Oregon
Tina Kotek, Governor

OREGON DEPARTMENT OF ENERGY

550 Capitol St. NE
Salem, OR 97301
Phone: 503-378-4040
Toll Free: 1-800-221-8035
FAX: 503-373-7806
www.oregon.gov/energy

To: Oregon Energy Facility Siting Council

From: Sarah Esterson, Senior Policy Advisor

Date: August 17, 2023

Subject: Biglow Canyon Wind Farm – Annual Monitoring for Wildlife Monitoring and Mitigation Plan (Condition 61)

Attachments: Wildlife Monitoring and Mitigation Plan (May 10, 2007)
Annual Wildlife Monitoring Report (2022)

Purpose

The Oregon Department of Energy (Department) prepared this staff report for the Energy Facility Siting Council to summarize the results of ongoing wildlife monitoring and results at Leaning Juniper IIB Wind Power Facility. The Department is required to make available the actual results and allow for public comment. This staff report supports both Council and the public's understanding of the results and of their opportunity to review and comment.

Wildlife Monitoring and Mitigation Plan Overview

Biglow Canyon Wind Farm is a wind energy generation facility consisting of 217 wind turbines, with a peak generating capacity of 450 megawatts (MW). The facility is located in Sherman County, approximately 2.5 miles northeast of the town of Wasco. The Council issued a site certificate for the facility in 2006.

Condition 61 of the site certificate states that, "The certificate shall conduct wildlife monitoring and mitigation in accordance with the Wildlife Monitoring and Mitigation Plan (WMMP) that is incorporated in the Final Order on Amendment #2 as Attachment A and as may be amended from time to time."

The WMMP requires that the certificate holder implement short- and long-term wildlife monitoring during facility operation. Short-term wildlife monitoring requirements include a 2-year post construction Bird and Bat Fatality Monitoring Program and Avian Use and Behavior Surveys; both of these wildlife monitoring activities were completed in 2010-12. On-going long-

term wildlife monitoring requirements include:

- Long-Term Raptor Nesting Surveys (Every 5-years for operational life of facility; 2012, 2017, 2022, etc.)
- Wildlife Incident Response and Handling System (Ongoing)

Long-Term Raptor Nesting Surveys

Raptor nesting surveys are required to be completed for the life of the facility, on a 5-year cycle. Raptor nesting surveys were completed in 2022; the next raptor nesting survey will be completed in 2027. The objectives of raptor nesting surveys are to estimate the size of local breeding populations of tree or other above ground-nesting raptor species within a 2-mile radius of the facility, and to determine whether facility operation is contributing to a reduction in nesting activity or nesting success in local populations of the Swainson's hawk (*Buteo swainsoni*), ferruginous hawk (*Buteo regalis*) and golden eagle (*Aquila chrysaeto*). A summary of raptor nesting survey results to date is presented in Table 1 below.

Table 1: Long-Term Raptor Nesting Survey Results for Biglow Canyon Wind Farm

Nest Status	**2006**	**2012**	**2017**	**2022**
Located Nests	28	24	22	23
Occupied Nests	10	13	11	16
Species	**2006**	**2012**	**2017**	**2022**
Swainson's Hawk	3	3	3	1
Red-tailed Hawk	7	7	7	9
Great Horned Owl	0	2	1	4
Common Raven	0	1	0	1

Based on the long-term raptor nesting surveys to date, there has been an increase in the total raptor breeding populations from 2006 to 2022. In 2022, there was an increase in the number of red-tailed hawk nests (9) and a decrease in the number of Swainson's hawk nests (one), but the overall number of hawk nests remained the same as all previous surveys.

Comparison of five-year post-construction surveys show variability in nesting success between survey years both within each species and for all species combined. In 2022, nesting success, ratio of successful to occupied nests, and number of young fledged was equal to or above the mean for golden eagles, great horned owls, red-tailed hawks, and all species combined. The single Swainson's hawk nest was predated, and no young were produced in the survey area. All measures of productivity were below the post-construction mean for this species. This lack of productivity is at least partially the result of interactions between species including nest predation and nest site competition. Productivity data for Swainson's hawks should be interpreted cautiously at this time due to the small sample size and incomplete data set. The next raptor survey is scheduled for 2027.

Wildlife Incident Response and Handling System

The Wildlife Incident Response and Handling System is a program for responding to and handling avian and bat injuries and fatalities found by personnel at the project site during construction and routine maintenance operations. PGE maintains an Oregon Department of Fish & Wildlife

(ODFW) Scientific Take Permit (#051-20, Attachment A) and a U.S. Fish and Wildlife Service (USFWS) Migratory Bird Special Purpose Permit (#MB65566B-0) to lawfully collect and handle protected birds and bats. In May 2020, PGE received its Biglow Canyon Long-term Eagle Incidental Take Permit (ITP) (#MB63507B-2) from the USFWS. Additional surveys by a third-party contractor began onsite in August 2020 and will continue through August 2023. Consistent with permit requirements, PGE filed annual reports with ODFW and USFWS for bird and bat incidents reported in 2022 at the facility. In 2022, PGE site staff also attended annual compliance training which includes bird and bat handling instruction and eagle take permit compliance requirements.

Two avian fatalities were reported in 2022, including one red-tailed hawk and one ring-necked pheasant. Incidents were found both incidentally by onsite staff and during the third-party fatality monitoring studies being conducted under the ITP. The annual permit reports were electronically filed with ODFW and USFWS.

Public Comments on Wildlife Monitoring Results

Section 5 of the WMMP, Data Reporting, establishes an opportunity for the public to review and comment on monitoring results. Specifically, the WMMP states, "The public will have an opportunity to receive information about monitoring results and to offer comment. Within 30 days after receiving the annual report of monitoring results, the Department will make the report available to the public on its website and will specify a time in which the public may submit comments to the Department."

The Department received the annual monitoring results for the facility on April 29, 2023. In accordance with the terms of the WMMP, the Department provides a copy of the 2022 monitoring results for the Biglow Canyon Wind Farm to the Council for review (attached) and posted a copy to the Department's project website at: http://www.oregon.gov/energy/facilities-safety/facilities/Pages/BCW.aspx and has established 60-day timeframe to accept public comments.

Comments are due within 60-days of posting, or **October 13, 2023 at 5:00 p.m.** and may be submitted to Sarah Esterson at sarah.esterson@energy.oregon.gov

Attachments: Wildlife Monitoring and Mitigation Plan (May 10, 2007)
Annual Wildlife Monitoring Report (2022)

Wildlife Monitoring and Mitigation Plan (May 10, 2007)

BIGLOW CANYON WIND FARM: WILDLIFE MONITORING AND MITIGATION PLAN
[MAY 10, 2007]

This plan describes wildlife monitoring that the certificate holder shall conduct during operation of the Biglow Canyon Wind Farm (BCWF).[1] The monitoring objectives are to determine whether operation of the facility causes significant fatalities of birds and bats and to determine whether the facility results in a loss of habitat quality. The BCWF facility consists of up to 225 wind turbines with a maximum generating capacity of 450 MW, up to 10 permanent meteorological towers and other related or supporting facilities as described in the site certificate. The BCWF will be built in phases.

The certificate holder shall use experienced personnel to manage the monitoring required under this plan and properly trained personnel to conduct the monitoring, subject to approval by the Oregon Department of Energy (Department) as to professional qualifications. For all components of this plan except the Raptor Nesting Surveys and the Wildlife Incident Response and Handling System, the certificate holder shall direct a qualified independent third-party biological monitor, as approved by the Department, to perform monitoring tasks.

The Wildlife Monitoring and Mitigation Plan for the BCWF has the following components:

1) Fatality Monitoring Program including:
    a) Removal Trials
    b) Searcher Efficiency Trials
    c) Fatality Monitoring Search Protocol
    d) Statistical Analysis
2) Raptor Nesting Surveys
3) Avian Use and Behavior Surveys
4) Wildlife Incident Response and Handling System

Following is a discussion of the components of the monitoring plan, statistical analysis methods for fatality data, data reporting and potential mitigation.

The selection of the mitigation actions that the certificate holder may be required to implement under this plan should allow for flexibility in creating appropriate responses to monitoring results that cannot be known in advance. If the Department determines that mitigation is needed, the certificate holder shall propose appropriate mitigation actions to the Department and shall carry out mitigation actions approved by the Department, subject to review by the Oregon Energy Facility Council (Council).

[1] This plan is incorporated by reference in the site certificate for the BCWF and must be understood in that context. It is not a "stand-alone" document. This plan does not contain all mitigation required of the certificate holder.

1. Fatality Monitoring

(a) Definitions and Methods

Seasons

This plan uses the following dates for defining seasons:

Season	Dates
Spring Migration	March 16 to May 15
Summer/Breeding	May 16 to August 15
Fall Migration	August 16 to October 31
Winter	November 1 to March 15

Search Plots

The certificate holder shall conduct fatality monitoring within search plots. The certificate holder, in consultation with the Oregon Department of Fish and Wildlife (ODFW), shall select search plots based on the following sampling scheme, consistent with the sample size requirements for that phase of the facility, as outlined below: On each of the nine turbine strings that extend toward the John Day River, the certificate holder shall include in search plots the two turbines closest to the river for each phase in which these turbines are built. In addition, the certificate holder shall include, for each phase, representative turbines distributed throughout the site, consistent with the sample size described below. Each search plot will contain one turbine. Search plots will be square or circular. Circular search plots will be centered on the turbine location and will have a radius equal to the maximum blade tip height of the turbine contained within the plot. "Maximum blade tip height" is the turbine hub-height plus one-half the rotor diameter. Square search plots will be of sufficient size to contain a circular search plot as described above.

The certificate holder shall provide maps of the search plots to the Department and ODFW before beginning fatality monitoring at the facility. The certificate holder will use the same search plots for each search conducted during each monitoring year. During the second monitoring year, the same end-of-row turbines nearest the John Day River will be sampled, but the other search plots will be selected from the turbines not sampled during the first monitoring year.

Sample Size

The sample size for fatality monitoring is the number of turbines searched per monitoring year. The facility will be built in phases. For the first phase of development (in which 76 turbines will be built), the certificate holder shall conduct fatality monitoring during the first two monitoring years in search plots that include 50 turbines.

The sample size for future phases of the facility, if they are built, will include search plots for a minimum of 40 percent of the wind turbines in that phase but not fewer than 50 turbines, unless the entire phase is fewer than 50 turbines, in which event all turbines will be sampled. The sample size might be larger if, under Section 1(g) of this plan, mitigation is required based on the results of fatality monitoring of the first phase.

If no mitigation is required under Section 1(g) of this plan based on the results of fatality monitoring of the first phase, then the sample size for monitoring future phases of the facility may be reduced appropriately if the Department concurs.

If mitigation is required under Section 1(g) of this plan based on the results of fatality monitoring of the first phase, then the certificate holder shall propose an appropriate sample size for monitoring the next phase of the facility. The need for, and scope of, fatality monitoring for subsequent phases are subject to the approval of the Department.

Scheduling and Sampling Frequency

Fatality monitoring will begin upon the commencement of commercial operation of the facility. Fatality monitoring for each subsequent phase will begin upon commercial operation of that phase.

For each phase, the first fatality monitoring year will commence on the first day of the month following the commercial operation date of that phase of the facility and will conclude twelve months later (for example, if commercial operation begins in October of 2007, the monitoring year will commence on November 1, 2007, and conclude on October 31, 2008). Subsequent monitoring years of that phase will follow the same schedule (for example, the second monitoring year would begin November 1, 2008) unless the second fatality-monitoring year is postponed with the concurrence of the Department.

In each monitoring year, the certificate holder shall conduct fatality-monitoring searches at the rates of frequency shown below. Over the course of one monitoring year, the certificate holder would conduct 16 searches[2], as follows:

Season	Frequency
Spring Migration	2 searches per month (4 searches)
Summer/Breeding	1 search per month (3 searches)
Fall Migration	2 searches per month (5 searches)
Winter	1 search per month (4 searches)

Duration of Fatality Monitoring

Fatality monitoring of the first phase of the facility will be complete after two monitoring years, except as follows: A worst-case analysis will be used to resolve any uncertainty in the results of the two years of monitoring data for purposes of determining the mitigation requirements for the facility. If the first two years of monitoring data indicate the potential for unexpected impacts of a type that cannot be resolved appropriately by worst-case analysis and appropriate mitigation, additional, targeted monitoring may be conducted for the first phase of the facility for up to an additional two years before determining the mitigation requirements for the facility, or, alternatively, sample sizes larger than those outlined above will be used in monitoring of subsequent phases of development of the facility.

Meteorological Towers

The facility will most likely use non-guyed meteorological towers. Non-guyed towers are known to cause little if any bird and bat mortality. Therefore, monitoring will not occur at non-

[2] Fewer than 16 searches may be conducted if searches are not possible due to safety reasons or severe weather.

guyed meteorological towers. If the meteorological towers are guyed, the certificate holder shall search all towers on the same monitoring schedule as fatality monitoring. The certificate holder will use circular search plots. The radius of the circular search plots will extend a minimum of 5 meters beyond the most distant guy wire anchor point.

(b) Removal Trials

The objective of the removal trials is to estimate the length of time avian and bat carcasses remain in the search area. Carcass removal studies will be conducted during each season in the vicinity of the search plots. Estimates of carcass removal rates will be used to adjust carcass counts for removal bias. "Carcass removal" is the disappearance of a carcass from the search area due to predation, scavenging or other means such as farming activity. Removal rates will be estimated by size class, habitat and season.

During the first phase, the certificate holder shall conduct carcass removal trials within each of the seasons defined above during the years in which fatality monitoring occurs. During the first year in which fatality monitoring occurs, trials will occur in at least eight different calendar weeks in a year, with at least one calendar week between starting dates. Trials will be spread throughout the year to incorporate the effects of varying weather, farming practices and scavenger densities. At least two trials will be started in each season. Each trial will use at least 20 carcasses. For each trial, at least 5 small bird carcasses and at least 5 large bird carcasses will be distributed in cultivated agriculture habitat and at least 3 small bird carcasses and at least 3 large bird carcasses will be distributed in non-cultivated habitat (grassland/shrub-steppe and CRP). In a year, about 100 carcasses will be placed in cultivated agriculture and about 60 in non-cultivated grassland/shrub-steppe and CRP for a total of about 160 trial carcasses. The number of removal trials may be reduced to one per season (80 trial carcasses) during the second year of fatality monitoring, subject to approval by the Department, if the certificate holder can demonstrate that the calculation of fatality rates will continue to have statistical validity with the reduced sample size.

The need for, and scope of, removal trials for subsequent phases may be modified based on the variability of results of removal trials for the first phase, subject to the approval of the Department.

The "small bird" size class will use carcasses of house sparrows, starlings, commercially available game bird chicks or legally obtained native birds to simulate passerines. The "large bird" size class will use carcasses of raptors provided by agencies, commercially available adult game birds or cryptically colored chickens to simulate raptors, game birds and waterfowl. If fresh bat carcasses are available, they may also be used.

To avoid confusion with turbine-related fatalities, planted carcasses will not be placed in fatality monitoring search plots. Planted carcasses will be placed in the vicinity of search plots but not so near as to attract scavengers to the search plots. The planted carcasses will be located randomly within the carcass removal trial plots.

Carcasses will be placed in a variety of postures to simulate a range of conditions. For example, birds will be: 1) placed in an exposed posture (e.g., thrown over the shoulder), 2) hidden to simulate a crippled bird (e.g., placed beneath a shrub or tuft of grass) and, 3) partially hidden. Trial carcasses will be marked discreetly for recognition by searchers and other personnel. Trial carcasses will be left at the location until the end of the carcass removal trial.

It is expected that carcasses will be checked as follows, although actual intervals may vary. Carcasses will be checked for a period of 40 days to determine removal rates. They will be checked about every day for the first 4 days, and then on day 7, day 10, day 14, day 20, day 30 and day 40. This schedule may vary depending on weather and coordination with the other survey work. At the end of the 40-day period, the trial carcasses and scattered feathers will be removed.

(c) Searcher Efficiency Trials

The objective of searcher efficiency trials is to estimate the percentage of bird and bat fatalities that searchers are able to find. The certificate holder shall conduct searcher efficiency trials on the fatality monitoring search plots in both grassland/shrub-steppe and cultivated agriculture habitat types. Searcher efficiency will be estimated by size class, habitat type and season. Estimates of searcher efficiency will be used to adjust carcass counts for detection bias.

