> ▪ Perform desktop analysis to identify specific turbines/areas/conditions with the highest collision risk ▪ Employ a biological monitor with the ability to curtail turbines in the presence of eagles • Install and/or modify an automated curtailment technology 	Triggered conservation measures same as in Alternative 2, plus: <ul style="list-style-type: none"> • Install and/or modify eagle deterrent technology (technology to dissuade eagle use of the Project footprint)

3.3. Alternatives Analyzed in Detail in this EA

3.3.1. ALTERNATIVE 1: DENY THE PERMIT APPLICATION (NO ACTION)

Under this alternative, we would not issue an eagle take permit. Eagle take permits may be denied if (1) the application does not meet one or more of the issuance criteria described in Section 2.2.1 and 2.2.2 of this EA, or (2) the risk of eagle mortality from operating the wind turbines is so low that a permit is not warranted. This alternative is reasonable to consider, as the Service is required by regulation to determine if an application meets issuance criteria and

denying a permit pursuant to Telocaset’s permit application is a potential decision. Based on communications with the Applicant, we expect that, if the Service denied the permit request, the Project would continue to operate under its current operational plan as described above in Chapter 1 without authorization under the Eagle Act to incidentally take eagles. Telocaset would not be required by permit to implement the measures outlined under Alternatives 2 or 3 and in the ECP. Unauthorized eagle take is prohibited by law, and so under this alternative, any incidental eagle take would be subject to enforcement actions deemed appropriate by the Service’s Office of Law Enforcement or the U.S. Department of Justice.

3.3.1.1. Avoidance and Minimization Measures and Best Management Practices

Under Alternative 1, Telocaset would not be required to implement avoidance and minimization measures during operations and maintenance of the Project. Any avoidance and minimization measures that are undertaken under this alternative would be at the discretion of Telocaset, and the Service would likely be unaware of the measures selected or when they are implemented.

3.3.1.2. Fatality Monitoring

Under Alternative 1, Telocaset would likely continue to incidentally find eagle fatalities throughout the life of the project as described in the ECP; however, eagle remains would only be found incidental to other project-related activities. Telocaset would follow the WIRHS process as described in their ECP. No additional fatality monitoring would be required under this alternative.

3.3.1.3. Adaptive Management

Under Alternative 1, Telocaset would not be required to follow an adaptive management plan that would require a conservation measure to be implemented or more fatality monitoring to occur should fatality rates be higher than expected. If Telocaset implements conservation measures in an adaptive management framework, the Service will be unaware of the measures selected or when they are implemented.

3.3.2. ALTERNATIVE 2: ISSUE 5-YEAR PERMIT BASED ON THE EAGLE CONSERVATION PLAN

Under Alternative 2, the Service would issue a 5-year eagle take permit authorizing the incidental take of a total of 16 golden eagles and 2 bald eagles associated with the Elkhorn Valley Wind Facility, pursuant to 50 CFR 22.26. When the Service finds an application meets issuance criteria (Section 2.2 of this EA), a permit must be issued, and the Service must make a number of determinations regarding the permit conditions. One required determination is the permit duration. An alternative that analyzes a permit with a 5-year duration is reasonable to consider, as the Applicant requested a permit duration of 5 years. Under Alternative 2, the Service predicts incidental take over a 5-year period for the Project would be 16 golden eagles (3.18 per year) and 2 bald eagles (0.25 per year). The permit authorization would be for this level of incidental take, with associated conditions, as allowed and required by regulation (Table 2).

The Collision Risk Model (CRM) described in our ECP Guidance (USFWS 2013) was used to predict the number of annual eagle fatalities resulting from operation of the Project. The CRM predicts eagle fatalities in a Bayesian framework using eagle exposure, hazardous area, and daylight operational hours (USFWS 2013). The prior distributions of eagle exposure and eagle collision probability that are used in the CRM were updated in 2021 (USFWS 2021), after an initial fatality prediction was derived for this Project. Because the 2013 priors and subsequent fatality prediction were sufficiently conservative (i.e., predicted slightly higher rates of take for both bald and golden eagles as compared with the 2021 priors) and both 2013 and 2021 priors produce fatality predictions that meet the Service’s population management objectives, we offered the Applicant the option to use the 2013 priors to derive the 5-year fatality prediction (16 golden eagles and 2 bald eagles), or the 2021 priors (16 golden eagles and 1 bald eagle). The Applicant elected to use the CRM run using the 2013 priors. The details of our eagle fatality estimate are provided in Appendix B. When modelling future take predictions at this Project (e.g. if/when Telocaset applies for another eagle take permit or during an administrative check-in), current Service data standards will apply.

The 5-year permit under Alternative 2 would incorporate as permit conditions the avoidance and minimization measures, fatality monitoring, and adaptive management listed in this section.

3.3.2.1. *Avoidance and Minimization Measures*

- Maintenance vehicle movement is restricted to pre-designated access, Project personnel or contractor-required access, or public roads. Where feasible, use existing roads and previously disturbed areas during construction, operation, and maintenance to minimize impacts to native habitat;
- Project personnel are required to drive 25mph or less on non-public Project roads, be alert for wildlife, and use additional caution in low-visibility conditions when driving any vehicle;
- The permittee will use spark arrestors on any power equipment (ATVs, chainsaws, and other such equipment) and will maintain fire extinguishers in all onsite service vehicles;
- Any garbage/waste observed will be collected and disposed of in an appropriate trash receptacle securely protected from wildlife;
- Any new transmission infrastructure will be constructed and maintained to meet the most recent APLIC suggested practices (currently 2006) for reducing electrocution risk to birds;
- If applicable, avian diverters will be maintained on all guy wires/lines of all existing or any new temporary MET towers;
- At least once every three years, the permittee will hold a training that provides instruction to employees (and any contractors working on site) on avoiding harassment and disturbance of eagles within footprint of the Project, how to record incidental observations of avian carcasses, and how to properly handle dead or injured birds or bats if observed;
- If Project operations occur on land not owned by the permittee, the permittee must inform landowners on what to do if they discover a dead bird or eagle. Any landowners collecting birds on the Permittee’s behalf must be designated as a subpermittee;
- Non-routine maintenance or other activities at the Project for which the schedule can practicably be adjusted (such as future MET tower removal) will be restricted to outside the eagle nesting season (January 1 to August 31) if it will occur within 1 mile of any occupied golden eagle nest, and will adhere to the National Bald Eagle Management Guidelines for

any occupied bald eagle nest. If this maintenance or activity cannot be conducted outside of the nesting season, you must consult with the Service;

- Permittee will remove any dead medium- and large-sized animals (i.e. squirrel or larger) found and dispose of it at least beyond line-of-sight of Project infrastructure, when doing so would be consistent with the Permittee’s permissions/authorizations. For livestock carcasses, the Permittee will work with the property/animal owner to have the carcass removed or obtain permission to move it. Whenever possible, livestock carcasses will be covered with a tarp to prevent scavenging while seeking permission from the owner to relocate it. To increase the chances of locating animal carcasses, the permittee will: a) look for animal carcasses while travelling within the Project Footprint. All carcasses identified must be reported to the site manager within 8 hours and removed from the site within 48 hours of notification or the granting of permission by the property/animal owner, and b) look for eagles, vultures, or other scavenging birds that are consistently present and/or consistently circling (e.g., in a kettle) in one area. Any animal behavior that suggests a carcass may be present in the Project footprint will be reported to the site manager within 8 hours and the vicinity of the behavior will be searched within 24 hours. Any carcasses found must be removed from the site within 48 hours of discovery or the granting of permission by the property/animal owner;
- Natural material (e.g., rock piles, woody debris) and tall vegetation (i.e., tall forbs, grass, weeds) will be removed/maintained within 10 meters of the base of each turbine to reduce shelter and forage for small mammals;
- When applicable, install underground collection lines to minimize eagle collision and electrocution risk associated with aboveground lines. Any aboveground lines constructed after issuance of the permit must be constructed consistent with APLIC (2006) suggested practices; and
- Any snow management on private roads within the Project will include strategic plowing to promote wildlife movement (i.e., putting gaps in snow banks that encourages animals to leave the road) to reduce potential collisions between wildlife and vehicles.

3.3.2.2. *Fatality Monitoring*

Under Alternative 2, Telocaset would be required to implement a fatality monitoring program, including formalized searches for eagle remains, searcher-efficiency trials, and carcass persistence trials. Monitoring would be required to begin within 90 days of permit issuance. Eagle remains searches would be required for 24 consecutive months using human observers and would occur at least once per month at each of the 61 Project turbines. Transects of no less than 20m (width) will be walked monthly at each turbine within a 220m x 220m search plot centered around the turbine. Telocaset may begin each search at each turbine by walking 40m transects, as long as the “skipped” 20m transects are immediately searched upon completion of the 40m transects in each plot, before the searcher continues on to survey the next plot.

Telocaset would also be required to implement bias trials, including searcher efficiency and carcass persistence trials for one complete year during the first 27 months of the permit tenure. Additionally, searcher-efficiency trials would also be conducted for one complete year for any other search method used after completion of the first two years of required fatality monitoring. This would include years when no formal fatality searching is planned (i.e., test the searching efficiency of project staff during day-to-day Project operations and activities). The placement of trial carcasses would be required to be stratified by each of the four seasons. Stratification may

also be performed by visibility class, if appropriate. At least 20 surrogate carcasses would be used per season and placed at randomly selected turbines and locations within each search plot and strata. Searchers must not know they are being tested.

Carcass persistence trials would be required for at least one complete year during the first 27 month of the permit tenure. At least 10 surrogate carcasses would be used per season and placed at random locations within the Project footprint or similar nearby habitat. The placement of trial carcasses would be stratified by each of the four seasons. Raptor remains would be used as surrogates when possible. Trials would have a duration of at least 90 days per season.

As illustrated in Table 3, progressively more rigorous fatality monitoring may be warranted under Alternative 2's adaptive management requirements, depending on the number of eagle fatalities observed during post-permit fatality monitoring.

3.3.2.3. *Adaptive Management*

The CRM conservatively predicts the collision of 16 golden eagles and 2 bald eagles with Project turbines over the 5-year permit term (Table 2). If realized take at the Project is on track to be lower than this conservative prediction, no adaptive management action is needed under this Alternative. However, if monitoring shows, using triggers defined below, that realized take is on a track to be greater than predicted, or the Service estimates that realized take is nearing authorized levels, Telocaset would be required to implement a conservation measure described to adaptively manage the Project to reduce take before permitted take is exceeded.