During the first phase, searcher efficiency trials will be conducted in each season as defined above, during the years in which the fatality monitoring occurs. Trials will be spread throughout the year to incorporate the effects of varying weather, farming practices and scavenger densities. At least two trials will be conducted in each season. Each trial will use about 20 carcasses, although the number will be variable so that the searcher will not know the total number of trial carcasses being used in any trial. For each trial, both small bird and large bird carcasses will be used in about equal numbers. "Small bird" and "large bird" size classes and carcass selection are as described above for the removal trials. A greater proportion of the trial carcasses will be distributed in cultivated agriculture habitat than in non-cultivated habitat (grassland/shrub steppe and CRP). In a year, about 100 carcasses will be placed in cultivated agriculture and about 60 in non-cultivated grassland/shrub steppe and CRP for a total of about 160 trial carcasses. The number of searcher efficiency trials may be reduced to one per season (80 trial carcasses) during the second year of fatality monitoring, subject to approval by the Department, if the certificate holder can demonstrate that the calculation of fatality rates will continue to have statistical validity with the reduced sample size.

The need for, and scope of, searcher efficiency trials for subsequent phases may be modified based on the variability of results of searcher efficiency trials for the first phase, subject to the approval of the Department.

Personnel conducting searches will not know in advance when trials are conducted; nor will they know the location of the trial carcasses. If suitable trial carcasses are available, trials during the fall season will include several small brown birds to simulate bat carcasses. Legally obtained bat carcasses will be used if available.

On the day of a standardized fatality monitoring search (described below) but before the beginning of the search, efficiency trial carcasses will be placed at random locations within areas to be searched. If scavengers appear attracted by placement of carcasses, the carcasses will be distributed before dawn.

Searcher efficiency trials will be spread over the entire season to incorporate effects of varying weather and vegetation growth. Carcasses will be placed in a variety of postures to simulate a range of conditions. For example, birds will be: 1) placed in an exposed posture (thrown over the shoulder), 2) hidden to simulate a crippled bird and 3) partially hidden.

Each non-domestic carcass will be discreetly marked so that it can be identified as an efficiency trial carcass after it is found. The number and location of the efficiency trial carcasses found during the carcass search will be recorded. The number of efficiency trial carcasses available for detection during each trial will be determined immediately after the trial by the person responsible for distributing the carcasses.

If new searchers are brought into the search team, additional detection trials will be conducted to ensure that detection rates incorporate searcher differences.

(d) Coordination with the Klondike III Wind Project

The proposed Klondike III Wind Project lies to the south of the BCWF on similar terrain and habitat. The Council has approved site certificates for both facilities and requires similar wildlife monitoring. Subject to the approval of both certificate holders and the Department, the number of trials at each site and the number of trial carcasses used at each site can be reduced by combining the removal data and efficiency data from both facilities, if the certificate holder can demonstrate that the calculation of fatality rates will continue to have statistical validity for both facilities and that combining the data will not affect any other requirements of the monitoring plans for either facility.

(e) Fatality Monitoring Search Protocol

The objective of fatality monitoring is to estimate the number of bird and bat fatalities that are attributable to facility operation and associated variances. The certificate holder shall conduct fatality monitoring using standardized carcass searches.

The certificate holder shall use a worst-case analysis to resolve any uncertainty in the results and to determine whether the data indicate that additional mitigation should be considered. The Department may require additional, targeted monitoring if the data indicate the potential for significant impacts that cannot be addressed by worst-case analysis and appropriate mitigation.

The certificate holder shall estimate the number of avian and bat fatalities attributable to operation of the facility based on the number of avian and bat fatalities found at the facility site. All carcasses located within areas surveyed, regardless of species, will be recorded and, if possible, a cause of death determined based on blind necropsy results. If a different cause of death is not apparent, the fatality will be attributed to facility operation. The total number of avian and bat carcasses will be estimated by adjusting for removal and searcher efficiency bias.

Personnel trained in proper search techniques ("the searchers") will conduct the carcass searches by walking parallel transects within the search plots.[3] Transects will be initially set at 6 meters apart in the area to be searched. A searcher will walk at a rate of about 45 to 60 meters per minute along each transect searching both sides out to three meters for casualties. Search area and speed may be adjusted by habitat type after evaluation of the first searcher efficiency trial. The searchers will record the condition of each carcass found, using the following condition categories:

- Intact – a carcass that is completely intact, is not badly decomposed and shows no sign of being fed upon by a predator or scavenger

[3] Where search plots are adjacent, the search area may be rectangular.

- Scavenged – an entire carcass that shows signs of being fed upon by a predator or scavenger, or portions of a carcass in one location (e.g., wings, skeletal remains, legs, pieces of skin, etc.)
- Feather Spot – 10 or more feathers at one location indicating predation or scavenging or 2 or more primary feathers

All carcasses (avian and bat) found during the standardized carcass searches will be photographed as found, recorded and labeled with a unique number. Distance from observer to the carcass will be measured (to the nearest 0.25 meters), as will the perpendicular distance from the transect line to the carcass. Each carcass will be bagged and frozen for future reference and possible necropsy. A copy of the data sheet for each carcass will be kept with the carcass at all times. For each carcass found, searchers will record species, sex and age when possible, date and time collected, location, condition (e.g., intact, scavenged, feather spot) and any comments that may indicate cause of death. Searchers will map the find on a detailed map of the search area showing the location of the wind turbines and associated facilities such as power lines. The certificate holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the U.S. Fish and Wildlife Service (USFWS). The certificate holder shall obtain appropriate collection permits from ODFW and USFWS.

The searchers might discover carcasses incidental to formal carcass searches (e.g., while driving within the project area). For each incidentally discovered carcass, the searcher shall identify, photograph, record data and collect the carcass as would be done for carcasses within the formal search sample during scheduled searches

If the incidentally discovered carcass is found within a formal search plot, the fatality data will be included in the calculation of fatality rates. If the incidentally discovered carcass is found outside a formal search plot, the data will be reported separately.

The certificate holder shall coordinate collection of incidentally discovered state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of incidentally discovered federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

The certificate holder shall develop and follow a protocol for handing injured birds. Any injured native birds found on the facility site will be carefully captured by a trained project biologist or technician and transported to Jean Cypher (wildlife rehabilitator) in The Dalles, the Blue Mountain Wildlife Rehabilitation Center in Pendleton or the Audubon Bird Care Center in Portland in a timely fashion.[4] The certificate holder shall pay costs, if any are charged, for time and expenses related to care and rehabilitation of injured native birds found on the site, unless the cause of injury is clearly demonstrated to be unrelated to the facility operations.

(f) Statistical Methods for Fatality Estimates

The estimate of the total number of wind facility-related fatalities is based on:

[4] The people and centers listed here may be changed with Department approval.

(1) The observed number of carcasses found during standardized searches during the two monitoring years for which the cause of death is attributed to the facility.[5]

(2) Searcher efficiency expressed as the proportion of planted carcasses found by searchers.

(3) Non-removal rates expressed as the estimated average probability a carcass is expected to remain in the study area and be available for detection by the searchers during the entire survey period.

Definition of Variables

The following variables are used in the equations below:

c_i	the number of carcasses detected at plot i for the study period of interest (e.g., one year) for which the cause of death is either unknown or is attributed to the facility
n	the number of search plots
k	the number of turbines searched (includes the turbines centered within each search plot and a proportion of the number of turbines adjacent to search plots to account for the effect of adjacent turbines on the 90-meter search plot buffer area)
$\bar{c}$	the average number of carcasses observed per turbine per year
s	the number of carcasses used in removal trials
s_c	the number of carcasses in removal trials that remain in the study area after 40 days
se	standard error (square of the sample variance of the mean)
t_i	the time (days) a carcass remains in the study area before it is removed
$\bar{t}$	the average time (days) a carcass remains in the study area before it is removed
d	the total number of carcasses placed in searcher efficiency trials
p	the estimated proportion of detectable carcasses found by searchers
I	the average interval between searches in days
$\hat{\pi}$	the estimated probability that a carcass is both available to be found during a search and is found
m_t	the estimated annual average number of fatalities per turbine per year, adjusted for removal and observer detection bias
C	nameplate energy output of turbine in megawatts (MW)

Observed Number of Carcasses

The estimated average number of carcasses ($\bar{c}$) observed per turbine per year is:

[5] If a different cause of death is not apparent, the fatality will be attributed to facility operation.

$$\bar{c} = \frac{\sum_{i=1}^{n} c_i}{k}. \quad (1)$$

Estimation of Carcass Removal

Estimates of carcass removal are used to adjust carcass counts for removal bias. Mean carcass removal time ($\bar{t}$) is the average length of time a carcass remains at the site before it is removed:

$$\bar{t} = \frac{\sum_{i=1}^{s} t_i}{s - s_c}. \quad (2)$$

This estimator is the maximum likelihood estimator assuming the removal times follow an exponential distribution and there is right-censoring of data. Any trial carcasses still remaining at 40 days are collected, yielding censored observations at 40 days. If all trial carcasses are removed before the end of the trial, then s_c is 0, and $\bar{t}$ is just the arithmetic average of the removal times. Removal rates will be estimated by carcass size (small and large) and season.

Estimation of Observer Detection Rates

Observer detection rates (i.e., searcher efficiency rates) are expressed as p, the proportion of trial carcasses that are detected by searchers. Observer detection rates will be estimated by carcass size and season.

Estimation of Facility-Related Fatality Rates

The estimated per turbine annual fatality rate (m_t) is calculated by:

$$m_t = \frac{\bar{c}}{\hat{\pi}}, \quad (3)$$

where $\hat{\pi}$ includes adjustments for both carcass removal (from scavenging and other means) and observer detection bias assuming that the carcass removal times t_i follow an exponential distribution unless a different assumption about carcass removal is made with the approval of the Department. Under these assumptions, this detection probability is estimated by:

$$\hat{\pi} = \frac{\bar{t} \cdot p}{I} \cdot \left[\frac{\exp\left(I/\bar{t}\right) - 1}{\exp\left(I/\bar{t}\right) - 1 + p} \right]. \quad (4)$$

The estimated per MW annual fatality rate (m) is calculated by:

$$m = \frac{m_t}{C}. \quad (5)$$

The certificate holder shall calculate fatality estimates for: (1) all birds, (2) small birds, (3) large birds, (4) raptors, (5) target grassland birds, (6) nocturnal avian migrants, 7) avian State Sensitive Species listed under OAR 635-100-0040, and 8) bats. The final reported estimates of m, associated standard errors and 90% confidence intervals will be calculated using bootstrapping (Manly 1997). Bootstrapping is a computer simulation technique that is useful for

calculating point estimates, variances and confidence intervals for complicated test statistics. For each iteration of the bootstrap, the plots will be sampled with replacement, trial carcasses will be sampled with replacement and $\bar{c}$, $\bar{t}$, p, $\hat{\pi}$ and m will be calculated. A total of 5,000 bootstrap iterations will be used. The reported estimates will be the means of the 5,000 bootstrap estimates. The standard deviation of the bootstrap estimates is the estimated standard error. The lower 5th and upper 95th percentiles of the 5000 bootstrap estimates are estimates of the lower limit and upper limit of 90% confidence intervals.

Nocturnal Migrant and Bat Fatalities

Differences in observed nocturnal avian migrant and bat fatality rates for lit turbines, unlit turbines that are adjacent to lit turbines, and unlit turbines that are not adjacent to lit turbines will be compared graphically and statistically.

(g) Mitigation

Mitigation may be appropriate if analysis of the fatality data collected after two monitoring years shows fatality rates for avian species that exceed a threshold of concern. For the purpose of determining whether a threshold has been exceeded, the certificate holder shall calculate the average annual fatality rates for the species groups after the initial two years of monitoring. Based on current knowledge of the species that are likely to use the habitat in the area of the facility, the following thresholds apply to the BCWF:

Species Group	**Threshold of Concern** (fatalities per MW)
Raptors (All eagles, hawks, falcons and owls, including burrowing owls.)	0.09
Raptor species of special concern (Swainson's hawk, ferruginous hawk, peregrine falcon, golden eagle, bald eagle, burrowing owl and any federal threatened or endangered raptor species.)	0.06
Target grassland birds (All native bird species that rely on grassland habitat and are either resident species, occurring year round, or species that nest in the area, excluding horned lark, burrowing owl and northern harrier.)	0.59
State sensitive avian species listed under OAR 635-100-0040 (Excluding raptors listed above.)	0.20
Bat species as a group	2.50
Guyed Meteorological Tower Mortality	
Raptor T&E species and raptor species of special concern, as a group (Swainson's hawk, ferruginous hawk, golden eagle and burrowing owl; bald eagle, peregrine falcon, and any other federal threatened or endangered raptor species)	0.20/ guyed tower
Avian State Sensitive Species listed under OAR 635-100-0040 (Excluding raptors)	0.20/ guyed tower

In addition, mitigation may be appropriate if fatality rates for individual species (especially State Sensitive Species) are higher than expected and at a level of biological concern. If the data show that a threshold of concern for a species group has been exceeded or that the fatality rate for any individual species is at a level of biological concern, mitigation shall be required if the Department determines that mitigation is appropriate based on analysis of the data and any other significant information available at the time. If mitigation is appropriate, the certificate holder, in consultation with ODFW, shall propose mitigation measures designed to

benefit the affected species. This may take into consideration whether mitigation required or provided for other impacts, such as raptor nesting or grassland bird displacement, would also benefit the affected species.

The certificate holder shall implement mitigation as approved by the Council. The Department may recommend additional, targeted data collection if the need for mitigation is unclear based on the information available at the time. The certificate holder shall implement such data collection as approved by the Council.

Mitigation shall be designed to benefit the affected species group. Mitigation may include, but is not limited to, protection of nesting habitat for the affected group of native species through a conservation easement or similar agreement. Tracts of land that are intact and functional for wildlife are preferable to degraded habitat areas. Preference should be given to protection of land that would otherwise be subject to development or use that would diminish the wildlife value of the land. In addition, mitigation measures might include: enhancement of the protected tract by weed removal and control; increasing the diversity of native grasses and forbs; planting sagebrush or other shrubs; constructing and maintaining artificial nest structures for raptors; reducing cattle grazing; improving wildfire response; and local research that would aid in understanding more about the species and conservation needs.

If the threshold for bats species as a group is exceeded, the certificate holder shall contribute to Bat Conservation International or to a Pacific Northwest bat conservation group ($10,000 per year for three years) to fund new or ongoing research in the Pacific Northwest to better understand impacts to the bat species impacted by the facility and to develop possible ways to reduce impacts to the affected species.

In addition, mitigation may be appropriate if fatality rates for a State Sensitive bat species listed under OAR 635-100-0040 are higher than expected and at a level of concern. If the data show that a threshold of concern for a species group has been exceeded or that the fatality rate for any individual species is at a level of concern, mitigation shall be required if the Department determines that mitigation is appropriate based on analysis of the data and any other significant information available at the time. If mitigation is appropriate, the certificate holder, in consultation with ODFW, shall propose mitigation measures designed to benefit the affected species. The certificate holder shall implement mitigation as approved by the Council.

2. Raptor Nest Surveys

The objectives of raptor nest surveys are to estimate the size of the local breeding populations of tree or other above-ground-nesting raptor species in the vicinity of the facility and to determine whether operation of the facility results in a reduction of nesting activity or nesting success in the local populations of the following raptor species: Swainson's hawk, ferruginous hawk and golden eagle. The certificate holder shall direct a qualified biologist, approved by the Department, to conduct the raptor nest surveys. The Department has approved the qualifications of the four biologists identified in the Final Order on Amendment #2. The certificate holder may select other qualified biologists to conduct the raptor nest surveys, subject to Department approval.

(a) Survey Protocol

For the species listed above, aerial and ground surveys will be used to gather nest success data on active nests, nests with young and young fledged. The certificate holder will share the

data with state and federal biologists. The certificate holder shall conduct two years of post-construction raptor nest surveys for each phase of construction and long-term raptor nest surveys for the completed facility during the sensitive nesting and breeding season. One year of post-construction surveys will be done in the first nesting season after construction of the phase is completed. The second year of post-construction surveys will be done after construction of the phase is completed at a time recommended by the certificate holder and approved by the Department. Long-term surveys will be conducted starting in the fifth year following completion of the last post-construction survey and each five years thereafter for the life of the facility. The certificate holder may collaborate with other certificate holders in the vicinity of the facility in the development of useful information about future impacts on raptor nesting activity and nesting success.