Under Alternative 2, Telocaset would be required to implement the following adaptive management plan. Separate triggers would be used for golden eagles and bald eagles and are described as follows.

Golden Eagle Adaptive Management Requirement: Under Alternative 2, golden eagle Triggers 1-3 refer to and would be reached as a result of golden eagle remains found, not estimates of fatalities. Golden eagle Trigger 4 addresses if the minimum fatality monitoring requirement is not met. The adaptive management measures associated with each trigger are designed to require Enhanced Fatality Monitoring efforts (i.e., implement one additional year of fatality monitoring achieving an average site-wide probability of detection¹ of 0.5) and other measures with each successive trigger if tripped. If a trigger is activated resulting in the initiation of Enhanced Monitoring, then there is no return to previous triggers. Golden eagle adaptive management triggers assume a probability of detection of at least 0.7 is achieved in monitoring years 1 and 2 and a probability of detection of at least 0.1 is achieved in monitoring years 3 through 5.

¹ The probability of detection for a particular carcass search method can be calculated/estimated in the Evidence of Absence software (<https://pubs.er.usgs.gov/publication/ds881>) using actual (or hypothetical) site-specific data to account for Searcher Efficiency and Carcass Persistence.

Table 3. Stepwise adaptive management for golden eagle take at the Elkhorn Valley Wind Project under Alternative 2.

Trigger #	Trigger	Conservation Measures
Trigger 1	Remains of ≥ 2 GOEA found during any year	a) Conduct a detailed analysis of all existing data and information surrounding the known mortalities and relate it to existing meteorological data and wind turbine operational data to inform and target future conservation measures.
Trigger 2	Remains of ≥ 5 GOEA found during the first two years of fatality monitoring	<p>Immediately implement the following measures:</p> <p>a) Conduct a detailed analysis of all existing data and information surrounding the known mortalities and relate it to existing meteorological data and wind turbine operational data to inform and target future conservation measures,</p> <p>b) Either:</p> <p>1) Employ a biological monitor on-site year-round for at least 1 year with the ability to issue immediate turbine curtailment orders on an as-needed basis when bald and golden eagles are observed to be at risk of turbine collision. Annual curtailment under this measure must total at least 75 hours across all turbines over a period of 365 consecutive days, OR</p> <p>2) Implement another similar technology-based detection and curtailment strategy following consultation with the Service. If technology-based curtailment has already been implemented at the Project when this trigger is reached, this conservation measure could be accomplished by modifying curtailment and/or detection parameters of the existing system. The details associated with measure b, such as the daily timing, geographical position of any observer or detection system, or modification to curtailment/detection parameters, will be developed according to available data and in consultation with the Service. Annual curtailment under this measure must total at least 75 hours across all turbines over a period of 365 consecutive days, OR</p> <p>3) Implement another conservation measure approved in writing by the Service, in lieu of the monitoring and curtailment program described above,</p> <p>c) Implement one additional year of eagle fatality monitoring to monitor the effectiveness of this measure. The method must achieve a minimum probability of detection of at least 0.5, and</p> <p>d) If an adaptive management measure is being implemented for bald eagles when this trigger is reached, the measure here may be deemed satisfied if the Service determines that the already-implemented measure is effective, or can be augmented to be effective, at reducing the risk to golden eagles.</p>
Trigger 3	<p>Remains of ≥ 4 GOEA found during any one-year period OR</p> <p>Remains of ≥ 8 GOEA found during the permit tenure</p>	<p>Immediately implement the following measures:</p> <p>a) Implement either:</p> <p>1) Employ a biological monitor on-site year-round for up to 5 years, or the remainder of the permit tenure (whichever is less) with the ability to issue immediate turbine curtailment orders on an as-needed basis when bald and golden eagles are observed to be at risk of turbine collision. Annual curtailment must total at least 200 hours across all turbines over a period of 365 days. If the trigger is reached within 365 days of permit</p>

		<p>expiration, the total curtailment hours will be adjusted for the partial year on a pro rata basis, OR</p> <p>2) If informed curtailment is already being implemented (either a biological monitor or technology), expand the curtailment area by i) adding a biological monitor to any existing protocol, OR ii) deploying tested and proven detection and/or curtailment technology approved by the Service that would effectively expand the existing informed curtailment effort, OR iii) further refining detection and/or curtailment parameters of existing technology to provide additional protection for eagles, OR</p> <p>3) Implement a deterrent technology approved by the Service that has been proven effective and is practical to install at the site, OR</p> <p>4) Implement another conservation measure approved in writing by the Service, in lieu of the monitoring and curtailment program described above.</p> <p>b) Implement one additional year of eagle fatality monitoring to monitor the effectiveness of this measure. The method must achieve a minimum probability of detection of at least 0.5.</p> <p>c) If an adaptive management measure is being implemented for bald eagles when this trigger is reached, the measure here may be deemed satisfied if the Service determines that the already-implemented measure is effective, or can be augmented to be effective, at reducing the risk to golden eagles.</p>
Trigger 4	The required fatality monitoring is not achieved, as determined by the Service, in each of the first two years of fatality monitoring	<p>a) Implement an additional year of eagle fatality monitoring, according to the method described above (Section 3.3.2.3), in year 3. Deviations from this method must be approved in writing by the Service.</p>

Bald Eagle Adaptive Management Requirement: Under Alternative 2, bald eagle Triggers 1 and 2 refer to and would be reached as a result of bald eagle remains found, not estimates of fatalities. Bald eagle Trigger 3 addresses if the minimum fatality monitoring requirement is not met. Bald eagle adaptive management triggers assume a probability of detection of at least 0.7 is achieved in monitoring years 1 and 2 and a probability of detection of at least 0.1 is achieved in monitoring years 3 through 5.

Table 4. Stepwise adaptive management for bald eagle take at the Elkhorn Valley Wind Project under Alternative 2.

Trigger #	Trigger	Conservation Measures
Trigger 1	Remains of 1 BAEA found during the permit tenure	<p>Effective immediately:</p> <p>a) Conduct a detailed analysis of all existing data and information surrounding the known mortalities and relate it to existing meteorological data and wind turbine operational data to inform and target future conservation measures.</p> <p>b) Either:</p>

		<p>1) Employ a biological monitor on-site during the calendar month of highest bald eagle use each year (for up to 5 years of the remainder of the permit term, whichever is less) with the ability to issue immediate turbine curtailment orders on an as-needed basis when bald and golden eagles are observed to be at risk of turbine collision, OR implement another similar technology-based detection and curtailment strategy following consultation with the Service. If technology-based curtailment has already been implemented at the Project when this trigger is reached, this conservation measure could be accomplished by modifying curtailment and/or detection parameters of the existing system. The details associated with this measure, such as the daily timing, geographical position of any observer or detection system, or modification to curtailment/detection parameters, will be developed according to available data and in consultation with the Service. Annual curtailment under this measure must total at least 7 hours across all turbines and all days of the month selected. If there are insufficient observations of bald eagles to meet the 7 minimum hours of curtailment, hours for golden eagle curtailment may be combined to meet this threshold, OR</p> <p>2) Alternatively, implement another conservation measure approved in writing by the Service, in lieu of the monitoring and curtailment program described above.</p> <p>c) If an adaptive management measure is being implemented for golden eagles when this trigger is reached, the measure here may be deemed satisfied if the Service determines that the already-implemented measure is effective, or can be augmented to be effective, at reducing the risk to bald eagles.</p>
<p>Trigger 2</p>	<p>Remains of ≥ 2 BAEA found during the permit tenure</p>	<p>Immediately implement the following measures:</p> <p>a) Either:</p> <p>1) Employ a biological monitor on-site year-round for up to 5 years, or the remainder of the permit tenure (whichever is less) with the ability to issue immediate turbine curtailment orders on an as-needed basis when bald and golden eagles are observed to be at risk of turbine collision, or implement another similar technology-based detection and curtailment strategy following consultation with the Service, OR</p> <p>2) If informed curtailment is already being implemented (either a biological monitor or technology), expand the curtailment area by i) adding a biological monitor to any existing protocol, OR ii) deploying tested and proven detection and/or curtailment technology approved by the Service that would effectively expand the existing informed curtailment effort, OR iii) further refining detection and/or curtailment parameters of existing technology to provide additional protection for eagles, OR</p> <p>3) Implement a deterrent technology that has been proven effective and is practical to install at the site. The details associated with this measure, such as the daily timing, geographical position of any observer or detection system, or modification to curtailment/detection parameters, will be developed according to available data and in consultation with the Service. Annual curtailment under this measure must total at least 200 hours across all turbines over a period of 365 days. If the trigger is reached within 365 days of permit expiration, the total curtailment hours will be adjusted for the partial year on a pro rata basis. If there are insufficient observations of bald eagles to meet the 200 minimum hours of</p>

		<p>curtailment, hours for golden eagle curtailment may be combined to meet this threshold, OR</p> <p>4) Alternatively, implement another conservation measure approved in writing by the Service, in lieu of the monitoring and curtailment program described above. This may be especially appropriate if the trigger is achieved near the end of the permit term and the implementation of the required measure (above) is not practicable for the short remaining permit tenure.</p> <p>b) Implement one additional year of eagle fatality monitoring to monitor the effectiveness of this measure. The method must achieve a minimum probability of detection of at least 0.5.</p> <p>c) If an adaptive management measure is being implemented for golden eagles when this trigger is reached, the measure here may be deemed satisfied if it the Service determines that the already-implemented measure is effective, or can be augmented to be effective, at reducing the risk to bald eagles.</p>
Trigger 3	The required fatality monitoring is not achieved, as determined by the Service, in each of the first two years of fatality monitoring	a) Implement an additional year of eagle fatality monitoring, according to the method described above (Section 3.3.2.3), in year 3. Deviations from this method must be approved in writing by the Service.

3.3.3. ALTERNATIVE 3: ISSUE 30-YEAR EAGLE TAKE PERMIT

Under Alternative 3, the Service would issue a 30-year eagle take permit authorizing the incidental take of 96 golden eagles (3.18 per year) and 8 bald eagles (0.25 per year) associated with the Elkhorn Valley Wind Facility pursuant to 50 CFR 22.26 (Table 2). The 30-year permit would incorporate as permit conditions the avoidance and minimization measures described in the ECP (Appendix A) that Telocaset developed through coordination with the Service and would require those avoidance and minimization measures be implemented for the permit tenure. Monitoring and adaptive management requirements would differ from Alternative 2 as outlined below, due to the longer permit tenure.

The expected life of the Project is approximately 30 years and the Service has the legal authority to issue a permit up to 30 years; therefore, a 30-year permit covers as much of the expected life of the Project as possible by regulation. Finally, a permit with a 30-year duration allows for the greatest length of guaranteed (i.e. required by permit) benefit to eagles through greater upfront avoidance and minimization, and fatality monitoring.

3.3.3.1. Avoidance and Minimization Measures

The 30-year permit would incorporate as permit conditions the avoidance and minimization measures described under Alternative 2.

3.3.3.2. *Fatality Monitoring*

Under Alternative 3, Telocaset would implement an operational fatality monitoring program similar to that described in Alternative 2, including formalized eagle remains searches, searcher-efficiency trials, and carcass persistence trials. However, the fatality monitoring program under Alternative 3 would be required for the duration of the 30-year permit tenure. To offer flexibility to the Applicant over the longer permit tenure, we would not prescribe a method, but rather would require that Telocaset achieve a minimum average probability of detection of 35%, as determined by the Service. Telocaset would be required to perform some level of fatality monitoring that could, when combined with results from bias trials, be used to derive a fatality estimate for any given year. Under this alternative, fatality monitoring results would be reported to the Service annually for any searches for eagle remains and any bias trials performed during the permit tenure. This includes years when formal eagle remains searches were not conducted.

Telocaset would also be required to implement bias trials, including searcher efficiency and carcass persistence trials for one full year during each 5-year review period for each unique carcass search method employed, stratified by each of four seasons. Searcher-efficiency trials would be conducted for every unique carcass search method used, even when carcasses only have a chance to be observed opportunistically, during normal Project operations and maintenance. If the carcass search method does not change during a 5-year period, searcher-efficiency trials would be conducted for at least one year during each 5-year period.

Searcher-efficiency trials would use twenty surrogate carcasses per season, placed at randomly selected turbines and at random locations within each search plot. Carcass persistence trials would use ten surrogate carcasses per season placed at randomly selected turbines or at random locations within the Project footprint or similar nearby habitat. Telocaset would use raptor carcasses as surrogates when possible. When the required sample size cannot be obtained, other surrogates may be used. These trials would last for a duration of at least 90 days per season.

Additionally, as required by regulation, at least one year of searches for eagle remains and all bias trials would be conducted in each 5-year administrative permit period by a qualified, independent third party. This third party would be required to provide all data from their monitoring efforts, including an annual summary report, directly to the Migratory Bird Permit Office prior to (or at the same time as) it being reported to the Permittee.

As illustrated in Table 5, progressively more rigorous fatality monitoring may be warranted under Alternative 3, depending on the number of eagle fatalities observed during post-permit fatality monitoring.

3.3.3.3. *Adaptive Management*

The CRM conservatively predicts the collision of 96 golden eagles and 8 bald eagles with Project turbines over the 30-year permit term (Table 2). As the number of eagle remains found increases through formalized fatality monitoring efforts, adaptive management would require Telocaset to implement a conservation measure that is likely to reduce take before permitted take is exceeded.

Under Alternative 3, Telocaset would implement the following adaptive management plan. Table 5 outlines triggers and conservation measures that have been identified by the Service as ways to ensure realized take at the Project does not exceed our fatality prediction and the permitted amount of take for each species.

Triggers 1-4 refer to and will be reached as a result of eagle remains found, not estimates of fatalities. Trigger 5 addresses if the minimum fatality monitoring requirement is not met. Trigger 6 addresses if a new eagle nest site is found near Project turbines. The adaptive management measures associated with each trigger are designed to require Enhanced Fatality Monitoring efforts (i.e. achievement of an average site-wide probability of detection of 0.5 over the next 5-year period) and other measures with each successive trigger if tripped (Column 6). Upon permit issuance, Columns 1 and 2 define the applicable triggers. If adaptive management requires Enhanced Fatality Monitoring, the applicable triggers become those listed in Columns 3 through 5, depending on how many 5-year evaluation periods have required Enhanced Fatality Monitoring. If a trigger is activated resulting in the initiation of Enhanced Monitoring, then there is no return to previous triggers. Upon activation of a trigger, any measure will only be required for the subsequent 5-year review period, at which point, the measure can be discontinued and baseline fatality monitoring can resume (i.e., to reach an average site-wide probability of detection of > 0.35), unless another trigger has been achieved. Since Trigger 6 is not tripped by the discovery of eagle remains, it remains constant regardless of how much monitoring has been performed.

Table 5. Stepwise adaptive management for eagle take at the Elkhorn Valley Wind Project under Alternative 3.

Column 1	2	3	4	5	6
	Baseline Fatality Monitoring required (Sec 3.3.3.2)	After 5 Yrs of Enhanced Fatality Monitoring	After 10 Yrs Enhanced Fatality Monitoring	After 15+ Yrs Enhanced Fatality Monitoring	Adaptive Management Measure
Trigger 1	<p>≥ 7 golden eagle remains found in first 5 years OR ≥ 12 golden eagle remains found in first 10 years OR ≥ 1 bald eagle remains found in first 10 years</p>	<p>≥ 14 golden eagle remains found in first 10 years OR ≥ 2 bald eagle remains found in first 10 years</p>			<p>At the beginning of the next 5-year review period (as defined in 50 CFR 22.26(c)(7)), implement both of the following:</p> <ul style="list-style-type: none"> a) Conduct a detailed desktop analysis of existing data for patterns in fatalities (i.e. location, age, timing, etc.) to determine if high risk areas might be apparent. Submit results of this analysis and any conclusions to the Service within 90 days of meeting this trigger. b) Perform Enhanced Fatality Monitoring during the next 5-year review period (i.e. achieve an average site-wide probability of detection of 0.5 over the subsequent 5-year Review period).
Trigger 2	<p>≥ 13 golden eagle remains found in first 10 years OR ≥ 18 golden eagle remains found in first 15 years OR ≥ 2 bald eagle remains found in first 20 years</p>	<p>≥ 16 golden eagle remains found in first 10 years OR ≥ 21 golden eagle remains found in first 15 years OR ≥ 2 bald eagle remains found in first 15 years</p>	<p>≥ 23 golden eagle remains found in first 15 years OR ≥ 3 bald eagle remains found in first 20 years</p>		<p>At the beginning of the next 5-year review period (or immediately if trigger met after permit year 25), implement both of the following:</p> <ul style="list-style-type: none"> a) Employ a biological monitor on-site (for up to five years or the remainder of the permit term, whichever is less) with the ability to issue immediate turbine curtailment orders on an as-needed basis when bald and golden eagles are observed to be at risk of turbine collision. The effectiveness of this measure must be tested, with the study design approved by the Service. b) Perform Enhanced Fatality Monitoring during the next 5-year review period (i.e. achieve an average site-wide probability of detection of 0.5 over the subsequent 5-year Review period).

<p>Trigger 3</p>	<p>≥ 23 golden eagle remains found in first 20 years</p>	<p>≥ 26 golden eagle remains found in first 20 years</p>	<p>≥ 28 golden eagle remains found in first 20 years</p>	<p>≥ 30 golden eagle remains found in first 20 years</p>	<p>At the beginning of the next 5-year review period, implement both of the following:</p> <p>a) Either:</p> <p>1) Employ biological monitors on-site (for up to five years) with the ability to issue immediate turbine curtailment orders over a larger percentage of the Project footprint than required under Trigger 2 (if applicable) when bald and golden eagles are observed to be at risk of turbine collision. The effectiveness of this measure must be tested, with the study design approved by the Service, OR</p> <p>2) Test a conservation measure designed to reduce the number of eagles exposed to collision risk (i.e. test a deterrent), to minimize the likelihood of future take. This measure will be installed to cover at least 5 turbines and its effectiveness tested, with the study design approved by the Service.</p> <p>b) Perform Enhanced Fatality Monitoring during the next 5-year review period (i.e. achieve an average site-wide probability of detection of 0.5 over the subsequent 5-year review period).</p> <p><i>Note: if Trigger 3 is met simultaneous to meeting a previous Trigger (i.e. if Trigger 3 is met for the first time at the same time that Trigger 1 or 2 is met for the first time), the measures listed under Trigger 3 will be required, but the implementation of measures under previous triggers will be at the discretion of the permittee.</i></p>
<p>Trigger 4</p>	<p>≥ 28 golden eagle remains found in first 25 years OR 3 bald eagle remains found in first 25 years</p>	<p>≥ 31 golden eagle remains found in first 25 years OR ≥ 3 bald eagle remains found in first 25 years</p>	<p>≥ 33 golden eagle remains found in first 25 years OR ≥ 4 bald eagle remains found in first 25 years</p>	<p>≥ 35 golden eagle remains found in first 25 years OR ≥ 4 bald eagle remains found in first 25 years</p>	<p>Immediately upon meeting this trigger, implement both of the following:</p> <p>a) If technology has been employed/implemented as a result of previous triggers, either:</p> <p>1) Alter the programming/implementation of those technologies to improve their effectiveness, OR</p> <p>2) employ biological monitors on-site (for up to five years) with the ability to issue immediate turbine curtailment orders over a larger percentage of the Project footprint than required under Trigger 3 (if applicable) when bald and golden eagles are</p>

				<p>observed to be at risk of turbine collision. The effectiveness of this measure must be tested, with the study design approved by the Service, OR</p> <p>3) Deploy automated technology, to cover at least 5 turbines, that is designed to curtail turbines when eagles are nearby. If such technology has already been installed at the Project, either modify its programming to further reduce the risk to eagles through curtailments or install additional units to achieve greater coverage of the Project Footprint – to be during consultation with the Service. The effectiveness of this measure must be tested, with the study design approved by the Service.</p> <p>b) Perform Enhanced Fatality Monitoring during the next 5-year review period (i.e. achieve an average site-wide probability of detection of 0.5 over the subsequent 5-year review period).</p> <p><i>Note: if Trigger 4 is met simultaneous to meeting a previous Trigger (i.e., if Trigger 4 is met for the first time at the same time that Trigger 1, 2, or 3 is met for the first time), the measures listed under Trigger 4 will be required, but the implementation of measures under previous triggers will be at the discretion of the permittee.</i></p>
<p>Trigger 5</p>	<p>The average site-wide probability of detection of 0.35 is not achieved in any 5-year period during the permit tenure, as determined by the Service, OR Enhanced monitoring, if required through adaptive management, does not achieve an average site-wide probability of detection of 0.5 during the required 5-year period, as determined by the Service, OR Any single year of post-construction monitoring results in an achieved g-value¹ less than 0.08, as determined by the Service.</p>			<p>At the beginning of the next 5-year review period, Perform Enhanced Fatality (i.e., achieve an average site-wide probability of detection of 0.5 over the subsequent 5-year review period).</p>
<p>Trigger 6</p>	<p>A new golden eagle nest is discovered within 1 mile of any Project turbine, OR A new bald eagle nest is discovered within 0.5 miles of any Project turbine</p>			<p>Immediately upon meeting this trigger, implement all of the following:</p> <p>a) Immediately report the discovery of the new nest to the Service and discuss, in consultation with the Service, the potential impacts of Project-related activities, if any, on the</p>