Prior to the raptor nesting surveys, the certificate holder shall review the locations of known raptor nests based on the BCWF and Klondike Wind Project pre-construction surveys as well as any nest survey data collected after construction. All known nest sites and any new nests observed within the BCWF site and within two miles of the BCWF site will be given identification numbers. Nest locations will be recorded on U.S. Geological Survey 7.5-minute quadrangle maps. Global positioning system coordinates will be recorded for each nest and integrated with the baseline database. Locations of inactive nests will also be recorded as they may become occupied during future years.

During each raptor nesting monitoring year, the certificate holder shall conduct a minimum of one helicopter survey in late May or early June within the BCWF site and a 2-mile zone around the turbines to determine nest occupancy. Determining nest occupancy will likely require two visits to each nest: The second visit may be done by air or by ground as appropriate. For occupied nests of the species identified above, the certificate holder shall determine nesting success by a minimum of one ground visit to determine species, number of young and nesting success. "Nesting success" means that the young have successfully fledged (the young are independent of the core nest site). Nests that cannot be monitored due to the landowner denying access will be checked from a distance where feasible.

(b) Mitigation

The certificate holder shall analyze the raptor nesting data collected after two monitoring years to determine whether a reduction in either nesting success or nest use has occurred in the vicinity of the BCWF. If the analysis indicates a reduction in nesting success by Swainson's hawk, ferruginous hawk or golden eagle within two miles of the facility (including the area within the BCWF site), then the certificate holder shall propose appropriate mitigation and shall implement mitigation as approved by the Council. At a minimum, if the analysis shows that any of these species has abandoned a nest territory within the facility site or within ½ mile of the facility site, or has not fledged any young over the two-year period within the facility site or within ½ mile of the facility site, the certificate holder shall assume the abandonment or unsuccessful fledging is the result of the facility unless another cause can be demonstrated convincingly. If the BCWF facility and the Klondike III facility are both required to provide mitigation for the same nest, the two certificate holders shall coordinate the required mitigation with the approval of the Department.

Given the very low buteo nesting densities in the area, statistical power to detect a relationship between distance from a wind turbine and nesting parameters (*e.g.*, number of

fledglings per reproductive pair) will be very low. Therefore, impacts may have to be judged based on trends in the data, results from other wind energy facility monitoring studies and literature on what is known regarding the populations in the region.

If the analysis shows that mitigation is appropriate, the certificate holder shall propose mitigation for the affected species in consultation with the Department and ODFW, and shall implement mitigation as approved by the Council. Mitigation should be designed to benefit the affected species or contribute to overall scientific knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may be designed to proceed in phases over several years. It may include, but is not limited to, additional raptor nest monitoring, protection of natural nest sites from human disturbance or cattle activity (preferably within the general area of the facility), or participation in research projects designed to improve scientific understanding of the needs of the affected species. Mitigation may take into consideration whether mitigation required or provided for other impacts, such as fatality impacts or grassland bird displacement, would also benefit the raptor species whose nesting success was adversely affected.

3. Avian Use and Behavior Surveys

The certificate holder shall conduct a before/after avian behavior and monitoring study to determine whether operation of the BCWF reduces bird use and abundance in the area (often referred to as displacement). The results of this study will aid in estimating indirect avian impacts of the BCWF and guide potential mitigation.

The before/after study will use two of the observation stations that were used during the baseline study (H and I) and two new survey stations (A5 and A6).[6] Avian use and behavior will be monitored at these four stations 6 times each month from November 2005 – August 15, 2006 (pre-construction period) and 6 times each month during two post-construction monitoring years (after construction of wind turbines located near these survey stations).[7]

These four stations are located in the northeastern portion of the BCWF area near the John Day River canyon. The areas surrounding these survey stations were subject to numerous micrositing decisions during facility layout. Primary micrositing decisions included shortening and re-orientating turbine corridors to avoid native habitat, maintaining a minimum one-mile distance from the centerline of the John Day River, and avoiding locating turbines on steep slopes.

Each survey will consist of one 30-minute observation period at each of these four stations using the same protocol that was used for baseline data collection. In particular, raptor and waterfowl use estimates and behavior relative to turbine locations and flight path maps will be compared between the pre- and post-construction periods to provide information on raptor and waterfowl displacement and to estimate indirect impacts on raptors and waterfowl. The phrase "behavior relative to turbine locations" is intended to address observations of behavior that is different near turbines compared to behavior away from turbines.

In addition to surveys at these four stations, searchers will also record bird species observed and their behavior relative to turbine locations before or after each standardized carcass

[6] The observation stations are identified in a report by Western EcoSystems Technology, Inc., "John Day Avian Studies for the Biglow Canyon Wind Farm Project, February 2007."

[7] Fewer than 6 monitoring sessions may be conducted if necessary due to safety reasons or severe weather.

search (as described in Section 1(e) above). Observations will be recorded during 5-minute surveys at each turbine sampled during the fatality monitoring program, using standard variable circular plot point count survey methods. Collection and recording of these additional observations of live birds will be carried out in a manner that does not distract searchers from carrying out the standardized carcass searches.

All of these avian use and behavior data, as well as raptor and waterfowl mortality observed at the turbines near these stations, will be used to understand direct and indirect impacts of the BCWF facility on raptors, waterfowl and other avian species. The certificate holder shall include an analysis of this data in the reports described in Section 5.

4. Biglow Wildlife Incident Response and Handling System

The Wildlife Incident Response and Handling System is a monitoring program set up for responding to and handling avian and bat casualties found by construction and maintenance personnel during construction and operation of the facility. This monitoring program includes the initial response, the handling and the reporting of bird and bat carcasses discovered incidental to construction and maintenance operations ("incidental finds"). Construction and maintenance personnel will be trained in the methods needed to carry out this program.

All carcasses discovered by construction or maintenance personnel will be photographed, recorded and collected.

If construction or maintenance personnel find carcasses within the plots for protocol searches, they will notify a qualified biologist, as approved by the Department, who will collect the carcasses. The fatality data will be included in the calculation of fatality rates.

If construction or maintenance personnel discover incidental finds that are not within plots for fatality monitoring protocol searches, they will notify a qualified biologist, as approved by the Department, and the carcass will be collected by a carcass-handling permittee (a person who is listed on state and federal scientific or salvage collection permits). Data for these incidental finds will be reported separately from standardized fatality monitoring data.

The certificate holder shall coordinate collection of state endangered, threatened, sensitive or other state protected species with ODFW. The certificate holder shall coordinate collection of federally-listed endangered or threatened species and Migratory Bird Treaty Act protected avian species with the USFWS.

5. Data Reporting

The certificate holder will report the monitoring data and analysis to the Department. Monitoring data include fatality monitoring program data, raptor nest survey data, avian use and behavior survey data and data on incidental finds by fatality searchers and BCWF personnel. The report may be included in the annual report required under OAR 345-026-0080 or may be submitted as a separate document at the same time the annual report is submitted. In addition, the certificate holder shall provide to the Department any data or record generated in carrying out this monitoring plan upon request by the Department.

The certificate holder shall immediately notify USFWS and ODFW, respectively, in the event that any federal or state endangered or threatened species are killed or injured on the facility site.

The public will have an opportunity to receive information about monitoring results and to offer comment. Within 30 days after receiving the annual report of monitoring results, the Department will make the report available to the public on its website and will specify a time in which the public may submit comments to the Department.[8]

6. Amendment of the Plan

This Wildlife Monitoring and Mitigation Plan may be amended from time to time by agreement of the certificate holder and the Council. Such amendments may be made without amendment of the site certificate. The Council authorizes the Department to agree to amendments to this plan and to mitigation actions that may be required under this plan. The Department shall notify the Council of all amendments and mitigation actions, and the Council retains the authority to approve, reject or modify any amendment of this plan or mitigation action agreed to by the Department.

[8] The certificate holder may establish a Technical Advisor Committee (TAC) but is not required to do so. If the certificate holder establishes a TAC, the TAC may offer comments to the Council about the results of the monitoring required under this plan.

Annual Wildlife Monitoring Report (2022)

Exhibit 3

Biglow Canyon Wind Farm

Wildlife Monitoring, Habitat Mitigation, and Revegetation

2022 Annual Report

Biglow Canyon Wind Farm
Wildlife Monitoring, Habitat Mitigation and Revegetation
2022 Monitoring Report

Final

Prepared by

Portland General Electric
Environmental Services
121 SW Salmon St.
Portland, Oregon 97204

April 2023

TABLE OF CONTENTS

TABLE OF TABLES

TABLE OF FIGURES

ATTACHMENTS

INTRODUCTION

The Site Certificate for Biglow Canyon Wind Farm (BCWF) (EFSC 2008B) requires mitigation and monitoring for facility impacts on wildlife and associated habitats. Three plans, incorporated by reference in the Site Certificate, describe in detail the mitigation and monitoring requirements. These include the Wildlife Monitoring and Mitigation Plan (Condition 61), Revegetation Plan (Condition 62), and Habitat Mitigation Plan (Condition 63). The following sections describe the activities conducted during 2022 in accordance with the three plans, as well as other Site Certificate wildlife-related requirements.

WILDLIFE MONITORING AND MITIGATION PLAN

The BCWF Wildlife Monitoring and Mitigation Plan describes wildlife monitoring that Portland General Electric (PGE) must conduct during operation of the facility, including: 1) avian and bat fatality monitoring; 2) raptor nesting surveys; 3) avian use and behavior surveys; and 4) wildlife incident response and handling (EFSC 2007). The bird and bat standardized fatality monitoring and avian use and behavior surveys were completed within the first two years after operations began for each phase, per requirements under the Site Certificate. Long-term raptor nest surveys are required every five years for the life of the facility and were completed again in 2022. PGE has used that data to analyze long term raptor breeding population trends during BCWF operation. Details of the annual Wildlife Incident Response and Handling System for 2022 are also reported below.

Raptor Nest Surveys

The objectives of raptor nesting surveys are to estimate the size of local breeding populations of tree nesting and other above ground-nesting raptor species within a two-mile radius of the BCWF facility, and to determine whether operation of the facility is contributing to a reduction in nesting activity or nesting success in local populations of Swainson's hawks (*Buteo swainsoni*), ferruginous hawks (*Buteo regalis*), and golden eagles (*Aquila chrysaetos*). PGE is required to conduct two years of post-construction raptor nest surveys for each phase of construction, which were completed between 2007 and 2011 as each phase of construction was completed. PGE is also required to conduct long-term nest surveys for the completed facility during the sensitive nesting and breeding season. Long-term surveys were first conducted in 2012 and will be repeated every five years thereafter for the life of the facility. The survey protocol for raptor nest surveys is described in Section 2 of the Wildlife Monitoring and Mitigation Plan for BCWF.

2022 Raptor Nesting Surveys

The third long-term raptor nest survey was conducted during 2022. Aerial (helicopter) nest surveys were conducted on April 1, May 11, June 15, and July 12 to search for active raptor nests within two miles of all BCWF turbine sites (Figure 1). In addition to searching suitable habitat within the survey area for new nests, all previously known nest sites were checked during the aerial surveys. Ground surveys were conducted on June 8 and July 7 to check the status of active nests and determine the final nesting outcome of nests visible from the ground. Additionally, with the permission of ODFW, a drone was used on August 3 to check one active Swainson's hawk nest that was not visible from the ground. Twenty-three nest sites were located during the surveys, of which 16 were occupied (Table 1). Most nests found were occupied by

red-tailed hawks (*Buteo jamaicensis*) and great horned owls (*Bubo virginianus*), with one nest each occupied by golden eagles, Swainson's hawks, and common ravens (*Corvus* corax). The golden eagle nest is located approximately 200 feet outside the two-mile survey area. The nest is included in the analysis due to its proximity to the buffer and because the nesting territory extends inside the buffer. Five nests not located during previous surveys were found during the 2022 surveys, of which three were active. GPS coordinates for new nests were recorded and each nest was assigned a number for tracking during future surveys. Productivity results for all raptor species are summarized in Table 2. Of note, the single Swainson's hawk nest contained two chicks that were approximately two weeks old during the July 12 survey. On the August 3 survey, the nest had been predated and a great horned owl was perched in the nest tree.

Table 1. Raptor nest survey summary for 2006 baseline survey and five-year long-term monitoring surveys within the two-mile survey area surrounding BCWF.

	Survey Year			
	2006[1]	**2012**	**2017**	**2022**
Located Nests	28	23	22	23
Occupied Nests	10	13	11	16
Unoccupied Nests	18	10	11	7
Historical Nests Not Located[2]	NA	20	21	33

[1]Preconstruction survey. [2]Cumulative total based on all previous nest locations at time of survey.

Table 2. Raptor nest occupancy and productivity for pre-construction (2006) and five-year post-construction (2012-2022) surveys.

Species	Year	No. Occupied Nests	No. Succesful Nests	Successful:Occupied	No. Young Fledged
Great horned owl	2006	0	--	--	--
	2012	2	2	1.00	5
	2017	1	1	1.00	1
	2022	4	4	1.00	7
	Mean (2012-2022)	2.3	2.3	1.00	4.3
Golden eagle	2006	--	--	--	--
	2012	--	--	--	--
	2017	0	0	--	0
	2022	1	1	1.00	2
	Mean (2017-2022)	0.5	0.5	--	1.0
Red-tailed hawk	2006	7	Unknown	--	Unknown
	2012	7	6	0.86	14
	2017	7	2	0.29	3
	2022	9	6	0.67	16
	Mean (2012-2022)	7.7	4.7	0.60	11.0
Swainson's hawk	2006	3	Unknown	--	Unknown
	2012	3	2	0.67	4
	2017	3	Unknown	--	Unknown
	2022	1	0	0.00	0
	Mean (2012-2022)	2.3	1.0	0.33	2.0
Common raven	2006	0	--	--	--
	2012	1	--	--	--
	2017	0	--	--	--
	2022	1	--	--	--
	Mean (2012-2022)	0.7	--	--	--
All species combined	2006	10	Unknown	--	Unknown
	2012	13	10	0.77	23
	2017[1]	11	3	0.38	4
	2022	16	11	0.69	25
	Mean (2012-2022)	13.3	8.0	0.61	17.3

[1]Final nesting outcome was not determined for Swainson's hawk nests; data is only included in nest occupancy calculations.

[2]Productivity data is not collected for common ravens.