		<p>nesting eagles, and whether temporary or permanent nest take may be appropriate.</p> <p>b) Effectively immediately, do not conduct activities that are not in response to a safety emergency (50 CFR 22.3) or essential turbine maintenance if the activities 1) will occur within 1 mile of an in-use golden eagle nest during the nesting season (Jan 1 to Aug 31) and is within line-of-sight of the nest, 2) will occur within 0.5 miles of an in-use golden eagle nest during the nesting season (Jan 1 to Aug 31), or 3) will occur within 660 feet of an in-use bald eagle nest during the nesting season (Jan 1 to Aug 31). This restriction must remain in place until coordination with the Service occurs while minimizing the risk of nest disturbance. This may include implementation of practical measures to avoid nest disturbance, or the issuance of a nest disturbance permit (50 CFR 22.26) if no practical avoidance measures can be implemented, and</p> <p>c) Monitor the nest status twice annually to determine if it is in-use and if it was successful. If in-use, monitor the eagle activity surrounding the nest once every 10 years (in a year when the nest is in-use) to determine if the territory or home-range associated with the nest is likely to overlap the Project footprint. At a minimum, this would entail conducting one point count for one full day (sunrise to sunset) every week for the duration of the breeding season (from the date the nest is determined to be in-use until Aug 31) or as long as the nest remains in-use during that season. The survey would be performed at a strategically placed point to determine if and how frequently one or both adults and/or fledglings (if applicable) are entering the Project footprint and how often this may be occurring. In addition, if the nest produces nestlings, those nestlings must be banded with federal (USGS) aluminum bands if it is safe to do so. Another method(s) could be used to satisfy this requirement but must be approved by the Service prior to implementation.</p>
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3.3.3.4. 5-Year Reviews

Under Alternative 3, the Service would undertake an administrative permit review at least once every 5 years throughout the permit tenure, in accordance with 50 CFR 22.26(c)(7)(iii). In aid of that review, the permittee would compile, and submit to the Service, eagle fatality data and other pertinent information that is specific to the Project at least 90 days prior to each review meeting. This information includes a summary of the number of total operational daylight hours at the Project (at each turbine or summed across all turbines) each year since permit issuance, or since the last 5-year review, including how those hours were estimated. The data supplied to the Service will be used to inform the Service's collision risk estimates for the subsequent 5-year period.

The term "5-year review period" refers to each 5-year period during the permit term between the administrative permit reviews. Over a 30-year permit, there will be 6 such periods (e.g., permit years 1-5, 6-10, 11-15, 16-20, 21-25, and 26-30).

3.3.4. ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER ANALYSIS

3.3.4.1. Issue Permit with Additional Conditions

The Service considered an alternative to issue an eagle take permit with additional conditions beyond those outlined in Alternatives 2 and 3 that might further reduce effects to eagles. These conditions would include measures related to avoidance and minimization, monitoring, and compensatory mitigation. The additional measures the Service considered included:

- The use of artificial intelligence technology during wind turbine operations for the entire permit tenure to improve turbine curtailment when eagles are detected near the Project,
- Requiring the offset of take through compensatory mitigation at a ratio of 2:1,
- Alternative compensatory mitigation methods other than pole retrofits (Note: such methods have not yet been approved by the Service for offsetting golden eagle take, but could be in the future) and
- Increasing the fatality monitoring requirements to include additional years of eagle remains searches, searcher-efficiency trials, and carcass persistence trials during the permit term.

However, requiring these additional conditions would be unnecessary to achieve the preservation standard for eagles, and would require a justification to deviate from national practice. Thus, for the purposes of analyzing effects of issuing an eagle take permit at this Project, and in conformity with national practice, we did not consider an additional alternative that would add additional conditions to the permit. For these reasons this alternative was dismissed from further consideration.

3.3.4.2. Issue a permit for less than a 5-year duration

Under current regulations, an eagle take permit can be issued for any duration up to 30-years. For long-term activities, such as wind projects, the Service will only issue long-term permits (≥ 5 years) because the nature of these activities requires longer-term monitoring, adaptive management, and potentially compensatory mitigation to comply with the Eagle Act. For these reasons this alternative was dismissed from further consideration.

Chapter 4.0 Affected Environment

4.1. Introduction

The action of issuing an eagle take permit at an existing facility will affect relatively few specific resources aside from both eagle species and species that might also incidentally benefit from any permit conditions. This chapter therefore describes the general environment of the Project and some of the wildlife found there that could be affected by the permit, including its terms and conditions, for both eagle species. This section also describes tribal interests and cultural resources that might be affected by the Federal action.

4.2. Physical Environment

The Elkhorn Valley Project Area is located in the Blue Mountain Ecoregion (Thorson et al. 2003), on the ridges surrounding Antelope Valley (Figure 2). The Project is generally located in unirrigated open terrain on private land predominantly grazed by cattle, with small pockets of evergreen trees present within 1 km of the northern turbine strings, and large areas of tree canopy east of the Project. Elevation ranges from ~3,200 feet near the Powder River to 4,500 feet above sea level within the northeast section of the Project. Adjacent land uses include grazing, cultivation of alfalfa and hay, and timber harvesting. The Project Area is dominated by sagebrush steppe habitats (~94% of the Project Area) on the ridgelines and pasture/hay/grassland habitats (1.9% of the Project Area) in the valleys. The Powder River and Thief Valley reservoirs are located west and south of the Project, respectively. A riparian corridor along the Powder River contains mature cottonwood trees (*Populus trichocarpa*), willows (*Salix* spp.) and other shrubs.

4.3. Golden Eagles and Bald Eagles

4.3.1. GOLDEN EAGLE

Golden eagle habitat generally includes open to semi-open terrain where they can effectively find and capture prey. Typical habitats are often associated with areas containing some topographic relief, such as rolling foothills and mountainous areas, but golden eagles also utilize flatter areas (e.g., sagebrush flats and agricultural fields). Golden eagles most often nest on cliffs or rocky outcrops but may also nest in trees or on manmade structures where high quality cliff sites are limited. Golden eagles primarily prey on hares, rabbits, and rodents (e.g., ground squirrels), but will also take other mammals, birds, and reptiles. Golden eagles will also take advantage of carrion when available, particularly during the winter when other prey items are limited.

4.3.1.1. *Population Status*

Golden eagles are distributed throughout much of North America, but the species is most abundant west of 100° W longitude, occurring from the arctic slope to central Mexico (Kochert et al. 2002). In our 2009 Eagle Rule final environmental assessment, we estimated the total golden eagle population in the western United States (west of approximately 100° west longitude) to be 32,593 eagles (USFWS 2009; USFWS 2016c). Millsap et al. (2013) estimated the population of golden eagles for the most recent decade for the western United States to be 31,370 to 33,460 golden eagles. A recent survey of the western US population of golden eagles, not including California, resulted in a population estimate of 18,446 eagles (90% confidence interval: 14,811 to 23,588) in summer 2014 and 35,494 (29,689-43,809) in mid-winter of 2015 (Neilson et al. 2012). According to the Service's 2016 eagle status report, the golden eagle population for the Pacific Flyway is estimated to be 15,927 (USFWS 2016c). Within BCR 10 (Northern Rockies), in which the Project is located, the golden eagle population is estimated to be 5,675 (USFWS 2016c). The population size of the LAP is estimated by applying the density estimates for BCRs to the LAP area (USFWS 2016b). Using these densities, we estimate the LAP of golden eagles (i.e., those birds within 175 km [109 miles] of the Project) to be 859 golden eagles.

4.3.1.2. *Golden Eagle Occurrence at the Elkhorn Valley Wind Facility*

Golden eagles are known to nest near the Project, and some use in the Project vicinity by golden eagles was documented during pre- and post-construction surveys. Golden eagles may hunt for jackrabbits and other prey within the Project Area.

Fixed-point avian use surveys were conducted weekly at 8 locations between 1 March – 31 August 2003, and at 11 observation stations between 1 September – 31 October 2003. Golden eagles were observed during the spring, summer and fall. Golden eagle use was relatively consistent among seasons, with the lowest use occurring during fall (0.24 eagles/800-m/20-minute survey) and the highest use during summer (0.33 eagles/800-m/20-minute survey). The majority of flying golden eagles were observed within the approximate rotor-swept area (25-100m AGL). Observations during all other surveys included 58 golden eagle observations in 46 groups. As a result, golden eagle use at the Project was determined to be relatively high compared to other existing wind projects.

Raptor nest surveys were conducted within 2 miles of the Project in 2002-2005 (WEST 2005). In April 2002, a raptor nest survey was conducted that combined aerial surveys of the proposed development corridors and a 2-mile buffer with supplementary roadside ground surveys in areas where access to fly over was not given. In 2003, nest activity was only observed incidentally during avian use surveys. In March 2004, all known golden eagle and prairie falcon nest sites within the 2-mile buffer of development corridors were visited. In March 2005, all raptor nests within the 2-mile buffer were observed. Surveyors also searched for raptor nests during ground-based sensitive species surveys conducted within 300 feet of proposed development corridors in May 2005. During this survey, 4 active golden eagle nests were documented within 2 miles of the Project.

Post-construction monitoring studies were conducted at the Project, including: 1) fixed-point avian use counts, with a focus on golden eagle habitat use and flight patterns relative to turbine locations; 2) eagle nest monitoring surveys, 3) a GPS telemetry study on golden eagles; and 4) fatality monitoring initiated in 2008 (Appendix A).

Fixed-point avian use surveys were conducted between March 2010 – February 2013. These surveys illustrated that golden eagle use occurs throughout the Project and during all seasons. While higher golden eagle use in the spring and fall seasons may be associated with eagle migration through the area, this seasonal use pattern varied by year.

Eagle nest monitoring surveys were conducted within and near the Project in 2011-2014. Four golden eagle nests were documented within 2 miles of the Project, with additional nests documented within 6 miles of the Project.

Five resident adult golden eagles with established territories and/or active nests within 6 miles of the Project were instrumented with GPS transmitters from 1 March 2011 – 1 June 2013 to delineate territories, identify and evaluate spatial and temporal patterns in habitat use, help assess eagle migration patterns, and inform efforts to avoid and minimize take at the Project. Data collected during the golden eagle observation surveys indicates that eagles do utilize habitats throughout the Project. All instrumented individuals had home ranges focused around each territory's nest location(s). These eagles did not make large migration movements during the summer and winter periods, suggesting that they utilize the habitat within their home ranges during all seasons (i.e., breeding, nesting, summer, fall, and winter). The results highlighted a habitat preference for steeper slopes or more rugged terrain.

Standardized and informal remains searches were conducted in 2008, 2010-2015, 2018 and 2021. The remains of a total of 13 golden eagles were documented during these surveys. Eight of the 13 golden eagle discoveries were of hatch-year or sub-adult birds, 3 were of adults, 2 remains could not be aged. Ten of the 13 golden eagle remains were found on the eastern portions of both the north and south sections of the Project. Five remains were found in the spring or early summer, 3 in the fall, 2 in the winter, and 3 in mid-summer. It should be noted that the actual date when a fatality occurred is often difficult to determine, as several of the remains identified during standardized monitoring were likely present on the landscape for a month or more based on the deteriorated condition. Seven of the 13 golden eagle remains were found during standardized monitoring, and 6 were found incidentally by Telocaset operations staff.

4.3.2. BALD EAGLE

Bald eagles typically nest along forested coasts, rivers, streams, reservoirs, and lakes (Buehler 2000) where they primarily prey on fish and waterfowl during the breeding season. Nest sites are often associated with riparian areas or forests where they utilize mature or old-growth trees and snags to support their large nests (Buehler 2000) located near these primary foraging areas. Bald eagles may also nest on cliffs, rocky outcrops, manmade structures, and even on the ground, but these nest substrates are less common.

Bald eagles are opportunistic foragers and may also hunt and/or scavenge mammalian, avian, and reptilian prey in upland areas more distant from the larger water bodies or fish bearing streams considered their more preferred foraging areas (Buehler 2000). Bald eagle populations have expanded significantly in recent decades, which led to their removal from the endangered species list in 2007 (USFWS 2007).

4.3.2.1. *Population Status*

The Service and its partner agencies manage for migratory birds based on specific migratory route paths within North America (Atlantic, Mississippi, Central, and Pacific). Based on those route paths, State and Federal agencies developed the four administrative flyways that are used to manage migratory bird resources. For bald eagles, the Pacific Flyway is divided into three EMUs: southwest (south of 40 degrees N latitude), mid-latitude (north of 40 degrees to the Canadian border), and Alaska (USFWS 2016b). The Project is located in the Pacific Flyway North EMU.

Recent analysis conducted by the U.S. Fish and Wildlife Service estimates the median population size of bald eagles in the coterminous United States (excluding the southwest) to be 316,708 individuals; this is a 4.4-fold increase from 2009 estimates (USFWS 2020). The estimated median population size in the Pacific Flyway North EMU is 42,068 (USFWS 2020). These estimates were derived using: 1) estimates of the number of bald eagle nesting territories from 2018-2019 survey data, 2) bald eagle relative abundance estimates from eBird models and data, and 3) an updated analysis of bald eagle vital rates (USFWS 2020).

Using a different data source, the U.S. Geological Survey Breeding Bird Survey index trend estimate for bald eagles over the entire Breeding Bird Survey coverage area between 1966 and 2012 is 5.3 percent (95-percent credible interval = 4.1–6.6 percent). The trend estimate for the coverage area that includes Alaska is 0.08 percent (95-percent credible interval = -8.41–5.44 percent) (USFWS 2016c). The number of bald eagles in the United States outside the Southwest (including Alaska) is predicted to continue to increase until populations reach an equilibrium at about 228,000 (20th quantile = 197,000) individuals (USFWS 2016c).

The population size of the LAP (Section 2.5.1) is estimated by applying the density estimates for EMUs to the overlapping LAP area (USFWS 2016b). Using these densities, we estimate the LAP of bald eagles (i.e., those birds within 138 km [86 miles] of the Project) to be 466 individuals.

4.3.2.2. *Bald Eagle Occurrence at the Elkhorn Valley Wind Facility*

The Project Area appears to contain very little high-quality bald eagle foraging or nesting habitat. One bald eagle nest was documented within 6 miles of the Project, and avian use surveys indicate that habitat use was limited to late winter/early spring.

Pre-construction fixed-point avian use surveys were conducted weekly at 8 locations between 1 March – 31 August 2003, and at 11 observation stations between 1 September – 31 October

2003. Bald eagles were observed only during the spring. Observations during all other surveys included 34 bald eagle observations in 26 groups.

Raptor nest surveys that included bald eagles were conducted within 2 miles of the Project in 2002-2003 and 2005 (WEST 2005). In April 2002, a raptor nest survey was conducted that combined aerial surveys of the proposed development corridors and a 2-mile buffer with supplementary roadside ground surveys in areas where access to fly over was not given. In 2003, nest activity was only observed incidentally during avian use surveys. In March 2005, all raptor nests within the 2-mile buffer were observed. Surveyors also searched for raptor nests during ground-based sensitive species surveys conducted within 300 feet of proposed development corridors in May 2005. No bald eagle nests were documented during this survey.

Post-construction monitoring studies were conducted at the Project, including: 1) fixed-point avian use counts, with a focus on golden eagle habitat use and flight patterns relative to turbine locations; 2) eagle nest monitoring surveys, and 3) fatality monitoring initiated in 2008 (Appendix A).

Fixed-point avian use surveys were conducted between March 2010 – February 2013. Bald eagle use was highest during the winter season, with lower use in the spring and much lower use in the summer and fall. Most observations occurred during February and March. This seasonal use corresponds in time with livestock calving at ranches in the general Elkhorn area, and bald eagles likely scavenge on carcasses and afterbirth in the area. Observers recorded numerous incidental observations of bald eagles in the calving areas during the late winter and early spring period. Eagle nest monitoring surveys were conducted within and near the Project in 2011-2014. No bald eagle nests were observed within 2 miles of the Project. Standardized and informal remains searches were conducted in 2008, and 2010-2015. The remains of 1 bald eagle were found incidentally in 2018.

4.4. Migratory Birds

Large raptors and a few other large birds might benefit from the required avoidance and minimization measures and adaptive management (if implemented) in the same way that eagles might benefit from these measures. We do not expect other species of birds to be affected by the Federal action being considered in this document. With or without the eagle take permit, the Project will continue to operate in the same manner fundamentally, and any effects to wildlife will be unchanged by this permit action except as noted below.

4.4.1. RAPTORS AND OTHER LARGE BIRDS

Several large non-eagle raptors occur in this landscape, including Swainson's (spring and summer only), red-tailed, ferruginous, and rough-legged hawks (winter only). Peregrine falcon and burrowing owl are also species that may utilize the Project Area. The other species all have relatively robust stable or increasing populations (Sauer et al. 2017, Partners in Flight 2019).

4.5. Other Wildlife and Plants

Of the 42 federally listed threatened or endangered species that occur in the State of Oregon, the Howell's spectacular thelypody (*Thelypodium howellii* ssp. *spectabilis*) is the only terrestrial species threatened, endangered, proposed, or candidate for listing under the ESA that has the potential to occur within the Project area. This species is a biennial plant in the mustard family (Brassicaceae) that grows in moist, moderately well-drained, somewhat alkaline meadow habitats. The Service listed the species as threatened in 1999. The issuance of an eagle take permit will have no effect on Howell's spectacular thelypody should they occur in the vicinity.

Bull trout (*Salvenius confluentus*) may potentially occur near the Project; however, there is no critical habitat within the footprint of the Project. The issuance of an eagle take permit would have no effect on any fish species because of the lack of fish habitat within or near the Project. The issuance of an eagle take permit will have no effect on bull trout should they occur in the vicinity.

4.6. Tribal Traditional Uses/Native American Religious Concerns and Cultural Resources

The federal government has a unique responsibility and obligation to consider and consult with Native American Tribes on potential effects to resources that may have religious and cultural importance to tribes. Eagles, eagle feathers, and eagle nests in particular may all be of interest and importance to area tribes; and eagles and their feathers are considered sacred in many Native American traditions. Under the Eagle Act and our implementing regulations, we may issue permits authorizing the taking, possession, and transportation of eagles, eagle parts, or eagle nests for Indian religious use, see 50 CFR 22.22. In addition, if eagle remains are found, they are sent to the Service's National Eagle Repository. If in good condition, the remains are distributed to permitted members of federally recognized tribes. See also the discussion of this topic in the PEIS (Section 3.7.1.4).

In addition, issuance of an eagle take permit is an undertaking under the National Historic Preservation Act, which requires consideration of effects of the permit issuance on historic and cultural resources as those are defined under the NHPA and implementing regulations at 36 CFR Part 800.

Chapter 5.0 Environmental Consequences

5.1. Introduction

This chapter addresses the potential environmental consequences of implementing each alternative. Under Alternative 2, the permit tenure would be 5 years so the direct and indirect

effects analyzed are considered over a 5-year permit tenure. Under Alternative 3, the permit tenure would be 30 years so the direct and indirect effects analyzed in this EA are considered over the expected life of the Project. If an eagle take permit is issued under Alternative 3, we will have periodic administrative permit reviews at intervals not greater than every 5 years. Each review would include, among other things, a re-evaluation of eagle take at the Project site, the effectiveness of adaptive management measures implemented (if any), the status and trends of eagle populations, and the continued accuracy of the potential effects analyzed in this NEPA document.

Effects of the alternatives are addressed in this chapter (see 40 CFR 1508.1 for definitions). Since the Project is fully built and operational, the effects associated with developing and constructing a wind project are not further considered here. We note that “cumulative effects” as a definition for purposes of NEPA analyses has been repealed (see 40 CFR 1508.1(g)(3)). Nonetheless, because “cumulative effects” of other permitted take and other factors affecting eagle populations within an EMU is something we must determine as a requirement of our regulations implementing the Eagle Act (see 50 CFR 22.26(f)), we address “cumulative effects” for purposes of the Eagle Act in Chapter 6.