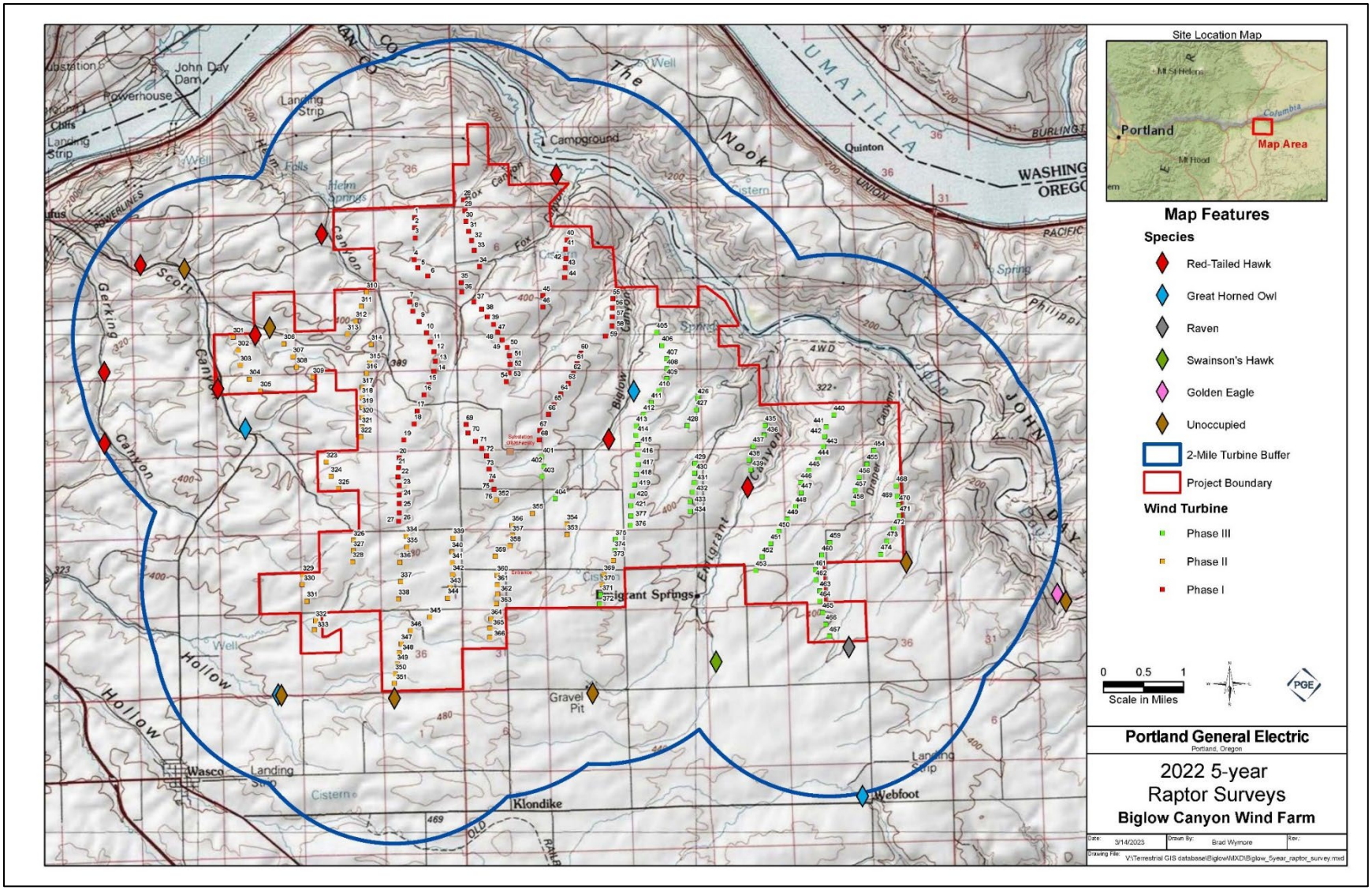

Figure 1. Raptor nests located during BCWF long-term raptor nesting surveys conducted in 2022.

Long-term Raptor Breeding Population Monitoring

The Wildlife Monitoring and Mitigation Plan for the project requires that the certificate holder analyze raptor nesting data for Swainson's and ferruginous hawks and golden eagles to determine whether a reduction in either nesting success or nest use has occurred in the vicinity of the BCWF during operation of the facility. Per the required schedule, PGE has conducted surveys every five years beginning in 2012. To determine if there has been any change in the local raptor breeding population, 2006 pre-construction raptor nest survey data was compared to long-term post-construction survey data (Table 2). The 2006 survey data did not include productivity information (i.e., nesting success) but does allow for a comparison of nest occupancy rates. Productivity is compared for the five-year post-construction surveys.

The nest occupancy data from the three long-term surveys indicates there has been an increase in the total raptor breeding population from the first survey in 2006 to the 2022 survey. In 2022, there was an increase in the number of red-tailed hawk nests (nine) and a decrease in the number of Swainson's hawk nests (one), but the overall number of hawk nests remained the same as all previous surveys. Two nest sites previously used by Swainson's hawks were occupied by other nesting birds: one by red-tailed hawks and one by common ravens. Similarly, a nest site previously used by red-tailed hawks was occupied by great horned owls. This suggests earlier nesting species are occupying prime nesting sites and may be excluding species that nest later in the season. The increase in red-tailed hawk and great horned owl nests in 2022 may help explain the decline in active Swainson's hawk nests. The golden eagle nesting site was first monitored in 2017 and was unoccupied, so there is limited occupancy data to compare for 2022. However, golden eagles did contribute to the overall increase in the raptor breeding population for 2022. No ferruginous hawks have nested in the survey area during any survey year.

Since the 2006 surveys did not collect data on productivity, no pre-construction versus post-construction productivity comparison is possible. Comparison of five-year post-construction surveys show variability in nesting success between survey years both within each species and for all species combined. In 2022, nesting success, ratio of successful to occupied nests, and number of young fledged was equal to or above the mean for golden eagles, great horned owls, red-tailed hawks, and all species combined. As previously mentioned, the single Swainson's hawk nest was predated, and no young were produced in the survey area. All measures of productivity were below the post-construction mean for this species. This lack of productivity is at least partially the result of interactions between species including nest predation and nest site competition. Productivity data for Swainson's hawks should be interpreted cautiously at this time due to the small sample size and incomplete data set. The next raptor survey is scheduled for 2027.

Wildlife Incident Response and Handling System

The Wildlife Incident Response and Handling System is a program for responding to and handling avian and bat injuries and fatalities found by personnel at the project site during construction and routine maintenance operations. PGE maintains an Oregon Department of Fish & Wildlife (ODFW) Scientific Take Permit (#028-22, Attachment A) and a U.S. Fish and Wildlife Service (USFWS) Migratory Bird Special Purpose Permit (MB# 47716B-1, Attachment B) to lawfully collect and handle protected birds and bats. In May 2020, PGE received its Biglow

Canyon Long-term Eagle Incidental Take Permit (#MB63507B-2, Attachment C) from the USFWS. Additional surveys by a third-party contractor began onsite in August 2020 and will continue through August 2023. Consistent with permit requirements, PGE filed annual reports with ODFW and USFWS for bird and bat incidents reported in 2022 at BCWF. PGE site staff attended annual compliance training, which includes bird and bat handling instruction and eagle take permit compliance requirements.

Two avian fatalities were reported in 2022, including one red-tailed hawk and one ring-necked pheasant (*Phasianus colchicus*). Both incidents were found during the third-party eagle fatality monitoring studies. The annual permit reports were electronically filed with ODFW and USFWS. Copies of the reports are available by contacting Lenna Cope (lenna.cope@pgn.com) or Kristi Boken (kristi.boken@pgn.com).

REVEGETATION PLAN

The BCWF Revegetation Plan describes methods and standards for revegetating areas temporarily disturbed during construction, maintenance, or repair of the facility (EFSC 2007). The objective is to restore temporarily disturbed areas to pre-construction condition or better. In addition to describing revegetation procedures, the plan also includes criteria for measuring revegetation success. Nine areas located within the project were identified for revegetation and subsequent monitoring after completion of construction. One site, near turbine 468, was not reseeded due to continual heavy livestock grazing and evidence of past cultivation (PGE 2017). Six of the eight monitoring sites were cultivated by the landowner after meeting revegetation criteria by 2013 (PGE 2022). The two remaining sites (Plot 7 and Plot 8) are dominated by native vegetation and did not show signs of degradation during 2021 monitoring. The Revegetation Plan calls for long term monitoring of the sites, at least every five years, to ensure habitat has not degraded. Long term monitoring was conducted in 2021 and will be conducted again in 2026.

HABITAT MITIGATION PLAN

The BCWF Habitat Mitigation Plan describes methods and standards for enhancement of a 117-acre mitigation site located near BCWF (EFSC 2008A). The Habitat Mitigation Plan identifies several enhancement measures intended to improve habitat quality in the mitigation area. As directed by the Habitat Mitigation Plan, PGE completed a detailed Habitat Mitigation Implementation Plan (PGE 2007). Consistent with the Implementation Plan, PGE conducted the following activities in the mitigation area in 2022: 1) monitoring the 11.92-acre reseeding site; 2) noxious weed surveys and treatments; 3) annual photo point monitoring of vegetation in the uplands and at the spring site; 4) inspection and maintenance of the livestock exclusion fence; 5) inspection and maintenance of the wildlife guzzler; 6) spring site enhancement monitoring; 7) wildlife use and breeding bird surveys; and 8) assessment of the overall condition of the mitigation site.

Seeding Site Monitoring

A goal of the Habitat Mitigation Plan is to mitigate the permanent loss of 11.92 acres of Category 3 and Category 4 habitats (ODFW Habitat Categories) at BCWF by improving habitat quality on a similar number of acres within the mitigation area. To accomplish this, 11.92 acres of existing Category 4 habitat in the mitigation area was seeded to achieve, over time, an

improvement in habitat quality to Category 2 and Category 3. The site has been treated with glyphosate herbicide repeatedly to reduce competition from annual grasses and seeded three times with little success to date. Previous reports detail the treatment methods and monitoring results. Noxious weeds at the reseeding site have been monitored and spot treated annually, including in 2022 (see Noxious Weed Survey and Treatments section).

Photo point (see Attachment E) and transect monitoring was conducted at the site in fall 2022. Based on field observations made during vegetation monitoring, bunchgrasses are slowly colonizing the seeding site and bunchgrass seedlings were noted during the surveys. Although pockets of desirable vegetation, such as bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg bluegrass (*Poa secunda* ssp. *juncifolia*), Western yarrow (*Achillea millefolium*), wavyleaf thistle (*Cirsium undulatum*), arrowleaf balsamroot (*Balsamorhiza sagittate*), rabbitbrush (*Chrysothamnus sp.*), and broom snakeweed (*Gutierrezia sarothrae*) are establishing in the seeding area, the transect data do not reflect this. The percentage of desirable vegetation in all transects remains largely unimproved since the 2019 seeding (Table 3). Annual non-native vegetation, specifically feral cereal rye, continues to dominate much of the seeding area and was detected in all transect plots (Table 4). Rush skeletonweed (*Chondrilla juncea*) was the only noxious weed detected during the monitoring and was found in just two of the 60 transect plots.

In response to multiple unsuccessful annual grass treatments and seeding attempts, PGE biologists met with ODFW for a mitigation area site visit in August 2022 to review past efforts and discuss next steps for the seeding area (see Attachment D). The primary issue in the seeding area is the density of cereal rye, which is outcompeting native vegetation for resources. The recent advent of pre-emergent herbicides that provide multiple years of winter annual grass control adds a new tool for weed management. Considering this development, all parties agreed to make another attempt at improving the site using new approaches and paying close attention to timing. An updated seeding plan has been developed in consultation with ODFW and was submitted to ODOE for approval in March 2023.

Table 3. Summary of seeding area transect (T) revegetation monitoring, 2013-2022.

	Percent Cover								
	Desirable Species			Undesirable Species[1]			Bareground & Litter[2]		
	T1	T2	T3	T1	T2	T3	T1	T2	T3
2013	5	3	6	85	92	86	10	5	8
2014	5	3	7	84	92	85	10	5	8
2015	6	4	8	85	91	85	9	5	7
2016	5	3	5	85	95	90	10	2	5
2021	9	2	3	39	55	52	52	43	45
2022	7	4	1	47	49	55	46	47	44

[1]Annual grasses and noxious weeds included in Undesirable Species category.

[2]Litter cover was not seperately categorized before 2021 and was previously included in the Undesirable category. This category change resulted in a large shift in Undesirable Species and Bareground & Litter between 2016 and 2021.

Table 4. Number of seeding area transect plots (20 per transect) containing desirable vegetation (desirable grasses/forbs, native shrubs), undesirable vegetation, and noxious weeds, 2022.

	Plot Count		
	Desirable Species	**Undesirable Species**	**Noxious Weeds**
Transect 1	12	20	0
Transect 2	11	20	0
Transect 3	5	20	2
Total All Transects	28	60	2

Noxious Weed Survey and Treatments

The Habitat Mitigation Plan directs PGE to control and/or eradicate noxious weeds at the habitat mitigation site. Management of noxious weeds involves several elements including surveys, control, prevention, and revegetation. Consistent with the Habitat Mitigation Implementation Plan, PGE conducted weed surveys and treatments in 2022. A total of 26 acres within the mitigation area were spot treated for diffuse knapweed (*Centaurea diffusa)* and rush skeletonweed in 2022 (Figure 2). Noxious weed densities remain low in the treatment areas. In addition, diffuse knapweed infestations that were previously treated along the access road to the site were treated again in 2022. Cereal rye, a Sherman County class "C" weed, remains abundant at the mitigation site. However, due to its widespread presence in the county, total eradication is not considered practical. Consequently, cereal rye is not currently a priority for control outside of the mitigation site seeding area, where it is inhibiting native species establishment. A single application of Rejuvra®, a pre-emergent herbicide that provides 2-3 years of control for cereal rye and other annual grasses, was experimentally applied to 9.4 acres within the seeding area prior to receiving fall precipitation (Figure 3). The effectiveness of this treatment will be monitored, and follow-up, selective herbicide treatments to control cereal rye will be applied in 2023, if needed.

Outside of the mitigation area, previous infestations of yellow star-thistle (*Centaurea solstitialis*) near turbines #439 and #405-409 were monitored; no plants were found in 2022. The areas will be monitored for at least two more years to ensure eradication. All weeds found in the gravel yards near the substation and office on Herin Lane were treated. PGE completed a total of 64 labor hours of weed surveys and treatments around BCWF and the mitigation area in 2022. This number is reflective of the many miles of turbine roads surveyed as well as the challenge of performing weed treatments on the remote and steep terrain within the mitigation area. Weed surveys and treatments will be conducted again in 2023.

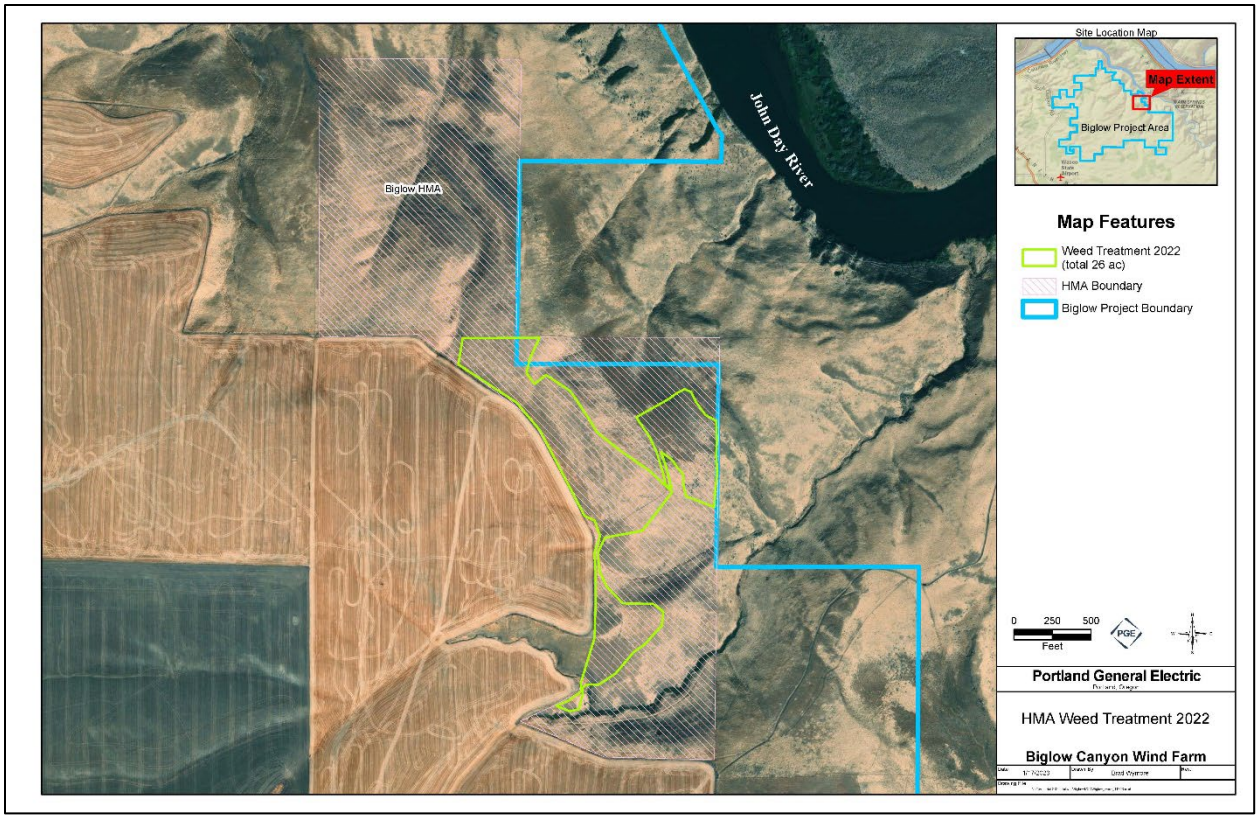

Figure 2. Map of noxious weed treatments conducted in the HMA, 2022.