5.2. Effects Common to All Alternatives

This section includes a description of the potential effects on resources that would result from implementation of any of the alternatives. These effects establish a baseline for the alternative-specific effects that follow, and are therefore not repeated for each alternative.

5.2.1. GOLDEN EAGLES AND BALD EAGLES

As part of the eagle take permit application review process, we are required by regulation (50 CFR 22.26(f)(1)) to evaluate and consider effects of issuing eagle incidental take permits on eagle populations at two scales: (1) the EMU, and (2) local area population (LAP; USFWS 2016a). We address the direct and indirect effects on golden eagles and bald eagles in the context of these two scales. All three alternatives have the potential to result in the future take of eagles, whether permitted or not.

5.2.1.1. Collisions with Wind Turbine Blades

The primary risk to eagles under all of the alternatives is from collision with rotating turbine blades. Mortality or injury is the direct adverse effect of eagles colliding with turbine blades. Thirteen golden eagle fatalities have been documented since the Project became operational and it is likely that additional eagles have been injured/killed but their remains not detected. We expect periodic eagle fatalities will continue throughout the life of the Project, due to the presence of golden eagles near the Project and evidence of their use of the Project area.

Based on results from pre-construction avian use data and post-construction fatality monitoring, we developed predictions for the annual rates of golden eagle and bald eagle fatalities at the Project using our Collision Risk Model (Appendix B). This model predicts only the number of

eagles likely to be killed by collision with wind turbines and does not predict impacts to eagles from nest disturbance or loss of productivity due to the death of breeding adults. Under Alternatives 2 and 3, the annual fatality estimates of 3.18 golden eagles and 0.25 bald eagles are 0.37% and 0.05%, respectively, of the LAP (see Chapter 6).

5.2.1.2. *Other Project-related Risks to Eagles*

Eagles are unlikely to be injured or killed by colliding with other Project structures, such as MET towers and overhead power lines, although collisions with these kinds of structures sometimes do occur (Erickson et al. 2001; APLIC 2012). Below is a list of Project structures or activities that could pose collision risk or nest disturbance risk to eagles and the reasons why we believe this risk is relatively low.

- Permanent MET towers installed at the Project do not have guy wires and pose a minimal risk of collision to eagles,
- Electrocutation risk is negligible since electrical collection lines for the Project are buried wherever feasible; therefore, risk of collision with transmission lines is expected to be low,
- Project vehicles are driven throughout the site on a regular basis. Eagles are attracted to and often scavenge on animal carcasses on and near roads (roadkill). This behavior can lead to injury and mortality of eagles through vehicle and turbine collisions. However, reduced speed limits on site, and regular removal of roadkill and other attractants to eagles, are designed to lessen this risk by reducing the occurrence of roadkill that would attract eagles to the roads and near the turbines. Therefore, we predict that the risk of eagle injury and mortality from vehicle collisions at this Project will be low, and
- Repowering or decommissioning will occur at the Project at some point in the future, regardless of the alternative selected. Activities could pose a risk to eagles through an increase in operations and maintenance activity, and human presence in the Project footprint. This increase in activity and human presence could increase the risk of nest disturbance or behavioral alteration of eagles that might use the Project footprint. Should Telocaset wish to obtain authorization for eagle take incidental to future repowering or decommissioning activities or the subsequent operation of repowered turbines (in the event they repower again), they would need to apply for a new eagle take permit or amend any existing permit. At the time of application, we would review the details of their proposed activity and assess any likely impacts to eagles.

There have been four golden eagle and no bald eagle breeding areas documented within 2 miles of the Project Area. Operations and maintenance activities within the footprint of the Project containing the turbine strings and access roads are unlikely to disturb eagles because of the distance of these activities to the breeding areas. No concentration areas or migration corridors are known to exist within or within the vicinity of the Project footprint.

5.2.2. **FEDERALLY ENDANGERED AND THREATENED SPECIES**

Turbine operations, and any effects on wildlife or plant populations, will occur whether or not a permit is issued; therefore, this criterion is not being evaluated across Alternatives. Tall vegetation and weeds would continue to be removed from around turbines in the absence of a

permit. No bull trout habitat is within the Project footprint. The issuance of an eagle take permit will not affect ESA-listed species or critical habitats.

5.3. Alternative 1 – No Action

Under the No Action Alternative, in which we do not issue an eagle take permit, the Project would continue to operate under their current operational plan as described in Chapter 1. Therefore, under this alternative, Telocaset would likely continue to implement conservation measures, best management practices (BMPs), and incidental monitoring as outlined in their ECP. However, the eagle-specific conservation measures, fatality monitoring, compensatory mitigation, and adaptive management described above under Alternatives 2 and 3 would not be implemented, and we would have no authority outside of a law enforcement context to require implementation of these measures.

5.3.1. EAGLES

Under Alternative 1 fatality rates (at the upper 80th quantile) from collision with Project turbine blades for golden eagles and bald eagles are predicted to be 3.18 golden eagles per year, and 0.25 bald eagles per year (Table 2, Appendix B). Over the expected life of the Project (assumed to be 30 years), this equates to 95.4 golden eagles (rounded up to 96 golden eagles) and 7.5 bald eagles (rounded up to 8 bald eagles). Our conservative assumption is that these mortalities are generally considered additive, meaning that these individual eagles would otherwise have survived a normal lifespan (USFWS 2016c).

Under this alternative, monitoring for eagle fatalities would consist only of incidental finds by trained Project operations staff. Reporting would occur as outlined under both the WIRHS and voluntary Federal Migratory Bird Special Purpose Utility Permit (SPUT), if the Applicant chooses to apply. If an eagle fatality is documented, such take would be unauthorized and in violation of the Eagle Act and would be a matter for our law enforcement to address.

The benefits to eagles that would occur under Alternatives 2 and 3 from required conservation measures, fatality monitoring, and adaptive management would not occur under the No-Action Alternative.

5.3.2. RAPTORS AND OTHER LARGE BIRDS

Under Alternative 1, raptors and other large birds that would benefit from avoidance and minimization measures and adaptive management required under the other alternatives, would not receive those benefits.

5.3.3. FEDERALLY ENDANGERED AND THREATENED SPECIES

Turbine operations, and any effects on wildlife or plant populations, will occur whether or not a permit is issued; therefore, this criterion is not being evaluated across Alternatives. Denying an eagle take permit would not threaten other wildlife or plant populations currently protected under

the Endangered Species Act. No compensatory mitigation would be occurring under any of the Alternatives; therefore, no actions unique to this alternative will have effects on ESA-listed species or critical habitats.

5.3.4. TRIBAL TRADITIONAL USES/NATIVE AMERICAN RELIGIOUS CONCERNS AND CULTURAL RESOURCES

Selection of Alternative 1 is not expected to substantially interfere with cultural practices and ceremonies related to eagles, or to affect the ability of tribes to use eagle feathers consistent with Federal law. Since eagle remains that are found at the Project must be sent to the Service's National Eagle Repository and, if in good condition, are distributed to permitted members of federally recognized tribes, eagle remains will still be made available for cultural practices and ceremonies. However, if we select the No Action Alternative, Telocaset would not be required to implement operational fatality monitoring. And although on-site staff may continue to report eagle fatalities found incidentally, without regular monitoring it is likely that a smaller percentage of eagle remains will be found. This would reduce the number of eagles collected and available to Native Americans for their use for ceremonial purposes.

Because all eagle take associated with the Project would be unauthorized under this alternative, such takes would be a violation of the Eagle Act. Unauthorized take of eagles would likely be concerning to many tribes because of the overall cultural importance of eagles.

Under this alternative, there would be no permit issued, and therefore no federal undertaking under the NHPA.

5.4. Alternative 2 – Issue 5-Year Permit based on the ECP

Under this alternative, a 5-year eagle take permit would be issued authorizing the incidental take of golden eagles and bald eagles associated with the Project pursuant to 50 CFR 22.26. The permit would be for the incidental take of up to 16 golden eagles and 2 bald eagles during the 5-year permit period. The 5-year permit would incorporate, as permit conditions, the avoidance and minimization measures, monitoring, and adaptive management described above that Telocaset developed through coordination with the Service. We evaluate these measures for the 5-year permit term and assume they would be implemented over the life of the Project, although we would not be able to require any conditions be implemented beyond the 5-year permit term.

5.4.1. EAGLES

Annual fatality rate predictions are the same as under Alternative 1 (see Section 5.3.1).

Telocaset would commit to implementing operational eagle fatality monitoring for 2 years during the permit tenure. Telocaset would be required to conduct eagle remains searches, carcass persistence and searcher-efficiency trials as described in Chapter 3. If adaptive management triggers are met, monitoring effort would increase.

Under Alternative 2, fatality rates higher than predicted would be addressed through the adaptive management process, which requires additional conservation measures should evidence suggest eagle take rates may exceed authorized take.

Under Alternative 2, Telocaset would apply avoidance and minimization measures to reduce impacts to eagles. Eagle fatalities caused by activities in place prior to September 11, 2009, are accounted for in the baseline conditions that were analyzed in the PEIS and used to set EMU thresholds. As such, any permitted take at projects that were operational prior to September 11, 2009 and have not modified turbines since that date in such a way that would increase risk to eagles, does not need to be deducted from the EMU take thresholds.

Based on the intensity and context of these effects and consideration of the elements associated with this alternative, Alternative 2 is not expected to result in significant adverse effects to populations of golden eagles or bald eagles and is expected to meet the Service's eagle preservation standard at the EMU and LAP scale (See Chapter 6) for the 5-year permit tenure.

5.4.2. RAPTORS AND OTHER LARGE BIRDS

There would be a parallel positive effect on large birds as for eagles under this Alternative through implementation of avoidance and minimizations measures and adaptive management that reduces risks to these birds.

5.4.3. FEDERALLY ENDANGERED AND THREATENED SPECIES

The issuance of an eagle take permit would not threaten other wildlife or plant populations currently protected under the Endangered Species Act. Turbine operations, and any effects on wildlife or plant populations, will occur whether or not a permit is issued. Tall vegetation and weeds would continue to be removed from around turbines in the absence of a permit. The Project is already constructed and operational and an eagle take permit would not cause disturbance to habitats used by listed species.

5.4.4. TRIBAL TRADITIONAL USES/NATIVE AMERICAN RELIGIOUS CONCERNS AND CULTURAL RESOURCES

Selection of Alternative 2 is not expected to substantially interfere with cultural practices and ceremonies related to eagles, or to affect the ability of tribes to use eagle feathers consistent with Federal law. Since eagle remains that are found at the Project must be sent to the Service's National Eagle Repository and, if in good condition, are distributed to permitted members of federally recognized tribes, eagle remains are being made available for cultural practices and ceremonies. However, with a requirement for at least 2 years of fatality monitoring, more eagle remains are likely to be discovered compared to Alternative 1. This would likely serve to increase the number of eagles collected and available to Native Americans over time for their use for ceremonial purposes.

Based on information available, the Service does not anticipate that issuance of a permit will preclude issuance of another permit necessary to protect an interest of higher priority, including: 1) a safety emergency, 2) increased need for traditionally- practiced Native American tribal religious use that requires taking eagles from the wild, 3) a non-emergency activity necessary to ensure public health and safety, and 4) other interest (50 CFR 22.26(e)(7)).

5.5. Alternative 3 – Issue 30-Year Permit

Under this alternative, a 30-year eagle take permit would be issued authorizing the incidental take of golden eagles and bald eagles associated with the Project pursuant to 50 CFR 22.26. The permit would be for the incidental take of up to 96 golden eagles and 8 bald eagles during the 30-year permit period. The 30-year permit would incorporate, as permit conditions, the avoidance and minimization measures described in Alternative 2 that Telocaset developed through coordination with the Service. Fatality monitoring would be required in all years of the permit tenure. The specifics of this fatality monitoring method would be determined by Telocaset but they would be required to achieve, at a minimum, an average site-wide probability of detection of 0.35 (35%) over each 5-year period and include carcass persistence and searcher-efficiency trials as described in Chapter 3. Since a permit under Alternative 3 would authorize take over a much longer timeframe, the adaptive management table would provide triggers and measures that reflected the longer permit tenure (see Chapter 3).

5.5.1. EAGLES

As under Alternative 2, fatality rates (at the upper 80th quantile) from collision with Project turbine blades for golden eagles and bald eagles under Alternative 3 are predicted to be 3.18 golden eagles per year, and 0.25 bald eagles per year (Table 2, Appendix B). Over the expected life of the Project (assumed to be 30 years), this equates to 96 golden eagles and 8 bald eagles.

Alternative 3 provides a commitment to implementing the measures outlined above, including minimization, monitoring, and adaptive management for the duration of the 30-year permit tenure and for the expected life of the Project. These measures would provide additional benefits specific to eagles. If adaptive management triggers are met, monitoring would increase. Fatality monitoring at this temporal scale (life of Project) would provide better opportunity for learning about long-term risk to eagles at wind facilities in the Pacific Northwest, improving the Service's ability to predict fatalities at wind projects across the landscape (i.e., update the priors used in the CRM). Additionally, monitoring at this temporal scale would allow the Service to update periodically the fatality prediction over the life of the Project to reflect the best available information.

Similar to Alternative 2, fatality rates higher than predicted would be addressed through the adaptive management process under Alternative 3, which requires additional conservation measures should evidence suggest eagle take rates may result in exceedance of authorized take. However, the adaptive management process under Alternative 3 would be required for the duration of the 30-year permit tenure, benefitting eagles for the life of the Project.

Under this Alternative, the Service’s eagle preservation standard would be achieved. Based on the intensity and context of these effects and consideration of the elements associated with this alternative, Alternative 3 is not expected to result in significant adverse effects to populations of golden eagles or bald eagles at the EMU or LAP scale over the life of the Project.

5.5.2. RAPTORS AND OTHER LARGE BIRDS

There would be a parallel effect on large birds as for eagles under this Alternative through implementation of avoidance and minimizations measures and adaptive management that reduces risks to these birds.

5.5.3. FEDERALLY ENDANGERED AND THREATENED SPECIES

The issuance of an eagle take permit would not threaten other wildlife or plant populations currently protected under the Endangered Species Act. Turbine operations, and any effects on wildlife or plant populations, will occur whether or not a permit is issued. As with Alternative 2, tall vegetation and weeds would continue to be removed from around turbines in the absence of a permit. The Project is already operational and permit issuance will not cause disturbance to habitats used by federally listed species.

5.5.4. TRIBAL TRADITIONAL USES/NATIVE AMERICAN RELIGIOUS CONCERNS AND CULTURAL RESOURCES

Selection of Alternative 3 is not expected to substantially interfere with cultural practices and ceremonies related to eagles, or to affect the ability of tribes to use eagle feathers consistent with Federal law. Similar to Alternatives 1 and 2, since eagle remains that are found at the Project must be sent to the Service’s National Eagle Repository and, if in good condition, are distributed to permitted members of federally recognized tribes, eagle remains are being made available for cultural practices and ceremonies. However, with a requirement for fatality monitoring that extends through the expected life of the Project, more eagle remains are likely to be discovered compared to Alternative 1 and 2, increasing the number of eagles collected and available to Native Americans over time for their use for ceremonial purposes.

Based on information available, the Service does not anticipate that issuance of a permit will preclude issuance of another permit necessary to protect an interest of higher priority, including: 1) safety emergencies, 2) increased need for traditionally practiced Native American tribal religious use that requires taking eagles from the wild, 3) non-emergency activities necessary to ensure public health and safety, and 4) other interests (50 CFR 22.26(e)(7)).

Chapter 6.0 Cumulative Effects

The Council on Environmental Quality recently modified the uniform federal regulations implementing NEPA, including modifications to the definition of “effects” to be considered, and expressly repealed the definition of “cumulative” impacts, see 40 CFR 1508.1(g)(3). As

described previously, however, under our Eagle Act implementing regulations, we must determine whether the direct and indirect effects of the take and required mitigation, together with the cumulative effects of other permitted take and additional factors affected the eagle populations within the eagle management unit and the local area population are compatible with the preservation of bald and golden eagles, see 50 CFR 22.26(f). Thus, we are assessing cumulative effects here pursuant to our obligations under the Eagle Act.

The Service predicts that 3.18 golden eagles and 0.25 bald eagles will be killed annually (prediction at the 80th quantile) associated with the Project. We combined the predicted annual impacts of the Project under the two action alternatives with impacts from other permitted and unpermitted human activities that take eagles to determine if issuing an eagle take permit for the Project would be consistent with the Service's population management objective of maintaining stable or increasing populations of eagles. To perform this analysis, we followed methods outlined in Appendix F of the Eagle Conservation Plan Guidance (USFWS 2013), using the most recent values for species-specific natal dispersal distance to delineate the LAPs.

In the Service's PEIS (USFWS 2016b), we identified annual permitted eagle take rates between 1 and 5 percent of the estimated LAP as concerning, with 5 percent being the upper threshold of what would be appropriate to authorize (i.e., permit), annually under the Eagle Act preservation standard, whether offset by compensatory mitigation or not. Additionally, literature suggests that unpermitted anthropogenic annual mortality of golden eagles across the landscape is equivalent to approximately 10 percent of the population (USFWS 2016b). Thus, evidence suggesting that background levels of unpermitted anthropogenic take exceeds 10 percent of that LAP may indicate that anthropogenic take is higher than average near the Project being analyzed. Further, if unpermitted take rates from one source, especially one that seems likely to be under-reported, seem relatively high, this may indicate that the LAP is experiencing concerning levels of unpermitted take. Considering this information, authorized take greater than 5 percent of the LAP, or qualitative indicators that suggest that unauthorized take may exceed 10 percent of the LAP, or qualitative indicators of relatively high levels of take from one source, could trigger additional environmental analysis to determine whether issuance of the permit for a particular project is compatible with the preservation of eagles.

6.1. Local Area Population Analysis

We used the Service's Cumulative Effects Tool to conduct the LAP analysis for each species under Alternatives 2 and 3, which we describe in detail below. Each analysis incorporates both records of federal eagle take permits issued (i.e. authorized take) and unpermitted eagle mortality records that are available to the Service.

6.1.1. GOLDEN EAGLES

The Golden Eagle LAP for the Project overlaps and is composed of eagles in two golden eagle Local Area Density Units (LADUs²) – the Great Basin and Northern Rocky Mountains. Based on the densities in each of those units, we estimate this LAP to contain approximately 859 golden eagles; the 1%, 5% and 10% benchmarks for this estimate are approximately 8.59, 42.97, and 85.94 golden eagles, respectively (Table 6).

6.1.2. BALD EAGLES

The Bald Eagle LAP overlaps and is composed of eagles in two LADUs - the Pacific and Northern Rocky Mountains EMUs. Based on the density in those units, we estimated this LAP to contain approximately 466 bald eagles. The 1%, 5% and 10% benchmarks of this estimate are approximately 4.66, 23.28, and 46.56 bald eagles, respectively.

Table 6. Estimated Golden Eagle and Bald Eagle Local Area Population (LAP) for the Elkhorn Valley Project.

LADU	Estimated Number of Golden Eagles	Estimated Number of Bald Eagles
Great Basin (portion of LAP)	308.83	N/A
Northern Rockies (portion of LAP)	550.61	9.96
Pacific (portion of the LAP)	N/A	455.62
Total Local Area Population	859.44	465.58
1% LAP Benchmark	8.59	4.66
5% LAP Benchmark	42.97	23.28
10% LAP Benchmark	85.94	46.56

² LADUs are the smallest geographic unit for which we have reliable eagle density estimates. Densities in these LADUs are used to estimate the total size of the LAP.