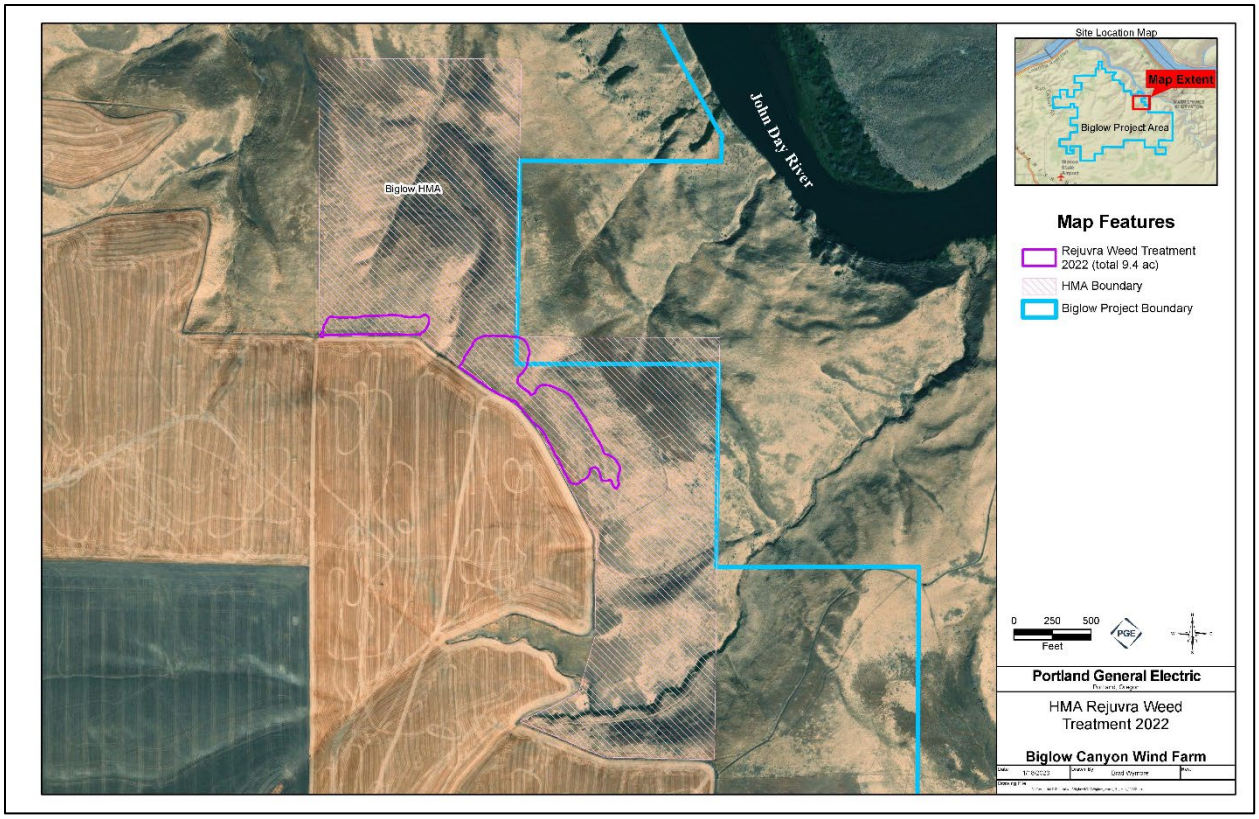

Figure 3. Map of Rejuvra® treatment conducted in the HMA seeding area, 2022.

Upland and Spring Site Photo Monitoring

Photo points within the HMA include the four seeding area photo points, three vegetation transect photo points, ten upland photo points, and one spring area photo point (Figure 4). The upland and spring site photo points were established to qualitatively assess improvement in vegetative/habitat conditions and 'healing' at erosion sites in response to excluding livestock from the site. Photos were taken at all photo point sites in 2022 (see Attachment E). The photos indicate that perennial grasses and shrubs are establishing in many areas, especially on slopes, in shallow soils, and in the northern portion of the mitigation area. Annual grasses continue to dominate many areas with deep soils.

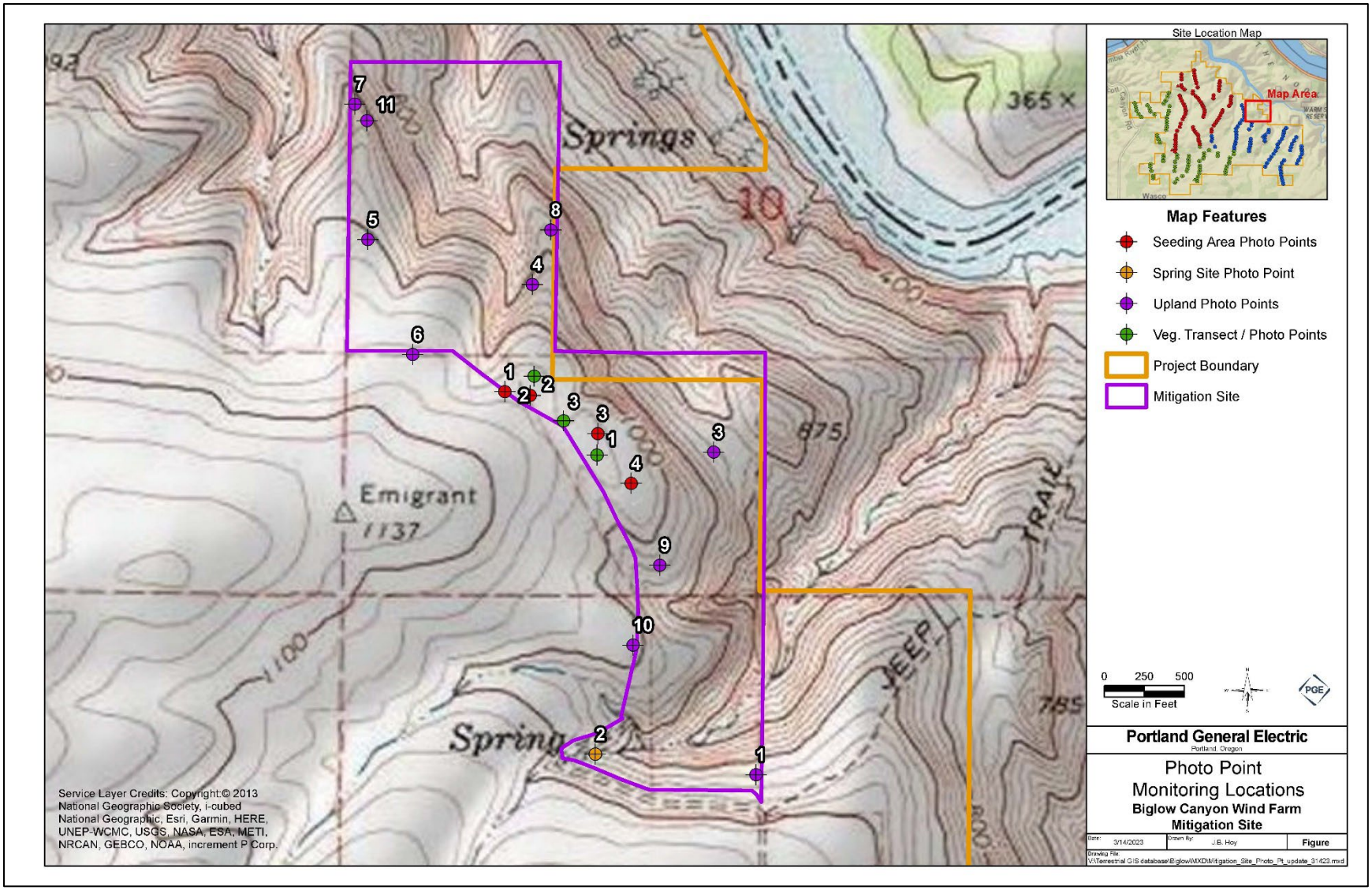

Figure 4. Vegetation transect and photo point monitoring locations in BCWF mitigation site.

Inspection and Maintenance of the Perimeter Fence

In 2007, PGE constructed a perimeter fence around the entire habitat mitigation site to exclude livestock. The Habitat Mitigation Implementation Plan directs PGE to inspect and maintain the fence for the life of the Project. PGE biologists inspected the fence on multiple occasions throughout the year and made minor repairs. One section of fence across a draw was reinforced to prevent cattle from potentially entering the mitigation area by passing under the fence.

On numerous occasions in 2021, gates securing the mitigation site were opened by a third-party, allowing cattle to graze the site. In 2022, PGE installed signs prohibiting grazing and public access at all access points into the mitigation area (Figure 5, Figure 6). Domestic grazing and public access are prohibited uses within the habitat mitigation area under the Conservation Easement agreements and the Habitat Mitigation Plan.

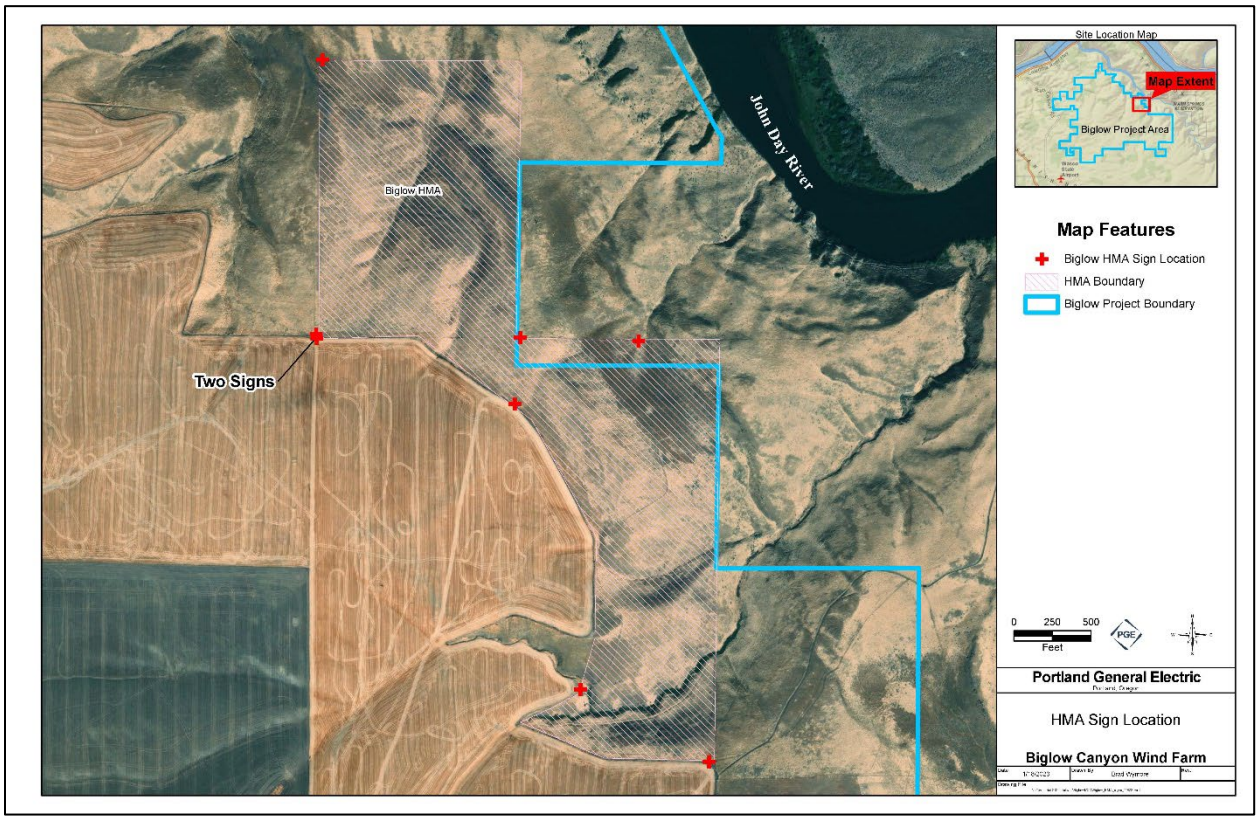

Figure 5. Locations of signs installed at Biglow HMA entrances to prevent livestock grazing and public access.

Figure 6. Design and content of eight sign that were installed at all entrances to Biglow HMA in 2022.

Inspection and Maintenance of the Wildlife Water Guzzler

Consistent with the Habitat Mitigation Implementation Plan, a wildlife water guzzler was installed in the northern portion of the mitigation site in July 2007. The guzzler was inspected in spring, summer, fall and winter of 2022 and contained water throughout the year. The guzzler tin was damaged as a result of cattle grazing the site. In 2022, PGE replaced the sheet of damaged tin and leveled the platform. Based on the presence of wildlife, tracks, and scat observed near the guzzler, mule deer, passerine birds, and other wildlife are using this water source on a regular basis.

Spring Area Enhancement Monitoring

Consistent with the Habitat Mitigation Implementation Plan, 50 trees and shrubs were planted near the mitigation area spring site in fall 2007. A wildfire impacted the mitigation area in July 2008 and killed most of the spring site vegetation, including most of the planted trees and shrubs. To replace the trees and shrubs lost in the fire, 50 white alder (*Alnus rhombifolia*) sprouts were planted at the spring site in spring 2009. No living planted trees and shrubs were observed in May 2014. PGE consulted with ODFW biologists from The Dalles district office during 2014. ODFW recommended planting hybrid popular (*Populus sp.*), which readily grows in conditions where other riparian species have difficulty establishing. In response to ODFW's recommendation, approximately 30 hybrid poplars were planted in December 2014. Monitoring in 2017 found no live planted poplars. Given the poor survival of the planted trees and shrubs, it appears highly likely that the site may not be suitable to support this type of vegetation. The spring is perched on a bedrock shelf, which limits the soil depth and rooting medium for plants, especially trees. The banks surrounding the spring are steep, which also limits the planting area to a very narrow strip along the wetted edge. The spring site is colonized with marsh hedge-nettle (*Stachys palustris*), broadleaf cattail (*Typha latifolia*), mint (*Mentha sp.*), and reed canary-grass (*Phalaris arundinacea*), which are protecting soils and preventing erosion around the spring. The vegetation around the spring seems to be expanding uphill.

During the August 2022 mitigation area site visit, ODFW reviewed the planting history and looked at current conditions at the spring site. The goal of the spring area enhancement project is

to prevent erosion and create native woody shrub habitat, increasing vertical diversity and cover for ground nesting birds and other wildlife. All parties agreed that this goal could be achieved by planting Wyoming big sagebrush (*Artemisia tridentata* ssp. *wyomingensis*), antelope bitterbrush (*Purshia tridentata*), and larger bunchgrasses such as Great Basin wildrye (*Leymus cinereus*) on the hillslope adjacent to the spring and installing an irrigation system to help establish plantings. An updated spring site plan has been developed in consultation with ODFW and was submitted to ODOE for approval in March 2023.

In November 2022, to jumpstart the spring area project, three strips of landscape fabric, measuring 12 feet by 300 feet each, were installed after grubbing the existing non-native vegetation from each 3600-square-foot area. Three species of locally sourced native shrubs and bunchgrass restoration plugs (10 cubic inch) were planted in each of the strips (Figure 7). Ninety-two Wyoming big sagebrush plugs, 105 Great Basin wildrye plugs, and 99 bluebunch wheatgrass plugs were evenly distributed across the three rows. An additional five sagebrush plugs and six wildrye plugs were planted at the edge of the spring. All plants were wrapped to provide browse protection. PGE plans to install an irrigation system in spring 2023.

Figure 7. Aerial photograph of planted landscape fabric strips on hillslope adjacent to the spring site.

Wildlife Use of the Mitigation Site

Breeding Bird Surveys

Consistent with the Habitat Mitigation Implementation Plan, breeding bird point-count surveys were conducted during the spring breeding season, on May 10 and June 8, to document the abundance of terrestrial birds, especially grassland species, using the mitigation area. Surveys were conducted at five point-count stations, including one at the spring site, two in the seeding area, and two on the hillside outside of the seeding area. Nine species were documented in 2022 (Table 5). Western meadowlark (*Sturnella neglecta*) was the most common species observed, followed by horned lark (*Eremophila alpestris*). Both are grassland-obligate species of conservation concern. During the May survey, Canada geese (*Branta canadensis*) were foraging near the HMA. Lazuli buntings (*Passerina amoena*) were detected at the spring site point-count station during both surveys.

Table 5. Counts and relative abundance of birds observed at five point-count stations at the Habitat Mitigation Site, spring 2022.

	Survey Date		Relative
Species	**10-May**	**8-Jun**	**Abundance %**
Western meadowlark (*Sturnella neglecta*)	18	18	51
Horned lark (*Eremophila alpestris*)	8	8	23
Ringed-necked pheasant (*Phasianus colchicus*)	0	5	7
Lazuli Bunting (*Passerina amoena)*	1	3	6
Common raven (*Corvus corax*)	2	1	4
Red-winged blackbird (*Agelaius phoeniceus*)	0	2	3
Canada Goose (*Branta canadensis*)	2	0	3
Bank swallow (*Riparia riparia*)	1	0	1
Grasshopper sparrow (*Ammodramus savannarum*)	0	1	1

Other Wildlife Use

Wildlife was observed in the mitigation site throughout 2022. During the May point count survey, 13 mule deer (*Odocoileus hemionus*) and one bald eagle (*Haliaeetus leucocephalus*) were recorded between survey stations. During the June survey, one mule deer was recorded. Mule deer and ring-necked pheasants were regularly seen by biologists during routine field work at the mitigation site, especially near the spring site (Figure 8), the water guzzler, and in the sagebrush stand at the east corner of the site. In addition, a short-eared owl (*Asio flammeus*) was observed hunting near the spring site and a coyote (*Canis latrans*) was observed traversing the mitigation site.

Figure 8. Photo of mule deer buck browsing at spring site, October 2022.

Overall Condition of the Mitigation Site

Visual assessment of the mitigation site indicates there has been little measurable improvement in habitat category since the mitigation site was established in 2007. The site is still recovering from the July 2008 wildfire which burned all vegetation in the mitigation area, leaving behind bare mineral soils. While repeated seedings and annual grass treatments in the 11.92-acre seeding site have been largely unsuccessful, fencing and livestock grazing exclusion has had a positive effect within the overall 117-acre HMA. Erosion sites have stabilized and are vegetated. Although the spring site does not support many riparian shrubs, the wetland vegetation at the spring site has expanded uphill. This vegetation is preventing soil erosion as well as providing forage and cover for wildlife. Native bunchgrasses, shrubs, and forbs that existed prior to the fire are recolonizing some areas, especially on slopes, in shallow soils, and in the northern portion of the mitigation area. Noxious weeds are present in low densities in a few areas, such as the seeding site, but are absent in much of the mitigation site. However, common non-native species, such as cheatgrass and common rye, are still prevalent within the seeding site and many other areas of mitigation site.

REFERENCES

Energy Facility Siting Council of the State of Oregon (EFSC). 2007. Biglow Canyon Wind Farm: Final Order on Amendment #2. Prepared by Energy Facility Siting Council of the State of Oregon. May 2007.

Energy Facility Siting Council of the State of Oregon (EFSC). 2008A. Biglow Canyon Wind Farm: Final Order on Amendment #3. Prepared by Energy Facility Siting Council of the State of Oregon. October 2008.

Energy Facility Siting Council of the State of Oregon (EFSC). 2008B. Third Amended Site Certificate for the Biglow Canyon Wind Farm. Prepared by Energy Facility Siting Council of the State of Oregon, ODOE. October 2008.

Portland General Electric (PGE). 2007. Biglow Canyon Wind Farm: Habitat Mitigation Implementation Plan. Portland General Electric Environmental Services, Portland, OR. March 2007.

Portland General Electric (PGE). 2017. Biglow Canyon Wind Farm Wildlife Monitoring, Habitat Mitigation, and Revegetation 2016 Annual Report. Portland General Electric Environmental Services, Portland, OR. April 2017.

Portland General Electric (PGE). 2022. Biglow Canyon Wind Farm Wildlife Monitoring, Habitat Mitigation, and Revegetation 2021 Annual Report. Portland General Electric Environmental Services, Portland, OR. April 2022.

Attachment A

Biglow Canyon Wind Farm
ODFW 2022 Scientific Taking Permit
(#028-22)

Oregon Department of Fish and Wildlife

Wildlife Division 4034 Fairview Industrial Drive SE Salem OR 97302

2022 SCIENTIFIC TAKING PERMIT

Permittee: **Kristi Boken**
Portland General Electric
121 SW Salmon Street
Portland, OR 97204-
(503) 724-0288

Oregon Permit Number	**028-22**
Issue date:	**2/7/2022**
Revision Date:	
Expiration Date:	**12/31/2022**
Federal Number:	**MB47716B-1**

SPECIES:	NUMBER:	Collect	Live Trap and Release	Salvage
Birds (total)	50	No	No	Yes
Bats (total)	50	No	No	Yes
	0	No	No	No
	0	No	No	No
	0	No	No	No
	0	No	No	No
	0	No	No	No
	0	No	No	No
	0	No	No	No

Collection Method:

Salvage

Counties Authorized:

Sherman

Conditions of Permit:

1) Any injured or dead eagle located, permittee must notify ODFW and US Fish and Wildlife Service per federal permit. Contacts - USFWS Oregon Law Enforcement Office: 503-682-6131. ODFW East Region Conservation Biologist: Kaly Adkins (541-993-4628 or kalysta.i.adkins@odfw.oregon.gov). OSP Fish & Wildlife Division may be able to provide immediate assistance when an injured eagle or T&E listed species is found.
2) All salvaged specimens to be housed at PGE's Biglow Canyon Wind Farm or other PGE facilities.
3) Must comply with federal permit conditions
4) Salvaged specimens remain the property of the State of Oregon and cannot be sold, traded, or given to others unless authorized by ODFW.
5)Any injured native bird is to be taken to the federal and state licensed wildlife rehabilitation facility unless otherwise directed by the USFWS or ODFW. A list of licensed rehabbers can be found on ODFW's website: odfw.com Non-native species must be euthanized according to AVMA euthanasia guidelines (2020 edition). Consult with ODFW Wildlife Health Lab staff on disposition of injured bats (866-968-2600 or wildlife.health@odfw.oregon.gov)
6) Disinfect hands and project equipment before and after use at each project site to prevent possible transmission of disease. Follow decontamination national protocol regarding White Nose Syndrome for Bats.
7) Any animal salvaged with obvious lesions or other sign of disease is to be reported, collected and transferred to ODFW's Wildlife Health and Population Lab (866-968-2600 or wildlife.health@odfw.oregon.gov)or transferred to an ODFW-approved laboratory.
8) The annual Scientific Taking Report is to be submitted using ODFW's standard report form by January 30, 2023 Species must be identified by species name (e.g. not "waterfowl"). Locations must be reported in UTM coordinates. Renewal of this permit will not occur until the annual report has been received by ODFW.

Sub-permittees: PGE employees, construction and maintenance workers at Biglow Canyon Wild Farm on behalf of PGE, Tetra Tech staff.

Nicole Stuttgen, ODFW

If there are questions, please contact the ODFW Wildlife Division at (503) 947-6301.

Attachment B

Biglow Canyon Wind Farm
Migratory Bird Special Purpose Permit
(#MB 47716B-1)

MIGRATORY BIRD SPECIAL PURPOSE UTILITY PERMIT

Permit Number: MB47716B-1

Effective: 11/24/2020 Expires: 03/31/2023

Issuing Office:

Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
911 NE 11th Ave.
Portland, OR 97232
Tel: 503-872-2715

Amendment to add carcass storage location

PERMIT SPECIALIST, MIGRATORY BIRD PERMIT OFFICE

Permittee:

PORTLAND GENERAL ELECTRIC
KRISTI BOKEN
121 SW SALMON STREET, 3WTCBR05
PORTLAND, OR 97204
U.S.A.

Name and Title of Principal Officer:
ARYA BEHBEHANI - DIRECTOR OF ENVIRONMENTAL SERVICES

Authority: Statutes and Regulations: 16 USC 703-712; 50 CFR Part 13, 50 CFR 21.27.

Location where authorized activity may be conducted:
Activity conducted on company property and rights-of-way in WA and OR
Records kept at 121 SW Salmon Street, Portland OR
Temporary raptor carcass storage authorized at Operations and Maintenance Building for Wheatridge I and II, 72322 Strawberry Lane, Lexington, OR 97839

Reporting requirements:
ANNUAL REPORT DUE: 01/31
See Condition K for annual reporting requirements
MBPO Contact: PermitsR1MB@fws.gov
OLE Contact: 503-682-6131

Authorizations and Conditions:

A. General conditions set out in Subpart B of 50 CFR 13, and specific conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.

B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local tribal, or other federal law.

C. Valid for use by permittee named above.

D. **Possession and Transport**

You are authorized to conduct the following activities as specified below for human health and safety purposes or during the course of duties for utility purposes:

(1) **Migratory Birds (except as limited in D(2)):** You and subpermittees are authorized to collect, transport, and possess remains (i.e., whole birds, feathers, parts, bone piles, etc.) of migratory birds found at the location/property specified above. "Collect" includes picking up remains for the purposes of temporary (e.g., for immediate burial) or longer-term (e.g., transportation to landfill, storage, etc.) possession.

Birds collected may be possessed for the tenure of the permit for educational purposes or searcher efficiency and remains' persistence trials or as directed by Office of Law Enforcement (OLE). Any remains in possession, including stored remains, must be disposed of upon permit expiration unless you have submitted a request renew this permit at least 30 days prior to expiration.

(2) **Bald Eagles and Golden Eagles (Eagles) and species federally listed as Threatened or Endangered (T/E Species):** If you or a

subpermittee discover remains of an Eagle or T/E species and would like to collect or move the remains, you must call U.S. Fish and Wildlife Service (Service), OLE. You must receive instructions and approval BEFORE collecting or moving the remains, unless you are working under a specific alternative protocol established by you and OLE. It may be necessary to preserve the remains or parts onsite until an agent or other Service or State representative arrives to collect them.

A list of T/E Species by State may be found in the Service's Threatened and Endangered Species System (TESS) database at: <<http://www.fws.gov/endangered>>

E. **Migratory Bird Nest Take**

(1) **Eagles or T/E Species:** Take of nests, whether active or inactive, is not authorized for these species. Additional federal permit(s) may be required.

(2) **Active Nests (nests containing chicks or viable eggs):**
In emergency situations you are authorized to take (relocate or destroy) active migratory bird nests, including viable eggs or chicks, found on utility structures, in rights-of-way, or on hazard trees within the fall zone if (i) the safety of the migratory birds, nests, or eggs is at risk, or (ii) the migratory birds, nests, or eggs pose a threat of serious bodily injury or a risk to human life, including a threat of fire hazard, mechanical failure, or power outage. You may not use this authority to destroy or relocate nests for situations in which migratory birds are merely causing a nuisance or inconvenience.

a. Active Nest Relocation
Relocation of nests is preferred if the circumstances or conditions warrant. If nests are relocated, they must be relocated to a site and structure (natural or artificial) appropriate to the species' requirements. You must monitor relocated nests sufficient to determine if adult birds have returned or if the nest is abandoned. If adult birds have abandoned the nest, eggs/chicks may be transported to a federally permitted rehabilitator.

b. Active Nest Destruction
If circumstances or conditions are not appropriate for relocation, you may destroy the nest. Viable eggs and/or chicks may be destroyed or transported to a federally permitted rehabilitator for care.

c. Reporting
If you relocate or destroy an active migratory bird nest, you must report it to the appropriate Regional Migratory Bird Permit Office (MBPO) describing the emergency situation, circumstances, and action proposed/taken. When practicable, notification should be prior to taking action but must be no later than 72 hours after relocation/destruction. See Condition K(1)(b) for annual report requirements.

(3) **Inactive Nests:**
You are authorized to relocate inactive migratory bird nests to avoid or minimize the need to take active migratory bird nests. Inactive nests are nests without viable eggs or chicks.

a. Inactive Nest Relocation
For avoidance and minimization purposes, inactive migratory bird nests or nest material may be relocated to a site and structure (natural or artificial) appropriate to the species' requirements.

b. Inactive Nest Destruction
Inactive nest destruction does not need to be reported under this permit. Inactive migratory bird nests may be destroyed without a federal permit under the Migratory Bird Permit Memorandum for Destruction and Relocation of Migratory Bird Nest Contents (June 14, 2018). Nest material may be destroyed or scattered and left on site. You may not possess the nest without additional authorizations.

F. **Data Collection**

For the remains of every bird collected, all required data listed below must be recorded prior to disposal or storage. Stored remains must be bagged and labeled with your permit number and a unique ID number. See K(4) for reporting options.

1. Species (common name if known; if unknown, species group (e.g. gull, raptor) or "unknown")
2. Condition (e.g. injured, remains, part(s), bone(s))
3. Disposition (e.g. buried, incinerated, collected and stored, OLE)
4. Discovery Date and, if different, Collection Date
5. Specific Location (GPS coordinates if known; otherwise nearest structure ID number)
6. State

The report form (K(4)) has additional reporting fields that may be completed if information is available.

G. **Injured or orphaned birds**

If you find injured or orphaned migratory birds, including Eagles and T/E Species, you should immediately contact a federally permitted migratory bird rehabilitator or a licensed veterinarian and follow their instructions for transport, care, and/or disposition of birds. We encourage you to offset the costs incurred by birds injured by utility operations or infrastructure by paying expenses for the care, donations, in-kind

assistance, or other means.

H. **Trial specimens**

Migratory birds, other than Eagles and T/E Species, collected and possessed under this permit may be used for trials, such as searcher efficiency and remains' persistence.

For trial purposes, you may receive by donation lawfully acquired migratory bird specimens, other than Eagles and T/E Species, from those authorized to donate by federal permit or regulation. State permits for acquisition and/or inter-state movement may be required. Accurate records must be maintained for birds acquired through donation (see recordkeeping requirement K(3)(b)).

I. Except as authorized by Condition E, **take and collection of live, non-injured migratory birds, eggs, or nests is not authorized by this permit.** In addition, this permit does not authorize the take, capture, harassment, or disturbance of Eagles and T/E Species.

J. **Disposition of Remains**

(1) **Eagles or T/E Species:**
In accordance with Condition D(2) above, OLE will advise you on disposition of remains. If you are already working under a specific alternative protocol established by you and OLE, continue to follow the agreed upon instructions. Disposition must be reported in your annual report to your migratory bird permit issuing office.

(2) **For all other Migratory Birds:**
Dispose of remains by:

a. Turning over to a state or federal wildlife agency for official purposes;
b. Donating to an entity authorized to possess migratory birds by federal permit or regulation (you may contact your MBPO for verification of a federal permit or regulation prior to donation);
c. Donating to a permitted Non-Eagle Repository for distribution to federally enrolled Native Americans for religious purposes (<<https://www.fws.gov/southwest/NAL/feathers.html>>); or
d. Completely destroyed by burial or incineration as provided by law.

K. **Reporting**

(1) **Annual Report:**
You must submit an annual report by **January 31** each year for all activities conducted between January 1 and December 31 of the preceding year to your migratory bird permit issuing office, including:

a. All birds collected and all Eagles and T/E Species collected. Your report must include all required information as described in Condition F.
b. Any active nests relocated or destroyed, including the date, location, species, disposition and number of eggs/chicks. For relocated nests, include if the parents returned to or abandoned the nest.

(2) **Eagles and T/E Species:**
For Eagle or T/E species discovered (Condition D(2)), report to OLE, unless you are working under a specific alternative protocol established by you and OLE. If you notify OLE via email, you may notify the MBPO by including your MBPO contact. If you contact OLE via phone, follow-up with an email to the appropriate MBPO.

Reporting to OLE must be prior to collection. Reporting to the MBPO must be no later than 7 days from the date of discovery of the remains. Report any relevant information, including the data in Condition F.