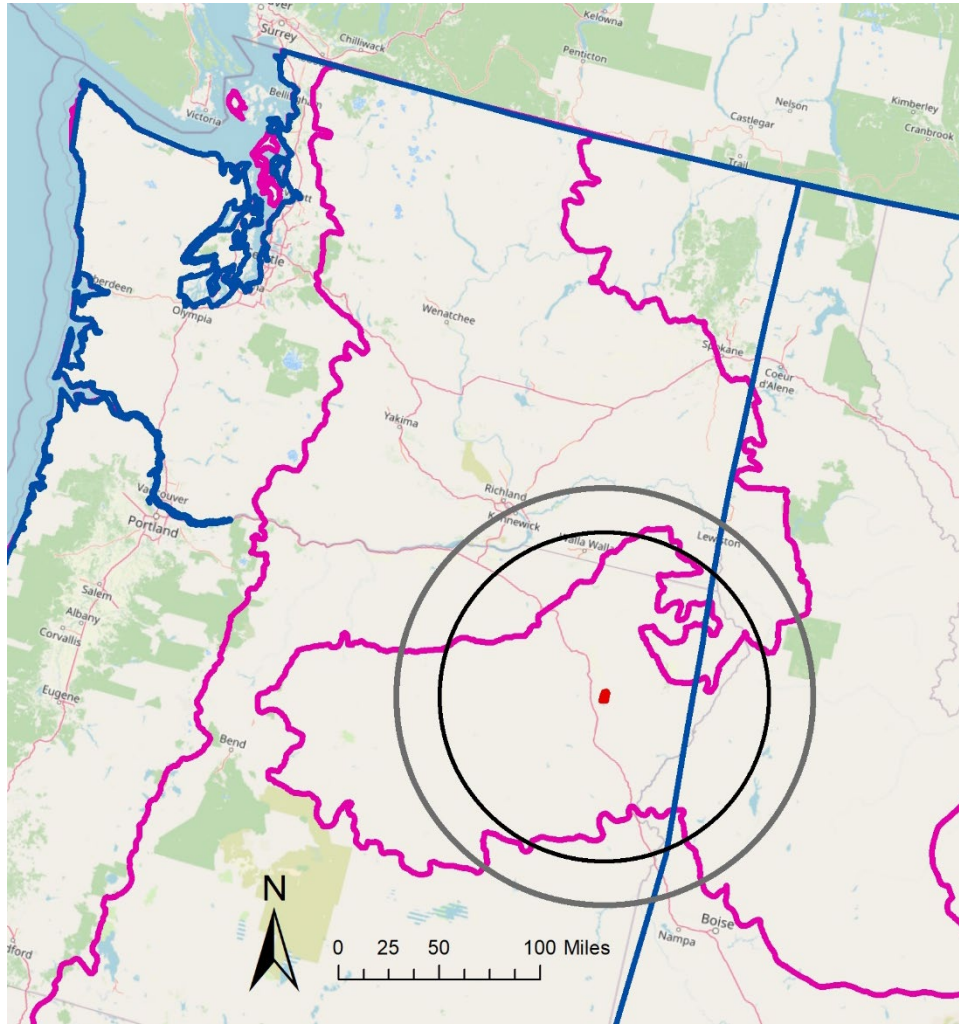


Figure 3. The Project Local Area Population (109 mi. radius circle in black for golden eagles, 86 mi. radius circle in gray for bald eagles). The Project footprint in red. The Golden Eagle LADU boundary in magenta, Bald Eagle LADU in blue.

6.2. Authorized Take

6.2.1. GOLDEN EAGLES

At the time of this EA, the Service has authorized the annual take of approximately 1.8 golden eagles that overlaps the species-specific LAP for the Project. The Service has also received applications for additional eagle take at other wind projects that have LAPs that overlap the Project’s golden eagle LAP. Although take may be authorized at those projects eventually, the predicted take for golden eagles at those projects is not considered in the following analysis.

The projected annual total of permitted golden eagle fatalities within the LAP, should Alternative 2 or 3 be selected, is 4.98. These values are calculated by adding the predicted annual take at the focal Project (3.18) to the previously authorized annual take approximation in the above

paragraph that overlaps the LAP (1.8). Under Alternatives 2 and 3, permitted golden eagle take would be approximately 0.58% of the LAP, which is below the 1% threshold.

6.2.2. BALD EAGLES

At the time of this EA, the Service has authorized the annual take of approximately 1.11 bald eagles that overlaps the species-specific LAP for the Project. The Service has also received applications for additional eagle take at other wind projects that have LAPs that overlap the Project's Bald Eagle LAP. Although take may be authorized at those projects eventually, the predicted take for bald eagles at these projects is not considered in the following analysis.

The projected annual total of permitted bald eagle fatalities within the LAP, should Alternative 2 or 3 be selected, is 1.36, including the Project. Under Alternatives 2 and 3, this permitted bald eagle take would be approximately 0.29% of the LAP, which is below the 1% threshold.

6.3. Unauthorized Take

An important caveat that comes with the Service's unauthorized take database is that it primarily includes records of take that have been discovered and reported incidental to other activities. Some industries have found and self-reported incidental eagle mortalities at a higher rate than others, and some types of eagle mortalities (e.g., from vehicle collision) lend themselves to better incidental discovery and reporting while mortalities that typically occur in remote locations are unlikely to be discovered. Thus, some causes of mortality (e.g., poisoning), may be under-represented in our database. However, the information presented below is the best information available to us regarding eagle mortalities within the LAP.

When conducting the unauthorized take analysis in the Project LAP, we used eagle mortality records from the Service's database (Table 7) within the average species-specific natal dispersal distance for the most recent 10-year period (2010 – 2019). We used this period because it seems likely that annual rates of fatalities by cause and annual rates of reporting those fatalities by cause may have changed over the last half-century. For example, it seems likely that increased knowledge of how to reduce avian electrocutions may have altered the rate at which electrocutions have occurred over time. Concurrently, an increased awareness of the issue may have altered the level of reporting.

6.3.1. GOLDEN EAGLES

Based on the records in the Service's eagle mortality database there were 176 unauthorized anthropogenic golden eagle mortalities within 109 miles of the Project from 2011 to 2020 (Table 7). Of the known anthropogenic causes of mortality for golden eagles, 74 (42.0%) were due to unknown cause, 42 (23.9%) were due to electrocution, and 29 (16.5%) were due to collision with a wind turbine.

Although many of the available golden eagle mortality records from the Service's database are related to strikes by wind turbines and electrocutions, we cannot say that these sources of eagle

mortality are more prevalent on the landscape and more important drivers of eagle populations than other anthropogenic sources of mortality due to the inconsistency in recovery probability. A better range-wide perspective of golden eagle mortality comes from research using satellite telemetry marked birds. The Service (USFWS 2016c) reported the known cause of mortality for 97 of 139 recovered radio telemetered eagles. In the study, approximately 11% of the mortalities were attributable to electrocution, 11% were shot and approximately 7% were killed due to collisions. In the report, collisions are pooled together; however, in checking with the author these were primarily composed of vehicle and wire collisions and none of the telemetered eagle deaths were associated with wind turbine collisions (B. Millsap, USFWS, pers. comm. 2018). We believe it is likely that eagle mortalities due to non-wind turbine collisions, shooting, or poisoning are under-reported in the Project LAP, primarily from differences in recovery probability. This further illustrates a bias with these mortality records since there is not a systematic mortality survey effort.

With these potential biases in mind, we used all data available to the Service from 2011 to 2020 to calculate the annual unpermitted eagle take rate documented within the LAP. From this analysis, the Service calculates that we know of approximately 17.8 anthropogenic golden eagle mortalities per year in the Project LAP. This unpermitted take would be approximately 2.05% of the Project LAP. This conservative percentage is below the 10% benchmark and does not suggest that recurring anthropogenic take near the Project is negatively affecting the LAP.

6.3.2. BALD EAGLES

Based on the records in the Service's eagle mortality database there were 37 unauthorized anthropogenic bald eagle mortalities within 86 miles of the Project from 2011 to 2020 (Table 7). Of the known anthropogenic causes of mortality for bald eagles, 13 (35.1%) were due to an unknown cause, 11 (29.7%) were due to electrocution, 6 (16.2%) were due to collision with a vehicle (Table 7). The same biases may exist in the Service's bald eagle datasets as do with the golden eagle datasets.

With these potential biases in mind, we used all data available to the Service from 2011 to 2020 to calculate the annual unpermitted eagle take rate documented within the LAP. From this analysis, the Service calculates that approximately 3.7 annual bald eagle mortalities may influence the LAP. This unpermitted take would be approximately 0.79% of the Project LAP. This conservative percentage is below the 10% benchmark and does not suggest that recurring anthropogenic take near the Project is negatively affecting the LAP.

Table 7. Known unauthorized golden eagle and bald eagle mortalities.

Source	Golden Eagles		Bald Eagles	
	Number of Fatalities ^{1,2}	Number of Fatalities (Annual)	Number of Fatalities ^{1,2}	Number of Fatalities (Annual)
Electrocution	42	4.2	11	1.1
Poisoning ³	3	0.3	0	0
Shooting	10	1.0	0	0
Collision with Wind Turbines	29	2.9	1	0.1
Collision with Vehicle	4	0.4	6	0.6
Collision (Wire/Other)	4	0.4	3	0.3
All other anthropogenic sources ⁴	84	8.4	16	1.6
Total	176	17.6	37	3.7
% of LAP	2.05		0.79	

¹This is the minimum number of unpermitted eagle fatalities discovered and/or reported. Likely more fatalities were not discovered and/or reported.

²Reporting period is 2011-2020.

³Sources of poisoning include lead, pesticide, and other sources.

⁴All other anthropogenic sources include Other, Unknown, Determination Pending, and Trauma

6.3.3. SUMMARY

Under both action alternatives, authorizing the take of both golden eagles and bald eagles at this Project will lead to a cumulative permitted take of less than 5% of their respective LAPs. Further, we have no evidence to suggest that recurring unauthorized anthropogenic take of either species will exceed 10% of the LAPs and has reached concerning levels. Additionally, there is no evidence that there are concerning levels of take from any one source. Should we issue a permit under either action alternative, Telocaset is not required to compensate for golden eagle take, and bald eagle take will be within EMU take thresholds. In addition, Telocaset will be required to provide sufficient monitoring, adaptive management, and operational measures that should serve to keep any incidental eagle take at the Project within authorized levels and consistent with the Service's preservation standard for eagles.

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Appendices

All appendices for this Project (and other long-term eagle take permits) are available online at:
<https://www.fws.gov/pacific/migratorybirds/Library/wpanalyses.html>

Appendix A Eagle Conservation Plan, available at:

https://www.fws.gov/pacific/migratorybirds/PDF/Elkhorn_docs/Elkhorn_Appendix_A.pdf

Appendix B Bayesian Eagle Collision Risk Model, available at:

https://www.fws.gov/pacific/migratorybirds/PDF/Elkhorn_docs/Elkhorn_Appendix_B.pdf

Appendix C List of Preparers, available at:

https://www.fws.gov/pacific/migratorybirds/PDF/Elkhorn_docs/Elkhorn_Appendix_C.pdf