(3) **Additional Recordkeeping:**
You must keep records of the following information. You are not required to report this information; however, these records may be requested at any time, including as part of your renewal materials.

a. Relocation of any inactive nests, including date relocated and purpose of relocation.
b. Any migratory bird specimens obtained by donation as specified in condition H. Include date acquired, species and number, permit number (or regulation), and name/organization from whom the birds were acquired.
c. Mortality events involving unexpectedly high numbers of birds, unusual species groups, and/or Birds of Conservation Concern.

A list of Birds of Conservation Concern may be found at:
<<https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>>

(4) **Submitting Reports:**
Records may be kept in IMR (the Service's Injury and Mortality Report system). You must download from IMR a report of your activities for the calendar year and submit it electronically by January 31 to **your MBPO Contact AND MigBirdReports@fws.gov** with the subject line "ANNUAL REPORT - [Permittee Name]".

Or,

You may submit an electronic report of your activities for the calendar year. The spreadsheet report form can be downloaded from: <<http://www.fws.gov/forms/3-202-17.xlsm>>. Instructions are available on Tab 1 of the spreadsheet. Complete Tab 2, and if appropriate Tab 3, and email your report by January 31 to **your MBPO Contact AND MigBirdReports@fws.gov** with the subject line "ANNUAL REPORT - [Permittee Name]".

(5) If your operations occur on land not owned by you and you are contacted by a landowner who has found a bird or eagle, you must inform them on how to properly dispose of the bird. In any future written agreements with landowners, we recommend you include instructions on what to do if the landowner discovers a dead bird or eagle.

L. **Authorized Subpermittees:** PGE employees, PGE contract employees, Tetra Tech

In addition, any person who is employed by the permittee for the activities specified in this permit, or any person who the principal officer provides a written letter designating them as a subpermittee may exercise the authority of this permit. The letter should identify any restrictions on the date(s), location(s), and/or activities a subpermittee may conduct.

M. **Standard Conditions**

You and any subpermittees must comply with the below Standard Conditions for Migratory Bird Special Purpose Utility Permits. **These standard conditions are a continuation of your permit conditions and must remain with your permit.** If you have any questions regarding these conditions, refer to the regulations or, if necessary, contact your migratory bird permit issuing office. For copies of the regulations and forms, or to obtain contact information for your issuing office, visit: <<http://www.fws.gov/migratorybirds/mbpermits.html>>.

(1) All of the provisions and conditions of the governing regulations at 50 CFR part 13 and 50 CFR 21.27 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit. This permit does not authorize personal use of any migratory bird remains collected, transported, or temporarily possessed under the authority of this permit.

(2) Banded Birds (remains collected and injured birds) must be reported to the U.S. Geological Survey Bird Banding Laboratory at <<http://www.reportband.gov>>. Information provided must include, as accurately as possible, species of bird, band number, date recovered, recovery location, and name and contact information of the person who recovered the remains or bird.

(3) Subpermittees. A subpermittee is an individual to whom you have provided written authorization to conduct some or all of the permitted activities in your absence. Subpermittees must be at least 18 years of age. As the permittee, you are legally responsible for ensuring that anyone conducting activities under your permit is adequately trained and adheres to the terms of your permit. You are responsible for maintaining current records of who you have designated as a subpermittee, including copies of designation letters you have provided.

(4) Carrying your permit. You and any subpermittees must carry a legible copy of this permit and display it upon request of any duly authorized federal, state, or tribal officer whenever exercising its authority. Subpermittees must also carry your written subpermittee designation letter, if applicable.

(5) Records. You must maintain complete and accurate records of the activities conducted and the data collected under this permit. You must keep all required records and collected wildlife parts relating to permitted activities at the location you identified in writing to the migratory bird permit issuing office. (50 CFR 13.46 and 21.27)

(6) Site inspections. Acceptance of this permit authorizes the USFWS to enter the utility property at any reasonable hour as necessary to inspect the wildlife, records, facilities, property, and associated infrastructure for wildlife impacted by the utility, and for compliance with the terms of this permit and governing regulations. (50 CFR 13.47)

(7) Applicable laws. You may not conduct the activities authorized by this permit if doing so would violate the laws of the applicable State, county, municipal or tribal government or any other applicable law.

(8) Other permissions. This permit does not authorize salvage of specimens on Federal, State, tribal, or other public or private property without additional prior written permits or permission from the agency/landowner/custodian.

(9) This permit does not grant right of trespass on property you do not own or control.

For suspected illegal activity immediately contact the USFWS Office of Law Enforcement.

This permit does not, nor shall it be construed to, authorize lethal take (except as authorized by Condition E(2)) or injury of migratory birds or limit or preclude the U.S. Fish and Wildlife Service from exercising its authority under any law, statute, or regulation, or from taking enforcement action against any individual, company, or agency. This permit is not intended to relieve any individual, company, or agency of

its obligations to comply with any applicable Federal, State, Tribal, or local law, statute, or regulation. We encourage you to develop/update and implement a proactive Avian Protection Plan (APP) per current U.S. Fish and Wildlife Service/Avian Power Line Interaction Committee (APLIC) guidelines found at <<www.aplic.org>> or Wind Energy Guidelines found at <<http://www.fws.gov/windenergy/>>, as applicable.

Attachment C

Biglow Canyon Wind Farm
Long-term Eagle Incidental Take Permit
(#MB63507B-2)

LONG-TERM EAGLE INCIDENTAL TAKE

Permit Number: MB63507B-2

Effective: 11/20/2020 Expires: 01/31/2050

Issuing Office:

Department of the Interior
U.S. FISH AND WILDLIFE SERVICE
Migratory Bird Permit Office
911 NE 11th Ave.
Portland, OR 97232
Tel: 503-872-2715

REGIONAL DIRECTOR, U.S. FISH AND WILDLIFE SERVICE

Permittee:

PORTLAND GENERAL ELECTRIC
dba BIGLOW CANYON WIND FARM
121 SW SALMON STREET
PORTLAND, OR 97204
U.S.A.

Name and Title of Principal Officer:
BRAD JENKINS - VICE PRESIDENT, UTILITY OPERATIONS

Authority: Statutes and Regulations: 16 U.S.C. 668-668d, 16 U.S.C 703-712; 50 CFR Part 13, 50 CFR 22.26.

Location where authorized activity may be conducted:
Activities conducted at: Biglow Canyon Wind Project, northeast of Wasco, OR
Records kept at: 121 SW Salmon Street, Portland, OR
SHERMAN COUNTY

Reporting requirements:
ANNUAL REPORT DUE: 01/31
See Condition I for reporting requirements

Authorizations and Conditions:

Migratory Bird Permit Office (MBPO): PermitsR1MB@fws.gov
Office of Law Enforcement: 503-682-6131

A. General conditions set out in Subpart B of 50 CFR 13, and specific conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.

B. Permittee is responsible for ensuring that the permitted activity is in compliance with all federal, tribal, state, and local laws and regulations applicable to eagles.

C. Valid for use by permittee named above and any subpermittees (see Condition M).

D. **Authorized Take:** Permittee is authorized under the Bald and Golden Eagle Protection Act (Eagle Act) to incidentally take (kill and/or injure) a maximum of 39 Golden Eagles and 20 Bald Eagles over 30 years as the result of turbine-collisions while operating a 217-turbine wind energy production facility in Sherman County, OR at (45.652, -120.599).

Take must be incidental to otherwise lawful activities associated with wind turbine operations as described in the documentation (2019 Eagle Conservation Plan, permit application, and the Final Environmental Assessment Biglow Canyon Wind Project Eagle Take Permit (FEA), 11 May 2020). Specifically, the authorization granted applies only to take resulting from the activity

conducted in accordance with the descriptions contained in the aforementioned documentation and the terms of this permit.

E. **Avoidance and Minimization Measures:** Permittee must comply with the avoidance and minimization measures set forth below within the project footprint.

1. Maintenance vehicle movement must be restricted to pre-designated access, Project personnel or contractor-required access, or public roads. If feasible, PGE must use existing roads and previously disturbed areas during construction, operation, and maintenance to minimize impacts to native habitat.
2. Project personnel must be required to drive 25 mph or less on non-public project roads, be alert for wildlife, and use additional caution in low-visibility conditions when driving any vehicle.
3. The permittee must use spark arrestors on any power equipment (ATVs, chainsaws, and other such equipment) and must maintain fire extinguishers in all onsite service vehicles.
4. Any garbage/waste observed must be collected and disposed of in an appropriate trash receptacle securely protected from wildlife.
5. Any new transmission infrastructure must be constructed and maintained to meet the most recent APLIC suggested practices (currently 2006) for reducing electrocution risk to birds.
6. At least once every three years, the permittee must hold a training that provides instruction to employees (and any contractors working on site) on avoiding harassment and disturbance of eagles within the Project Footprint. The training must also cover the Wildlife Incident Response and Handling System (WIRHS) process for recording incidental observations of avian carcasses, and how to properly handle dead or injured birds in accordance with PGE's Special Purpose Permit from the Service.
7. Site staff must receive awareness-level training on watching for dead animal carcasses and sign of them (e.g. circling eagles, vultures, or other scavenging birds). Permittee must bury or remove any dead medium- and large-sized animals (i.e. squirrel or larger) found within 48 hours. Disposal must be beyond line-of-sight of Project turbines or in an appropriate trash receptacle securely protected from wildlife access.
8. If Project operations occur on land not owned by you, you must make a one-time notification to inform landowners on what to do if they discover a dead bird or eagle near a turbine. Any landowners collecting birds on your behalf must be designated as a subpermittee.
9. Natural material (e.g. rock piles, woody debris) and tall vegetation (i.e. tall forbs, grass, weeds) must be removed/maintained beneath turbines on designated project pads to reduce shelter and forage for small mammals.
10. Any snow management conducted by PGE within the project footprint must involve strategic plowing to promote wildlife movement (i.e. putting gaps in snow banks that encourages animals to leave the road) if snow banks more than six feet are created by project-related plowing to reduce potential collisions between wildlife and vehicles.

F. **Compensatory Mitigation:** Compensatory mitigation is required to off-set all golden eagle take predicted at turbines installed or modified September 11, 2009 or after. Permittee must mitigate, over the life of the permit, sufficient to offset predicted take of 15 golden eagles at a ratio of 1.2:1. This compensatory mitigation can be provided all at once or it may be provided in installments, matching the 5-year review periods, over the life of the permit.

A Pre-Retrofit Summary Report must be submitted to the Migratory Bird Permit Office (MBPO) in writing within 6 months of permit issuance, or a signed agreement with an in-lieu fee program must be provided within 12 months of permit issuance.. If the permittee prefers to provide mitigation in installments, the abovementioned report or agreement must be provided sufficient to offset the predicted take of 3 golden eagles for the first 5 years of the permit tenure. The number of golden eagles to be offset in subsequent 5-year review periods may be adjusted by the Service based on updated fatality monitoring data.

In-Lieu Fee Program: The Permittee may use a Service-approved in-lieu fee program to mitigate for the take of golden eagles. To offset eagle take for the first 5 years, a copy of a signed agreement between the Permittee and the in-lieu fee program must be provided to the Service within 12 months from the date of permit issuance that includes the number of poles that will be retrofitted and maintained to remain consistent with APLIC Suggested Practices (2006) for 30 years. No After Action Retrofit Report is required when using an in-lieu fee program.

Permittee-Selected Retrofits: The Permittee may retrofit poles outside of an in-lieu fee program. Retrofits must be "additional" to whatever the owning company had plans to retrofit (i.e. not already scheduled for retrofitting or replacement) in the foreseeable future and done in areas and on poles that present the highest risk to golden eagles as determined by the method described in the EA. Selected poles must have been constructed/installed prior to September 11, 2009 and must occur within the Pacific Flyway Eagle Management Unit for golden eagles (2016 programmatic Environmental Impact Statement for

the Eagle Rule Revision; Section 2.6, Figure 2-3). The exact number of poles to be retrofitted depends on the action taken on the pole (re-frame, remove, or applying insulators) and for how long that action is anticipated to keep the pole consistent with APLIC Suggested Practices (2006).

In order for these retrofitted poles to count towards the compensatory mitigation requirement, you must receive MBPO approval of the total number and locations of poles to be retrofitted. Approval of pole locations can be provided by the MBPO in part or in whole. Approval is obtained by submitting to the MBPO a **Pre-Retrofit Summary Report** no later than 6 months from the date of permit issuance that includes the following:

1. The GPS coordinates, date of pole construction (approximate date/year ok if not known exactly) and RRI score of each selected pole.
2. A description of the proposed retrofit action to be taken on each pole, whether the pole will be replaced, and the expected retrofit longevity (i.e. for how many years will that action keep the pole in question consistent with APLIC (2006) suggested practices).
3. A map of all selected poles.
4. A summary of all poles assessed that have a RRI higher than 0.4 but that were not selected for retrofitting, including an explanation of why those poles were not selected.
5. The Permittee will consider potential impacts to cultural resources by conducting a cultural resource assessment at the location of each pole. A summary of this assessment, including what direct and indirect impacts, if any, to cultural resources are anticipated from the proposed retrofit action.
6. Any signed member utility retrofit reimbursement agreement(s) showing that the anticipated retrofit longevity specified in the Pre-Retrofit Summary Report must be met.

Following written approval of the Pre-Retrofit Summary Report by the MBPO, you must adapt pole retrofits as needed in consultation with the MBPO. You must comply with all applicable laws when selecting and completing retrofits.

If compensatory mitigation is completed outside of an in-lieu fee program, pole retrofits to offset take for the first 5 years must be completed by January 31, 2022.

Within 60 days of the completion of all retrofit actions at all selected poles, you must submit an **After Action Retrofit Report**. This report must include:

1. For each retrofitted pole, a summary of the work performed to make the pole consistent with APLIC (2006) suggested practices and the date the work was completed.
2. A photo of the pole before retrofitting and after retrofitting, including the date on which each photo was taken.
3. A statement by a qualified individual (e.g. a qualified utility staff member or contractor with expertise in APLIC standards and materials used for retrofitting) stating that each retrofit was inspected and verified to have been performed/installed correctly.

Should Permittee take fewer than authorized eagles through the duration of this permit, excess compensatory mitigation already provided will be credited pro rata to future renewal of this permit.

G. **Eagle Fatality Monitoring:**

Monitoring for eagle remains must consist of the methodologies and protocols set forth below and must begin within 90 days of permit issuance. This monitoring effort must achieve a site-wide minimum average probability of detection of ≥30% across every 5 year review period, as determined by the MBPO. The site-wide probability of detection is defined as the probability of detecting an eagle remains at the project, if remains are present. If this site-wide probability of detection is not met or if searcher efficiency rates are not quantifiable, through bias trials, for every search method in every year of the 5-year review period, as determined by the MBPO, then adaptive management measures are prescribed in the conditions below.

When required below, monitoring must be conducted by an independent third party who is required to provide all data from monitoring efforts, including an annual summary report, directly to the MBPO prior to (or at the same time as) it being reported to the permittee.

Eagle Remains Searches

1. Eagle Remains Searches must:
    a. Be conducted in such a way that, when considered with site-specific searcher efficiency and carcass

persistence values, achieves a minimum average probability of detection of 30% during each 5-year review period, as determined by the MBPO.
   b. Be conducted by a qualified, independent, third party in at least one year of each 5-year review period.

Searcher Efficiency Trials
1. Searcher Efficiency trials must:
   a. Be conducted for one complete year during each 5-year review period for each search method, with each trial stratified by each of the four seasons. Trials for different methods can occur in the same year using the same trial carcasses if deemed appropriate by the permittee. Searchers involved in each method must not know they are being tested during these trials.
   b. Use 20 surrogate carcasses per season placed at randomly selected turbines and at random locations within each search plot.
   c. Always be conducted by a qualified, independent, third party.

Carcass Persistence Trials
1. Carcass Persistence trials must:
   a. Be conducted, at minimum, for one year during every 5-year review period, stratified by each of the four seasons of the year.
   b. Use 10 surrogate carcasses per season placed at randomly selected turbines and at random locations within the project footprint or similar nearby habitat.
   c. Use raptor carcasses as surrogates when possible. When the required sample size cannot be obtained, other surrogates may be used.
   d. Be for a duration of at least 90 days per season. Trials may be longer than 90 days at the discretion of the permittee, but may not be shorter.
   e. Always be conducted by a qualified, independent, third party.

H. **Eagle Data Collection:** For both standardized searches for eagle remains *and* opportunistic finds outside of standardized searches, all relevant data associated with each eagle remains (whole dead eagle, eagle part(s), injured eagle) discovered or collected, must be recorded, including the information below. Reporting data must include:

1. For both standardized searches for eagle remains *and* opportunistic finds, all relevant data associated with each eagle remains discovered or collected, must be recorded, including the information below. Reporting data at a minimum must include:
   a. Discovery date
   b. Collection date
   c. Species
   d. Sex and age (fledgling, juvenile, adult), if known
   e. How eagle remains were located (during standardized search or opportunistic or incidental find?)
   f. Condition (alive or dead)
   g. Description (if alive, indicate if sick or injured; if dead, indicate if intact, freshly killed (eyes moist), semi-fresh (stiff, eyes desiccated), partially decomposed feathers and/or bones, or other)
   h. GPS coordinates **in decimal degrees with datum clearly identified** (the reference system that geographic coordinates are associated with such as WGS 84) for the location where found, OR nearest turbine/pole/structure ID number
   i. Type and configuration of structure or features found near eagle remains and potentially responsible for injury/mortality (structure type; nameplate information; manufacturer, model number, height; presence/absence of guy wires; turbine, pole, structure ID#; etc.)
   i. Ground distance (estimated or exact) remains found from nearest pole, line, turbine, or other structure
   j. Suspected cause of mortality/injury (collision with turbine, collision with wire, collision with other structure, electrocution, other)
   k. If there are plans to perform standardized searches of the area in which the remains were discovered in the future and, if so, the approximate date of that search
   l. Disposition (freezer onsite, National Eagle Repository, left in place, rehabilitator, Office of Law Enforcement (OLE))
   m. Record any Federal Band number, Color Markers, or transmitter descriptions; report Federal Band and Color Markers to the U.S. Geological Survey's Bird Banding Laboratory at: <reportband.gov> and provide the

Service with the date this information was reported

n. Any special notes or additional information (e.g., if associated with a mortality event involving unusually high numbers of eagle takes associated with a particular turbine or feature; weather conditions at likely time of death, if known), and
o. Photos of the eagle remains, including the legs and tail if possible.

2. The following data must be recorded for each standardized search for eagle remains:
   a. Date
   b. Start time
   c. End time
   d. Interval since last search
   e. Observers
   f. Delineation of turbine area searched, (ideally in a map/shapefile) including GPS coordinates in decimal degrees if known, and
   g. Weather data, including temperature (Celsius), wind direction and speed, cloud cover, and precipitation

3. Incident Tracking Number
   a. A unique incident identification number to include the year taken and location identifier (i.e. Permittee Name-2019-XX) must be assigned to each eagle take incident (mortality or injured eagle)
   b. The incident tracking number must be maintained in association with the data collected in Condition H(1) and I (2) above
   c. A waterproof tag with the unique take incident tracking number must be attached to each eagle remains

I. Reporting: Eagles and Threatened/Endangered Species

1. *Initial Report:* Permittee must report by email any **bald eagle or golden eagle** found dead or injured to the MBPO (see above contact information) within 48 hours of its discovery. The email must include the (1) date discovered, (2) location within the project site, (3) suspected cause of death or injury, and (4) the unique incident tracking number assigned to the eagle (see Condition H).
2. *Follow-up Report*. The data listed in Condition H must be entered into the Injury and Mortality Reporting (IMR) system. Reports must include all the information under Condition H (Eagle Data Collection) and be submitted no later than **one week (7 days)** from the date of discovery of the eagle remains.
3. *Annual Fatality Reports:* Permittee must provide the MBPO with a fatality report **by January 31 following each year in which the permit is valid**. The fatality monitoring reports must include the raw data obtained from monitoring and opportunistic finds, listed in Condition H, and any modifications from the original study design that were used. Monitoring records must be tracked via the Service's online reporting system, and reports generated via that system. To obtain an account in the reporting system and instructions on how to report, please follow the instructions provided separately by your regional office along with your permit.
4. *Power pole Retrofit Reports*: Permittee must submit either: a) a **Pre-Retrofit Summary Report** no more than 6 months from the date of permit issuance, or b) a **signed agreement with an in-lieu fee program** no more than 12 months from the date of permit issuance. If the Permittee does not use an in-lieu fee program to mitigate for eagle take, an **After-Action Retrofit Report** must be submitted within 60 days of the completion of all retrofit actions. See conditions in Section F (Compensatory Mitigation) for specific requirements.
5. Federally listed threatened or endangered species (T/E Species): For impacts to T/E Species not exempted by an Incidental Take Statement or authorized under an ESA section 10 permit, a representative for Permittee must call the Service, Office of Law Enforcement (see the contact information at the top of this permit) for instructions and approval **PRIOR** to collecting or moving the T/E remains.

   A list of threatened and endangered species by State may be found in the Service's Threatened and Endangered Species System (TESS) database at: *http://www.fws.gov/endangered*.

J. **Adaptive Management:** Permittee must implement the following adaptive management measures under the circumstances (triggers) described below. Enhanced Fatality Monitoring is monitoring that is triggered by adaptive management and is defined as Eagle Remains Searches that achieve a site-wide average g-value of ≥0.5 over a 5-year review period. Triggers described under J(1) below must be used throughout the permit tenure, unless additional Enhanced Fatality Monitoring is required and

performed. Once an Enhanced Fatality Monitoring measure has been triggered and completed, subsequent triggers must be based on the number of years of completed Enhanced Fatality Monitoring until the permit expires.

1. Trigger 1. If one of the following occurs:
    a. When no Enhanced Fatality Monitoring has been performed: At least 3 golden eagle remains found in first 5 years OR 5 golden eagle remains found in first 10 years OR 3 bald eagle remains found in first 10 years;
    b. After 5 years of Enhanced Fatality Monitoring: 6 golden eagle remains found in first 10 years OR 3 bald eagle remains found in first 10 years.

    Then, you must implement both of the following measures at the beginning of the next 5-year review period (as defined in 50 CFR 22.26(c)(7)):
        i. 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; and
        ii. Perform Enhanced Fatality Monitoring during the next 5-year review period

2. Trigger 2. If one of the following occurs:
    a. When no Enhanced Fatality Monitoring has been performed: At least 6 golden eagle remains found in first 10 years OR At least 7 golden eagle remains found in first 15 years OR At least 4 bald eagle remains found in first 15 years
    b. After 5 years of Enhanced Fatality Monitoring: At least 7 golden eagle remains found in first 10 years OR At least 8 golden eagle remains found in first 15 years OR At least 4 bald eagle remains found in first 15 years
    c. After 10 years of Enhanced Fatality Monitoring: At least 9 golden eagle remains found in first 15 years OR At least 5 bald eagle remains found in first 15 years.

    Then you must implement both of the following measures at the beginning of the next 5-year review period:
        i. Perform updraft modelling to identify specific turbines with the highest collision risk under a suite of wind conditions, or perform another measure not listed here if agreed upon by the Service; and
        ii. Perform Enhanced Fatality Monitoring during the next 5-year review period.

3. Trigger 3. If one of the following occurs:
    a. When no Enhanced Fatality Monitoring has been performed: At least 9 golden eagle remains found in first 20 years OR At least 5 bald eagle remains found in first 20 years
    b. After 5 years of Enhanced Fatality Monitoring: At least 10 golden eagle remains found in first 20 years OR At least 5 bald eagle remains found in first 20 years
    c. After 10 years of Enhanced Fatality Monitoring: At least 11 golden eagle remains found in first 20 years OR At least 6 bald eagle remains found in first 20 years
    d. After 15+ years of Enhanced Fatality Monitoring: At least 12 golden eagle remains found in first 20 years OR At least 6 bald eagle remains found in first 20 years

    Then you must implement both of the following measures at the beginning of the next 5-year review period:
        i. 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 must be installed to cover at least 5 turbines and its effectiveness tested. Effectiveness study design must be approved by the Service. Alternatively, the permittee may perform another measure not listed here if agreed upon by the Service, and
        ii. Perform Enhanced Fatality Monitoring during the next 5-year review period

    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 are required, and the implementation of measures under previous triggers are recommended but not required.

4. Trigger 4. If one of the following occurs:
    a. When no Enhanced Fatality Monitoring has been performed: At least 11 golden eagle remains found in first 25 years OR At least 6 bald eagle remains found in first 25 years
    b. After 5 years of Enhanced Fatality Monitoring: At least 12 golden eagle remains found in first 25 years OR At least 6 bald eagle remains found in first 25 years

c. After 10 years of Enhanced Fatality Monitoring: At least 13 golden eagle remains found in first 25 years OR At least 7 bald eagle remains found in first 25 years
d. After 15 or more years of Enhanced Fatality Monitoring: At least 14 golden eagle remains found in first 25 years OR At least 7 bald eagle remains found in first 25 years

Then you must immediately implement the following measures:
i. Test a conservation measure designed to reduce the source of collision risk (i.e. curtail turbines), such as installation and use of an artificial intelligence-driven curtailment system or implementation of biomonitors to manually curtail turbines. The effectiveness of this measure must be tested, with the study design approved by the Service. Alternatively, perform another measure not listed here if agreed upon by the Service. This Alternative measure might be the continuation of the measures described under Trigger 3, if it has been previously implemented and proven effective in consultation with the Service, and
ii. Perform Enhanced Fatality Monitoring during the next 5-year review period.

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 are required, and the implementation of measures under previous triggers are recommended but not required.

5. Trigger 5. If one of the following occurs:
a. During any 5-year review period: An average site-wide minimum g-value of 0.30 is not achieved, as determined by the Service.
b. During Enhanced monitoring: An average site-wide g-value of 0.5 is not achieved, as determined by the Service.
c. If searcher efficiency rates are not quantifiable, through bias trials, for every search method in every year of the 5-year period, as determined by the Migratory Bird Permit Office.

Then you must implement the following measure:
i. Perform Enhanced Fatality Monitoring during the next 5-year review period.

6. Nest Trigger. If one of the following occurs:
a. A new golden eagle nest is discovered within 1 mile of any project turbine.
b. A new bald eagle nest is discovered within 0.5 miles of any project turbine.

Then you must immediately implement all of the following measures:
i. Report the discovery of any new eagle nests to the Service within 72 hours to PermitsR1MB@fws.gov.
ii. Cease all non-emergency maintenance activities (as defined in 50 CFR 22.3) within
(A) 1 mile of an in-use golden eagle nest during the nesting season (Jan 1 to Aug 31) if activities are line-of-sight to the nest,
(B) 0.5 miles of an in-use golden eagle nest during the nesting season (Jan 1 to Aug 31), or
(C) within 660 feet of an in-use bald eagle nest during the nesting season (Jan 1 to Aug 31), and
iii. Monitor the nest status twice annually to determine if it is in-use. If in-use, you must:
(A) Monitor sufficient to determine if the nest was successful that year.
(B) Determine the territory or home-range associated with the nest at least every 10 years by monitor the eagle activity surrounding the nest when it is in-use.
(C) At least one point count must be conducted 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 must be performed at a strategically placed point to determine if and how frequently eagles enter the project footprint and for what duration.
(D) Any eaglets that the nest produces must be banded with federal (USGS) aluminum bands prior to fledging if it is safe to do so.
(E) The permittee may request approval of other method(s) to satisfy this requirement.

K. **Collection and Submission of Eagle Remains to the National Eagle Repository or Health Lab**
1. Permittee and its subpermittees are authorized to collect (in accordance with Condition H), transport and temporarily possess whole and partial remains of eagles found at the project site.

2. If the eagle is **freshly dead** (has no smell, eyes are not sunken in, and the body is usually intact and has not been scavenged), OR has a telemetry unit, contact the Southeast Cooperative Wildlife Disease Study Lab (SCWDS Lab) at 706-542-1741 to see if the remains are acceptable and the lab is able to accept them.
    a. If the SCWDS Lab is able to accept the remains, fill out the SCWDS Lab's submission form.
    b. If possible, refrigerate remains rather than freezing.
    c. Send the remains by Federal Express or as directed by the lab.
3. If the eagle is **not freshly dead**, or the lab is not able to receive the remains, or it is not feasible to ship the remains to the lab, ship the remains to the National Eagle Repository following the Repository's Shipping Guidelines. The guidelines are available at http://www.fws.gov/eaglerepository/factsheets.php.
4. As required under Condition H(3)(c), a waterproof tag with the unique incident tracking number must be submitted with each eagle.

L. **Injured Birds:** If an eagle is injured, Permittee must immediately contact a permitted migratory bird rehabilitator or a licensed veterinarian (see and follow their instructions for transport, care, and/or disposition of birds. We encourage you to offset the costs of treating injured eagles by paying the expenses through donations, in-kind assistance, or other means. See Condition I for reporting instructions.

M. **Subpermittees:** Any person who is under Permittee's direct control or employed by or under contract to Permittee for the activities specified in this permit, or to whom you have provided written authorization to conduct permitted activities may exercise the authority of this permit. As the permittee, Permittee is legally responsible for ensuring that its subpermittees are in compliance with the terms and conditions of this permit, are qualified to perform these authorized activities and adhere to the terms of this permit. Permittee is also responsible for maintaining current records of anyone designated as a subpermittee, including copies of communications provided to the subpermittees authorizing them to conduct the permitted activities.

N. Acceptance of this permit serves as evidence that the permittee and any person under the direct control of the permittee or who is employed by or under contract to the permittee for the activities specified in this permit (subpermittees) agree to abide by the terms of this permit and all sections of the *Title 50 Code of Federal Regulations* (CFR) part 13 and §22.26, pertinent to issued eagle take permits. The Bald and Golden Eagle Protection Act, as amended, provides for civil and criminal penalties for failure to comply with the permit conditions. Failure to comply with the conditions of this permit could be cause for permit suspension, revocation, and/or citation.

The permit conditions above do not establish a precedent for future actions and do not represent a decision in principle about future consideration or the structure of future eagle-take permit conditions. The Service will analyze the issuance of each permit on a case-by-case basis and the details of each permit's conditions could be different.

Standard Conditions
Eagle Incidental Take (Long-term) Permit
50 CFR 22.26

All of the provisions and conditions of the governing regulations at 50 CFR part 13 and 50 CFR part 22.26 are conditions of your permit. Failure to comply with the conditions of your permit could be cause for suspension of the permit and/or citation. The standard conditions below are a continuation of your permit conditions. If you have any questions regarding these conditions, refer to the regulations and forms, or to obtain contact information for your issuing office, visit: <https://www.fws.gov/birds/policies-and-regulations/permits/permit-policies-and-regulations.php>.

1. This permit does not authorize you to conduct activities on federal, state, tribal, or other public or private property without additional prior written permits or permission from the agency/landowner.

2. You remain responsible for all outstanding monitoring requirements and mitigation measures required under the terms of the permit for take that occurs prior to expiration, transfer, suspension, revocation, or cancellation of the permit. Provisions for discontinuance of permit activity are outlined in 50 CFR 13.26.

3. You must maintain records as required in 50 CFR 13.46 and 50 CFR 22. Your records must also include the data gathered for monitoring and reporting purposes. All records relating to the permitted activities must be kept at the location indicated in writing by you to the migratory bird permit issuing office.

4. Acceptance of this permit authorizes the U.S. Fish and Wildlife Service to inspect and audit or copy any permits, books or records required to be kept by the permit and governing regulations (50 CFR 13.47).

5. You must allow Service personnel, or other qualified persons designated by the Service, access to the areas where eagles are likely to be affected by your project activities, at any reasonable hour, and with reasonable notice from the Service, for purposes of monitoring eagles at the site(s) while the permit is valid and for up to 3 years after it expires. (§ 22.26(c)(4))

6. The Service may suspend, or revoke a permit issued under this section if necessary to safeguard local or regional eagle populations. This provision is in addition to the general criteria for amendment, suspension, and revocation of Federal permits set forth in 50 CFR §§13.23, 13.27, and 13.28.

7. To renew this permit if the activities described in Condition D have not been completed by the expiration date of this permit, permittee must meet issuance criteria at the time of renewal and must be in compliance with permit conditions, including all monitoring and reporting requirements of the original permit. Permit conditions may be modified based on changed circumstances.

8. The U.S. Fish and Wildlife Service is not liable for any damage or injury to person, wildlife, or property that occurs as the result of carrying out the activities associated with this permit.

Last updated: 4/12/19